

Variables of Change: The DOD/DHS Relationship in a
Domestic Disaster Environment

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ABSTRACT

This study looked at the relationship between the Departments of Defense (DOD) and Homeland Security (DHS). Moreover, it reviewed the interface between their two subordinate organizations with primacy over domestic disasters, the U.S. Northern Command (NORTHCOM) and the Federal Emergency Management Agency (FEMA). Understanding the importance of intergovernmental relations (IGRs), the paper dissected the interrelatedness of the aforementioned organizations in regards to hurricanes and the subsequent involvement of federal preparation and response efforts.

The networked relationships were evaluated using a mixed methods approach focusing on secondary sources of data and several variables. Jones, Hesterly, and Borgatti (1997, 1) wrote of the importance of social systems (networks) when looking at bureaucratic relationships. The vitality of collaborative networks is grounded in literature and has been espoused by Waugh and Streib (2006, 134) in the world of emergency management; this study expanded on these and other works.

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INTRODUCTION

In the aftermath of the disastrous events that took place on September 11th, 2001 legislation was passed that created a separate department to coordinate the security of this nation. This new organization is known as the Department of Homeland Security (DHS). Yet the mandate for this organization included more than homeland security and prevention of terrorism. It included other missions which involved border management, immigration administration & enforcement, and cyberspace security (Chunovic 2010). It is also charged with the mission for domestic disasters both natural and manmade (Chunovic 2010).

Chester Barnard (1968, 40) stressed the importance of cooperation and coordination in 1938; his lesson is still applicable today. Barnard (1968, 42-44) proffered the importance of a concerted effort showing that this could also lead to both efficiency and effectiveness; this is true in public administration strategy especially with the federal government. Likewise, understanding all levels of interdependence and all associated horizontal and vertical interfaces are both important (Stephens & Wikstrom 2007). In contemporary times, President Obama has called for a

coordinated process among all levels of government in the realm of Homeland Security (NSS 2010, 18).

The attacks on September 11, 2001 produced a plethora of information on intergovernmental relations across the federal, state and local landscapes (Chertoff 1 2009, 22). Moreover, the United States realized that its system of stove pipes & proprietary programs, and the consternation associated with bickering among governmental organizations was a detriment to this nation's best interest (Haulley 2006, 24). Failures to effectively communicate, the lack of coordinated efforts, the provision of excess first responder capabilities at some locations, and the lack of capabilities at others became apparent over the weeks following the attacks. The Homeland Security Act of 2002 intended to eradicate (or at least mitigate) some of the challenges associated with hard lessons learned following that dreadful day in September of 2001. The establishment of DHS can be seen as a seminal change in the federal government; with it, the national government would become much more assertive than in any other time in U.S. history (Conlan & Posner 2008, 36).

The outset of the 2005 hurricane season saw DHS in a fully operational status; it had been so for two years.

All organizations identified and allocated to the subordinate structure of DHS were officially transferred under this department (Haulley 2006, 56). As one of the 15 federal departments, DHS was and still is responsible for all homeland security issues including disaster support missions within the U.S. borders (Haulley 2006, 7). What's more, DHS had conducted its first drill just two months after inception and had been battle tested during the 2004 hurricane season (Haulley 2006, 57). Bar none, DHS has been the lead federal agency (LFA) for Homeland Security; this clearly includes disaster relief functions in its repertoire of missions (Goss 2006, 5-6).

Quite frequently, the Department of Defense (DOD) renders support to domestic disasters. Though it often is relegated to a support role, the President has called upon DOD from time to time to support response efforts following a disaster; DOD can also assist immediately when exigent circumstances pose an immediate threat to life.

As of 2005, the DOD was in its fourth year of combat in Afghanistan, ensconced in what was arguably one of the deadliest years up until this time in Iraq, still had troop presence in Kosovo and Bosnia performing peace keeping operations, and maintained over 27,000 troops in South

Korea. It still possessed tremendous excess capabilities (in terms of resources and manpower) yet, DOD had remained quite reactionary until recent times in the context of domestic natural disaster relief operations.

PROBLEM

Naylor (2012, 30) stresses the importance of identifying problems and their relevance. On a regular occurrence, natural disasters strike throughout the world. In recent times, Asia has seen major destruction through the Tsunami and earthquake that struck South East Asia in 2004 and Japan's Tsunami in 2011.

The United States has also experienced disasters. McGuire and Schneck (2010, S201) go on to explain that a disaster ensues once the demand on a system outstrips the ability for a community to bring resources to bear on the problem.

Increasingly, people are locating on flood plains, along the various coasts, near mountain passes and other hazard prone areas; projections show that populations are projected to grow along the coast lines from a current 50 percent to nearly 70 percent by 2025 (BUR 2010, 5).

Longitudinally, the United States has experienced numerous natural disasters over its history. Earthquakes

and flooding have accounted for roughly seven and eight deaths respectively per year (Kahn 2012, 33). Likewise, an estimated 17 people and more than 60 on average are injured by hurricanes annually, and tornados account for another 80 deaths and 1000 injuries on average (McNeil 2012, np). In regards to wildfires, these have accounted for much fewer deaths, though extensive damage can occur to land structures; over a 10 year period ending in 2011, over 6.5 million acres were damaged on average yearly due to fires in the United States (Fire 2011, np). According to the Federal Emergency Management Agency (FEMA), from 2001 to 2011, the U.S. experienced a mean average of 69 major disaster declarations and 18 additional emergency declarations each year (Annual 2012, np). According to a Congressional primer on major disasters and emergencies, major disaster declarations result from the disaster or catastrophe taking place; conversely the emergency declaration is an attempt to protect property and life before an event ensues (McCarthy & Brown 2011, 1).

Likewise, there is a growing trend of centralization of response with regards to disasters; the U.S. policy pertaining to disasters is gravitating more and more towards the role and responsibility of the federal

government (Rubin 2007, 153). Understanding this and the fact that there has been an increase in the amount of declared federal disasters and emergencies requiring national level support, the federal government will most likely see a rise (not a decrease) of federal intervention whether it is strictly monetary support or where more intensive manpower and resources are required.

When the magnitude of impact exceeds the capability of local and state governments, the federal government can step in to assist (Leshinsky 2006). Though the national level government can provide tremendous capabilities, depending on how well efforts are coordinated has a direct impact on the overall effectiveness of response and recovery efforts. This was clearly the case following Hurricanes Andrew and Katrina (GAO-08-868T, 2008).

Rittel and Weber (1973) see problems as being either wicked or tame whereby the wicked ones are very difficult to define and prove. In the realm of hurricanes, clearly this is a problem where one would have trouble determining the extent to which preparation efforts paid off and the efficiency of response and recovery efforts.

Catastrophic disasters are ones most likely requiring federal assistance and remain the focus of this

dissertation. These are defined as events that overwhelm local and state governments' capacity to provide victims with life sustaining services (McCarthy & Brown 2011, 11). The United States is fortunate enough to have resources at all levels of government to assist in the disaster management cycle. Regarding the federal level in particular, the Departments of Defense (DOD) and Homeland Security (DHS) have rendered assistance on numerous occasions supporting major disasters. One consideration would be to look the relationship between DOD and DHS regarding effectiveness in domestic disaster support during the federal emergency declaration process, specifically within the continental United States.

Though deaths resulting from hurricanes longitudinally are less than other natural disasters, such as tornados, they warrant equal consideration due to cost and severity; moreover, hurricanes are more likely to generate both DOD and DHS response than other disaster types and the subsequent allocation of their personnel and supply/equipment resources. More than 2000 miles along the east coast and over 1600 miles of the Gulf coast are at risk for hurricanes; over 50 percent of the U.S. population lives within 50 miles of the U.S. coasts (NOAA 2012, np).

Moreover, hurricanes cover greater geographical areas and at extremes can wreak death and destruction exceeding most other disasters. Equally important, hurricanes can be predicted often days before making landfall thus action can be taken in advance to reduce loss of life.

Clearly, FEMA lacks the resources and authority to deal with disasters on its own (Waugh 1999). DOD also has many restrictions and limited authority on what support it can render until such time that it is authorized to act by the President. Comfort, Boin and Demchak (2010 232) write on the importance of the evolutionary and developmental understanding of disaster management in the context of public administration networks. In the field of intergovernmental relations, and by extension networking, disaster management has increased in prominence in the last decade (Meek & Thurmaier 2012, 1).

Quality research is underpinned through clearly defining the purpose to provide the scope of one's research (Naylor 2012, 30). The purpose of this research is to assess the effectiveness of the network relationship between DOD and DHS regarding domestic disaster relief efforts in the pre and post Hurricane Katrina environment. Specifically, this looked at two cases involving hurricanes: Hurricane Katrina

and Hurricane Irene. It will dissect several variables in an effort to demonstrate improved relations between these two departments.

Hurricanes account for many deaths and injuries and therefore warrant further consideration due to their extremes. For example, when looking at Hurricane Katrina, more than 1.5 million people were affected by this event (DHS Archives 2011, np). The storm also caused over \$100 billion in damage (O'Brien, Callahan, Haverty, & Clayton 2008, 10). It is because of the great destructive capability of these events that hurricanes were selected as a way to validate improvements in domestic disaster effectiveness. Though the monetary damage might not be avoided, deaths associated with these events could be substantially mitigated.

This study is important insofar as the federal response has a direct effect on the mitigation of life lost and human suffering. This author posits that the networked relationship between DOD and DHS has improved over the years in the context of domestic disasters. This project determines whether DOD and DHS have improved their performance since Hurricane Katrina through the successful implementation of networking and successful implementation

of domestic disaster legislation and policy. Though Comfort (2007, 189) covers the "three Cs" in emergency management and that this is commonly referenced in the literature, it lacks temporal ordering and inferences to causality.

It maybe a foregone conclusion that future disasters are a continuing threat. Capitalizing on the hurricane theme, this study provides a perspective of the federal efforts in contemporary times. Likewise, in the realm of public administration, the country has an ethical responsibility to take care of its people; public sector organizations and their resources should strive to work together in mitigating suffering and not exacerbating problems arising from organizational competition and/or lack of coordination (Gawthrop 1993).

PAST RESEARCH ON THE PROBLEM

Under disaster resilience, DHS is ultimately responsible for preparedness, emergency response and recovery (Chunovic 2010). These include manmade disasters and those caused by nature. Each disaster is unique with varying degrees of advance notice. For those disasters where the government has forewarning, it is possible to preposition resources to

help in the federal response. Hurricanes are a prime example.

In 2003, DHS came into existence (GAO-07-454 2007). As a nascent organization, it was put to the test in the wake of Hurricane Katrina in September of 2005. Under the mission and management area of emergency preparedness and response, the Government Accountability Office stated in a 2007 report that for performance expectations, the DHS only met expectations for five of the twenty-four categories (GAO-07-454 2007). Highlights of logistics readiness and response deficiencies were brought forward in this same report. Other issues were mentioned pertaining to the coordination with other departments and agencies vis-à-vis a national incident management system (GAO-07-454 2007).

Organizational evolution also occurred in DOD. This transformation was realized when the U.S. Northern Command came into fruition as a result of lessons learned following the 9/11 attacks; its responsibility included the provision of command and control of DOD efforts supporting homeland defense (NORTHCOM 2011, np). Under homeland defense, this combatant command is, in part, responsible for civil support cooperation. The command organizes and runs

civilian support missions, which include disaster relief support regarding hurricanes. Normally DOD does not become involved until after the emergency requirements exceed the capabilities of the primary lead agency whether local, state or federal (NORTHCOM 2011, np). As a result, DOD had found itself reacting to events often days after the hurricane subsided and relief efforts have commenced as was the case during both Hurricanes Andrew and Katrina.

This problem of being reactive is common for many government agencies but has exacerbated the complexities in rendering support in the case of the regulations constraining DOD which in turn inhibits the overall performance of DHS. This research builds on previous studies promoting greater effectiveness looking at several variables among these two federal entities. The understanding that results from this study will have direct implications for both measuring and enhancing effectiveness of the networked relationship between DOD and DHS while preparing for and responding to hurricanes.

DEFICIENCIES IN PAST RESEARCH

There were several deficiencies regarding past research. Most notably prior studies have focused on local

governmental relationships and state level efforts. Moreover, very little has materialized on research pertaining to improving the effectiveness of DOD and DHS in preparation for and in response to continental U.S. hurricanes. Though DOD espouses a desire to deploy capabilities, in most instances it will mobilize to assist only after local and state support is shown to be lacking and when subsequently directed to do so. Historically DOD waits for a federal emergency to be declared or will deploy to assist only after it is directed to do so by the President or the Secretary of Defense. This puts DOD in an untenable position of trying to react to the catastrophe while simultaneously mobilizing forces and moving capabilities to the affected area while other agencies and organizations have already set up and begun to provide support.

Coordination of collective efforts has been improved elsewhere in government, and in some of the lessons learned can inform of efforts to improve the effectiveness of the relationship between DOD and DHS. In time of disaster (when a state of federal emergency is declared), history has shown that DOD rapidly deploys capabilities to affected areas. To this end, quicker and more responsive

coordination and interaction are required between DOD and DHS to minimize loss of life and to reestablish normalcy following the event.

Provided that DOD has capabilities at the time of the incident, resources can be applied to the effort in a way to enhance federal effectiveness. To facilitate the interagency efficiency the DOD's Northern Command (NORTHCOM), a combatant command responsible for continental U.S. support, could deploy resources to assist DHS' Federal Emergency Management Agency's (FEMA) efforts, the agency charged with immediate preparation for and response to domestic incidents. Yet no research has surfaced considering these possibilities.

AUDIENCES TO BENEFIT FROM STUDY

Audiences that will benefit most likely include the U.S. Northern Command and the Federal Emergency Management Agency. Specifically, the study provides recommendations regarding the overall effectiveness in the networked relationship between DOD and DHS. Categorical variables are defined as those that describe items that will be measured (Remler & Van Ryzin 2010, 125 & 127-131). This study primarily considers the following categorical

variables: communications, planning, coordination, and collaboration in order to measure effectiveness. Thus, it is believed that DOD and DHS would gain greater situational awareness at the outset of an emergency to improve collective efforts achieving efficacy to reduce loss of life while compressing the timeline until normalcy is restored in the wake of a U.S. continental hurricane. It also looks at a myriad of quantitative and control variables to expand on categorical findings. The author posits that externalities of these findings might also have applicability transcending hurricanes; this could possibly be used for any U.S. continental disaster (whether natural or manmade) where the federal government has advance notice of the event which could involve DOD/NORTHCOM and DHS/FEMA.

REVIEW OF THE LITERATURE

FOUNDATION

Often nation states experience disasters resulting from acts of God that bring about a need for assistance vis-à-vis relief. Support comes from many origins in varying forms. Individual citizens (including the victims), local businesses and government often come together to help assess damage, restore order and provide assistance with the express intent of bringing the affected community back to pre-disaster conditions. This is evident in today's world. The United States has a rich history of taking care of its own. However, the annals of federalism shows that disasters and the ensuing post support relief operations have tested the efficiency, speed and effectiveness of governmental efforts; routinely, the national government has fallen short in this role (Landy 2008, S186). This research involves the exploration of literature showing the origins of the federal government's responses to natural disasters that have occurred throughout the history of this country. Moreover, it considers major actors, their contributions, debates and paradigms that have evolved from the country's founding to the early part of the 21st century.

Since the 1950s, the federal government has increased its role in the post disaster environment with evolutionary involvement by the Defense Department and the resultant Federal Emergency Management Agency in the late 1970s. It was not until 2003 that a new department (DHS) assumed overall responsibility for domestic disaster functions. This review of the literature also considers DOD and its supporting role. Consideration will be afforded to two subordinated organizations namely the United States Northern Command and the Federal Emergency Management Branch (sub organizations to DOD and DHS respectively). Literature as it applies to Hurricane Katrina to provide background on how the federal government handled situations leading up to and following that event will also be covered.

HISTORICAL PERSPECTIVE

Over the last 200-plus years, the federal government has burgeoned and sought improvements in the national ability to respond to natural disasters. Beginning with legislation, transitioning to organizations responsible for the management of pre and post disaster operations, and culminating with physical hands-on support, the United States has continued to seek improvements to its ability to

act in the wake of disaster. Though local and state resources have been called into action initially, there were times when the scope of a catastrophe transcended their governmental capabilities. Thus there has been a need to escalate requests for assistance. Hence, the federal government had a responsibility to render assistance to help in the effort to restore localities back to their pre-disaster posture. Contrarian views have existed. Often there has been resistance to federal intervention and the perceived intrusion on the affairs of the state and local governments.

19th CENTURY

It wasn't until the early 19th century that the federal government began taking action with disasters. What was arguably seen as the first intercession by the federal government occurred in the early 1800s when New Hampshire experienced extensive destruction emanating from devastating fires that engulfed Portsmouth (Leshinsky 2006, 14). What ensued was the passing of the Congressional Act of 1803 that included a provision obviating the need for merchants to pay tariffs and duties on goods imported into the United States. According to FEMA's historical database, this was widely considered the first time that

the national level government became involved regarding disaster assistance (FEMA Web 2 2011, np). Though the government did not directly contribute people and resources, this was widely seen as a seminal moment as the federal government set forth its responsibility to aid the victims of disaster. Congress, as a key actor, accepted the governmental role to help Portsmouth, New Hampshire reestablish its infrastructure to pre-fire condition. In similar fashion, Congress often waived tariffs and duties to the businessmen (merchant) as was the case in New York City following the Great Fire of New York in 1835 (FEMA Web 2 2011, np).

Throughout the next 150 years, Congress continued to assist. This branch of government continued to pass legislation with regards to floods, earthquakes, hurricanes and other disasters; this happened over 100 times (Leshinsky 2006, 15). However, the direct support provided (in terms of manpower and equipment) during these intervening years (1830s to the 1950s) remained limited. There were neither formal processes nor were there procedures implemented at the federal level for the standardization of relief support until much later (Leshinsky 2006, 15).

It was also in the middle of this period that another relevant piece of legislation came into fruition. In 1887, Congress passed the Posse Comitatus Act (Title 18 U.S.C. § 1385), a law targeting the United States military branches. This law still applies today (Posse 1878, np). Specifically it expressly prohibits the use of the military to perform domestic law enforcement functions (Posse 1878, np). Precluded from performing in these roles, the military can only legally execute these functions on U.S. military installations. In the aftermath of disaster, from 1887 onward, the military has not been able to perform said functions even though local and state police forces may neither be staffed nor resourced for the magnitude of problems arising from natural catastrophes without the express approval of Congress.

With the birth of the Progressive Era, this nation moved towards a greater involvement of resources applied to various disasters. Wilson (1887, 18) underscored this; he is often credited with the premise that the federal government should take on greater responsibility with a more hands on approach in the context of an increasingly more complex form of government.

In most instances during the late 1800s and throughout

much of the 20th century, the federal legislature would react in an ad hoc fashion. Standardization of relief still did not exist nor was there a single federal organization charged with the oversight of disaster relief functions. Oftentimes, Congress would direct either the entities charged with federal financing or the military to respond to the effects of hurricanes, tornados, fires, earthquakes and other natural disasters.

EARLY 20TH CENTURY

It wasn't until the 1930s that the codification of disaster procedures really came into existence. Though no single organization surfaced as the lead for disaster relief, movement was working in that direction. Moreover, it was during this time that government (at the federal level) saw the importance of its role in helping affected areas to recover from devastating floods, hurricanes, tornados and fires. The birth of several organizations took place as the national government continued to grow. Increasingly, the government at the federal level was becoming more and more involved in the realm of disaster relief.

As the nation matured and moved towards the Scientific

Management and Human Relations periods of public administration, one could infer that the federal government, too, moved in a more specialized direction. Frederick Taylor (1912, 37) went through the notion that a division of labor was in the best interest of the organization. He continued by implying that through functional areas and special training, individuals (and by extension, the organization as a whole) could grow and become more effective (Taylor 1912, 36). This was evident in the national government breaking down functions into more discernible areas where specialization could burgeon.

Another key event pertaining to the federal government's response to disaster occurred in 1932 with the creation of the Reconstruction Finance Corporation (FEMA Web 2 2011, np). Financial assistance was required to help restore public works and other functions back to pre-disaster levels. The injection of disaster assistance funds helped revitalize local economies as the residents looked to rebuild and reestablish business following natural disasters. The Reconstruction Finance Corporation was pivotal in this. This organization was charged with dispersing of federal money to help stimulate the nation's economy. The Reconstruction Finance Corporation

transcended economic recovery; it also served as the country's first disaster response agency serving as the precursor to the Federal Emergency Management Agency (FEMA Web 2 2011, np).

The 1930s brought about the implementation of another federal organization, the Bureau of Federal Roads (1934) that assumed responsibility for opening roads following natural disasters (FEMA Web 2 2011, np). Since land lines of communication were paramount for the successful distribution of aid at the time, this governmental entity ensured that critical food sustenance and other relief supplies could flow to critical points to mitigate suffering following disaster. To that end, this organization was given the authority and responsibility to ensure that roads were traversable and cleared of debris.

It was also during the 1930s, another actor on the federal stage took on an incremental growth in its mission. The Army's Corp of Engineers undertook increasing responsibility moving outside of the traditional sphere of military missions. In 1936, as a result of The Flood Control Act, this Army element was charged with having the authority over issues pertaining to floods. Thus, the concept of flood control was born (FEMA Web 2 2011, np).

The Corps of Engineers was responsible for flood fighting, emergency work on projects involving flood control (building and maintaining and levees either destroyed or damaged by flooding) and rescue operations (Burgess 1957, 75).

The literature review now moves into the period of the Government by the Administrator. During this period in public administration, federal organizations were charged with greater disaster assistance responsibility and more organizations with greater specialization came into being. It is also during this time, that the federal government continued to increase its role in exerting influence and participating in support following a natural disaster.

MID 20TH CENTURY

The national government's formalization in disaster relief was furthered with the passing of the Disaster Relief Act of 1950. Upon its enactment, the legislation saw the emergence of an integrated federal disaster law for the first time (Leshinsky 2006, 15). Kringel (2009, 11) covered the notion of incrementalism when he wrote that the public's attitude towards federal responsibility following a disaster grew from an idea that in the public's opinion

the government should step in when it had the capability to do so. This notion was reinforced over the years as the U.S. government became increasingly involved in the aftermath of disaster. The key tenet of this law demonstrated transference from Congress to the President the responsibility for coordinating federal response efforts. In the following year President Truman enacted Executive Order 10221. This order (specifically paragraph 1, b.) allowed the President to use any government agency and its resources (supplies, personnel and facilities) to coordinate relief response following an incident (EXORD 2010, np). Not excluded was the Army; surprisingly there was little resistance from the department (Kringel 2009, 11). However, the Army lacked the staffing (and knowledge) to run and coordinate such efforts at this time (Kringel 2009, 10). By the 1950s the military (and in particular the Army) was often well suited to support disasters due to the dispersion of military installations throughout the United States and its manpower and equipment often left the military in a tenable position to provide support (Burgess 1957, 71).

An umbrella organization, The Federal Civil Defense Administration would essentially coordinate and control

such efforts for the national government (Burgess 1957, 73). Only after local and state efforts were exhausted and a need for assistance continued, could these lower levels of government seek assistance from the military by way of the Federal Civil Defense Administration (Burgess 1957, 73). Though this relief assistance might appear paradoxical to the standard mission set of the military, Burgess (1957, 72) went on to write that the military during this time prided itself on its ability to contribute favorably to disaster relief missions. In 1954, the military once again was put to the test as it provided support in the wake of three east coast hurricanes: Carol, Edna and Hazel (Burgess 1957, 72). As the 1950s continued, the military began reinforcing a precedent whereby it was able to provide support while increasingly called to do so.

Throughout the late 1950s and continuing into the late 1970s various federal efforts emerged to change levels of responsibility regarding what organization would take the lead for natural disasters. These changes occurred at both the civilian levels of government and in the military. The most notable transfer included the establishment of the Office of Defense Mobilization (ODM) in 1950, the Federal Civil Defense Administration (implemented through Executive

Order 10186) in 1950, the reestablishment of ODM in 1953 (Reorganization Plan of 1953), and the renaming of ODM as the Office of Civil Defense Mobilization (OCDM) through Executive Order 10773 in 1958 (Leshinsky 2006, 17). Still, support to natural disasters was essentially ad hoc.

Minor, mostly administrative changes occurred in the 1960s. The federal role in disaster assistance continued its evolution, and certain tasks were returned to DOD in 1961 (Leshinsky 2006, 17); the Office of Civil Defense (OCD) as a disaster proponent was implemented within DOD this same year. In this same year, OCDM changed names to the Office of Emergency Planning - OEP (Leshinsky 2006, 17). Congress once again changed OEP's name in 1964 changing to the Office of Emergency Preparedness (Leshinsky 2006, 17). Rounding out the decade and following Hurricane Camille (a U.S. Gulf Coast hurricane) the federal government's role in disaster relief expanded through the passing of the Disaster Relief Act of 1969 (Leshinsky 2006, 17). The key provisions included matching funds to states in the planning of local and state aid to those affected by disaster losses. It also required the appointment of a single federal-level coordinating officer for each major disaster to fix responsibility with an administrator to

oversee the recovery efforts. At the federal level, one saw an attempt by the national government to assign responsibility with a single person to oversee the administration of relief efforts on the part of the national level government for the first time.

LATE 20TH CENTURY

The Office of Civil Defense was disbanded in 1972; the Defense Civil Preparedness Agency was stood up in DOD as its replacement (Leshinsky 2006, 17). However, it was not until six years later that meaningful change took place. Under the Reorganization Plan number 3 of 1978, President Carter proposed that certain disaster functions held by the Departments of Commerce, Defense, Housing and Urban Development change. The next year called for a new organization namely the Federal Emergency Management Agency or FEMA to lead federal disaster response and recovery efforts (Leshinsky 2006, 17).

FEMA assumed the disaster missions from various federal organizations. Specifically, the agency pulled under its umbrella the Federal Insurance Administration, the National Weather Service Community Preparedness Program, The National Fire Prevention and Control Administration, the

General Services Administration, Federal Disaster Assistance Administration and the Federal Preparedness Agency (FEMA Web 2 2011, np). Even the Defense Civil Preparedness Agency was absorbed under FEMA's purview (FEMA Web 2 2011, np). This was critical to the establishment of unity of effort especially in the realm of natural catastrophe relief. Underscoring the premise of a single leader in charge of each crisis, a federal agency was tasked with the responsibility for overseeing relief operations in a concerted way. Throughout the next two decades, FEMA would be tested in the capacity of leading efforts regarding disasters.

As FEMA grew in the 1980s the public administration field was continuing its transition through the Rediscovery Period. It was during this time that the Emergency Management System came under attack. Drabek (1985, 86) looked at six disasters (and the search and rescue efforts that ensued). In his writing, he stated that emergency managers must have a clear picture of the situation (Drabek 1985, 86). Though this is a straightforward goal, oftentimes trying to achieve it serves as an exercise in futility. Understandingly clarity is a desired goal, realizing it could be a little more precarious. Moreover,

the author believed that six strategies were required to enhance interagency coordination (Drabek 1985, 90-91). These strategies involved first a process framework to approach disaster planning (Drabek 1985, 90). Essentially, this framework served as a nexus for a plan. Second, there was a need for warning functions and responsibilities (Drabek 1985, 90). This went hand-in-glove with open communications among all parties involved in disasters. Information sharing was paramount for deconflicting efforts and minimizes waste especially when turning to catastrophes. Third, emergency operation centers were seen as imperative to coordinate efforts (Drabek 1985, 91). Yet it was not enough to have clear and open coordination. What was of equal importance was allocating resources to areas that need the assistance in a tailored way. This has helped reduce resourcing certain locales while neglecting others all together.

This capitalizes on what Barnard (1968, 40) wrote when he referenced the importance of cooperation and coordination. Barnard (1968, 42) continued while furthering the notion of simultaneity of effort showing that a concerted effort by all applicable parties is important. This coordination will help lead to efficiency and effectiveness (Barnard

1968, 43-44). Next, exercises to rehearse and prepare for disasters within the community were seen as essential. If key personnel from the federal stakeholders in disaster relief fail to rehearse prior to disaster, then the challenge of working out problems on the ground exacerbate relief efforts. A fifth element involved central decision making through the initiation of structural adaptation (Drabek 1985, 91). Finally, there was a need to coordinate recovery decisions (Drabek 1985, 91). Because disasters involved several actors across the governmental continuum, the nature of the structure involved in disaster relief is quite complex involving a composite of subordinate organizations.

The Stafford Act (Public Law 93-288) was signed into law in 1988. More formal procedures were put in place providing for the statutory authority for the use of military forces in support of domestic relief operations gravitating around disasters evolved from this legislation (Kringel 2009, 20). It further specified that the armed forces could participate in various missions. These included search and rescue, the provision of medical care and shelter, road clearance, removal of debris, and supplying of food & water (Kringel 2009, 20). The Stafford

Act further reinforced the provisions originally specified under Posse Comitatus.

What is even more interesting is that Congress allowed the President to use the military to support relief in the interest of preserving property and life following a disaster. Congress relegated control to the President for making a determination as to when to deploy military to aid in efforts to assist state and local governments in the wake of natural disaster. This support can continue for up to 10 days before the President was to declare a state of emergency (Kringel 2009, 20). If a state of emergency was not declared or if the immediate response was met (and state and local governments are able to sustain support efforts autonomously), then the military must redeploy their capabilities. This 10 day period provided greater flexibility to emergency responders especially when it came to preserving life. Nevertheless, the military was precluded from acting until after the event had transpired.

With the arrival of the 1990s, public administration moved into the New Public Management era. Accordingly, FEMA became increasingly involved in disaster relief missions (both natural and manmade). One of the most notable events took place in 1992. During the late summer

of this year, Hurricane Andrew struck Florida inflicting tremendous damage. On August 24th, the storm damaged over 60,000 units of housing; more than 47,000 units were severely damaged (Zhang & Peacock 2010, 7). This left some 180,000 people homeless (Zhang & Peacock 2010, 7). The cities of Homestead and Cutler Ridge received the brunt of this storm's wrath. One of the areas that FEMA is charged with pertains to housing recovery. The federal government was partly responsible (shared with Florida and local governments) for dispensation of recovery efforts along some ethnic and income lines (Zhang & Peacock 2010, 19-20). Other challenges were brought to light as the recovery efforts unfolded. The military as an institution did not respond in earnest until five days after the storm's impact. Elements of the 24th Infantry Division, the 82nd Airborne Division and others were not officially tasked to deploy until August 29th as this author personally experienced. Once deployed, it took time to gain understanding into who exactly was in charge of response efforts and who was responsible for what specified areas of support. However, there was a positive lesson learned from this catastrophe. FEMA and other federal organizations learned the importance of working together not just along

national lines but with and through state and local governments as well.

21ST CENTURY

Additive improvements have continued in the 21st century demonstrating prescience before this type of event. FEMA even went as far as prepositioning both supplies and personnel prior to a storm making landfall in the 2004 hurricane season (Cole, Corbett, McCullough 2004, 5). Supplies included water, ice and emergency housing; medical assistance was also made available (Cole, et al 2004, 5). Other federal agencies provided assistance. These included the U.S. Department of Agriculture and the Small Business Administration (Cole, et al 2004, 5). Even the Internal Revenue Service assisted by extending the tax filing deadline for those in the designated disaster area (Cole, et al 2004, 5). It became increasingly apparent that the continuance of efforts at the national level was a necessity to help in time of crisis though intergovernmental coordination; challenges, however, still existed.

CONTEMPORARY PERSPECTIVE

Drabek (1985, 45) wrote on the importance of intergovernmental coordination. Essentially, he called for among other things, effective communications, planning, and coordination vis-à-vis acquiring situational awareness, sound decision making and the understanding of responsibilities and by extension organizational goals and objectives (Drabek 1985, 45). Moreover, McGuire and Schneck (2010, S204) espouse the notion that disasters transcend singular organizations and involve a multitude of actors to assist in the response and recovery efforts.

ORGANIZATIONAL UNDERSTANDING

In contemporary times, it has become incumbent upon senior public leaders to understand not only their own organization, but to come to terms with a general understanding of external departments and agencies with whom they must work (Rainey 2003, 5). Oftentimes, organizations are inextricably linked to one another, if for no other purpose but to leverage resources and capabilities especially in a period of history where austerity measures are occurring. Gone are the days where duplicity of resources exists; now more than ever organizations must move away from profligate tendencies and see the interconnectedness regarding the pursuit of common

outcomes and the utility in working together to improve overall effectiveness.

What is troubling though is the notion that large bureaucracies are perceived as being inept and replete with ineffective practices with a proclivity to blunder (Rainey 2003, 11). Exacerbating the problem is the ineffectiveness of the political process to facilitate meaningful change to bring about efficacy in public sector organizations (Rainey 2003, 12).

Environmental considerations and the understanding thereof are paramount for organizational success (Rainey 2003, 79-80). This is particularly true for large public sector departments that are comprised of numerous subordinate entities; higher level organizations should exercise caution so as to not inhibit the effectiveness of their subunits (Rainey 2003, 80). This also transcends the organization and applies to external stakeholders as well (Rainey 2003, 117). Understanding the inner workings of a network is extremely important for the organization in particular when conducting strategic planning (Rainey 2003, 148). To the greatest extent possible, departments and agencies should learn to cooperate among themselves and minimize friction (Rainey 2003, 117). Elmore (1980, 608)

stresses this when writing on the challenges associated with problem solving when organizations view relationships solely in a hierarchal manner and fail to take into account interdependency among peers.

Relevant to this topic is the field of network theory which has gained prominence in recent years (Berry, Brower, Choi, Goa, Jang, Kwon, & Word 2004, 539). The interconnectedness among organizations has shown that entities do not operate autonomously especially at the federal level. Actions by one can have secondary and tertiary effects on others. Social network theory is often useful and has merit when turning to strategic interactions among multiple actors within a network (Sabatier 1986, 33). Likewise, power can be controlled, attained or denied by organizations through their interactions with one another (Berry, et al 2004, 541). What's more is that managers, specifically those in the public sector, must remain adept at negotiating through the nuances of political pressures and other constraints to work through issues among the plethora of actors to assist with planning efforts (Rainey 2003, 17). Likewise, networking can successfully foster communications among the various parties.

GOALS

The process begins with goals and their understanding. Even public sector organizations require goals (Rainey 2003, 134). Yet Lee, Rainey, and Young (2009, 457) go on to inform readers that government often lacks such clarity of purpose when arrayed against private sector organizations. Organizational goals are useful in creating conditions through which departments and agencies bring into fruition desired effects (Rainey 2003, 130). They are also useful at building up to the *raison d'être* of the organization (Rainey 2003, 130). Goals provide directions and serve as a catalyst to rally workers through manageable subcomponents to a concerted effort to meet mission expectation all the while working to grow toward the vision (Rainey 2003, 131). Plans are often underpinned by goals.

Federal agencies, in particular, should turn to goals to help guide any work towards the malleability of their organizations. Chun and Rainey (1 2005, 529) accentuated this through a survey dating back to 2000 (National Partnership for Reinventing Government Survey). Through this data, both authors looked at variables to help measure the ambiguity of goals within federal organizations and their performance (Chun & Rainey 1 2005, 529). What the authors found was that the more esoteric the mission

statement, the more likely that goal ambiguity would arise (Chun & Rainey 1 2005, 546-547). In a separate journal article, these two authors reinforced the premise that mission statements should be understandable and unambiguous in order for the organization to be more effective (Chun & Rainey 2 2005, 12). Likewise, there was a propensity for organizations that had complicated missions and unclear goals to have guidelines and directives that were also vague and difficult to understand (Chun & Rainey 1 2005, 549).

It is also useful for departments and agencies to understand the goals and missions of the organizations with whom they work. Through a clear understanding of what is expected of sister organizations, leaders in one's own department or agency can develop procedures through which they can communicate, coordinate and plan to enhance overall collaboration and thus becoming more effective with the other.

CONNECTEDNESS

Effective organizations must understand the interlinking with others to be truly successful. Rainey (2003, 402) looks at various propositions regarding effective public organizations. Moreover, it is through a shared

understanding of the vision and mission of collective partners that organizations become more effective in a holistic sense rather than operating as independent and autonomous actors (Lester & Krejci 2007, 90).

Specifically, Rainey (2003, 402) states that in addition to garnering public support and favorable opinions, organizations must come to terms with seeing the utility of partner relationships. Seemingly, public sector organizations must become adept in networking (Rainey 2003, 402). All stakeholders should be on the same page when called to work together (Lester & Krejci 2007, 90).

The external stakeholders intertwined throughout the network can possess not only general influence over the organization in question, but also affect the degree to which such influence can be successful (Lee, Rainey & Young 2009, 457). It is with an understanding of compromise and the reality that organizations cannot conduct unilateral operations that organizations are more likely to bring about success. Lee, et al (2009, 459) argue that though an organization might want to conduct business differently (if operating in a strictly autonomous environment), the reality is that organizations should still strive to

maintain identity and relevance when doing so even amidst compromise.

There are pitfalls vis-à-vis overly assertive external stakeholders. Large organizations in general and federal agencies & departments in particular should be cautious so as to not totally assuage to the power and influences of others in the network (Lee, et al 2009, 462).

Organizations should periodically step back to ensure they are not reducing their own vitality to the extent that the organization ceases in being effective while trying to work well among the other constituents (Lee, et al 2009, 465-467).

The importance of intergovernmental communications, planning, coordination and collaboration between the DOD and DHS are important in achieving collective goals and objectives through social networking. Short of assertive presidential control, no other individual or department has direct oversight and command over these two organizations.

APPLIED LITERATURE

This portion of the literature review will narrow the focus on DHS, FEMA, DOD and NORTHCOM. Specifically, it will also look at overall missions for dealing with the ensuring of resilience to disasters (which primarily falls

to DHS). Secondly, the review will consider FEMA and its evolution in the post 9/11 environment. Third, this chapter will look at DOD and by extension NORTHCOM and their missions as they pertain to disasters. Once the foundation has been set, the paper will segue briefly into Hurricane Katrina and how this seminal event has since changed these three organizations.

DEPARTMENT OF HOMELAND SECURITY (DHS)

President Bush announced on September 20th, 2001 that he was standing up DHS (Haulley 2006, 56). In March of 2003, a transformation took place; it became fully operational with the transfer of recently subsumed subordinate organizations to its control (many of which were stand-alone prior to 9/11) under its daily control (Haulley 2006, 56). Essentially, the department would advise the executive branch on security matters.

Tom Ridge, the former governor of Pennsylvania, was charged with bringing this nascent organization into existence (Haulley 2006, 56). Stated another way, the President determined that the coordination of U.S. domestic national security should fall under this latest department. Moreover, DHS was given primacy over four missions: (1) to reduce the vulnerabilities associated with border security,

(2) implement a damage mitigation strategy while simultaneously improving the speed of recovery after a catastrophe, (3) to develop technology associated with antiterrorism efforts and, finally, (4) to review intelligence collection efforts from all government agencies (Haulley 2006, 9). This organization was also charged with lead coordination in response to disasters. Whether natural or created by acts of man, responsibility was fixed with DHS and it was put in charge with the mission of ensuring that national resources (at the federal level) would work collectively to help recovery efforts.

In the wake of the terrorist attacks on September 11th, 2001 the federal government determined that the coordination of national security should fall under the purview of one department. Moreover, this organization would help facilitate the federal response efforts to disasters. Whether manmade or the results of nature, DHS was charged with the task of ensuring that national resources (at the federal level) would work in a concerted effort to help recovery efforts. Founded in 2003 as a result of the Homeland Security Act of 2002, DHS had a primary mission (mission five) for ensuring resilience to disasters (Maurer 2012, 16). Moreover, the four supporting

goals of this organization included hazard mitigation, preparedness enhancement, emergency response effectiveness and rapid recovery (QHSR 2010).

Still a relatively incipient organization, Homeland Security has burgeoned since its inception in 2002. DHS emerged as a prodigious department. In terms of manpower, this behemoth ranks third below DOD and the Department of Veterans Affairs (BLS 2011, np). The Executive Branch and Congress have relegated to it the responsibility as the lead federal agency (LFA) for all things related to homeland security (Goss 2006, 5-6). This includes among other core competencies, the oversight and lead for domestic disaster support (both manmade and natural).

As a result of the reorganization in 2003, DHS took over responsibility for several organizations. In total, 22 organizations fell under the responsibility of the newly formed DHS (Comfort 2007, 190). DHS assumed, among others, two formerly autonomous organizations. These two organizations were the Federal Emergency Management Agency and the U.S. Coast Guard though the U.S. Coast Guard can answer to the DOD in time of war (DHS Structure 2011, np). FEMA and the Coast Guard would assist in helping prepare the nation for pending natural disasters and subsequently

assist in relief operations.

Overall, one department has the lead for U.S. based disasters - DHS; this department strives to assist in preparation efforts and reacts to all hazards emanating from disasters during the response phase (Strat Plan 2008). When considering the disaster context, this organization helps coordinate relief efforts to all types of domestic disasters and leads a unified effort to response and recovery. It also implements outreach programs before the disaster even occurs (Henderson 2009, 5).

However, all the preparatory measures in the world will not prevent the occurrence of disasters. Likewise, DHS acknowledged in its strategic plan that it is impossible and impractical to protect everyone from all known threats; it is simply cost prohibitive (Haulley 2006, 27). However, the plan was consistent in what had been covered by other literary sources regarding response and recovery. It drew attention to the priority of preserving lives and property while simultaneously working to restore communities and their respective services following a significant event (Haulley 2006, 19).

The strategic plan also attempts to quantify its performance. It does so by establishing percentages and

hours for responding to and meeting the needs of those suffering in the wake of a disaster (Haulley 2006, 20). Though significant in size, DHS has a predilection towards quantifying its outcomes. This is an effort by the organization to support and comply with federal legislation notwithstanding the Government Performance and Results Act (GPRA) and the Program Assessment Rating Tool (PART) which mandates not only reporting on results but helps hold government accountable for spending.

To more aptly inculcate a sense of collaboration, DHS actively seeks relationships with stakeholders outside of the department's purview. Purportedly it is supported by the department's acknowledgement that it has reached out laterally and horizontally to other departments and agencies with which DHS could logically interface (Haulley 2006, 31). As it stands today, approximately 180,000 men and women fall under the umbrella of this department; as previously stated it is the third largest in the federal government.

The organization is replete with complexity. It is arguably one of the most intricate and divergent structures at any level of government with seemingly competing

organizations rolled into the fold (Waugh & Tierney 2007, 170).

In contemporary times, DHS has sought to improve. As is the case with many large organizations, and corroborated during testimony before Congress, GAO has found that improvements have been made and often take years to take effect; DHS continues the trend to seek self improvements (Maurer 2012, 2).

DHS conducted an extensive bottom up review and released a report in July, 2010 (BUR 2010, Cover). In the report's executive summary, the department stated that it must strengthen its ability to perform missions and more effectively run the organization and its ability to supervise subordinate agencies (BUR 2010, vii). The report continued. It further stated during domestic disasters, that the execution of the response will be performed by the Federal Emergency Management Agency (BUR 2010, xi). In doing so, it charged this agency with the specificity of field coordination, disaster logistics, and the administering of assistance programs (BUR 2010, xi).

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

The Federal Emergency Management Agency (FEMA), located under the parent organization DHS, is a fairly mature

organization whose existence dates back to the Carter administration in the late 1970s. Under the Reorganization Plan 3 of 1978, a proposal was put forth by President Carter to stand up the Federal Emergency Management Agency (FEMA); this brought about an executive order officially creating FEMA in 1979 (EXORD 2, 2010). What resulted was a federal organization charged with being the sole leader facilitating unity of effort in the wake of a natural or manmade disaster (Rubin 2007, 161).

Ostensibly FEMA continued in this role until the establishment of DHS over two decades later. Rubin (2007, 111) provided amplification when she states that FEMA would address the mitigation, preparedness, response and recovery phases of the disaster management cycle.

This organization has repeatedly been called to duty for the express purpose of leading and assisting with domestic disasters. Executive Order 12127 served as the impetus to amalgamate disaster related responsibilities under one organization (FEMA Web 2 2011, np).

FEMA proved itself on numerous occasions. It had a particular penchant for mobilizing volunteers and contractors meeting the needs of local and state governments during various disaster relief missions (Rubin

2007, 111). The agency provided critical support to a full spectrum of disasters; these included wildfires, hurricanes, earthquakes, floods and volcanic eruptions (Rubin 2007, 112). Support transcended the natural and even included management of the World Trade Center bombing in 1993 and even the attack on the Murrah Federal Building in 1995 (Rubin 2007, 113). Another salient point was that FEMA was one of only a few legacy DHS organizations that had established relationships among both federal and state level governments prior to being folded into the DHS structure (Sylves 2008, 140).

FEMA also remained skilled at keeping politics at bay. It fostered relations among the intergovernmental continuum through the use of Performance Partnership Agreements (PPAs) and Memorandums of Understanding (Sylves 2008, 115-116). Moreover, these tools helped keep FEMA at the forefront of stakeholders involved in the business of emergency management.

However, FEMA over the years has had its shares of challenges. Aside from Hurricane Katrina, which will be explored in great detail later, the agency was quickly blamed for its poor response in an event that stretched FEMA in August to September 1992. Hurricane Andrew struck

South Florida with a vengeance; due to FEMA's mismanagement of the crisis, it was often blamed for slow response and recovery efforts (Sylves 2008). At times, the organization had vacillated between perceived mission success and failure.

FEMA still serves as the primary federal agency responsible for responding to natural disasters (in concert with DHS). It has though been relegated to the role of an underling subordinated to DHS since 2003 rather than an independent agency as it had been since its establishment in 1979 (Murphree, Reber & Blevins 2009, 278). Yet FEMA still has the responsibility coordinating relief efforts, initiating mitigation strategies, training first responders, and working with local and state emergency managers (Murphree, et al 2009, 290). Though the literature shows that FEMA struggles to fit into the new structure, history has demonstrated that FEMA has utility and in contemporary times, even provided value to efforts regarding many disasters with one notable exception - the 2005 Hurricane season (Waugh & Tierney 2007, 312).

FEMA remains a focal point - the center of gravity when it comes to domestic crisis and emergency planning regarding domestic crisis (BUR 2010, 27). Accordingly, it

leads the national effort to prepare for, protect against, respond to, and recover from risks associated with disasters. Longitudinally, disaster intervention by the federal government is increasing while at the same time, risk of disaster also appears to be on the rise.

DEPARTMENT OF DEFENSE (DOD)

As previously established in the literature review, was the notion of the importance of the DOD and its ability to resource disaster recovery efforts (with personnel, supplies and equipment). Though DOD has a predilection for the more traditional military mission of fighting this nation's wars, DOD has a storied history of support to this nation domestically in times of emergency. The term was until recently Military Aid to Civil Authority or MACA (Kringel 2009, 3).

The military historically had not included disaster response as a primary mission set. Specifically, the current DOD missions broadly include the protection of the United States against external aggression and attacks, preventing surprise attack and conflict and finally to win when confronting an adversary (Kringel 2009, 3).

DOD's involvement in disasters dates back 150 years. When looking at the period between 1868 and 1898, the Army

responded to numerous acts of nature. During this inclusive period, it provided assistance following the aftermath of natural disasters on 17 occasions (Kringel 2009, 10). Notable examples of Army support include flood relief assistance in 1889 in Johnston, Pennsylvania, in 1912 along the Mississippi River, in 1915 in Galveston, Texas and in 1927 in the State of Vermont (Burgess 1957, 72). It is because the Army had a presence dispersed throughout the United States that it was enabled to respond quickly to the ensuing disasters. This furthered its ability to respond and included the military resources in terms of people and supplies.

Increasingly over time, the military became involved in nontraditional missions. In the 1930s, the Army's Corps of Engineers took on greater responsibility. As a result of The Flood Control Act, in 1936 the Corps of Engineers undertook responsibility regarding flooding. Subsequently, the concept of flood control came into fruition (FEMA Web 2 2011, np). The Corps of Engineers assumed responsibility for flood fighting, emergency projects work involving flood control (including the building and maintaining of levees either damaged or destroyed by flooding) and rescue operations (Burgess 1957, 72).

The federal government formalized disaster relief and the government's role with the establishment of the Disaster Relief Act of 1950. After passing Congress, this legislation saw the emergence of a federal disaster law for the first time (Leshinsky 2006, 15). This act authorized DOD to respond militarily to disasters so long as the President declared a major disaster (Burgess 1957, 72). However, the DOD support is usually limited to the emergency period and most likely only during times where starvation, extreme property loss and suffering exists; once order is restored and other actors can assume responsibility - DOD should extricate itself from the mission (Burgess 1957, 72). Furthermore, support of DOD is usually only requested when state and local resources prove to be inadequate (Burgess 1957, 72).

From 1950 onward, DOD was periodically restructured to address needs associated with its role in disaster relief. Accordingly, various offices at the department level were created to help deal with these functions. That said, the execution of support to disasters and catastrophes still appeared to be ad hoc.

MACA comprises three types of missions. First, there is the Military Support to Civil Authorities which involves

support as it directly pertains to natural disasters among other things (Kringel 2009, 6). The second and third relate to support to civilian law enforcement (with an emphasis on support vice lead), and military support in relation to civil disturbances (riots, suppression of insurrections and assisting states in law and order) which could pertain to relief efforts following a disaster (Kringel 2009, 6).

However, MACA is not too insightful. Essentially, it reverts back to what was previously stated in this literature review when Burgess (1957, 72) informed readers that the military will only become involved when local and state resources prove inadequate and when a formal request for support was routed to DOD (Kringel 2009, 7). In recent years, a clear end state should also be articulated to DOD along with clearly defined goals when requesting the military to aid in civil support operations (Goss 2006, 9).

Regarding DOD, among its many missions, the policing of airspace and waterways contiguous to the United States and its territories falls under the purview of this department. As the largest federal department, it has a surfeit of human and material resources that can support a myriad of functions. Though not a traditional responsibility, DOD

has increasingly become involved in homeland defense and disaster relief and recovery operations in recent times (Burgess 1957, 72). Especially regarding exigent circumstances such as disasters which include hurricanes, DOD has routinely found itself at the center stage for the provision of assistance (Burgess 1957, 72).

In contemporary times, DOD lends credence to the notion of civil support and other nontraditional mission sets; though this was formerly seen as anathema by senior military leaders to the way DOD traditionally operated, it has improved and even increased its support to civil authorities over time. To better dissect this topic, one could turn to military doctrine. In its Joint Operation Planning joint publication (JP 5-0), the Joint Chiefs of Staff fully acknowledge the services, the combatant commands, and other joint task forces under the DOD architecture as being responsible for not only collaborating with multinational partners, but other federal agencies and departments as well (JP 5-0 2006, i). Moreover, as a joint publication, it is authoritative in nature and supersedes the doctrine of the Army, Navy, Air Force, and Marine Corps when confliction occurs (JP 5-0 2006, i). Specified in this document DOD has a role in

contingency support to both manmade and natural disasters (JP 5-0 2006, I-17). This department accepts the premise that through crisis action planning, DOD must prepare for and respond to, among other things, natural disasters and other national level incidents occurring within the borders to the United States and its territories (JP 5-0 2006, I-19).

Turning to Joint Operations, Joint Publication 3-0 (JP 3-0) provides some illumination on the types of missions rendered by DOD. In the disaster, emergency, and consequence management spectrum, out of the 20 types of military operations U.S. forces can be called into action to support, four of these apply: homeland defense, civil support, consequence management, and recovery operations (JP 3-0 2010, I-7). Though DOD covers these missions what is lacking is an enumeration on its role in supporting civil authorities, to wit - DHS. Chapter V of this publication provides a cursory description on supporting civil governance but addresses so at an international level and fails to address if, or when, the military could fall under DHS control.

The Army has weighed in on addressing the military's role in its field manual on civil support operations. Though

the joint regulations provided codification on the execution of military assistance to civil authorities, the Army openly acknowledged that as recently as 2010, capability gaps exist and that the military can lend support to response and recovery efforts (FM 3-28 2010, 2-24).

Logistics and engineering support is critical to disaster relief missions. Having insight into the types of supplies, services and infrastructure that civil authorities require in the wake of a major event is critical. This is especially true in a period when America is experiencing fiscal constraints at all levels of government. Continuing with the doctrinal theme, Joint Publication 4-0 (JP 4-0) addresses these considerations. Having sound logistics planning embedded in various commands helps with the anticipatory process. To that end, synchronization of efforts and advance planning can greatly assist in coordinating efforts all while mitigating risk and maximizing freedom of movement (JP 4-0 2008, III-1). What is also proffered by this publication is the importance of maintaining situational awareness while simultaneously developing assumptions, grasping the mission and knowing the desired end state; being disconnected from

the process and entering the disaster cycle well after response efforts have begun is problematic thereby thwarting concerted efforts to render assistance (JP 4-0 2008, III-5).

In modern times, DOD is increasingly experiencing an expanded role within the contiguous borders of this country and its associated territories. DOD has additional publications enumerating on the topic of domestic support. Joint Publication 3-0 (2010, VI-14) also expressly mentions the National Response Plan or NRP. Joint Publication 4-0 briefly covers the National Response Framework but still acknowledges that DOD support is a "pull system" vice one of a "push system" where support is only rendered when formally requested to do so (JP 4-0 2008, IV-2).

In 2008, Secretary Gates signed the latest version of the National Defense Strategy. In doing so, he overtly stated the desire of DOD to render assistance for multi-jurisdictional disasters and the fostering of relations among agencies through the provision of support (NDS 2008, 7). As recently as March 2013, DOD released its latest strategy for Homeland Defense and its support to civil authorities. Specifically, the release addresses DOD's role in preparing for and responding to manmade and natural

disasters (DOD NR 2013, np).

DOD is anything but simple. In its structure, over 31 major departments, offices, and major staffs answer directly to the Secretary of Defense. Three primary activities help oversee DOD assistance efforts regarding disasters. Under the Joint Chiefs of Staff (JCS), the J3 (operations) staff (Joint Directorate of Military Support or JDOMS) has responsibility for overseeing day-to-day operations of military support to, among many other areas, response and recovery operations following a U.S. based disaster. Secondly, under the Office of the Under Secretary of Defense for Policy, one will find the Office of the Assistant Secretary of Defense for Homeland Defense and America's Security Affairs; accordingly, this office has the responsibility for DOD efforts regarding crisis and consequence management (DOD Structure 2011, np). This office provides policy direction and advice regarding support to civil authorities as it pertains to disasters, emergencies and incidents of national significance occurring in the United States. The final organization is the United States Northern Command.

US NORTHERN COMMAND

In the continental United States, there is a combatant command headquarters located in Colorado Springs, Colorado charged with DOD domestic support. The U.S. Northern Command (NORTHCOM) is a four-star military headquarters that serves as the one-stop-shop for military operations gravitating around the homeland. Like DHS, NORTHCOM arose from the terror attacks of September 2001; it has the responsibility to provide Defense Support to Civil Authorities (DSCA). DSCA (the replacement of MACA), and its importance, is understood to help shape activities both before and during the execution of support in order to leverage from existing DOD unique capabilities to supplement and/or support civil authorities in their lead role (TRADOC 2012, 12-14). Established on October 1st of 2002, this organization serves as the nexus of military support for the continental United States (NORTHCOM 2011, np).

Specifically, the United States Northern Command can render assistance to local and state authorities (Sylves 2008, 181). Most of the support by this command comes in the form of support functions (Sylves 2008, 172).

This combatant command answers directly to the Secretary of Defense and is autonomous of DHS. However, it works in

parallel to DHS and FEMA. Specifically, it provides the command and control of homeland defense efforts and resources of DOD (Knight 2008). NORTHCOM now serves as the sole military organization doing so for the United States (Sylves 2008, 180). It now acknowledges the idea of homeland defense and places it at the forefront of DOD putting this command in charge of DOD units charged with homeland defense efforts (Kringel 2009, 27). As part of its core mission set, it conducts civil support, plans, organizes and executes civil support missions to include support for domestic relief operations that exceed the capabilities of local, state and other federal agencies and departments (NORTHCOM 2011, np). However, drilling down one realizes that NORTHCOM is not staffed to the same levels as many of the other combatant commands; yet it is the command charged with relief operations of a domestic nature whether they result from human-induced or natural causes (Sylves 2008, 180).

To facilitate coordination with DHS and the Federal Emergency Management Agency, NORTHCOM has personnel assigned to both. This includes roughly 65 people assigned to DHS who interact with DHS principals and at the deputy level on a daily basis (Knight 2008). NORTHCOM also has

people assigned to the FEMA regions as Defense Coordination Officers (Knight 2008). To further advance interoperability, the Coast Guard also has personnel assigned to NORTHCOM (Knight 2008). This network of players is an amalgam of efforts at both departments and could be seen as a way to foster greater communications, planning, coordination and collaboration at the federal level.

Though the military assumed responsibility from time to time for its rendering assistance in the response phase, it was not really until the United States Northern Command (NORTHCOM) stood up in 2002 that DOD had an actual combatant command responsible for a mission to support disaster relief operations of the homeland (NORTHCOM 2011, np). Collectively, NORTHCOM and the two aforementioned DOD staff elements execute DSCA.

Adding to the NORTHCOM challenge is the fact that as a DOD combatant command, it still makes use of classified computer networks and much of its mission is guarded from the general public (Sylves 2008, 178). Confounding issues are the various repertoires of operations plans (OPLANS) that look at various disaster scenarios, but due to classification are often not promulgated to other

organizations that could benefit from these materials. Historically, the military has fostered a culture that lacks congruency with civilian governmental organizations (Sylves 2008, 179).

Other challenges exist. Though NORTHCOM parallels DHS, at times ambiguity still occurs between homeland security (DHS) and homeland defense (NORTHCOM) as was seen following Hurricane Katrina; equally frustrating is the institutionalization of NORTHCOM's role in the response phase following a disaster (Rubin 2007, 180-182).

The following figure came up repeatedly in the literature review; it will have greater relevance later in this and subsequent chapters. In the preparatory stage of the disaster life cycle (Figure 1), NORTHCOM conducts planning and organizing of missions related to domestic emergencies and disasters (NORTHCOM 2011, np). To facilitate preparedness efforts, Northern Command's personnel assigned to DHS and FEMA foster communications among key leaders at both organizations daily in order to foster intergovernmental relationships (IGR) accordingly (Knight 2008). Defense Coordination Officers (as part of NORTHCOM's command) are also dispersed among the 10 FEMA regions serving as liaisons in an effort to help

preparedness efforts.



Figure 1 (Sylves 2008, p. 5)

During the response phase, before assistance is requested of NORTHCOM, the incident must exceed the capabilities of local, state, and federal agencies; herein lies the problem (Sylves 2008, 181). It is still apparent that, though good intentioned, as of 2008 DOD appeared to clearly remain in a reactive mode when it came to the issue of domestic incidents. That stated, the literature shows that with NORTHCOM's establishment, the military has become less dogmatic when it comes to providing support to U.S. disasters (Sylves 2008, 191).

TYING IT TOGETHER

The federal government working closely with the states has a responsibility to step in and render support when the state's capacity to respond accordingly breaks down and when the states expressly request support. Covered previously, is the idea that the federal government is increasingly stepping in and taking a more active role with regards to such events. This has expanded from a

reactionary stance to one of a proactive nature where the federal government is looking to guide and assist with preparedness and mitigation efforts. Underscoring this is the U.S. responding to such events under the federalism framework which is a key underpinning of the government system (Morris, Morris & Jones 2007).

America's system of government is replete with tension; it is so to prevent any one level (or by extension: branch) from becoming too powerful and subsequently taking over the government (Hamilton 2003). DHS is most likely going to be the lead federal agency when turning towards future incidents, emergencies, and disasters occurring on U.S. soil. Though large with an eclectic mix of skilled organizations, recent history has shown that it is not a panacea to render complete assistance regarding the preparatory and response efforts depicted in Figure 1.

However, getting DOD resources mobilized has oftentimes taken several days after the fact where the prolongation of needless human suffering has taken place. There are those that espouse that the federal government should subscribe to a system of one where the government is more preemptive in its handling of major domestic disasters (Walters & Kettl 2005, 314). This could expand to include DOD.

NIMS

The overarching framework linking together federal level resources to respond to disaster is the National Incident Management System otherwise referred to as the NIMS (National Response Plan 2004). Whereas the NIMS is the framework for the management of systems, this is actually part of the National Response Framework (NRF) which serves as the structure for response to incidents to include disasters (FEMA NIMS 2011). As the NIMS applies to natural disasters, this system serves to guide federal departments and agencies to respond to and quickly recover from catastrophes (FEMA NIMS 2011). Buck, et al (2006, 16) write of the acceptance that many disasters are trans-geographical and involve a multitude of actors at all levels of government. It provides the azimuth from which the national level government can refer for guidance and direction. The NIMS can be organized under either functional or jurisdictional lines (Saul 2006). Under the functional framework, the responses are implemented by subject matter experts (Saul 2006). Paradoxically, the NIMS is organized under local, state, regional or federal jurisdictions when organized under this method (Saul 2006). To this end, the federal government requires a plan.

The National Incident Management System (NIMS) is inextricably linked to the NRF. Originating in the 1970s, the NIMS was developed to deal with wildfires (Rubin 2007, 170). Since its inception, the system has developed and currently strives to bring into fruition national standards to be used among all levels of government - both vertically and horizontally (Rubin 2007, 170).

However, oftentimes the state and local governments accuse the national government of being overly centralized especially pertaining to the NIMS (Sylves 2008, 13). As specified in Homeland Security Presidential Directive 5 (HSPD-5), this directive calls for the mandated use of both the National Response Plan (NRP) now referred to as the NRF and the NIMS regarding domestic national incidents (Sylves 2008, 72). It (the NIMS) is considered to be the operational arm of the NRF (Waugh & Tierney 2007, 239). In doing so, it specifies preparedness principles stressing a sense of national readiness; it uses this as a catalyst to facilitate compliance among sub-federal government entities by tying in homeland security grants and funds to NIMS compliance (Rubin 2007, 170). However, the federal government does not mandate its use; it merely cajoles

through "encouragement" of state and local governments to succumb to compliance (Sylves 2008, 150).

The linking of grants and funding to compliance can be perceived as a powerful tool even though it can be seen as intrusive to do so (Clark 2010). When used concurrently with the NRF, NIMS looks to tie both structure and doctrine to the application of capabilities and resources to the preparation, response and recovery portions of the disaster life cycle (Figure 1). The desired outcome is a common national incident management approach (Rubin 2007, 173).

At the core of the NIMS doctrine is a balancing act between flexibility and standardization; realizing that the rigidity of doctrine could encumber emergency management personnel from responding in an appropriate and timely manner (Sylves 2008, 151). Also at the core is a set of principles, terminology, and organizational processes (Sylves 2008, 151). This helps to foster interdepartmental communications, assists with planning and facilitates greater coordination and collaboration. The NIMS is fully embraced by DHS, and this department believes that it will be effectively applied to all incidents of national significance including future September 11, 2001 like events (Sylves 2008, 151).

It is the NIMS that goes about establishing standardized organizational structures which include the Incident Command System (ICS); the express desire is to inculcate interoperability of such areas of training, professional qualifications & certifications, resources, communications & information systems (CIS), and certification of equipment all while striving for continuous improvement (Rubin 2007, 212). An outshoot of the NIMS concept is the notion that greater situational awareness will be realized (Sylves 2008, 152-153). Information is critical to all operations. True situational awareness is even more important especially as an incident or disaster moves from the preparation phase to the response phase as listed in Figure 1.

The NIMS is comprised of six central components: (1) command and management, (2) preparedness, (3) resource management, (4) communications and information management, (5) supporting technologies, and (6) ongoing management and maintenance (Waugh & Tierney 2007, 64). These six components are intertwined in an effort to not only improve post disaster operations but to also assist in preemptively taking action to help mitigate problems in the preparation phase (Waugh & Tierney 2007, 64).

The command and management component considers both the ICS and the multiagency coordination system. Command and management look to provide response structure but can be activated in advance of an event provided that there is warning as is often the case with hurricanes (Waugh & Tierney 2007, 177).

Resource management can also occur prior to an event (pre-disaster) and often extends well into the recovery phase; careful and intensive management of resources takes place (Waugh & Tierney 2007, 177). This tortuous process challenges requirements' determination and the specificity on how to acquire and categorize needs through a centralized process (Waugh & Tierney 2007, 177). DOD has tremendous capabilities including logistics and engineering personnel and equipment. If involved early, this department could bring resources to bear on the problem to minimize suffering and loss of life.

Interestingly, few studies have looked at NIMS implementation. One that warranted consideration was the implementation of NIMS in New Jersey (Clark 2010, 176). As part of his dissertation, Clark showed that New Jersey had achieved a 75% high degree of not only implementation but compliance with NIMS (Clark 2010, 176). Though causality

was not achieved, descriptively, this statistic is one of interest.

NRP

The National Response Plan (NRP) 2004 looked to unify all federal organizations to support DHS during times of emergency. The inculcation of this plan throughout the federal government proved to be another significant milestone with regards to federalism and the national government's role in the wake of natural disasters. After all, a letter of agreement was signed by 15 departments, the Central Intelligence Agency, the Federal Bureau of Investigation and 12 other federal organizations; this plan ties the nation's federal organizations to work together under extreme circumstances. This was no small accomplishment.

In the bureaucratic struggle for self preservation, the idea of acquiescing is akin to partially demonstrating the perceived irrelevance of one's organization. The plan looked to prevent terrorism attacks, reduce the vulnerability of the United States to major disasters and other emergencies (and terrorism), and to minimize the recovery time and damage from attacks, disasters and other exigent circumstances (Nation Response Plan 2004). This

document set the framework for the statutory authority for federal action during domestic incidents; it capitalized on the provisions specified in the Stafford Act of 1988 (National Response Plan 2004). The NRP did not specify new authorities to DHS but rather established processes, coordinating structures and other protocols under a single plan to integrate the federal response in the realm of disaster relief (National Response Plan 2004). Moreover, it looked to achieve a concerted effort of the various national level government organizations to prevent, prepare, respond and recover from incidents (National Response Plan 2004). As the capstone document for federal response to disasters, it specified procedures and decision points to help prescribe national response efforts to an incident of national significance (Kringel 2009, 22). It served as a standing operating procedure (SOP) for the federal government to use at the outset of a catastrophe.

Regarding DHS and DOD, the National Response Plan goes farther. Specifically, it designated DHS as the focal point for natural and manmade emergency planning (National Response Plan 2004). Though no plan is a panacea for all events, having codified procedures is better than not. The NRP serves as a straw man from which leaders government-

wide can adapt to the situation in which the federal government might find itself. The document also reinforces what has already been established, that DOD has significant resources that can be called to use if required (National Response Plan 2004). Federal Incident Response Support Teams (FIRST) have interesting capabilities. Moreover, these teams are rapidly deployable capable to deploying within two hours of notification and to the locale in just 12 hours (National Response Plan 2004). However the FIRST is comprised of DHS and FEMA personnel only. FIRST complements another component called the Emergency Response Team (ERTs) which will eventually set up a Joint Field Office in the vicinity of the disaster (National Response Plan 2004). More teams are on stand-by from other federal organization as well; DOD makes no reference to having a similar capability.

Even though the NRP and NIMS serve to guide the federal government, ambiguities still exist (Leshinsky 2006, 23). Similarly, there was resistance within DOD to accept the disaster relief mission and the preparedness function that goes along with it (Leshinsky 2006, 23). This is reinforced by Kringel (2009, 29) when he questions whether DOD even wanted the disaster relief mission.

In theory, all departments and agencies should adhere to the NRF/NRP. They should facilitate communications laterally and horizontally before, during and following an incident. The NIMS is what is mandated by federal departments and agencies to execute the NRF and NRP.

ICS

The ICS was established as a result of the 1970 Southern California wildfires that destroyed over 772 structures and burned more than 600,000 acres (Lutz & Lindell 2008). Specifically, the ICS existed to resolve problems with variations of emergency response structures, span of control, incompatible communications, issues with intergovernmental coordination/communication, a lack of standard interagency terminology and the lack of reliable communications (Lutz & Lindell 2008). It offered a partial solution on how to organize social response in the wake of a disaster; its utility has been vetted over time (Buck, et al 2006, i).

Over the years, the ICS has repeatedly been called into use in response to disasters; incrementally, changes have been made to improve its effectiveness. It is a tried system that has been in existence for more than 40 years (Hansen 2006, 1). Notable examples of the ICS use included

incident management of the Air Florida crash into the Potomac River in 1982 and the post bombing response of the Murrah building in Oklahoma City (Hansen 2006, 2). More recently, the ICS was used following the September 11 terrorist attack (Lutz & Lindell 2008, 8). Though this system worked, challenges have existed regarding the coordination of federal entities with local and volunteer organizations and the lack of effective integration of these elements into the ICS (Hansen 2006, 1). That stated, the ICS is often praised for its ability to assist in mitigation and incident management; it has received lesser accolades in response and recovery implementation (Hansen 2006, 3).

The ICS introductory course provides a foundation into the understanding of this system. The course covered three primary topics on the intent of the ICS. First, it is an enabler that facilitates a coordinated response among governmental agencies and jurisdictions (ICS 100 2011, np). Secondly, it establishes commonality regarding the planning and management of resources (ICS 100 2011, np). Finally, as an integrator, ICS connects together personnel, equipment, facilities, procedures, and communications all under a common framework (ICS 100 2011, np). Essentially,

when something goes awry or it is imminent that a major event will transpire, the ICS is what is used to facilitate the management of the crisis.

When boots are on the ground, the ICS is what is used to manage efforts. However, though all civilian organizations comply and subscribe to ICS use, the military is not required to do so and oftentimes implements a parallel command structure that can challenge coordination and collaboration efforts.

The ICS falls under the NIMS and is subsequently used when the government ramps up for execution (whether before an imminent disaster when known or just after a major incident when not known). Both the NIMS and ICS enhance the NRP and NRF and help move efforts from the abstract to reality.

Interestingly, the ICS inherently advocates a military style of decision making. Seemingly, this would be conducive to the embedding of DOD/NORTHCOM personnel into the ICS to facilitate coordination and collaboration. However, the U.S. Army has been critical of the ICS in wildfire operations for not complying with its battle rhythm (Waugh & Tierney 2007, 329). Also understood is the multiagency coordination system used by emergency

management in conjunction with the ICS; the two are inextricably linked (Sylves 2008, 192). The ICS has been vetted and has been in existence for more than 40 years (Hansen 2006, 1).

Buck, et al (2006, 11-12) write on the socialization (networking) component of the ICS. Moreover, these authors espouse the notion that there is a sharing of views contributing to the planning process (Buck, et al 2006, 12). They even infer a sense of coordination and collaboration inculcated from an infusion of familiarity and a sense of community belonging in the structure (Buck, et al 2006, 12). It is through this that a universal recognition occurs regarding limitations and capabilities of other ICS members (Buck, et al 2006, 12).

The nexus of the ICS is the standardization and simplification of communications procedures, its use by local & state governments (cajoled by linking use to disaster funding), and its scalability - expansion and contraction depending not just on the magnitude of the initial event but the required organizations and resources required during each phase of the disaster.

Though used by the civilian governments for emergency management, response efforts utilizing the ICS are

exacerbated when the military responds in particular at the federal level. The U.S. military frequently sets up a parallel command and historically has not fully acquiesced to ICS use. This puts greater stress on the communications, planning, coordination, and collaboration among those using the ICS and the military when responding to a major event.

The ICS is a prominent component in the preparation, response and recovery phases of the disaster cycle. It is through the codification of procedures that the continuum of emergency management professionals relies on in order to seamlessly transition from one phase to the next in order to foster greater effectiveness.

Admittedly, emergency management professionals attest that it is impossible to prepare for every possible scenario. As Rubin (2007, 73) notes, the one foregone conclusion is that not all disasters can be anticipated nor for those where advance notification is known, will the full impact and trajectories be fully understood.

When moving through the preparation phase to response, because of the inextricable linkage, it is incumbent upon emergency managers particularly at the federal level to link these two phases seamlessly (Waugh & Tierney 2007,

118). Accordingly, individuals through all conduits leading to the federal government must work through “what if” scenarios to more aptly address how to best respond to events (Sylves 2 2007, 5). Going hand-in-glove with response includes the availability and training of first responders to carry out plans previously developed (Sylves 2008, 117).

More to the point, secondary and tertiary effects occurring from the original incident must be considered. Specifically, issues pertaining to communications, planning, coordination and collaboration should be afforded due consideration during the transition.

What will follow is a further dissection of the National Response Framework and the Incident Command System (and Multiagency Coordination System) with recommendations to help improve upon DOD/NORTHCOM and DHS/FEMA networked relations in the U.S. based disaster context especially when considering the similarities between FEMA and NORTHCOM (Poynton 2010).

NRF

As time evolved, so did the NRP. In 2008, the National Response Framework (NRF) subsumed the HSPD-5’s NRP as the capstone document expanding to include emergency support

functions or ESFs (Comfort, Birkland, Cigler, Nance 2010, 673).

The National Response Framework provides the overarching structure on how things are supposed to happen. It builds upon the National Response Plan developed in 2004 and was signed by all federal departments including DOD. The Homeland Security Plan (HSP) builds on the NRF/NRP. As the lead federal agency for domestic issues, the HSP provides direction to DHS and its subordinate organizations. Moreover, it goes into the specifics of preparation, response and recovery. Though external organizations to DHS don't fall under the purview of this department, the federal level departments and agencies must understand how DHS works vis-à-vis the HSP to better understand where they will fall and how they can support when called to do so.

Under the National Incident Management System, the NIMS provides a macro level view on how the federal government should respond to a major disaster as related to the HSP. It is nested under the NRF and is mandated, like the NRF, by HSPD-5. By default, DHS complies with NIMS and the HSP is consistent with it; an example is the six central components previously covered in both pre and post disaster functions.

However, what is interesting is that DOD response was still a pull system (request for disaster assistance must first be requested); DOD essentially remains in a reaction mode (rather than one that is more preemptive and proactive in nature). The only exception is a Defense Coordination Officer (DCO) located in each FEMA region. This individual essentially serves as a liaison officer with no real authority. Requests still must be passed to DOD leaders for approval. Once the request arrives at DOD, the requests are routed through a major bureaucratic review. This includes a gauntlet of checks for legality, risk, readiness, cost and appropriateness (Elsea 2007).

Providing lucidity on this process, the following is offered to demonstrate the process used by the lead federal agency to request domestic support of DOD. Once a request arrives at DOD, it must go through several reviews and is staffed through the Joint Director for Military Support before an order is even developed and issued. This process is so tortuous that from the initiation of the request to the time petition of support from the military reaches DOD, the process involves 21 steps (Wise 2006, 309). Once the order is released, the most likely recipient will be NORTHCOM. What is not depicted is that this combatant

command really doesn't possess any forces. The command must perform mission analysis, and submit a request for forces which subsequently goes back to the Secretary of Defense then downward to the military departments for units with requisite skill sets and capabilities. Orders are issued and subsequently units begin deploying. Regardless of the complexity, DOD still retains unique capabilities that no other federal organization possesses. The capabilities serve to mitigate and manage consequences, can protect property, save lives, and improve safety (Goss 2006, 9). Ultimately it is the President or Secretary of Defense that will determine the Defense capabilities that will be made available to support the LFA (Goss 2006, 6).

The Post Katrina Emergency Reform Act (PKEMRA) of 2006 (Public Law 109-295) keeps FEMA under DHS believing that those that train and work together are more likely to respond together (Cigler 2009, 760). Additionally PKEMRA retains the NIMS and renamed the NRP as the Nation Response Framework (NRF) in the post-Katrina aftermath (Cigler 2009, 761). As a result of PKEMRA, NORTHCOM and the National Guard now have a better working relationship (Cigler 2009, 762). Logistics is a theme that gains prominence.

The provision of governmental support is still

problematic and addressed in the literature. The Government Accountability Office issued a report in 2006. Pertaining to the logistics theme, the report looked at capabilities to dispatch, identify and track available critical resources. The anticipation of goods and services requirements and their subsequent distribution in a timely manner were lacking (GAO 06-442T 2006, 17). Underscoring the logistics challenges one finds that recommendations 22-32 of a White House report gravitate around integrating military capabilities and recommendations 38-43 of this same report addressed concerns pooled around logistics and evacuation topics (Menzel 2006, 809). Federal agencies have a need to better forecast capabilities and a desire to improve in their forecasting of requirements for goods and support in the wake of a disaster in general and a hurricane in particular (Walker 2006, 18). This applies to the preparation phase in (Figure 1). PKEMRA also calls for a better more coordinated system for the procurement and delivery of goods and supplies; it has also elevated the prominence of logistics to the directorate level (Cigler 2009, 763). Additionally, there were calls for the General Services Administration (GSA) to learn better business practices from the private sector for the provision of

better and more responsive logistics services (Cigler 2009, 763). As of 2009, four National Guard units have also been trained for homeland functions (Cigler 2009, 764).

FUTURE OUTLOOK

Lessons from Katrina showed the nation that the federal government cannot be over prepared for disasters. There was a 2006 proposal that even considered DOD being the lead federal agency in response to a domestic disaster in the post-Katrina environment (Leshinsky 2006, 54). This would entail looking to close the requisition of support time-gap regarding DOD's ability to respond (Leshinsky 2006, 80). However, this idea has experienced resistance. Banks (2005) wrote that this nation's government is predicated on the idea of a subservient military acquiescing to civilian authority. He goes on to write that the problems should be dissected and responsibility fixed with those organizations that warrant blame (Banks 2005). This is important to hold entities accountable rather than going against the constitution and putting the military in charge of future disasters (Banks 2005).

Some natural events are more predictable than others. Hurricanes can be tracked for weeks in advance, where

fires, tornados and flash floods can hit with little or no notice. Natural disasters other than hurricanes might not allow for the mobilization and prepositioning of federal resources in advance of the event (Drabek 2005, 67).

Similarly, the federal government should seek to enable its bureaucracy to respond more quickly to such events where advance warning exists. What is important is that the federal government has clearly set a precedent for its involvement in natural disasters. It is also important to know that politics and administration are inextricably linked with one deciding and one acting (Waldo 1984).

Therefore it is incumbent not just on administrators to resolve problems with response; legislation enabling government entities that respond to disasters should be afforded consideration. Provision of resources to help increase the flexibility of the various federal agencies could help reduce the preparation to response time when it comes to federal intervention to disasters.

What is also evident from this literature review is that the military's role has expanded over the years, apart from DCOs. DOD's response to natural disasters still lags; federal resources vis-à-vis logistics (apart from DOD) appear to be inadequate and that the ICS, the nerve center

for on-site recovery management lacks permanent representation from DOD. Studies are lacking into exploration of networked relationships and the possibility of deploying a cell of logistics personnel from DOD to the ICS as soon as the ICS deploys in anticipation to or in response of a natural disaster.

At the macro level, Title X of the United States Code provides amplification on the *raison d'être* for DOD. Title X authorizes DOD to establish geographical combatant commands like the U.S. Northern Command (Title Xa 2011, np). DOD is often associated with foreign use and is often seen as an extension of U.S. foreign policy. However, what is not covered in Title X is just as interesting as what it specifies. Though humanitarian relief and assistance are outlined in this provision, the code does not explicitly mention assistance to the United States; rather it references countries receiving support (Title Xb 2011, np). Specifically, Title X states, that the Secretary of Defense may carry out humanitarian and civic assistance support provided that the Secretary sees that the support will promote U. S. security interests (Title Xb 2011m np).

A majority of the military force structure resides in the United States. It also has a tremendous amount of non-

kinetic resources that can be brought to bear on complex domestic events associated with consequence management during response and recovery efforts in times of emergency.

Title VI of the U.S. Code stipulates the responsibility of DHS. Moreover, it clearly specifies that Homeland Security not only works to mitigate terrorist attacks and this nation's vulnerabilities to terrorism, but goes farther into the realm of domestic emergency and crisis planning (Title VIa 2011, np). Additionally, Title VI charges DHS with the responsibility for developing a national preparedness system to address all kinds of threats (Title VIb 2011, np). Specifically, Title VI, states that as directed by the President calls for the development of a national preparedness system enabling the U.S. to meet the national goals of preparedness (Title VIb 2011, np).

DOD/DHS AND CONTEMPORARY DOMESTIC DISASTER RELIEF

When assessing United States domestic disaster support no single department has sole primacy. At the federal level, two organizations share that responsibility. DHS, which includes the Federal Emergency Management Agency (FEMA), is the lead federal agency charged with organizing collective efforts. By comparison, DOD has a supporting role

regarding domestic disaster support. The National Guard, now as a departmental branch of the armed forces, also plays a critical role concerning response and recovery efforts to disasters.

DOD has frequently resisted attempts at using its capabilities to assist with domestic disasters. However, in recent times, this department has understood its merit and accepted greater prominence regarding its role in response efforts to U.S. based catastrophes. Even the militaries of other countries wanted to support disaster relief efforts as was the case in 2005. Following Katrina, 145 countries offered military support to this nation after it struck (NORTHCOM AAR 2005, 79). Intuitively, one could see the relevancy of having DOD involved to help coordinate the infusion of foreign military resources.

Conversely, DHS has openly embraced the disaster mission. This department, through FEMA, has stepped up as an avid supporter and proponent to disaster relief missions in the United States.

Beverly Cigler (2007, 64-64) informed of the importance of laws, and the subsequent understanding of them, and how they play in relation to disaster management. Following Hurricane Katrina, she outright stated that failure in

understanding of existing legislation added to the culpability of leaders in the wake of this significant disaster (Cigler 2007, 70). As the first major incident to validate the NIMS, Hurricane Katrina showed that much more was required to help bring about more effective future responses to major catastrophes.

In the case of Hurricane Katrina, Garnett and Kouzmin (2007, 174) saw action as fragmented, ensconced in chaos where key actors were not working rationally. Not excluded were both DOD and DHS.

The context of governmental relations is complicated; when one looks at policy implementation one must understand a critical component of this being laden with intergovernmental relationships (Van Meter & Van Horn 1975, 452). Van Meter and Van Horn (1975, 458) continue by stating that policy has two unique characteristics: (1) consensus among participants, and (2) the amount of change involved. This is true regarding the multiplicity of organizational implementation and the authority and power that must be shared (O'Toole 1986, 182).

Likewise, problems arise when implementing a policy (Elmore 1980, 601). Seemingly, it would be a challenge for two large federal departments whereby neither answers to

the other in implementing policy. Though not a panacea, a technique for policy makers to use could include forward mapping whereby those charged with policy development guide the process using this technique (Elmore 1980, 602). For implementation success, collective support among stakeholders should be a prime consideration (Sabatier 1986, 25).

POLICY PROCESS

This section of the literature review now turns to policy to show the effects of policy implementation on federal preparation, response and recovery efforts. It addresses three laws and policies: (1) Posse Comitatus, (2) the Homeland Security Presidential Directive 5 (HSPD-5) and (3) the Post Katrina Emergency Management Reform Act (PKEMRA 2006, np). These three were selected for their importance regarding DOD and DHS and their role in domestic disaster relief functions. Posse Comitatus was the first real attempt at addressing military support to traditionally civil authorities; it provides strict guidelines on what DOD can and cannot do while operating within the borders of the United States (Posse 1878, np). HSPD-5 was the first policy attempt to codify procedures for the execution of domestic disaster relief functions, among other things,

specifically incorporating DHS into the fold and as the lead federal agency (LFA) for domestic disaster support (HSPD-5 2011, np). Finally, PKEMRA looked to enhance effectiveness of the federal departments as they continue to support DHS in its role as the LFA.

What ensued following Hurricane Katrina was a lack of communications, joint planning, and coordination. What resulted was added death and needless suffering that could have been mitigated provided that federal actors worked in a concerted effort. It was because of the real threat to life that this problem is one that warrants research into just how key policies and legislation were implemented in the wake of a natural disaster.

Policies in and of themselves can obfuscate the original intent of lawmakers and national leaders. It is therefore useful to dissect the underpinnings of policy drafting to the implementation of public policy and laws and the subsequent assessment thereof to determine feasibility. Likewise, the establishment of laws has impact on subsequent policy formulation and policy decisions. More to the point, policy makers often ground their decisions based on risks and the likelihood that they will be enacted to more aptly deal with potential consequences (Daniels,

Kettl & Kunreuther 2006, 4). To achieve granularity, this section will dissect several as they apply to the Departments of Defense and Homeland Security.

As previously touched upon, Titles VI and X of the United States Code provide illumination on what is required of the Departments of Homeland Security and Defense respectively. The two aforementioned titles of the U.S. Code do not have a legislative monopoly regarding homeland security functions. When looking at the interaction between DOD and DHS, countless laws and policies are contextually interwoven at times enabling and at other times constraining what each organization can do. To simplify the understanding, this section will cover three regulatory policies. Once again, these include Posse Comitatus, Homeland Security Presidential Directive 5 (HSPD-5) and the Post Katrina Emergency Reform Act or PKREMA (Public Law 93-288). Emergency Management scholars routinely reference the importance of these in the realm of disaster relief (Rubin 2007, Sylves 2008, and Waugh & Tierney 2007). Moreover, these three will be explored in the context of domestic disasters. Figure 2 provides a pictorial showing how these three are inextricably linked in the form of a triad. The intent herein is that none of these can be

considered in isolation of the others. What is important at the outset is the understanding that Posse Comitatus serves as a baseline truly limiting the military's response to disasters. HSPD-5, as the next in the trilogy and put into effect after Posse Comitatus but before PKEMRA shows that DOD is still limited in its domestic role but this directive attempts to clarify the use of this department's resources during emergencies. Still, HSDP-5 was not a panacea and it was not until after Katrina that lawmakers realized that more was required to minimize ambiguity and discordant circumstances; PKEMRA, still predicated on Posse Comitatus and HSPD-5, expanded on previous concepts to provide clarity to those involved in disasters relief. Interpretation and use of one could have an impact on the implementation/action of organizations subscribing to the other two. This simplification serves to provide a visual to guide readers through the breakout of each policy/law in the sections that follow.

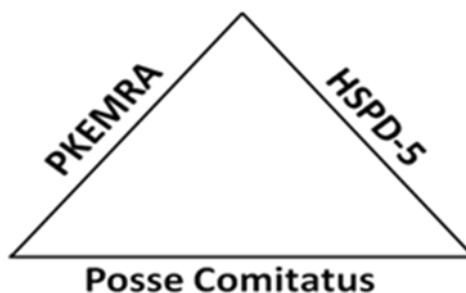


Figure 2

POSSE COMITATUS

Posse Comitatus (Title 18 U.S.C. § 1385) dates back to the late 1800s. Oftentimes, this law is seen as intractable and is mistakenly interpreted. Those who lack an understanding of it wrongly state that Posse Comitatus prevents military use during domestic incidents. This is not the case.

In 1878, Congress enacted the Posse Comitatus Act (Rubin 2007, 236). It was passed during the period of reconstruction following the Civil War (Sylves 2008, 172). Essentially, Posse Comitatus means "the power of the county" whereby sheriffs in the Old West had the ability to cajole a posse of able bodied men to supplement the sheriff's capabilities (Rubin 2007, 241). This Act was passed to help prevent further atrocities by the military when the armed forces were accused of abuses in the southern states of the U.S. in the years following the Civil War (Sylves 2008, 205).

The purpose of this legislation allowed for military use during domestic events but to prevent the overuse of the military specifically in a domestic law enforcement function. Provided that law and order functions either comply with the U.S. Constitution or through an Act of

Congress the military is free to support local and state police efforts through training and technical assistance (Posse 1878, np). What was even more interesting, was apart from law enforcement, nothing legally precluded or expressly prohibited the use of military power to assist in domestic humanitarian relief efforts.

Since inception, this Act has imposed restrictions on the military in its role as a supporter to domestic disaster and law enforcement operations (Rubin 2007, 236). Rubin provided amplification; when breaking down the Act, Posse Comitatus prevents the military services from conducting arrests, evidence seizures, searches, and other traditional police-type functions (2007, 236). This policy remains in place unless Congress specifically authorizes exceptions vis-à-vis a federal law (Sylves 2008, 172). Moreover, the military through the United States Northern Command can provide assistance to civil authorities provided that the military does not become involved in domestic law enforcement operations (Sylves 2008, 181).

Apart from enforcing the peace and maintaining public order after a disaster, Posse Comitatus does not inhibit the military from conducting logistical and engineering support aiding civilian authorities (Sylves 2008, 172).

Provided that the armed forces do not serve in a law enforcement role, then the military can, without fear of violating the law, support said disaster functions. More to the point, the armed forces are allowed to provide feeding, water, clothing distribution, disease control, shelter, power generation support, debris removal, and other functions (Sylves 2008, 172).

HSPD-5

In 2003, the Homeland Security Presidential Directive 5 came into fruition. In summation, this directive provided for a concerted effort at the federal level for the management of domestic incidents under the purview of a single organization (HSPD-5 2011, np).

The Homeland Security Presidential Directive 5 was a whole hearted attempt to rally organizations to support DHS in its LFA function. The Executive Branch fixed responsibility with a single organization to lead future governmental efforts regarding consequence management (GAO-08-868T, 5).

To do this, HSPD-5 calls for a single National Incident Management System (NIMS) in that a sole full spectrum system is used to manage incidents of a domestic nature (HSPD-5 2011, np). It is designed to be a single and

comprehensive approach to domestic incident management (Murphy 2010, 25). This directive covers the four phases of disaster management: prevention (mitigation), preparing for, responding to, and recovering from disasters.

Mitigation efforts can occur throughout the disaster cycle or as autonomous efforts used to lessen the effects from known threats. These can span the gambit from advising not to engage in construction in flood zones to infrastructure enhancements and structural improvements to reduce the likelihood of facilities succumbing to the effects of disaster (Sylvester 2008, Waugh & Tierney 2007).

The impact phase can be expressed in an instant to several hours or longer in duration. It is during this time that the disaster effect is realized (Sylvester 2008, 145). Clear situational awareness is often lacking, initial reporting inaccurate, and understanding can be convoluted. Restraint should be exercised so as to not overact and throw scarce resources at problems that may or may not exist. Clarity should be the aim, the plan adapted, then executed in a concerted way. HSPD-5 helps in these areas.

What follows is the response phase. This occurs when the event has transpired and when emergency responders move

from preparatory efforts to a period whereby resources are activated and deployed to impact areas to assess damage, render assistance, and potentially prevent further loss of life and damage (Sylves 2008, Waugh 2007). Here again, HSPD-5 demonstrates relevancy.

Recovery includes efforts to restore infrastructure to pre-disaster conditions; this can easily become the most expensive and time consuming of all phases; though not the focus of this study, attention must be afforded to the actions required after the government makes the transition to this phase (Sylves 2008, 120). Expanding on the recovery phase, this is further broken down into three subcomponents: restoration (building to pre-disaster levels), rehabilitation (improvements) and reconstruction (rebuilding) (Sylves 2008, 208).

The NIMS goes farther. Not only does it call for the standardization of procedures and interoperable communications, it is intended for use at all levels of government. It calls not only for all federal agencies to acquiesce to the NIMS, but also strives to transcend the national level involvement to include local and state government efforts. DHS steps in when lower level governments become overwhelmed and/or when the President

directs DHS to do so (HSPD-5 2011, np). HSPD-5 specifies that the Secretary of Homeland Security is the principal architect charged with leading vis-à-vis DHS and all domestic efforts related to disaster prevention (mitigation), preparation, response, and recovery. NIMS not only encourages but explicitly states that all departments, without exception, will cooperate with the Homeland Security Secretary regarding domestic based disasters (HSPD-5 2011, np).

Under HSPD-5, DOD is actually required to render support to DHS provided that the President directs it to do so (HSPD-5 2011, np). The only stipulation is that DOD will still retain command of military forces allocated to the effort. Interestingly, nothing precludes DOD from complying with NIMS or by extension, adopting the ICS which is actually used to implement the execution of governmental functions during response and recovery efforts. The ICS, in part, serves as the crucible by which critical planning and leadership are fused together to enable government entities to respond to emergencies. This could be applied at the discretion of the two departmental secretaries (HSPD-5 2011, np). When further looking at the ICS, this system calls for a unified command that not only focuses

coordination on trans-jurisdictional issues, but strives to assure joint decisions regarding strategies, plans, objectives, priorities, and communications (Lester & Krejci 2007, 86). It specifically covers five functional areas: command, planning, operations, finance, and logistics & administration (Murphy 2010, 33).

Though the ICS is the standard system used by civilian agencies, the U.S. military has not fully adopted it. However, in 2010, the DOD has demonstrated an increased proclivity toward acknowledging the relevance of the ICS. DOD attests to its importance by acknowledging that it should implement and adopt those procedures consistent with the ICS and NIMS (Murphy 2010, 32).

Moreover, HSPD-5 called for the development of what was then the National Response Plan (NRP); the NRP under the NIMS provided mechanisms and structure for policy at a national level regarding domestic incident management (HSPD-5 2011, np). This stemmed from a previous plan referred to as the Federal Response Plan (FRP) that guided governmental support at the federal level for years (DOD 2035.1-M 1994, 50).

In the wake of the governmental debacle that followed Hurricane Katrina, what ensued was a movement to correct

ineptness with a desire to mitigate the lack of federal, state, and local collaboration to help better prepare for future disasters. The 2005 hurricane season saw the manifestation of the largest storm to hit the United States. In late August of this year, Hurricane Katrina struck the Gulf coast of the U.S. with a vengeance. What occurred was incredible collateral damage.

HSPD-5 came into fruition in February 2003 (GAO-08-868T 2008, 5). This directive specified that the Secretary of DHS is the primary executive responsible for the management of domestic disasters; in this capacity the Secretary is directed by the President to coordinate the resources in the wake of a disaster (GAO-08-868T 2008, 5). He or she would be responsible for reporting on the status of the nation's efforts regarding the four phases of emergency management and the subsequent implementation of the NRF (GAO-08-868T 2008, 6)

DHS is required to establish standards; this not only applies to the federal government but expands in doing so for the state and local governments as well (GAO-11-51R 2010, 18). The purpose of this is to better enable DHS' ability to more effectively manage disaster response

through the codification and promulgation of standards vis-à-vis the NIMS (GAO-11-51R 2011 2010, 18).

Homeland Security Presidential Directive 5 fostered the development of concepts to include all levels of government in both crisis and consequence Management (Sylves 2008, 72). It also mandates that all federal departments and agencies (not excluding DOD) implement the NIMS (Sylves 2008, 72).

All federal departments and agencies are called to acquiesce to DHS and are relegated to a supporting role in rendering assistance to the Secretary of Homeland Security in the development and maintenance of the NRF (GAO-08-868T 2008, 6). However, William Jenkins, the Director of Homeland Security and Justice, in testimony before the House Committee on Homeland Security stated that even as late as 2008, DHS needed to do a better job at integrating key stakeholders into the mix to work towards better planning, and in the defining of roles and responsibilities (GAO-08-868T 2008, 3).

HSPD-5 serves as a catalyst to leverage support from state and local governments. Specifically, the Act links homeland security grants and emergency preparedness money to compliance with HSPD-5 and other laws (Waugh 2007, 47).

Sylves (2008, 150) also underscores this. Failure to comply could result in a significant loss of funding streams often utilized by fire protection, emergency medical professionals, police forces, as well as state and local emergency management organizations (Waugh 2007, 239).

PKEMRA

Congress enacted PKEMRA to essentially strengthen the relationship between DHS and its subordinate organization, the Federal Emergency Management Agency (FEMA) while simultaneously returning more power back to FEMA (PKEMRA 2006, np). This Act also served to inculcate a sense of cooperation among the various federal agencies. Squarely, PKEMRA put an emphasis on the preparedness phase of emergency management underscoring the importance of planning, training & exercises, and coordination (PKEMRA 2006, np).

The Post Katrina Emergency Management Reform Act was signed into existence in 2006 as Public Law 109-295 (Rubin 2007, 193). Though this law kept FEMA under DHS control, it strengthened FEMA's authorities and autonomy (Rubin 2007, 193). The Act also gave the FEMA director more direct access to the President though consultation was

still encouraged through the Secretary of Homeland Security before doing so (Sylves 2008, 87).

What is also interesting is the fact that this Act called for regional emergency communications coordination working groups. It also called for a National Communications System to help bring about standardization and interoperability (Rubin 2007, 193-195).

PKEMRA helped solidify some definitions of terms. Here the idea of catastrophic incident was covered and defined adding to this law regarding emergency management functions (Comfort, Birkland, Cigler, Nance 2010, 675). Comfort, et al (2010, 674) also went on to state that this 2006 Act looked to rectify problems indentified in the post 9/11 and post Katrina contemporary operating environments. It looked to the preparation phase of disaster management where vulnerabilities should be identified and steps taken to mitigate damage should disaster strike whether manmade or a natural occurrence (Comfort, et al. 2010, 673).

PKEMRA did even more. Rather than believing that national efforts could result in a panacea for all things disaster related, pragmatism ruled the day. This legislation acknowledged that efforts should focus on likely events and the most probable consequences that would

emerge following a catastrophe (Comfort, et al 2010, 674). This Act also called for a National Integration Center under the charge of FEMA fostering the NIMS (Comfort, et al 2010, 675). PKEMRA also fixed responsibility with FEMA for minimizing loss of life and property and the protection of the United States from all types of disasters (GAO-08-868T 2008, 7).

LITERATURE REVIEW CONCLUSION

After reviewing the literature, one can see tendencies showing improvement in the relationship between DOD and DHS. Specifically, when looking at the literature, it is apparent that communications, planning, coordination and collaboration are key components of effective networks. These are intertwined and instrumental to ensuring that networks are effective as pointed out by Berry, et al (2004), Koliba, Zia and Mills (2011), and Lester and Krejci (2007). Henderson (2009, 14) underscores the importance of networks among the continuum of levels of government to include the federal level.

Defined goals with identifiable targets and metrics to gauge performance over time are useful to demonstrate performance (Jung & Rainey 2008). However, this is not enough. Goals must be synchronized inside and out for the

organization to be successful. Problems also stem from conflicting views from multiple political stakeholders (Pandey & Wright 2006). Goal promulgation and synchronization along with the minimization of conflicting external stakeholder interests can be improved through communications, planning and coordination.

Visions and missions of organizations working in similar fields should be proliferated. This in turn could bring about the manifestation of social network theory across the continuum (Lester & Krejci 2007, 90). The intent of the NIMS was to promote collaboration and planning throughout all organizations and levels of government (Lester & Krejci 2007, 90).

Networking is a key to success. It is through networks that goals, objectives, and missions can be dispersed throughout the continuum. This is particularly helpful in complex environments to span both horizontal and vertical linkages leading to improved intergovernmental management (Berry, et al 2004, 542).

The National Security Strategy (NSS) of the United States underscored many of these points. This document was released in May of 2010 and still demonstrates relevance today. It served as a beacon that guides the nation on a

path to ensure its continued existence. President Obama called for the continued improvement between the military and civilian sectors of government in their collective approach to secure the nation (NSS 2010, 14).

Communication is important for organizations to be successful to foster coordination to bring about effective outcomes; this is espoused by Van Meter and Van Horn (1975, 466) whereby both authors assert to the difficulties and complexity of communication regarding multiple organizations. Communication is so important that a White House report on Hurricane Katrina explicitly embraced it (Menzel 2006, 808). Specifically, four of the overall recommendations in this report focused solely on communications (Menzel 2006, 809). The problems with communications transcend the attention of the White House. The House Select Committee responsible for studying the Hurricane Katrina disaster noted that communications failures among networks contributed to shortcomings and inhibited planning (Koliba, et al 2011, 215). Ink (2006, 801) accentuated this in his article when he referenced the massive breakdown of communications during Hurricane Katrina. Ink (2006, 801) was even more critical in stating

that information flow lacked congruency among the departments and across jurisdictions.

In the NSS, the President calls for communications use to convey not only consistent messages but to be used in the development of plans (NSS 2010, 16). Communications also involves the degree to which an organization's mission and supporting goals can be easily understood (Chun & Rainey 2005, 21).

The Government Accountability Office (GAO) released testimony by Gene Dodaro (2011), the Comptroller General of the United States, touting the importance of communication. In his testimony, he reinforced the need and importance of communication when covering the tasks of sharing and using of information (Dodaro 2011, ii). Yet progress was being made. DHS had improved its national emergency communications architecture and has implemented the first-ever National Emergency Communications Plan in the wake of Katrina (GAO-11-881 2011, 26). DHS acknowledged the importance of communications under its fifth mission set, "Ensuring Resilience to Disasters," where the department internalized its role in developing both emergency and interoperable communications (GAO-11-881 2011, 52).

Regarding information technology, DOD had tried to get out in front of the problem. In the spring of 2009, the Department released DOD Instruction 8220.02 (DOD Instruction 1 2009 1). In this document, DOD acknowledged the problems gravitating around the technical modes used to transmit information and data in particular when communicating externally to non DOD organizations (DOD Instruction 2009 1, 2). To overcome these challenges, DOD is now making available unclassified voice and data systems to help foster efforts associated with disaster relief and other similar functions; DOD believes that a government-wide approach is in the greatest interest of the nation (DOD Instruction 1 2009, 2).

Six months later, DOD issued a complementary instruction (DOD Instruction 2 2009). This latest version mentioned Homeland Security by name and addressed the need to overcome vulnerabilities all while helping to improve DOD efforts with consequence management (DOD Instruction 2 2009, 2). It envisions DOD doing this through sharing of its expertise, technology and information (DOD Instruction 2 2009, 2).

The planning theme resonated throughout the literature. McGuire and Schneck (2010, S202) underscored the importance

of this theme and how this should fan out and network throughout the government beginning with the federal level. When turning once again to the White House recommendations on lessons emanating from Hurricane Katrina, there was a clear lack of planning (Menzel 2006, 809). Though DHS and FEMA participated in a fictitious hurricane exercise a year prior, ironically focusing on a hurricane striking Louisiana, planning shortfalls were noted and nothing was done to improve the process in the months leading up to Hurricane Katrina (Menzel 2006, 809). Moreover, networking with DOD was seemingly lacking.

What's more is the goals and missions specified in the National Response Plan (NRP) under the National Incident Management System (NIMS) were too ambiguous and DHS lacked a clear understanding of its responsibilities (Menzel 2006, 811). Katrina clearly demonstrated that this sharing of responsibility rather than a clear fidelity in who was responsible for what and who was culpable in the problems arising during the response phase (Birkland 2009, 425).

Where the National Response Plan was seen as unwieldy, the National Response Framework (NRF) emerged as a more realistic and executable product (Birkland 2009, 429). It applies to all 50 states, non-state possessions (often

regarded as state equivalents) and freely associated entities like the Federated States of Micronesia and the Republic of the Marshall Islands (Murphy 2010, 9). This new product was intended to provide greater flexibility and adaptability to future disasters (McGuire & Schneck 2010, S203). This too, would help facilitate network effectiveness.

The NRF also looks at not only crisis management, but the actions required as they pertain to consequences (Murphy 2010, 8). The desire is for a comprehensive approach striving for unity of effort to address domestic incident management across the four phases of the disaster management cycle: prevention (mitigation), preparation, response, and recover (Murphy 2010, 25). What's more, it is applicable to incidents that require coordination among federal entities (Murphy 2010, 26). Sylves (2008) also writes on this.

However, it still appears to lack congruency and the NRF is still seen as flawed. Birkland (2009, 429) goes on the state that the NRF clearly lacks an appreciation for collaboration and coordination among the spectrum of responder agencies. What's more, DHS still has work to perform in putting together operational plans that nest

with the NRF according to a GAO report released in 2011 (GAO-11-881 2011, 142).

DOD has clearly subscribed to planning and underscores the importance of the National Response Framework. In 2009, DOD issued a directive in which it stated that it would synchronize efforts with the NRF (DOD Directive 2009, 4).

Specifically, President Obama called for coordinated planning among the various actors within the government (NSS 2010, 14). Similarly, under the communications theme, within DHS' mission five, the department acknowledges the responsibility for national emergency preparation and response planning (GAO-11-881 2011, 52). Moreover, it is also through goals and missions, that plans and strategies can be developed (Chun & Rainey 2 2005, 23). It is important that government entities learn from past mistakes to move forward in synchronizing efforts in planning through a clear understanding of each organization's mission and by extension the supporting goals and objectives further leading credence to the value of networking.

Collaboration is a key output from effective communications, planning, and coordination. However, in

the aftermath of Hurricane Katrina these variables were lacking according to the House Select Committee that looked into Hurricane Katrina (Koliba, et al 2011, 215). Menzel (2006, 809) wrote of the trials and tribulations among DOD, DHS and other departments involved in emergency management functions and the clear lack of coordination among them. Dodaro's GAO testimony accentuated the importance of many of these when he stated that it was critical when looking at the emergency management continuum (Dodaro 2011, 21).

DOD and DHS lacked clear collaborative efforts leading up to and throughout the Hurricane Katrina disaster. DOD was criticized by the House Select Committee charged with looking into Hurricane Katrina for its lack of coordination (Ink 2006, 801). Had networking occurred, many of the challenges might have been mitigated.

Though the military provided an invaluable role, Menzel (2006, 811) specifically stated that the armed services lacked coordination and proper planning exacerbating problems on the scene. Wise (2006, 309) stated that not only were efforts between the active military and National Guard not coordinated, the military lacked a unified chain of command (Wise 2006, 309). Koliba, Zia and Mills (2011, 210) continued with the diatribe by writing on the systemic

breakdowns made worse by poor coordination and collaboration among various levels of government (network) and how this contributed to failure. The authors continued by referencing numerous studies showing the fracturing of governance networks (Koliba, et al 2010, 210).

DHS was not exempt. Ink (2006, 803) remained critical not just of DHS but of those that designed the nascent department. Specifically, DHS seemed to be an inherently flawed concept where its need to work with external agencies was not carefully considered (Ink 2006, 803). Once again, this infers the importance of networks to enhance collaborative efforts.

Though the emergency management community covers the "three Cs" - communications, coordination and control as covered by Comfort (2007, 189), collaboration is not expressly covered. Collaboration is critical. It often spans multiple governmental organizations and is seen as extremely important in accomplishing the overall mission vis-à-vis networks (Koliba, et al 2011, 211). When McGuire and Schneck (2010, S202) look at future hurricanes, they see the need for intergovernmental relations as a linchpin for success. Problems stemming from Hurricane Katrina show clear problems with a lack of collaboration among those

involved in the response phase. More importantly, 11 of the 125 recommendations for improvement released in the Katrina White House report show a lack of effective integration of military capabilities between DOD and DHS inferring a clear shortfall of collaboration (Menzel 2006, 809). Even the NRF explicitly calls for collaboration regarding planning (McGuire & Schneck 2010, S204).

The NSS attests to the importance of this when not just addressing levels of government, but when looking at collaboration among communities, the private and nonprofit sectors (NSS 2010, 18). More importantly, collaboration is seen as an integral component when amalgamating efforts across a continuum that involves many autonomous stakeholders (Moynihan 2009, 898).

Collaboration is so important that Lester and Krejci (2007, 84) see it as essential. McGuire and Silvia (2010, 279) underscore this to the extent that they believe that breakdowns in collaborative networks can lead to poor outcomes. Specifically, collaboration is inextricably linked to the establishment of disaster response plans among external stakeholders at all levels of government (Lester & Krejci 2007, 84). More to the point, both

authors see the potential of the NIMS as a way to facilitate collaboration (Lester & Krejci 2007, 87).

The NIMS was originally designed to proliferate collaboration among agencies, departments, and throughout the governmental network (Lester & Krejci 2007, 84).

However, in the aftermath of Hurricane Katrina, it became apparent that the NIMS proved inadequate at fostering this among organizations though it was designed to enhance decision making among those organizations (Lester & Krejci 2007, 84).

Effectiveness is the ultimate goal. Rainey (2003, 149) attests to the notion that networks can contribute to measures of effectiveness among public organizations. Through the use of networks, one can better direct support, reduce fragmentation, and support resource allocation (Rainey 2003, 149). It is also through effectiveness, vis-à-vis networking, that multiple organizations can agree on their goals, understand causal relations, and develop solutions to address the problems at hand (Rainey 2003, 164). President Obama reinforces this in the conclusion to the NSS when he references effectiveness in the cooperation among the branches of government, which also implies

collaboration within each branch and along departmental lines (NSS 2010, 51).

Interestingly, DOD issued a directive in 2009 which looks at the development of future policy and plans to include civilian control of the armed forces during crisis (DOD Directive 2009, 6). Secretary of Defense Leon Panetta issued his priorities in January 2012. Clearly, the outlook for the future was unequivocal DOD support of civil authorities with domestic disasters and support of the civil authorities charged with orchestrating assistance to catastrophic events (Panetta 2012, 5). Moreover, recognizing the safety of the U.S. citizens, he acknowledged rapid deployable resources and capabilities possessed by DOD to help assist during domestic incidents and that the department should render assistance to victims of both man-made and natural disasters (Panetta 2012, 6).

In summary, several concepts were lacking when assessing the literature. In the Emergency Management profession, the "three Cs" have resonated but nothing shows the proper ordering of variable and there have been limited references to causality. It would therefore make sense to consider modeling and affording consideration to variables that could have practical and favorable results on properly

assessing emergency management relationships. This could help those in this academic field better understand the inter-workings of what is taking place especially where networks are concerned.

As was found in this review, DOD and NORTHCOM as well as DHS and FEMA have significant roles in disaster relief functions. Especially since 9/11, DOD has become increasingly involved in domestic events particularly regarding disasters and more to the point - hurricanes. The literature also shows that FEMA has begun to swing back to its pre-9/11 focus moving away from a central focus on terrorism to one that involves a more inclusive representation of the continuum of domestic disasters. More to the point, the federal levels gravitate toward the preparation and response phases of the disaster cycle.

Moreover, many of the policies and laws have made references to other topics like planning, collaboration and effectiveness. Though communications and coordination appear to be straight forward, control at the federal level is something that is much more complicated. Although many subscribe to the concept of lead federal agency, because many organizations at the federal level do not come under

any one department, control therefore is minimal at best and at the worst, is totally nonexistent.

Supporting this concerted effort includes the use of the NIMS and ICS. Both systems serve as an attempt to codify procedures to guide the multitude of actors involved in disaster functions. Both systems could be seen as a nexus to help foster the concepts of coordination, planning, communications and collaboration.

Other noteworthy areas include a lack of understanding of the dynamics taking place at the federal level. Specifically, the literature lacks studies considering the inextricable linkage between DOD and DHS. These two federal organizations are often called to work together when domestic disaster strikes; one often serves as the LFA (DHS) but often lacks organic resources (engineering and logistics), yet the other (DOD) has tremendous resources that could help the nation recover quicker if directed to do so.

What is more is the limited number of mixed methods studies that have looked into the topic of emergency management. Seemingly, what could add to public sector research in general and the field of emergency management in particular would be a study focusing on qualitative and

quantitative analysis with clarity of terms, proper variable ordering and dissection looking into the issue of causality.

METHODOLOGY

RESEARCH PROBLEM

Bardach (2009, 1) provides a point of departure to set out and define the problem. He underscores the importance of identifying the issue that one must confront (Bardach 2009, 1). What's more, he underscores the importance of framing the problem in a way that is politically tenable for courses of action to be considered (Bardach 2009, 10). Government's role regarding exigent circumstances is one where the multiplicity of actors (especially federal and state) see themselves as being responsible for assisting when emergencies that are widespread and severe (McLoughlin 1985, 165). In terms of relationships, whole networks and their understanding and examination are useful for looking at outcomes when studying problems; networked relationships have direct relevancy in the context of disasters (Provan & Lemaire 2012, 639-641).

Specifically relevant to multiple independent governmental organizations is the understanding of their networks (Agranoff & McGuire 2012, 671). Collectively, intergovernmental efforts and relationships will be successful insofar that participants pursue outcomes that

are strategically developed and pursued collaboratively (Agranoff & McGuire 2012, 676). Endemic to exploratory research, one can look to several variables to help uncover relationship patterns to help understand the problems (Hoyle 1999, 167). Assisting with this is the use of what Dunleavy (2003, 72-75) calls a matrix approach making use of augmentative and analytical analysis to support findings.

One key consideration would be to look at the relationship between DOD/NORTHCOM and DHS/FEMA regarding effectiveness in disaster implementation. According to Posner (2004, 245), the risks of global catastrophes are growing and more numerous than previously thought. This was also underscored by a Dissertation by Phillip DeWalt Jr. (2012, 11). Hurricanes, unlike other natural disasters provide a unique set of circumstances that allow for the mobilization of resources in advance of the storm making landfall. It is because of this that efforts can be explored often days in advance of the event transpiring. Posner (2004, 199) stresses the importance of taking preparatory steps when faced with future catastrophes with a particular emphasis on those that can be foreshadowed. More to the point, the federal government can take action

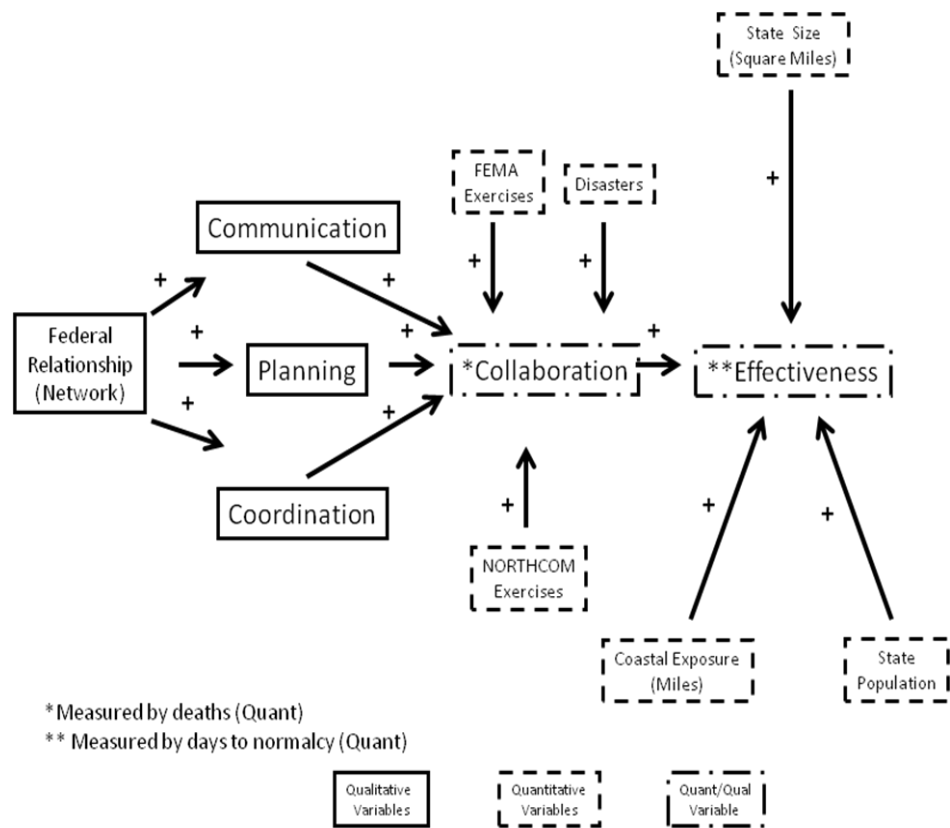
before the onset of disaster to ensure that it is adequately postured to render support prior to and immediately following the calamity.

Waugh and Streib (2006) wrote on the importance of network collaboration regarding the emergency management field; specifically the two authors focused on DHS and FEMA. This study expands on that research by including DOD. Warner (2013, 17) wrote on the value of reasonable theoretical development to help explain or predict cause and effect relationships. Surprisingly, there was a lack of academic research related to the areas of networked relationships along the DOD/NORTHCOM and DHS/FEMA continuum regarding domestic disasters in general and hurricanes specifically. This is one of the first academic endeavors to examine this relationship. Likewise, as of the time of this project, this researcher is unaware of other studies (whether academic, professional, or governmental) looking into the specific relationship among these organizations and the effectiveness thereof.

Comfort and Haase (2006, 328) provide a point of departure regarding several variables and their application during Hurricane Katrina. More to the point, they write in

part on communications, coherence and the viability of collective action and how they are intertwined regarding the disaster (Comfort & Haase 2006, 328).

Miles and Huberman (1994, 17) state that researchers must have some orientation of ideas at the outset of research. This framework can be grounded in use of deductive analysis stemming in part from a model with variables pulled from literature on the topic through which answers to specific research questions can be pursued while enumerating on those findings (Miles & Huberman 1994, 155).



Dissertation Logic Model Figure 3

The logic model in Figure 3 shows in simplistic terms what could help improve network collaboration resulting in improved effectiveness of the DOD and DHS relationship. As Callahan (2011, 8) points out, there is a fine line between conflict and cooperation that can result from government interaction. Waugh (2006, 21) underscored the confusion of federal response during past disasters; a model could help provide explicability. Specifically, clarity to networking regarding the use of multiple variables is what is desired. It makes use of categorical (qualitative) and numerical (quantitative) variables in enhancing their effectiveness during the preparation phase regarding a hurricane and continuing into the response phase. This model will be used to see where data coalesce to see if inferences can be derived through an interpretation of the findings. Through the use of this model as a guide into this scholastic endeavor, this research intends to fill gaps that exist regarding public administration literature in the field of emergency management.

A model's purpose resides in the notion that a tight design will help researchers collecting data on well defined variables to provide focus and clarity (Miles & Huberman 1994, 17). This model, in part, expands on

variables commonly used in emergency management but departs insofar as moving towards an attempt to develop a causal model for testing concepts under the supposition that they (collectively) have bearing on networked relationships. It builds upon what emergency management professionals call the "three Cs" (Comfort 2007, 189). Network models help demonstrate the visualization of relationships to assist with investigating research questions (Feiock & Lee 2012, S60).

Jaeger (1993, 77) writes of the importance of identifying variables and their utility in social science research because, unlike the hard sciences, direct measures and observations are difficult if not impossible to conduct. Not intended to serve as a neologism, this model borrows from established and accepted public sector indicators to help elucidate causality; when conducted properly, stand-ins vis-à-vis these variables provide construct validity to show the relationship that each has to the desired outcome (Jaeger 1993, 80). Remler and Van Ryzin (2010) point out that when looking into causal relationships, one can always elaborate on the linkage between the independent and dependent variables considering mediating (intervening) and moderating (interaction) relationships. One can use a

variety of techniques to ensure proper temporal ordering and clearness in the defining of terms. What is more is the understanding that variables often do not stand alone and are predicated on other factors. This includes issues where some variables have an intervening effect as actions move through a path to the final outcome and/or variables are predicated on what transpires regarding the influences of other variables. It is equally important to consider the temporal ordering of variables when looking at the sequencing of the independent to dependent variables (Warner 2012, 17).

Defining terms is a necessity to understand the scope of the model. It is through this grounding of terms for each of these constructs that will help serve as a guide to this research and to help achieve discernible results to substantiate internal validity at the conclusion of this study. Jaeger (1993, 81) stresses the notion that it is essential at the outset of a study to clearly justify variables to better show construct validity. It is also paramount to establish parameters within your study to contribute to the soundness of those findings (Jaeger 1993, 138).

Lacking at the federal level are command lines among the federal departments. Seemingly, one could understand responsibility resting with the President to direct organizations and intervene when conflict arises. However, practice trumps theory and the reality is that organizations are run by their leaders and under the constraints of policies, mandates, and laws. Therefore, it is the degree to which the federal departments work with one another through the use of informal networks that helps start the process to greater effectiveness among national level organizations. In this regard, variables were selected based on past research which is often useful in determining which ones have relevancy (Warner 2012, 556).

Qualitatively, several variables (categorical) were used to support an in-depth analysis using these constructs as an instrument of formative measures. Segueing from networking, three branches sprout from this base and serve as categorical independent variables: communication, planning, and coordination. In terms of analysis, these three are regarded as qualitative. Communications is hereby defined as the ability for one organization to successfully pass information to another by way of voice or data (information) and for the information to be received

by the recipient organization (Comfort 2007, 194). In the context of networking, Powell (1990) writes of reciprocal lines between elements. Lester (2012, 155) also sees the relationship between communications and collaboration. This is further defined as taking place during the preparation and response phases of the disaster cycle; FEMA's Administrator Fugate (2011, 7) stressed this during testimony when he stated that organizations must be able to effectively communicate during and immediately following a disaster and seeing the essential nature of this variable. Thomson and Perry (2006, 25) write on the importance of communications to the facilitation of interdependent relationships. Communications is also relevant to dissemination of information, coordination of action and to decentralized operations (Thomson & Perry 2006, 25). It is unidirectional because communications can be passive (i.e. one way email), nonetheless, collaboration cannot occur without it therefore securing its place temporally before collaboration.

Categorically planning is defined as the organizations coming together and codifying responsibilities regarding disasters prior to the event taking place and the clear understanding of the parties in knowing their

responsibilities prior to the manifestation of the disaster; it can take place unilaterally which is why there is a unidirectional arrow (collaboration is predicated on planning; the inverse is not necessarily the case). It includes actions that take place prior to and/or during the preparation phase of the disaster cycle. To expand on this, planning should involve strategies to essentially build on detailed assessments regarding likely vulnerabilities (Comfort, Sungu, Johnson, & Dunn 2001, 146). Planning is essential to networks as was espoused by Granovetter (1994). It is also through the element of planning that one will find a shared commitment to problem solving (Thomson & Perry 2006, 25).

Coordination involves the process of deconflicting roles, responsibilities, and resources during the preparation and response phases and when aligning one's priorities with other organizations relevant to the event (Comfort 2007, 194). It involves more than communications (which could be solely passive in nature) by involving departmental and subordinate organizational personnel and their ability to ensure that there is a concerted effort in preparation and response activities. Powell (1990) enumerates on the importance of coordination in networking through vertical

and horizontal linkages. Clark (2010, 29) even went as far as to write on the importance of coordination as being repeatedly represented in the literature regarding emergency management. Once again, there is a unidirectional relationship between coordination and collaboration since coordination, in a passive sense, can involve the act of receiving information without any action taking place on the part of the recipient (which would be necessary for collaboration to take place); essentially collaboration is predicated by coordination.

Collaboration is at the confluence of the three aforementioned categorical variables and serves as an intervening dependent variable; this study looked at this variable as both one possessing qualitative and quantitative attributes and will be assessed accordingly. Ring and Van de Van (1994) espouse on the collaboration theme in networked relationships. Lester (2012, 163) goes a step farther by stating that collaboration is truly relevant when looking at horizontal relationships. It is through collaboration that multiple actors bring something to the table (Thomson & Perry 2006, 20). Collaboration also goes beyond the collective works of coordination; it involves the reciprocities and exchanges among relevant

actors (Thomson & Perry 2006, 23). Cooperation also underpins collaboration (Lester 2012, 154-155). Comfort, Boin and Demchak (2010, 73) go farther by defining it as productive sharing in the effort to refine and gather truth while leveraging participants' creativity, skills, and knowledge. Collaboration helps regarding the use of shared resources in a networked setting to foster better integration to push for unity of effort (Lester 2012, 167). As amply put by DeWalt (2012, 21-24), the end result is not owned by one, but by all; he also sees the correlation between collaboration and networks. Simply put, collaboration provides an impetus to help maximize effectiveness (Lester 2012, 169).

Qualitatively collaboration involves among other things the effective interaction among actors to yield effective results through the integration of governmental action (Waugh & Streib 2006, 132). In terms of networking, collaboration is seen as an informal way to solidify interim relationships (Kreiner & Schultz 1993). Comfort and Haase (2006, 328) indirectly write on collaboration when authoring an article regarding collective action and coherency during Hurricane Katrina and in doing so provide indirect support to this variable. The inclusiveness looks

to the intertwining of communications, planning, and coordination and the active partnering of personnel among both departments, both subordinates and the facilitation of vertical and horizontal linkages among all four organizations.

Effectiveness, as a qualitative variable, takes into consideration the collective inputs from communications, planning, coordination and collaboration. It also looks to outcomes as a way to demonstrative formatively how well the network performs among the DOD/NORTHCOM and DHS/FEMA.

When stakeholders come together to collaborate, it helps them solve problems and it facilitates a jointness in decision making and works to enhance negotiation and commitment (Thomson & Perry 2006, 24). It is through effective collaboration that goals are brought to fruition (Thomson & Perry 2006, 26).

The quantitative portion of the logic model will serve as a summative observation instrument for this study. As mentioned previously, collaboration has both categorical and numerical attributes. Segueing from the quantitative (numerical) attributes of collaboration, this researcher will use several methods to measure collaboration that took

place prior to the onset of both hurricanes. Specifically, the period in question considers the year leading up to the respective hurricane seasons. The timeframe runs from June 1st of the year prior to the 31st of May (the official start date of hurricane season) for the year that Katrina and Irene hit.

The first of the quantitative measures for collaboration involves DHS/FEMA and DOD/NORTHCOM exercises in the affected states. Exercises are defined as events that involve state emergency management professionals and counterparts with each of the two aforementioned federal organizations where collectively, the participants demonstrated communications, planning and coordination in a setting related to some type of emergency. McLoughlin (1985, 169) explain that through exercises, plans can be vetted and that experience has shown that government elements that are prepared for emergencies perform better than those that are not. Finally, exercises (and the need thereof) are a key component identified by NORTHCOM (2005, 75) in its Hurricane Katrina After Action Review (AAR). Consideration was not afforded to the size/scope of the exercise nor was any weight assigned for the duration of actual exercise. Each exercise earned a raw value of one.

The next installment of quantitative variables involves the primary nexus for collaborative variables and involves the actual participation in a real disasters (federally declared) focusing on the year leading up to Katrina and Irene. These events, like the exercise variable, involve the collective partnership of state and federal organizations. Consideration was not afforded to the size/magnitude of the hurricane nor was any weight assigned for the duration of preparatory and response efforts. Each hurricane warranted a raw value of one.

Likewise, number of deaths will serve as a control variable to help equalize the effects derived from the two hurricanes. Accordingly, it will serve as a stand-in variable for collaboration.

Effectiveness is the primary dependent variable; in a qualitative sense (categorical) it is the amalgam of networking, communications, planning, coordination, and collaboration; the result is transformative changes in a power sharing world. It looks at the outcome of what was achieved regarding both events overall and how the events were interpreted regarding success or failure to abate the effects from the hurricane. Quantitatively, it will look

at days to the restoration of normalcy. Specifically, normalcy is defined as the number of days until the state's operations center transitioned to a condition (alert condition) that existed prior to the ramp up for the hurricane (most likely, the number of days from the pre disaster alert to the day that the operations center moved from the response to recovery phases). Though this might come across as constrained, it is a way to measure the transition through the two phases of the disaster cycle. In essence, this encapsulates the totality of days inclusive of the preparation and response phases.

Other permutations will be run. These include multiple regression regarding the totality of variables (without and with controls) as well as looking at simple regression regarding each variable independently. Though not looking for inferences to causality, regression will include the processing of data looking at other factors to include state population size at the time of the disaster, total square miles of land mass for each state and total coastal exposure in terms of nautical miles. Data derived from this analysis will be descriptive only and used to statistically control to help "equalize" each state.

RESEARCH QUESTIONS

Miles and Huberman (1994, 51) state the relevancy of deciding on questions to pursue in the realm of research. Figure 4 is an illustration of what the research questions will address. It looks at mature and nascent organizations and transcends traditional command lines and focuses on the networked relationships. As one sees, the two legacy (mature) organizations are DOD and FEMA; conversely, the two relatively new organizations are DHS and NORTHCOM. The vertical dashed lines (between DOD & NORTHCOM and DHS & FEMA) show a "command" relationship whereas the vertical and diagonal dotted lines accentuate the networks among the continuum of players. Question one (and its sub questions) are qualitative; questions two (and these sub questions) are quantitative. As established previously, DHS serves in the LFA capacity; yet the prognosis is for increasing (not a reduction) in military interventionism to preparing for and responding to disasters in the years ahead (Lester 2012, 168). Lester (2012, 168-169) continues by stating that future preparation and response efforts will most likely move away from traditional hierarchical approaches and subscribe to more of an intergovernmental or networked approach. This dissertation will look to use the following

research questions to test the data and the logic model in Figure 3.

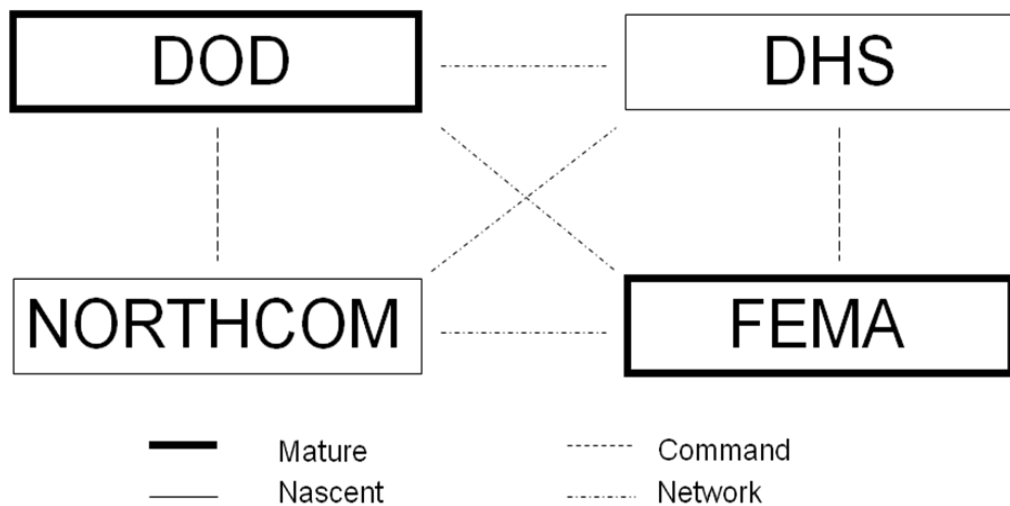


Figure 4

Q1. How does collaboration between DOD and DHS and their relationship through social networking improve effectiveness leading up to (preparation) and following (response) a hurricane (descriptive/causal)?

Q1a. Would communications (voice/data/public messaging) among the departments and their subordinates (NORTHCOM and FEMA) improve collaboration leading up to (preparation) and following (response) the hurricane among the stakeholders (descriptive/causal)?

Q1b. Would planning (NRF/use of ICS/publications on disaster implementation/understanding of capabilities)

among the departments and their subordinates (NORTHCOM and FEMA) improve collaboration leading up to (preparation) and following (response) the hurricane among the stakeholders (descriptive/causal)?

Q1c. Would coordination (use of liaison officers) among the departments and their subordinates (NORTHCOM and FEMA) improve collaboration leading up to (preparation) and following (response) the hurricane among the stakeholders (descriptive/causal)?

Q2. What is the degree of effectiveness regarding the collaboration between DOD and DHS when considering the number of days that it takes states to transition through preparatory and response efforts?

Q2a. How effective is this collaboration when considering moderating effects from each of the following in states affected by Katrina and Irene: DOD/NORTHCOM , DHS/FEMA exercises and the states' participation in real world disasters in the year leading up to each of the respective hurricane seasons?

Q2b. How effective was collaboration when controlling for the following for each of the states affected by Katrina and Irene: state population (in terms of aggregate

population), state geographical landmass (in terms of square miles), and state coastal exposure (in terms of nautical miles)?

PURPOSE STATEMENT

This research explores this problem using what Creswell (2008) refers to as the Pragmatism Worldview with the particular emphasis on examining how a collaborative networked relationship between DOD and DHS will lead to greater effectiveness between these two federal departments and their subordinates (NORTHCOM and FEMA respectively) during the preparation and response phases of the disaster cycle regarding U.S. continental based hurricanes. The importance of this study evolves from what Daniels, Kettl, and Kunreuther (2006, 8) state that disasters (in general) and hurricanes (specifically) do not respect governmental boundaries and limitations. Ultimately it is the citizen of this country that will suffer if the federal government is not working as efficiently as it could. Through the application of a two-phased, sequential mixed methods approach, this study determined how their relationship underscored by social network theory has led to longitudinal improvements in the years following Hurricane Katrina, focusing on hurricanes as the primary unit of

analysis. Lending credence to a mixed methods approach regarding emergency management research was also accentuated by Len Clark (2010, 83) in his dissertation where he saw utility in leveraging the strengths of both traditional approaches (qualitative and quantitative) to garner information to provide a complete picture on problems and outcomes. Ultimately, the desired end state is mitigation of risk from future hurricanes by helping provide insight into how to better deal with future consequences arising from this type of disaster (Daniels, Kettl & Kunreuther 2006, 5).

Precedence for this is found in a peer reviewed journal. In 1998, Sandra Schneider evaluated improvements in FEMA as the organization attempted to reinvent itself in the late 1980s and early 1990s. To establish her case, the author attempted to show change by relating conditions from 1993 to 1997 by comparing them to FEMA's situation from 1988 to 1993 (Schneider 1998, 43). This purpose was clear to help to lend support to the transformational nature of FEMA.

To do this, Schneider considered two events occurring before 1993: Hurricanes Hugo and Andrew. Schneider (1998) subsequently turned to the Great Flood of 1993, Los Angeles

Earthquake in 1994, and severe weather in the South and Midwest in 1997. This was her case study approach to show improvements in FEMA.

A more recent study looked at nonprofits and networked relationships in relation to effectiveness (Johansen & LeRoux 2013). Specifically, Johansen and LeRoux (2013, 360) write that literature on public organizations see external factors having influence on outcomes and effectiveness.

This case analysis used two hurricanes to demonstrate improvements in disaster response (and in a smaller part will cover two intervening hurricanes from 2008). The defensibility of this technique comes by comparatively analyzing two similar types of disaster that this will serve as a better measure with greater face validity, reliability and internal validity than Schneider (1998) demonstrated in her case study.

Regarding secondary research, past scholarly works regarded as seminal in the realm of public administration were considered. In essence, Dr. Allison's (1971) writing on the Cuban missile crisis solely leveraged secondary data to underpin his research on why certain decisions were

taken during this crisis; this literary work looks to also capitalize on secondary sources.

A formative approach will leverage in-depth analysis of qualitative data (Patton 2008). An exploratory data analysis approach has gained prominence since the 1960s and is designed in part to expose the nature of data sets through description and exploration (Jaeger 1993, 371). This approach includes evidence derived from such sources as peer reviewed articles, government documents, press releases, interviews, biographical accounts, testimony and more; this approach applies to the first segment of the research; though most are secondary sources, many include primary data vis-à-vis transcripts of original testimony and unadulterated press releases. Descriptive words/adjectives/enumerators will be used to determine the viability of each variable with regards to Hurricanes Katrina and Irene through hermeneutics (meta analysis).

Summative methods will include secondary data on collaboration as a primary independent variable for each state affected by both Hurricanes Katrina and Irene; Patton (2008) writes on the importance of the summative approach to measure effectiveness. The results will measure for effectiveness as dependent variables as defined by number

of deaths (demonstrating collaboration when considering moderators that include national level exercises and participation in real world disasters in the year leading up to the measured event): Katrina or Irene and the number of days until emergency operations centers returned to readiness levels at or below their level just before the hurricane struck (actual effectiveness). Other independent variables will include (1) the number of hurricanes, (2) the number of Homeland Security/FEMA exercises, and (3) the number of DOD/NORTHCOM exercises the affected states participated in during the year leading up to the 2005 and 2011 hurricane season. Once again, controls will include populations and geographical square miles of each state and coastal (Atlantic & Gulf) exposure as measured by nautical miles.

The intent of this research is to draw conclusions that matter to inform U.S. based emergency management professionals so that the evaluation will not suffer from underuse or misuse (Patton 2008). Theoretically, a model with relevance to other disasters where advance notice can be realized could be developed. Through using both formative & summative approaches and qualitative & quantitative techniques emanating from a mixed methods

approach, the researcher believes that this complex issue of relationships can be assessed and discernible results achieved regarding federal effectiveness following a disaster.

RESEARCH DESIGN

In the world of research, one can take different approaches to answering research questions. One can look to an inductive process where one moves from the particulars to general themes; this is often associated with qualitative research (Creswell 2008, 232). Conversely, a researcher can look to move from the general to very specifics applying a deductive approach lending itself to the use of quantitative techniques (Creswell 2008, 233). Adding to the researcher's repertoire is the possibility of borrowing from both qualitative and quantitative techniques. When using an amalgam of both, a mixed methods approach provides a holistic way of delving deep into an issue to find results that contribute to the field of study (Remler & Van Ryzin 2010, 526). Prior to selecting a research method, one should understand when one method is preferred over another (Creswell 2008, 49). Likewise, each methodology has limitations. The researcher

should be well versed in these at the outset when embarking on the journey to discovery.

Miles and Huberman (1994, 50) cover the importance of "naming the method" to be used in one's research. The sequential exploratory technique was selected. As stated above, this methodology was pursued over purely qualitative and quantitative techniques because it leverages the strengths of both to triangulate on results (Creswell 2008). Specifically, the sequential application of the qualitative study preceded that of the quantitative analysis (rather than the converse) to afford this researcher an opportunity to dig deep into the issue pertaining to the two hurricanes and then to use the quantitative study to expound upon the results of the case analysis; emphasis is placed on the qualitative phase with quantitative data used to support the qualitative findings. A mixed methods technique using a heterogeneous approach to data analysis helps zero in on findings and is a useful way to combat internal validity problems (Clark 2010, 94). In the latter phase, multiple regression was selected over other statistical techniques because (1) it is the primary mode by which researcher can explore the multiplicity of issues through the use of several variables and (2) it

affords opportunities for researchers to statistically control for other factors thought to influence outcomes. Though other variables (like classified materials, and money & budgets) could have a confounding effect on the research, they were excluded; specifics are covered in the limitations section below.

The research questions will be addressed with a two-phase mixed methods design that affords greater perspective on the complexity of what took place in the context of two hurricanes. McNabb (2004, 4) supports this approach when writing on the acceptability of a mixed approach in contemporary times with movement going beyond the traditional research grounded in either a strictly quantitative or qualitative approach. What's more, is that Tashakkori and Teddlie (2003, 4) provide further credence to this approach when presenting on the notion of using qualitative and quantitative data in order to more aptly dissect one's data to better integrate the findings and assist in drawing inferences. These authors go beyond this by stressing the viability in using a mixed approach to connect, combine and better integrate data in research (Tashakkori & Teddlie 2003, 263).

Using this mixed methods approach, the qualitative data will be gathered and a detailed case study performed on Hurricanes Katrina and Irene. A plethora of information exists on the first hurricane with a myriad of sources of government data on the second. What's more, this procedure of inquiry will involve the analysis of professional journals, government reports, interviews, biographies on key Defense, Homeland Security and FEMA leaders to gain a perspective on commonalities and patterns emerging from this.

The first phase will be qualitative exploration of governmental action as it pertained to Hurricanes Katrina and Irene by collecting scholarly writings, U.S. DOD and DHS documents (after action reports, lessons learned and mission statements), Government Accountability Office (GAO reports) and a review of U.S. federal laws pertaining to the events that occurred before and after Hurricane Katrina in 2005. Common themes (categorical evidence) during the assessment of secondary data will be used to validate or refute the shortcomings regarding effectiveness.

Adding credence to this technique is what Miles and Huberman (1994, 8) cover in use of interpretivism where the interpretation comes from group interaction and actions to

construct a detailed perspective of what took place by answering how things occurred and why. It is through the qualitative phase that the researcher hopes to leverage the holism and richness providing a perspective into the complexity of social networking (Miles & Huberman 1994, 10).

Specifically, data will be used to validate and complement qualitative findings. Data triangulation hopes to inform on just how well the variables of communication, planning, coordination and collaboration have led to greater effectiveness in the context of social networking between DOD and DHS; this study explored the dynamics of complex adaptation through relationships to bring into fruition meaningful transformative change. Moreover, the study hopes to inform on how to improve relationships to promulgate greater effectiveness regarding federal response to future hurricanes.

Quantitatively, secondary data derived from sources such as the Census Bureau and state emergency databases and will look at collaboration from a state perspective (drilling down from the federal government), understanding that DOD and DHS and the resultant networked effectiveness is affected by their efforts. Likewise, other quantitative

independent variables will look at the numbers of real world disasters and the number of DHS/FEMA exercises that the states affected by Hurricanes Katrina and Irene had participated in during the year leading up to their respective hurricane seasons (Katrina and Irene). The independent variables will include the number of deaths experienced by each state; the dependant variable will consider the number of days until state emergency operations centers returned to normalcy/transitioned from the response to recovery phase of the disaster cycle. Though the variable to population ratio is small, Hoyle (1999) writes on the relevancy of small sample (population) studies and the notion that one should not be precluded from conducting the study and should use the statistical method best suited for the task. He goes on to state that in the realm of the social sciences, that this is often the case (Hoyle 1999).

In both phases, screening will take place to validate and double check data accuracy. Warner (2012, 179-180) writes that this is important to the soundness of one's results.

Through broadening the scope of the research and transcending beyond Hurricane Katrina, even though the results will have limited generalizability, this could

serve as a foundation from which future research can build. Trends will be studied from statistical analysis of data from the states affected by the two hurricanes. Moreover, commonalities that arise related to the variables in question help inform on the development of the networked relationship between DOD/NORTHCOM and DHS/FEMA. What's more is the desire to share findings among the two departments to help promulgate a clear understanding of governmental SOPs, knowledge of capabilities of each government entity and the fostering of situational awareness even prior to a hurricane making landfall. It is further hoped that these results might show applicability moving beyond the scope of hurricanes to other emergencies that could affect DOD/NORTHCOM and DHS/FEMA where the national level government would have advance warning whereby it would most likely be called to respond to preposition capabilities during the preparation phase of the disaster cycle.

A collective analysis will look at the amalgam of data. The researcher hopes to provide findings with both applied recommendations and theoretical knowledge.

LIMITATIONS AND SCOPE

Regardless of the research, neither the method nor the data will provide all answers and thus, this research has inherent limitations. What is important is to specify the limitations so that the readers have a clear understanding on how the results will be determined and the extent to which one can reasonably generalize based on the findings.

In considering units of analysis, hurricanes were selected for several reasons. Primarily, an abundance of information regarding the size, projected point of impact and follow on trajectory often days prior to making landfall exists for this type of disaster; this is unlike other disasters where specificity regarding advance notice, scope and duration are difficult to predict. Accordingly, it is because federal efforts can be anticipated and therefore resources mobilized and prepositioned during the preparation phase that hurricanes are the most applicable unit of analysis to help show a predilection toward the use of social networking and studies of the identified variables. However, a clear limitation is that one cannot generalize findings to those disasters beyond hurricanes where there is little to no advance notice.

The study focused primarily on the federal level though it also used quantitative data regarding state governmental

performance to better explain the transference of effectiveness from one level to another. Specifically, it will concentrate on two federal departments and their primary sub organizations charged with managing domestic disasters. Likewise, the quantitative data are based on populations (and not random samples) but has advocates insofar as the population data encompasses the totality of information for each variable. Therefore, due to a small N, the results again have limited generalizability beyond DOD, NORTHCOM, DHS, and FEMA.

What is more, it will focus solely on the continental United States. The rationale for this is that hurricanes are limited to the Atlantic and Gulf coasts. Additionally, though FEMA has regional coverage transcending the continental U.S. and includes the U.S. territories, Hawaii and Alaska; the U.S. Northern Command is limited only to the continental United States and excludes, for example, Hawaii which is covered by the Pacific Command (PACOM). Since the focus of this research is in part on NORTHCOM and FEMA, it is important to understand this limitation at the outset.

Identification of variables and defining them is important as is understanding directionality. Dunleavy

(2003, 194) attest to the use of arrows in an effort to help avoid ambiguity and to help guide readers through the logic of one's argument. Seemingly, infinite consideration could be considered. However, based on the literature review, limitations of this the study included those works that have received the greatest preponderance and directionality of what was determined mostly on what the evidence in the literature has shown. The logic model serves to inform on the mediating and moderating relationships.

Parametric techniques include multiple regression and are preferred over non-parametric procedures when conducting research. Rebecca Warner (2013, 24) underscores that there is not agreed upon size restriction on sample (or population) size for use of parametric methods but does emphasize that there is limited utility with small N samples (populations) of data. She also informs that small samples could result in low statistical power therefore limiting the generalizability of one's findings beyond the specific research cases (Warner 2013, 100). Newton and Rudestam (1999, 184) also fall short of stating that parametric techniques should only be used on large N samples but provide words of caution when considering the

possibility of making Type 1 errors. Regarding these limitations, the emphasis on this analysis is to better explain what transpired in both units of analysis (Hurricanes Katrina and Irene) and serves as an exploratory study into what might warrant greater consideration later in future research.

Data collection was limited to secondary sources. Because primary data collection methods were not used, this study is limited to sources regarding the disaster topic in general and the research variables specifically. Because of this, the results will be taken at face value due to the lack of ability in following up with questions that may arise during the data interpretation phase regarding this study. Accordingly, when reading the findings, one must consider this as a limitation but can, nevertheless, expound upon these results in follow-on studies to test for generalizability.

Classified data, sources, and briefings were excluded from this study. The focus of this dissertation was on unclassified and "open source" data. Though this author does not believe situations arising from hurricanes were classified, it is possible that some classified material

might exist that could have minimal bearing on these results.

Money and budgets were not considered. Admittedly, damage in terms of dollars and budgets of various organizations have impacts on organizational performance. Nonetheless, this study excluded this topic in a way to limit the scope of the study. It opted to look at deaths and days-to-restoration (transition from response to recovery) as other measures of effectiveness.

Through a clear understanding of these limitations, readers will be informed on not just how the results were determined but the degree to which one can apply the findings to events other than hurricanes. Clearly the research intent was to leverage secondary data to the greatest extent possible to evaluate the overall effectiveness of those organizations specified in this project.

To avoid bias, contrarian views were sought. Due consideration for plausible alternatives was considered. Likewise, this author has extensive experience regarding federal response to disasters; he subscribed to keeping an open mind and actively pursued sources that provided both positive and negative data regarding U.S. hurricanes and

the subsequent intervention by DOD/NORTHCOM and DHS/FEMA. Accordingly, these too will be presented and commented upon during the latter part of the study and again when addressing recommendations and conclusions.

MEASUREMENT PROCEDURES

The qualitative portion primarily focused on Hurricanes Katrina and Irene. However, the temporal period looked at events in the year leading up to both of these events and at collectively what transpired in the six years between these two hurricanes to include two such events that occurred in 2008. This phase of the study used investigative techniques to gather data vis-à-vis the case study process (Creswell 2008). Once again, the qualitative section will be bound by the federal response; most notably, the primary actors included DOD, NORTHCOM, DHS, and FEMA. Through a thorough investigation, the researcher gained greater perspective on the federal government's effectiveness by gathering data and classifying according to the variables, looking for descriptive words and adjectives (meta analysis) examining preparation and response efforts. All of this was reviewed in the context of the National Incident Management System (NIMS) and the Incident Command System (ICS). Through a rich description

of this data, the study drilled down farther to better understand what the federal government did and why (Creswell 2008). Verification involved cross-checking data across multiple sources and also vetted findings through other doctoral students, from a peer perspective (Creswell 2008). It is from the classification of the data by variables that the research will advance to the second phase.

Quantitatively, the study included measures for collaboration (and variables believed to have a moderating effect on collaboration) and effectiveness regarding the totality of states struck by Hurricanes Katrina and Irene. The intent is to look at the federal-to-state continuum of factors having an influence on effectiveness realizing that federal action is not enough to ensure success; transference must occur spanning downward to the state level.

As stated elsewhere, collaboration was measured in part by deaths along with the number (raw) of disasters, FEMA exercises, and NORTHCOM exercises that the states participated in during the year lead up to the Katrina and Irene hurricane season. Likewise effectiveness was measured in the number of days that each state transitioned

from preparation to the response phase of the disaster cycle.

All things are not equal. In an effort to control for effectiveness, control variables (state size, coastal exposure, and state population) contribute to equalizing factors so that states can be adequately compared to one another.

RELIABILITY AND VALIDITY

As with all research, this project notwithstanding, issues of reliability and validity must be afforded adequate consideration. Problems associated with reliability and validity have received attention and have subsequently been resolved. What ensues in this section provides amplification.

Both qualitative and quantitative evidence were assessed for reliability, the degree to which something was repeated and the results of the second iteration mirror those of the first iteration ideally error free (Zeller and Carmines 1979). Multiple regression analysis helped demonstrate statistical differences among the sample (or population) and looked to those results with a high coefficient correlation (in terms of strength and direction).

Variables were pursued that showed high inclinations toward the relationship among the independent and dependent variables (and moderators) helping make the case for causation indicating internal consistency and, hence, reliability (Remler and Van Ryzin 2010).

Validity was then considered (after reliability issues were addressed). Criterion validity (concurrent validity) was considered looking to show the correlation among variables for a given point in time (Remler and Van Ryzin 2010). The study also considered content validity ensuring that a holistic process measured what the study set out to do (Remler and Van Ryzin 2010). Finally construct validity was afforded attention especially when looking at the theoretical framework of the Logic Model in Figure 3 to recommend the continuance of the variables as a way to improve upon the DOD/NORTHCOM and DHS/FEMA social networked relationships.

Gray (2004, 136) writes that it is extremely challenging in the realm of research to achieve external validity. To overcome issues regarding external validity, consideration might include a future disasters where one can reasonably predict the event in advance and the degree to which DOD/NORTHCOM and DHS/FEMA would be involved and could

allocate resources during the preparation phase that this template could be used beyond the scope of hurricanes where advance notice of an imminent event is known.

As part of the process, the evaluator looked at the areas of reliability and validity to avoid specious interpretation of the findings. Moreover, careful consideration was afforded to the review of internal consistency checking reliability (Carmines & Zeller 1979). Jaeger (1993, 85) stressed the importance when considering measurement procedures in looking for technical consistency when gathering data. Qualitatively, a meta analysis of secondary data took place in the context of the two disasters specifically looking for words of enumeration to assess strengths and weaknesses of the federal departments and their subordinate agencies. To avoid what Taleb (2007, 55) referred to as "naïve empiricism" and "confirmation bias" specific attention was afforded to corroborating and dissenting views (and alternative explanation) as outlined by secondary sources. As Jaeger (1993, 108) writes, these are useful ways to add an element of control into research; it is through controls that findings are more plausible. This will also help protect against the John Henry effect from taking hold (Jaeger 1993, 119). Likewise, various

techniques were employed to consider other threats to include source checks (limiting non vetted data sources), looking for bias, considering discrepant accounts, as well as the use of peers in checking this research. Holistically, numerical ratings were assigned for each variable in question checking for the measure of central tendency and normatively comparing results (across organizations and the amalgam for both hurricanes) and will assist in the formative analysis of the data.

Quantitatively, factual data derived from summative observation of data regarding the specifics of each numerical variable was considered. Variables were clearly defined and data was collected based on those specifications further underscoring reliability. Multiple regression analysis using the SPSS statistical tool provided strength in reliability.

Threats to internal validity were also considered. Historical issues that could have had an impact were reviewed to see if these issues would have had a positive impact on effectiveness. To help minimize internal validity problems, the temporal period was clearly defined, units of analysis were identified, and the study focused on two specific federal departments and their subordinate

organizations charged with domestic disaster relief functions. The evaluator tried to control for these internal validity issues in order to show better causality to demonstrate effectiveness (Mohr 1995).

There are two primary ways of achieving measurement validity in the context of a case study. The first involves a chain of custody whereby data reduction is used to arrive at results (GAO 3 1990, 63). The second tactic utilizes multiple sources of evidence (GAO 3 1990, 63). This study uses the latter to further contribute to the validity of the study.

Other safeguards protect the quantitative validity of this study. Mortality is often seen as an inhibitor to findings (Jaeger 1993, 115). Based on the data collected in this study, mortality did not arise as an issue since the data exists for all variables and all states regarding this research (no surveys or questionnaires were administered).

A holistic view of an abundance of secondary qualitative data was considered when looking at validity for the qualitative phase of the research. Likewise, when turning to quantitative data, and regarding the issues of validity, the p values (F significance levels) were set to .05 and

data permutations ran looking for combined adjusted R squared values that exceed .3 in order to look for inferences (Jaeger 1993). Legitimization is furthered by the application of a mixed methods approach to help safeguard validity protections through the collective use of qualitative and quantitative techniques to help lead to sound inferences (Tashakkori 1993, 709-710).

ETHICAL CONSIDERATIONS

Ethical dilemmas regarding this study were limited due to the emphasis on secondary data. Nonetheless, serious attention was afforded to this topic to avoid even the interpretation of impropriety.

David McNabb (2004, 55), a renowned political science research expert proffers the importance of the application of moral standards when preparing for, the conduct of, and the subsequent reporting on results. Author, Jerry Mitchell (1998) stresses the thoroughness, truthfulness, the need for objectivity and relevancy as four pillars regarding moral and ethical principles of political science research. Interface will solely focus on those that possess secondary data on this research.

Other controls were used. Due to the sensitive nature regarding Homeland Security and DOD operations, the focus

solely involved open source material and excluded classified reports, briefings, and other related material to avoid compromise and unwitting disclosure of national security issues. Another process included the Institutional Review Board as the final check and balance to ensure that ethical procedures were followed and that no intentional harm of subjects took place.

QUALITATIVE STRUCTURE

McNabb (2004) posits that research using qualitative techniques has a proclivity to demonstrating greater flexibility allowing the researcher to more aggressively pursue leads as dictated by what the data shows. Qualitative analysis is also quite useful as a powerful tool for assessing causality in particular for events making use of complex networks (Miles & Huberman 1994, 147). It also is useful for researchers that have background experience on the issue being studied (Miles & Huberman 1994, 17). Moreover, Morse (1991) writes that for newer issues and ones where new samples are considered that a qualitative method has utility.

Miles and Huberman (1994, 1) provide amplification on the applicability of qualitative research and its widespread nature among the social sciences and its gaining prominence

in other fields. To avoid superfluous data, the qualitative phase of the study focuses primarily on case studies of both Hurricanes Katrina and Irene of which a prodigious amount of qualitative data exists. It will be through a rich dissection of both events, that the researcher will seek answers to the research questions regarding how and why relationships (or the lack thereof) contributed to effectiveness (or lack thereof) regarding the collective efforts between DOD/NORTHCOM and DHS/FEMA.

The primary categorical variables once again include communications, planning, coordination and collaboration as instruments to gauge effectiveness. Primarily, this took place through the interpretation of text (and text transcription of oral accounts) covering what Miles and Huberman (1994, 9) refer to as data analysis of words. The focus was on achieving granularity on commonalities and patterns pertaining to these issues. Focus was not just on what happened. It is through the temporal period of 2004 to the end of 2010 that this study considered events leading up to and through the actual disasters to gain an understanding of what transpired. The relationship of these organizations was considered in terms of network theory whereby kinship ties (parental/subordinate

relationships) and event type activities between organizations (interactions and transactions) studied (Borgatti & Halgin 2011, 3).

Underscoring the case study mode, Agranoff and Radin (1991, 209) see the merit in using case study comparisons making use of such things as reports and documents, as well as interviews among other sources to pull data. The center of gravity of case studies comes from an interpretation and multiple sources of evidence (Agranoff & Radin 1991, 215). Likewise, when conducted properly, comparative case studies have viability in administrative research and are not seen as a lesser alternative to more traditional quantitative approaches (Agranoff & Radin 1991, 229).

Yin (2009, 2) provides a great literary work on case studies. These in-depth studies help those interested in finding answers to open ended questions (how and why) by looking at events and going into detail on a specific type of qualitative technique, specifically, ones that involve case studies. Case studies have merit applicable under three circumstances (1) when "how" or "why" questions are the ones of interest, (2) when the researcher lacks control of events, and (3) when the issue or phenomenon is contemporary and ensconced in reality (Yin 2009, 2).

What should become apparent is the need to obviate other techniques in order to validate the case study method. Again, Yin (2009, 8) provides four alternatives. These include (1) experiments - though they look to answer the "how" and "why" questions, unlike case studies experiments can be controlled, (2) surveys - these don't lend themselves to assist the researcher in answering the "why" questions, (3) archival analysis - this does not focus solely on contemporary issues, and finally (4) history - which by its nature demonstrates inferences to a past, non-contemporary event (Yin 2009, 8). It is because these four lack applicability that a case analysis regarding the first phase of this research took place.

Finally, the author will revisit the research questions looking for descriptive insight into answering these. These commonalities contribute to the findings as guided by the qualitative variables' Logic Model in Figure 3 to develop a more polished pictorial representation amplifying the perceived causal mechanisms contributing to effectiveness therefore allowing the researcher to segue into the second phase.

QUANTITATIVE STRUCTURE

Though the primary nexus of this paper focuses on the federal level, numerical data will inform on federal collaboration and effectiveness of the states affected by Hurricanes Katrina and Irene. This will allow the researcher to drill down to the state level to further measure the effectiveness of the federal response to see the interconnectedness using a formulaic investigation to provide a perspective on this.

The primary quantitative measure of collaboration of IGR will be measured by deaths resulting from these two storms. Moderating variables will also be considered to more aptly measure collaboration by looking at the number of federal exercises (further disaggregated by DOD/NORTHCOM and DHS/FEMA) and the number of real world federally declared disasters that took place in the year leading up to the Katrina/Irene hurricane seasons for each of the affected states.

Other quantitative data will include the number of DHS/FEMA exercises taking place in the year leading up the 2005 and 2011 hurricane seasons. Literature has shown that working together contributes to greater effectiveness; one could logically discern that exercises and real world event participation by the states with the federal

government will help improve the collective effectiveness of the federal response.

Controls will be used. Admittedly, the two hurricanes were different in both concentration (Katrina pinpointed a much smaller area with greater intensity whereby Irene covered a far greater geographical footprint albeit at a much lower level of intensity). Specifically, controls will take into consideration the differences between the two storms and will include such things as coastal exposure (in miles), state size, and state populations.

Though one could theoretically expand the number of variables (like classified material and money & budgets) the focus remains primarily on planning, communications, coordination and collaboration. Utility in experience derived from exercises and disasters is a way to lend greater credence to an understanding of effectiveness. Likewise, controlling for issues to help in the comparative analysis will better enable the researcher to mitigate spurious findings while helping to show the counterfactual by minimizing the noise associated with other factors that could skew the findings on the four primary categorical variables.

Multiple regression analysis will be used because this technique affords researchers an opportunity to control for variables (Remler and Van Ryzin 2010). Multiple regression analysis will also show the relationship among all of the variables and is not subject to bias or preconceived notions of the researcher. It is also a useful tool for helping to prove and demonstrate causation. Specifically, the p value and F significance level will be set to .05 to see if there is a proclivity toward causality or findings that are somewhat interesting when looking at correlations as demonstrated by the adjusted R-squared results. Permutations will be run for the primary dependent variable: the number of days until the restoration of normalcy (the date that the state emergency operations centers transitioned through preparation and through response to the recovery phases).

VISUAL REFERENCES

Visually, the study followed through with the factors influencing DOD/NORTHCOM and DHS/FEMA response. Microsoft Excel allowed the researcher to automate key words and notes, assisted in transcription, coding and the organization of the database in a partially processed way and to use it as a code and retrieve program (Miles &

Huberman 1994, 44-46, 312). It will also make use of cross-tabulation of results disaggregating by variable and looking to adjectives/descriptive phrases/words of enumeration for how well each organization did leading up to (preparation) and executing (response) disaster relief operations regarding both hurricanes in relation to the qualitative variables depicted in the Logic Model.

A useful way to analyze data is through the use of cross-tabulation to empirically determine how variables performed (Newton & Rudestam 1999, 44). This also served as a data reduction technique in order to allow for abstraction, simplification, and focus on the issues under consideration (Miles & Huberman 1994, 10). Moreover, the Excel database allowed for detailed content analysis in what Miles and Huberman (1994, 46) referred to as determining frequencies of key words; it also provided for the management of data. The cross-tabulation will present data in a table format broken down by organization then looking at each variable, the adjective/descriptive phrase amplifying the variable and the secondary source. It is through this that clustering and teasing out data could be realized and that data bounding brought to fruition (Miles & Huberman 1994, 10-16). Refer to Annex A for the table showing these

results; this section shows the display of data in a compressed and organized fashion (Miles & Huberman 1994, 11). It also employs what the authors Miles and Huberman (1994, 92) refer to as Levels 1 (data summation and packaging) and 2 (themes and trend identification) in their Ladder of Analytical Abstraction.

From this cross tabulation, a consolidated table provided a comprehensive breakdown on Hurricanes Katrina and Irene further disaggregated by DOD/NORTHCOM and DHS/FEMA for each event. Arrayed along the top, one will find each of the variables (communications, planning, coordination, collaboration, and effectiveness). Scores were assigned to each organization for the corresponding variable regarding the two events; Jaeger (1993, 6) writes in the viability of using scores in conducting normative interpretation. Mean averages will be used to show overall effectiveness; this type of average is well accepted when conducting interval-level measurement (Jaeger 1993, 40).

There are inherent challenges associated with this type of study. First, the qualitative data applies to two specific events. Events that transpired and actions implemented by the federal government might not have applicability out of the context of hurricanes in general.

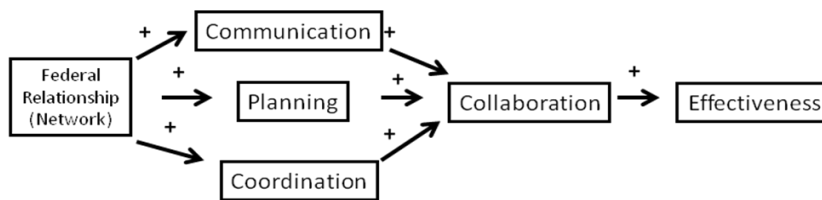
Challenges also affect the quantitative portion. Research focusing on secondary data has limited utility; however strengths outweigh the limitations. The research leveraged data as a holistic way to inform on the results as data applies to the variables in question.

QUALITATIVE AND QUANTITATIVE RESULTS

QUALITATIVE FINDINGS

To begin, one should explore the research questions. This project will look to discovery "how" effective is the relationship between DOD/NORTHCOM and DHS/FEMA regarding the support rendered by both departments and their subordinates relative to U.S. continental based hurricanes and if so, "why"? As mentioned in the research questions section, the case study method was used to seek answers them.

The study was predominately limited to the federal level focusing on DOD/NORHTCOM and DHS/FEMA. Moreover, secondary data served the primary conduit to provide enlightenment. Secondary data has utility and is seen as a credible source for seeking explanation (Remler & Van Ryzin 2010, 182). Yin (2009) informs readers of the importance of construct validity especially regarding qualitative studies and operationalizing the measures. The following logic model (Figure 5) extrapolation was used to guide the project; focus was on the definitions covered previously for each of these variables.



Qualitative Logic Model Figure 5

COMMUNICATIONS, PLANNING, COORDINATION, AND COLLABORATION

As stated previously, the variables depicted in Figure 5 have appeared in a multitude of sources validating the use of these variables in the public sector in general and emergency management in particular. These appeared to run parallel but serve as a slight variation of the traditional “three Cs” of emergency management (Comfort 2007, 189). Communications is the first of these and clearly an important component. This is covered several times as a sound variable in policy implementation (O’Toole 1986, 186-187 and O’Toole 2007, 326-327). Comfort (1985) stresses the importance of communications and the promulgation of information among the various agencies involved in disaster management. Likewise, Moynihan (2009 1, 895) clearly states that communications is a critical factor in preparing for and responding to disasters and must come before (temporally) collaboration. It is also seen as one of the significant variables considered as important in the emergency management field (Comfort 2007, 189). Other

authors also attest to the centrality of communications in effectively preparing for and responding to disasters (Comfort 1999, Mileti 1999, Waugh 2000). Provan and Lemaire (2012, 640) indirectly cover communications and its importance in networked relationships when they write on directing governmental action among agencies.

Interdepartmental efforts are required for the promulgation of successful practices. To do this, organizations at the federal, state, and local levels must articulate their needs and concerns. What's more, this applies specifically to both DOD and DHS. Each must keep the other informed of efforts in the context of a domestic disaster to help avoid prodigal behavior when coordinating preparation and response efforts.

Planning is the second of these and is also an integral component to this logic model. HSPD-5 is replete with references to this when dedicating much of its text to the notion in the National Response Plan. Planning is also a variable to consider when looking at policy implementation (O'Toole 1986, 185). As in the case of the communications variable, planning (stemming from the National Incident Management System) is useful in helping to manage large emergency response operations (Moynihan 2009 1, 895).

McLoughlin (1985, 169) goes farther; he states that planning is imperative in the realm of emergency management and in preparation for events to help ensure the right resources at the right time. There is also the benefit derived from the process of planning as well in serving as a point of departure once an emergency strikes (McLoughlin 1985, 169). In terms of directionality it, too, precedes collaboration since collaboration cannot in and of itself take place without the component of planning being present.

It is not enough to merely foster planning and encourage intergovernmental communication. Whereas communications can imply passivity on the part of the recipient, coordination takes interaction to a whole new level; Feiock and Lee (2012, S59) see this variable as a key component to collaboration. Comfort (2007, 192) informs on the relevancy of communications supporting coordination efforts in particular during preparation and response phases. It is through coordination that information is passed and active partnering begins. In time-ordering sequencing, collaboration will not exist without coordination; the converse however, would not exist. Once again, O'Toole (1986, 187) sees credence to this component when garnering support among those implementing policies; Moynihan (2009

1, 895) acknowledges the viability of coordination as a key pillar of emergency management during the disaster preparation and response phases. Comfort (2007, 189) considers coordination as a foundation variable in the context of emergency management. Provan and Lemaire (2012, 640-641) attest to the viability of coordination in networked relationships. Waugh (1993) goes on to state that coordination is so critical that effectiveness on intersectoral, multi-organizational and burgeoning intergovernmental success is predicated on it. Stakeholders work together leveraging their strengths while overcoming weaknesses with the express desire to seek problem resolution as quickly as possible and is applicable in the context of domestic disasters.

At the confluence of the outputs of enhanced planning, communication, and coordination one will find better collaboration. It is well documented that collaboration within and among agencies and departments is extremely difficult (Mazmanian & Sabatier 1989, 27). O'Toole (1986, 186-187) sees the utility in collaboration (through inter-organizational interdependence, joint action, networked leadership and the multiplicity of agencies) as a variable as well. Waugh and Tierney (2007, 9) who have written on

emergency management also see the merit in this variable. These two authors continue by stating that collaboration prior to the response phase is paramount for post-disaster response success (Waugh & Tierney 2007, 60). Moynihan (2009 1, 895) lends credence to the importance of this factor as a critical success component in the realm of preparation and response to disasters. Henderson (2009, 5) indirectly underscores the importance of collaboration in the context of natural disasters when writing on efforts being predicated on an orchestrated and concentrated effort required among all phases of the disaster lifecycle. Waugh and Streib (2006) also dedicated an entire literary piece on the viability of collaboration with regards to emergency management in both natural and manmade disasters; they also state that collaboration should not be an anomaly, but rather an expectation. Comfort (2007, 191) stresses collaboration when dealing with heterogeneous organizations and the major challenges emanating from significant disasters. Provan and Lemaire (2012, 640) even posit that collaboration is critical to network success.

It is through an amalgam of communications, planning, coordination and collaboration that greater effectiveness in relationships can be realized. O'Toole and Moynihan are

not alone at underscoring the importance of these variables. O'Brien, Callahan, Haverty, and Clayton (2008, 15) write about many success factors in a 2008 report. Specifically, they address such issues as collaboration communication, coordination and infer planning vis-à-vis formalized agreements as all key components contributing to success (O'Brien, et al 2008, 15-50). This grounding was used to substantiate and justify the aforementioned logic model.

Construct validity includes the totality of relationships emanating from particular measurements; it is through constructs that research attempts to measure data (Jaeger 1993, 80). The model demonstrates that, when used properly, collective efforts of multiple organizations through networking can achieve an effective outcome related to support of hurricanes. However, to do so requires intervening relationships. As pertinent to the DOD/NORTHOM and DHS/FEMA the components of communications, planning, and coordination will contribute to better collaboration and therefore facilitate enhanced effectiveness among the parties involved. It is through sound collaboration that both DOD and DHS will remain germane as effective federal

organizations in the context of continental U.S. based hurricanes.

To help better assess this, as previously stated, hurricanes were selected as a unit of measure to gauge whether or not DOD/NORTHCOM and DHS/FEMA are more effective years after Hurricane Katrina. The literature suggests that Hurricane Katrina was the first true test of DHS taking place just two years after standing up as the newest federal department.

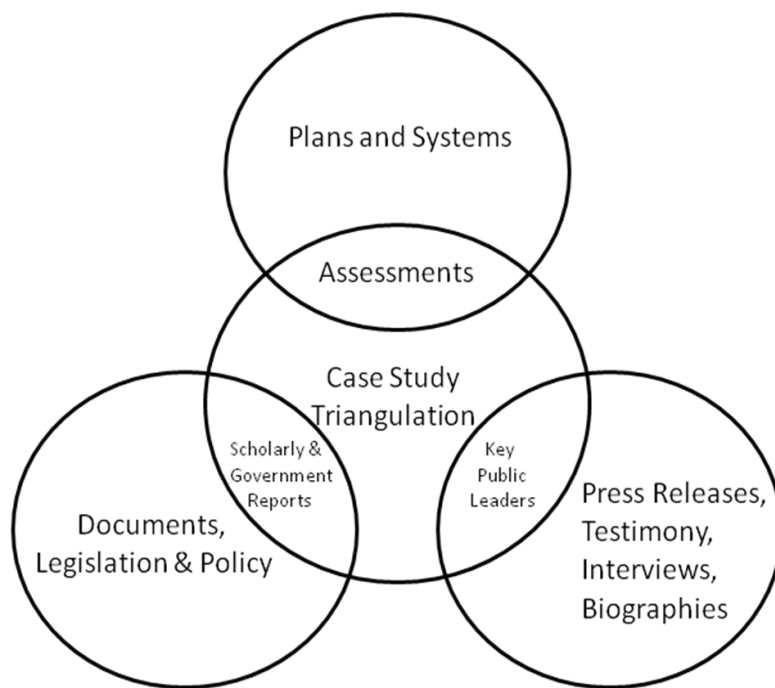
Six years to the day after Hurricane Katrina hit the Gulf Coast of the United States, a smaller yet much more dispersed hurricane hit the east coast of the United States. In late August, 2011 Hurricane Irene struck effecting east coast states from as far south as North Carolina to as far north as Maine.

Though both hurricanes are not comparable in the amount of destruction each caused, they do serve as a common unit of analysis. It is through this commonality, that this study made use of a holistic embedded case study to help seek answers to the research questions. The holistic embedded case study design is demonstrably viable since DHS is still a nascent one-of-a-kind federal organization and that DOD has embraced its role in domestic disasters as a

result of standing up NORTHCOM. Since both DHS and NORTHCOM are relatively new, and because both hurricanes are contemporary the case study methodology is applicable (Yin 2009, 42).

Secondary data is often useful when time and/or money are issues to limiting a full detailed analysis. In order to keep the research aligned to a specific azimuth, the following model might be useful to guide discussion. After a review of literature, surprisingly, less than 150 peer reviewed articles exist on the topic of emergency management (Comfort & Waugh 2012, 544). Since the focus of this research is on federal organizations, Figure 6 will help in dissecting the units of analysis to complement the limited number of journal articles on the topic. As with all good research, the intent is to triangulate on findings in order to report on the research's outcome. This author developed a model that he titled the Federal Model of Qualitative Secondary Data Case Study Triangulation. To that end, this model attempts to do so by looking at three primary components: (1) plans and systems - and their associated assessments, (2) documents and scholarly writings - with a particular focus on policy & laws, Congressional Budget Office (CBO), Congressional Research

Service (CRS), Government Accountability Office (GAO) reports, and to a lesser extent - news sources (for amplification/clarity), and finally, (3) press releases, testimony, interviews and biographical information of key leaders of the federal organizations; a preponderance of this data is experiential. Through these three components, theoretically one should find commonalities as they might help provide granularity to the Qualitative Logic Model in Figure 5; this model borrows logic from an overlapping cluster diagram used by Hodson (1991). McNabb (2004), Clark (2010, 89-91), Poynton (2010, 194), provide analysis on the use of many of these components as important secondary sources to be duly considered in scholarly research. That stated, one must be cognoscente of secondary sources with regards to sources, any potential bias associate with this data, and the age, accuracy & quality of said data according to Poynton (2010, 194).



Federal Model of Qualitative Secondary Data Case Study
Triangulation Figure 6

Many of the points covered in Figure 6 are listed in a Government Accountability Office study dating back to 1990 (GAO 3 1990, 20). When referring to this report, extensive analysis otherwise referred to as thick analysis via triangulation is derived from such things as interviews, archives, documents and physical information (GAO 3 1990, 20). It is through the acquisition of independent and multiple sources of evidence that help a researcher interpret findings when using triangulation techniques to

arrive at substantiated conclusions (GAO 3 1990, 69). Subsequently, analysis is achieved vis-à-vis pattern matching, explanation building and/or thematic review (GAO 3 1990, 20). When conducted properly, what is brought into fruition is an understanding of many influencers from variegated sources (GAO 3 1990, 20).

HOLILSTIC EMBEDDED CASE STUDY DESIGN

There are several common benefits to case study evaluations. They have utility in looking at what has occurred in a systematic way through the selection of instances whereby data is collected and subsequently analyzed (GAO 3 1990, 23). Regarding this study, the researcher considered time-ordering of actions to measure flows and processes across networks to better understand what happened over time (Miles & Huberman 1994, 119)

To better understand explanations to corroborate findings, this study used several components recognized by the federal government. Specifically, documents, interviews, and people can helped determine and substantiate findings (GAO 3 1990, 64).

To help better estimate change and to seek answers to the research question, two units of analysis - Hurricanes Katrina and Irene were considered. There is a plethora of

information related to Katrina; there is a lot of data on Hurricane Irene though this event lacks peer reviewed scholarly research at the time of this research. This section will break down these two units into more detail leveraging secondary data in terms of (1) documents, (2) plans & systems, and (3) testimony, press release, interviews and biographical data. Further justification for looking at two similar events stems from prior research where it is understood that latter events are predicated on prior ones, though connections are not always clear and neat (Kim 1981).

HURRICANE KATRINA

Bowman (2005) points out that it is a challenging task to determine what reasonable expectations are in the face of an unprecedented disaster. A litany of information exists on Hurricane Katrina and serves to help scholars better prepare for and respond to future domestic disasters (Davis, Rough, Cecchine, Schaefer, & Zeman 2007, np). A plethora of government reports, after action reviews, interviews, scholarly journal articles, and books cover nearly every facet of what took place and when. Many of these have recommendations for FEMA and NORTHCOM and serve to build on what has been covered previously in this

project.

2005 proved to be a unique season as hurricanes go. As such, a record number of hurricanes reached land in that year; the National Hurricane Center even rotated through a complete alphabetized list of names and transitioned into using the Greek alphabet to keep pace (Rubin 2007, 3). Of these, 15 warranted the moniker "hurricane" and three were considered catastrophic hurricanes: Katrina, Wilma, and Rita (Rubin 2007, 3). Of these three, Hurricane Katrina demonstrated just how weak the United States still remained when considering preparedness and response regarding a major disaster (QHSR 2010, 191). However, before launching into a dissection of Katrina, one should look at what transpired the year before this seminal event.

FEMA actually conducted an exercise focusing on a Gulf Coast hurricane striking New Orleans a year before the actual event. It conducted an exercise titled "Hurricane Pam" where many of the scenarios realized during Katrina were brought out during this exercise. Surprisingly, very little of the lessons learned were adopted; in a subsequent 121 page report - many of the issues addressed during Pam were not acted upon before Katrina's arrival (Gaviria 2005, np). When Katrina struck, DHS had been in existence for

three years; the terrorist attacks occurred less than four years before (Gaviria 2005, np).

The National Hurricane Center in Miami Florida saw the emergence of a dangerous weather pattern in the vicinity of the Bahamas beginning on August 23, 2005 (Murphree, et al 2009, 273). Over the course of the next four days, the storm increased in voracity making its way up the Gulf of Mexico (Goodsell 2011, 66). It hit on August 27th of that year and by 1:00 a.m. the next morning, Katrina attained Category 5 status with winds reported at 160 miles per hour (Goodsell 2011, 67). This mix of strong winds and the flooding resulting from levee breaches and storm surges proved to be a deadly mix; Mississippi, for example, experienced surges up to 28 feet (Rubin 2007, 189).

Once the levees at New Orleans' Lower 9th Ward gave way, flooding overwhelmed the city and the first responders on the scene; traditional telephone communications failed to work (Gaviria & Smith 2005, np). New Orleans experienced extensive damage with over eighty percent of the city affected and approximately half of its buildings and homes destroyed (Goodsell 2011, 68). Loss of life exceeded 1,000 in New Orleans; over 1,600 total lost their lives due to Hurricane Katrina (Goodsell 2011, 68). In the weeks that

followed, over 75,000 military personnel from both the regular Army and the Army Reserve/National Guard provided support to this disaster relief mission (FM 3-28 2010, 3-2).

Bowman (2005) noted the challenges when trying to determine what reasonable expectations were in the face of an unprecedented disaster. It did not take long before the federal government received a surfeit of criticism for its response. Both NORTHCOM and FEMA were claimed to be seen as ineffective and unresponsive (nor capable) of providing adequate support to a major event in both the preparation and response phases of this disaster (Kringel 2009, 30). Within days, Secretary Brown (FEMA) and Secretary Chertoff (DHS) came under increased scrutiny for their perceived failures and prosaic efforts in orchestrating federal governmental efforts during the response phase of this storm (Murphree, et al 2009, 289). Even more surprising was assertion that it took the Louisiana Defense Coordination Element (DCE) until August 27th to deploy to the impacted area (Wombwell ND, 147).

The blame rose to the Office of the President; George W. Bush, was not above reproach. The President was berated for his phlegmatic response and his seeming lack of

appreciation for the magnitude of the hurricane (Landy 2008, S190). His Administration was admonished for its overly bureaucratic approaches and statutory mechanisms for aid distribution (Landy 2008, S196). The federal government also received the blunt of the criticism for being mired in slowness, lack of flexibility, and for being ensconced in red tape in dispensing relief money (Landy 2008, S190). Bowman (2005) contended that the problems could have been avoided by better planning and execution. In the end, President Bush replaced the FEMA director within weeks following Katrina (Kringel 2009, 15).

Plans and systems were in place prior to the disaster but had not been tested. Specifically, the National Response Plan (NRP) of 2004 was a concerted attempt to unify efforts of all federal level organizations under DHS lead during periods of emergency. Yet Hurricane Katrina put the NRP/NIMS, DOD and DHS through a crucible testing the federal government's ability to respond to a major event in the post 9/11 environment (Wise 2006, 302). The next few weeks would test the NRP and the NIMS like no other preceding event. Charles Wise (2006, 302) noted this was the first test of a large-scale showing the implementation of the National Response Plan under the leadership of DHS

as the lead federal agency. Unfortunately, the storm stressed the government's ability to respond and assist and proved fraught with challenges and inadequacies (Rubin 2007, 1).

Evidence of planning challenges were also brought out during NORTHCOM's AAR when the organization acknowledged weaknesses associated with its lack of ability to adequately plan for and execute functions in the aftermath of this hurricane (NORTHCOM AAR 2004, 4). Specifically, NORTHCOM openly acknowledged the utility of the NRP but admitted to coordination challenges arising from a lack of NRP understanding and, by extension, the decentralized way FEMA operated (NORTHCOM AAR 2005, 5). What's more was that NORTHCOM admitted in the wake of Katrina that more must be done to educate FEMA on its own planning process and the importance of providing planners to FEMA well in advance of future threats when those threats are imminent and advance notice is available (NORTHCOM AAR 2005, 71-73).

When looking further at coordination challenges, breakdowns and dysfunction were seen throughout the interagency process in the wake of Katrina where a coordination authority was seen as necessary to help mitigate problems (NORTHCOM AAR 2005, 7). Moreover, the

NORTHCOM AAR (2005) attested to the need for greater coordination in its role to DSCA.

When considering the national perspective of domestic disasters, there are several documents and systems explaining how things should work. Some have been in use for decades and others have emerged in contemporary times. What follows are the key documents and systems and how they relate to preparatory and response phases gravitating around a domestic incident. In theory, all should be complementary and vetted throughout all levels of government.

The National Incident Management System (NIMS) purportedly serves as the framework for the management of emergency systems (FEMA NIMS 2011, np). It guides and facilitates response and recovery efforts following catastrophe (FEMA NIMS 2011, np). NIMS is flexible; it can be used under jurisdictional or functional lines (Saul 2006). NORTHCOM went as far as advocating for the full adoption of the NIMS in relation to military operations directed in support of civil authorities following Katrina (NORTHCOM AAR 2005, 11).

After an exhaustive document review, the evidence showed that for the first time, a major collaborative undertaking

took place throughout 2004 among federal heavy weight contenders to foster a work environment acknowledging both an interdependent relationship among the actors and the synergy to be realized from such relationships regarding the NRP (the NRF precursor). It also served to codify a "supporting to supported" relationship among federal organizations to DHS (NRP 2004, i). The NRP, however, lacked priorities; it failed to clearly support the phases of the disaster cycle reflected in Figure 1 during Katrina.

Other authors argue that the National Response Framework (NRF) currently is what has been designated by the federal government as the mechanism by which it responds to U.S. based incidents, including among others - disasters (Cooper & Block 2007). It is inextricably linked to the National Response Plan and the National Incident Management System (NIMS).

In the days and weeks after Katrina, the NRP and the NIMS would be tested like no other preceding event could. Charles Wise (2006, 302) observed that Hurricane Katrina was the first major event showing how the National Response Plan would be executed under the leadership of DHS.

Secretary Chertoff saw the failure of preventative and mitigating measures as contributory factors that led to

levee breaches and the subsequent damage done to New Orleans; this clearly showed a lack of proper governmental planning for plausible events (Chertoff 1 2009, 5). An interview with the Homeland Security Secretary took place a year following the catastrophe. In retrospect, Chertoff stated that his organization had capitalized on lessons' learned over the year.

Admittedly, he saw Hurricane Katrina as an unprecedented event and that regardless of FEMA's past success the decade leading up to this event, his assessment was that FEMA was woefully unprepared for this storm (Chertoff 2 2006, 42). He also went on to state that a chain of command was important during such events and that subordinates must support accordingly or risk creating fragmentation when trying to usurp the leaders in the chain of command. Specifically, this was addressed to Michael Brown, the agency head of FEMA at the time of Hurricane Katrina and some polemical remarks made by him (Chertoff 2 2006, 42). This fragmentation could be interpreted as a lack of collaboration.

When drilling down, Admiral Keating, then Commander of U.S. NORTHCOM, held a press conference the first week of September of 2005. In his introductory statements, he

provided accounts of what DOD had done thus far and reinforced the importance of DOD's contribution to the collective efforts in the wake of catastrophe (Keating 2005, np). He went on to say that prematurely deploying forces to the potential impact zone prior to disaster manifestation was akin to intentionally putting troops in harm's way - that this was unacceptable (Keating 2005, np). What he failed to address was the issue of prepositioning certain assets in close proximity to but just outside of the project impact area. This evidence showed a lack of communications, planning and coordination between DOD and DHS.

In a September 1, 2005 press release, Colonel Woods, the chief of NORTHCOM's Logistics Plans and Operations Division declared proclamations of success by emphasizing logistics support to this disaster vis-à-vis meals-ready-to-eat (MREs), trucks, fuel, and aviation support provided (NORTHCOM Press Release 1 2005, np). On September 12th, a NORTHCOM press release tallied support for the effort two weeks after the storm struck; military units had provided more than 40 million liters of water, 140 million pounds of ice, and 19 million MREs attesting to the capabilities that the military could provide on relatively short order

(NORTHCOM Press Release 2 2005, np). In this same press release, NORTHCOM validated its adherence to the National Response Plan and its support to FEMA (NORTHCOM Press Release 2 2005, np).

PBS conducted an interview with Secretary Brown (FEMA) in 2005. During this television interview, Brown proclaimed that he did not know what was occurring as events unfolded and even spoke of intentionally misleading the American public regarding the severity of the storm's damage further making the case for a lack of communications, planning and coordination (Gaviria 2005, np).

Seven months following the disaster, the National Journal conducted an interview with Michael Brown. Brown was asked a question on whether or not NORTHCOM was being underutilized; Brown wholeheartedly agreed that it was not (Singer 2006, 27-29). When asked to opine on DOD's role in disaster management, Brown vehemently stated that we (the government) should rely on DOD. However, he recommended that DOD not become too involved to the extent that local and state governments abdicate their responsibilities regarding disasters (and all of its phases) in the future (Singer 2006, 27-29). Yet clearly this ran contrary to

what others would attest to in the years following this calamity.

PBS also conducted interviews with New Orleans Mayor Ray Nagin and Louisiana Governor Kathleen Blanco (Gaviria 2005, np). Though they had made requests through FEMA and of the military, neither organization was able to adequately process them (Gaviria 2005, np). It took six days after the disaster for the federal government to finally respond to their requests. In defense of FEMA, Jane Bullock - the organization's chief of staff blamed the situation on no one organization because none was designated as the lead for this disaster (Gaviria 2005, np).

These efforts compounded with a federal collaborative effort to work collectively through the preparation and response phases could have had a significant and profound impact on the effectiveness of the national level government and one could reasonably deduce that this could reoccur during a future hurricane and/or other disaster where advance notice is known. This was underpinned in part by the requirement for successful coordination. Evidence of coordination failures ensued in the days following Katrina when the military moved troops into the

affected region without adequately coordinating their movement and subsequent stationing (NORTHCOM AAR 2005, 20)

Collaboration laterally across levels of government and horizontally among departments and agencies weren't the only problems. Communications within the DOD were stymied as well. In relation to the communications variable, NORTHCOM fully admitted to its challenges experienced during response operations. Specifically, the headquarters acknowledged that it must transition away from classified networks to unclassified ones in order to better communicate with civil authorities at non-military agencies (NORTHCOM AAR 2005). Lieutenant General Honoré, the commander of US First Army requested the status of assets available to him, but because DOD had not received the request from FEMA, it (DOD) failed to act on the request further delaying support (Wombwell ND, 148). Comfort (2007, 192) proffered an idea that due to a lack of understanding of the severity of this event is what contributed in part to policy makers not pushing for a system wide communications infrastructure. Comfort and Hause (2006, 1-2) amplified the challenges associated with the fragile communications system that lacked the capacity to deal with the enormous nature of this problem having

negative cascading effects on overall coordination.

A retrospective look at DOD/NORTHCOM also took place. Evidence showed confusion over who really was in charge in the backdrop of the military's increasing role in these mission types (Kringel 2009, 32).

DOD did not remain blameless. Even within the DOD hierarchy, unity of command did not exist. The active military and the National Guard remained intransigent whereby both answered to different bosses, therefore increasing the complexity of coordinating efforts and resources and thereby reducing collaboration (Wise 2006, 309). An example included the evacuation of victims from the Super-dome.

Accordingly, Wise wrote that Philip Parr (the Federal Coordinating Officer for Hurricane Katrina) noted that he had worked out a plan with the National Guard to evacuate people from the Super-dome, but the National Guard was overruled by the active duty commander, General Honoré (Wise 2006, 309). Along the lines of unity of command, there was not a fixed viable DOD element within the Incident Control System (ICS); it really came down to the DCO's ability and personality and his or her DCE especially

when regarding logistics and engineering capabilities. Problems of logistics seemed inherent when responders were called to act in support of catastrophic disasters; by extension, these problems translated into inadequate personnel and resources to address serious issues (Rubin 2007, 3).

Lieutenant General Inge, the NORTHCOM deputy commander, underscored the importance of the military's early involvement by emphasizing the importance of saving lives and relieving of human suffering in a Pentagon press conference on September 7, 2005 (DOD Press Release 2 2005, np). He went on to imply DOD's role in getting the job done involved an effort to preserve life and minimizing the suffering. Also, in early September, NORTHCOM clearly recognized the importance of logistics and engineering capabilities.

Returning to DOD, Paul McHale the Assistant Secretary of Defense for Homeland Defense, testified before Congress in November of 2005 (McHale 2005, np). In doing so, he acknowledged not only that more must be done in the future regarding hurricane response, but also DOD should look to change regarding future disasters. He also stated that even though local officials are charged with first

response, he stated that these first responders actually ended up being the first victims of this catastrophic disaster (Hurricane Katrina). He corroborated this when previously asked a question during an August 31, 2005 Pentagon press briefing, by fully acknowledging that despite two major combat engagements (involving approximately 180,000 troops) and with close to 27,000 troops forwardly deployed in Korea that the DOD could still respond to a major domestic disaster without impact to ongoing operations (DHS Press Release 1 2005, np). Despite this, resistance still existed regarding DOD assuming LFA for disasters (Waugh 2006, 10).

In a separate briefing at the Pentagon on this same day, the Office of the Assistant Secretary of Defense (Public Affairs) briefed that DHS under the NRP was the lead federal agency (DOD Press Release 1 2005, np). Moreover, Mr. DiRita informed the press that DOD's role was clearly and unequivocally to support FEMA and for DOD to lean forward in doing so. Emphasis was placed on preservation of life and reducing suffering. Furthermore, DiRita stated that logistics and engineering efforts would be the primary areas that DOD would concentrate efforts.

Interestingly, many of the issues looked inward to

military-to-military coordination and failed to address interaction with civilian agencies, bar few exceptions. One such issue pertained to NORTHCOM's lack of understanding of FEMA's decentralized culture (NORTHCOM AAR 2005, 5). This contributed to challenges (from the military's point of view) regarding the coordination of support. This had a cascading negative effect especially regarding air space control and moving aircraft throughout the area of operations; there was no clear understanding on who controlled it. In total, five major players along with local governments were identified as being involved in the process, yet it was still unclear as to who had what responsibilities for air space management. This issue could be one that would be addressed through the ICS use by the military.

Having a common understanding of situational awareness is imperative vis-à-vis a shared common operating picture or COP (Comfort 2007, 196). NORTHCOM's AAR surfaced issues pertaining to COPs and the lack thereof within the military (NORTHCOM AAR 2005, 9-14). Though this is outside of the focus of this research, the COP is inextricably linked to the ICS and the DCO/DCE structure. Admittedly, NORTHCOM - and by extension DOD, were reliant on classified

proprietary networks at the time and proved incompatible with civilian networks. The standardization of procedures under the ICS could assist with this as well as DOD and NORTHCOM's better use of DCOs. By adopting an unclassified system with data migration rights provided to the DCO to seamlessly upload data to DOD's classified network could assist with near-real time situational awareness.

Other challenges presented themselves during the AAR. One of major consequence with potentially adverse impact on logistics efforts regarded the initial deployment of military forces to the area of operations. Convoys were not synchronized and information that flowed into the disaster area were "unmanaged" (NORTHCOM AAR 2005, 19). Because the military deployed late and the fact that relief supplies were flowing in by the time the military reacted, could have caused bottlenecks reducing support.

In March of 2006, Northern Command released some of its lessons learned. On the 24th of that month, the command stated that it could sum up its lessons learned under two broad categories. These include the importance of unity of command and communications (NORTHCOM Press Release 3 2005, np). Specifically, it addressed the federal-state dichotomy between active military (under Title 10) and the

National Guard (under Title 32). However, lessons were equally applicable to the relationship of the military to the civilian lead federal agency (DHS) and FEMA. In this same release, NORTHCOM also espoused the utility of the Defense Coordination Officers (DCOs) and their importance in maintaining a common operating picture within FEMA (NORTHCOM Press Release 3 2005, np). Over half a year later, logistics still arised as a theme as was the case in this report (NORTHCOM Press Release 3 2005, np).

Going back to the White House report covered in the literature review, it continued to inform on how decision makers were uninformed of conditions in the affected areas and also on the magnitude of the rescue and recovery efforts at the behest of the federal government (Menzel 2006, 808). Recommendations throughout most of the lessons learned served as a rallying call to avoid interagency and interdepartmental rivalry by advocating for better lateral communications, planning, and coordination throughout the government with inferences to enhancing collaboration at the national level (Menzel 2006, 808).

The NRP was not above reproach. It has come out in recent years that the plan following an analysis on Hurricane Katrina, was rushed. Moreover, it appeared that

due to political pressure, the plan was pushed into existence, without proper vetting (Rubin 2007, 221). Additionally, the process compressed timelines for proper staffing and comment among the cosignatories and failed to give each time to adequately consider the content and the vitality thereof (Rubin 2007, 221). The ill-fated effects of the implementation and the lack of utility of the NRP were demonstrated following Hurricane Katrina (Rubin 2007, 221). The NRP was designed to be an all-inclusive, all-hazards approach to domestic disaster; though filled with good intentions, the plan fell drastically short (Sylves 2008, 79-80).

Clearly, the federal government was not able to comply with the spirit of HSPD-5 which called for a concerted effort on the part of all federal agencies under the purview of a single lead federal agency. Regarding resources, the national government's response was impressive. The Navy Seabees (engineers) cleared 200 miles worth of motorways and roads through the removal of 3,500 tons of debris (Landy 2008, S190). Additionally, the Navy delivered 170,000 gallons of fuel, helped repair more than 90 schools and provided over 600 families with food and water (Landy 2008, S190). The Coast Guard's role included

the evacuation and/or saving of more than 33,500 people. The Army's Corp of Engineers pumped over 224 billion gallons out of the city of New Orleans; it also repaired 170,000 roofs, installed 900 generators and complemented Seabee efforts in debris removal. In the end, the military deployed over 22,439 active duty personnel within 15 days following disaster impact providing a wide capabilities mix of services ranging from transport of supplies (via ground and air) to building hospitals (Landy 2008, S190).

FEMA's contribution included 101,174 shelter units for the victims, contracted for cruise ship staterooms, and 85,000 motel rooms. When said and done, it was estimated that support was rendered to over 500,000 people (Landy 2008, S190).

Seen as an event replete with shoddy practices and recalcitrance that was emblematic of federal departments and agencies, Hurricane Katrina saw significant, albeit uncoordinated efforts, on the part of the federal government. What ensued in the year that followed was the enactment of PKEMRA.

Of equal importance to increased effectiveness was the need for a better more rapid response. The literature

provided insight into the challenges regarding this. Days passed before DOD was able to provide forces on the scene in Louisiana to begin recovery efforts thus suffering was not alleviated by local, state and federal governmental entities (Davis 2008, 144).

More importantly, Hurricane Katrina had a resounding impact on DOD/NORTHCOM and DHS/FEMA. In 2006, DHS began enhancing the National Response Coordination Center capabilities and operations at FEMA's headquarters to help ensure better proliferation of incident management expertise to the state and local government levels and throughout the other departments and agencies in the federal government (DHS Archives 2011, np). It was through this center that equipment and supplies were coordinated (Buck, et al 2006, 17). DHS has also advocated infrastructure liaisons and increased the use of Defense Coordination Officers (DHS Archives 2011, np). Implementation of formal training and exercise programs had also taken place (DHS Archives 2011, np).

Evolution also occurred in DOD. In the year that followed, the Center for Army Lessons Learned released a Handbook for Catastrophic Disaster Response in May of 2006 (Saul 2006). This document reinforced the MACA (now DSCA)

concept and encouraged the use of Defense Coordination Officers (DCOs) to help foster improved response throughout the network of DHS and FEMA, but failed to give these liaisons any responsibility or authority to commit DOD assets (Saul 2006).

In late December of 2006, DOD released Joint Publication 5-0. Through this publication, DOD encouraged coordination with other federal agencies as early as possible to a maximum extent (JP 5-0 2006). In Chapter 11 of this document, DOD acknowledged the differences within its own department and other federal organizations but it also accentuated the importance of a coherent approach and leveraging diversity to facilitate coordination in the interagency process to stabilize and enable civil authorities to mitigate challenges resulting from catastrophes and disasters (JP 5-0, 2006). However, JP 5-0 (2006, II-8) still espoused the notion that DOD is neither in the lead nor should it engage prior to being ordered to do so by the President or the Secretary of Defense even in the wake of the criticism experienced by DOD the year prior.

Ambiguity though still existed when looking at the military's role in the context of domestic disaster relief

(Kringel 2009, 32). Confusion was still apparent in who is in charge in the backdrop of the military's increasing role in these mission types (Kringel 2009, 32). However, one good byproduct arose from Hurricane Katrina was the availability of 9,000 additional troops to the commander of NORTHCOM for such emergencies; this was not the case at the time of Katrina (Kringel 2009, 32). Underscoring the importance of this theme was an apparent lack of collaboration on the part of networks. This in turn led to degraded unity of effort stemming from inefficiency and lack of collaboration (NORTHCOM AAR 2005, 45).

INTERVENING YEARS (BETWEEN KATRINA AND IRENE)

The intervening years between Hurricanes Katrina and Irene saw many changes at the federal level; moreover, evidence showed a propensity for greater effectiveness that was demonstrated through the federal response during Hurricanes Ike and Gustav in 2008 (McGuire & Schneck 2010, S205). Both of these storms stressed the emergency management community to a greater extent than any other event since Hurricane Katrina (Lester 2012, 161-162). In the case of Gustav, the storm inflicted havoc in Louisiana and created paralyzing effects throughout the state resulting in lack of electrical power for weeks in some

places, traffic jams, and proved to be quite costly (Comfort, Boin, & Demchak 2010, 132). Ike turned out to be the third costliest hurricane in U.S. history (Lester 2012, 162). This storm resulted in over \$27 billion in damages and saw 112 people lose their lives (Lester 2012, 162).

Lending credence to better coordination and collaboration were seen prior to the outset of Hurricane Gustav. More specifically, FEMA dispersed teams throughout Texas, Louisiana, Florida, Georgia and other locations throughout the U.S. southeast (FEMA Gustav 2008, 1-4). Moreover, DOD (and by extension NORTHCOM) were proactive in the pre-staging of DCOs/DCEs and Army Corps of Engineer assets prior to the hurricane making landfall to areas that included Fort Worth, Austin, Galveston, Baton Rouge and Atlanta (FEMA Gustave 2008, 1-4). More to the point, FEMA attested to increased coordination and communications when referencing joint efforts between FEMA and DOD regarding the evacuation of medical patients (in concert with Health and Human Services) during both Gustav and Ike (FEMA Gustav & Ike 2008, np).

Efforts regarding the support of these events by NORTHCOM were confirmed by several press releases by this combatant command. On August 30, 2008 NORTHCOM not only had provided

DCOs/DCEs in advance of Gustav's arrival but had active emergency preparedness liaison officers to specifically work out of the FEMA National Response Coordination Center to better assist with planning coordination and collaborative efforts (NORTHCOM Gustav 2008, np). What's more is that the command made available during the preparatory phase several bases to include Maxwell Air Force Base and Fort Rucker in Alabama, Columbus Air Force Base and Naval Air Station Meridian (both in Mississippi), and Fort Benning in Georgia to FEMA to serve as national logistics staging areas as was a DOD recommendation emanating from Katrina lessons learned (NORTHCOM Gustav 2008, np). Medium and heavy lift helicopters were also on order to support the pending mission (NORTHCOM Gustav 2008, np). All of this took place while the U.S. was surging forces in Iraq while simultaneously engaged in combat in Afghanistan giving credence that despite being actively engaged overseas that it could still render support to domestic incidents. In the response phase, NORTHCOM provided logistics support to the operation (NORTHCOM Gustav 2 2008, np).

NORTHCOM also provided direct and similar support just days after Gustav in support of preparation of Hurricane

Ike efforts regarding the pre-designation of bases to be use for staging of equipment and supplies (NORTHCOM Ike 2008, np). DCOs/DCEs worked with civilian counterparts to plan and coordinate efforts leading up to the onset of this disaster and immediately into the response phase (NORTHCOM Ike 2 2008, np). As a result of direct planning and coordination with FEMA, NORTHCOM subsequently contributed over 100 high water and small boats, 42 search and rescue aircraft, and other personnel and assets to support Ike response efforts (NORTHCOM Ike 3 2008, np).

Capitalizing on lessons learned arising from past disasters, in 2008, the National Response Framework (NRF) subsumed the NRP as its replacement (Sylves 2008, 135). Other than the traditional federal-state-local levels of government all hazards approach to disasters, the NRF also had provisions for voluntary organizations and nongovernmental actors. Still, the NRF calls for a "lowest level" approach to incident management. Successively, as events transpire and the situation warranted resource shortfalls that are identified by the lower level of government requests are passed to the next level (Sylves 2008, 148). Lester (2012, 160-161) sees the NRF (and by extension the NIMS) as a conduit to facilitate not just

cooperation but quite possibly bring about the manifestation of true collaboration.

In translation, the local governments request assistance from the states; when state resources are depleted or prove inadequate, the state governors request federal assistance. Most likely, DHS as the lead federal agency will step in. If or when DHS cannot handle the situation, it still can request support of the U.S. military.

In 2006, DHS began enhancements to its National Response Coordination Center (NRCC) capabilities and operations at FEMA's headquarters in D.C. to help proliferate information regarding incident management expertise. It did so at the state and local government levels and the other agencies & departments of the federal government (DHS Archives 2011, np). DHS has also advocated for the increased use of Defense Coordination Officers (DHS Archives 2011, np). What had also taken place had been the implementation of formalized training and exercise programs across all of the levels of government (DHS Archives 2011, np).

The NRF makes reference to DOD on several occasions; it also specifies that the military will remain under the operational or administrative command of DOD and will not fall under the actual command of the Incident Command

System (NRF 2008, 11). Under the NRF roles and responsibilities section, a paragraph is dedicated to DOD. Once again, the NRF references DOD as being an outside organization and until such time that the Defense Secretary agrees or the President directs DOD to render support; DOD is under no obligation to support civil authorities (NRF 2008, 26). As late as 2008, DOD seemingly had little in terms of specificity or guidance pertaining to its exact role in disaster relief.

In this same year, DHS published the Homeland Security Plan (HS) 2008-2013. The HSP was an amalgam of nearly three years of work resulting from lessons learned from the 2005 hurricane season. Secretary Chertoff led his organization through this introspective look into his organization and how it could better serve the American public. What resulted was a document producing the DHS vision, mission, core values, and guiding principles (Strat Plan 2008, 2-4).

Specifically, in the guiding principles section, the document addresses both preparedness and response and the need for DHS to help proliferate these ideas nationally across all levels both public and private notwithstanding the federal level and by extension DOD. Likewise, it

acknowledges the value of a full spectrum governmental approach to responding to major incidents (Strat Plan 2008, 5).

The DHS Strategic Plan 2008-2013 provides greater luminosity on the role of this organization. The plan is broken down by five strategic goals. The one most applicable to disasters is goal four. Specifically, it addresses previously espoused ideas covered in an earlier section looking at ensuring preparedness (objective 4.1) and enhancing response (objective 4.2) efforts (Strat Plan 2008, 18-19). Under objective 4.1, DHS provides amplification to preparation efforts required by all. Clearly this department was looking to capitalize on lessons learned during Katrina, sought improvements moving beyond Gustav and Ike, putting the department on a better heading moving toward the 2011 hurricane season.

Lending further support to what has been already covered is the notion that DHS wants to foster a culture promoting preparedness, the empowerment of individuals and communities, and the comprehensive inclusion of all stakeholders to achieve preparedness (Strat Plan 2008, 18). Admittedly, DHS fully understands the intricacies of divergent actors.

Under the HSP Appendix A, external challenges, the department sees a full scope approach involving all levels of government (laterally and horizontally) to assist DHS in achieving its mission (Strat Plan 2008, 28). When turning to the HSP Appendix B, it clearly affirms the need to be prepared for large-scale natural disasters and specifies DOD as one of five expressly stated federal components as being a viable and noteworthy partner and stakeholder (Strat Plan 2008, 31). Evidence showed that improvement occurred during Gustav and Ike; seemingly DOD/NORTHCOM and DHS/FEMA were simpatico by 2011.

Though the HSP was a DHS document, as the lead federal agency for U.S. based incidents of national prominence, it was important that other agencies and departments understand this capstone document. What's more, though it did not have direct implications for other federal departments and agencies not under its purview, it could easily have impacted on them in time of emergency. Contextually, it was incumbent upon other federal players, to include the DOD to have a keen understanding of this source document. It, however, was not clear to the extent that this was promulgated throughout DOD; results from the

2008 hurricane season and beyond showed greater compatibility among the departments.

President Obama's NSS covered not only the importance among coordination along all levels of government but expanded on the topic of the collaboration required among all actors including those of the executive branch calling for an integration of plans and capabilities to ensure that the United States is prepared for any threat (NSS 2010, 51).

HURRICANE IRENE

Clearly, plans were meticulously developed, communicated, and coordinated by the start of the 2011 hurricane season. DHS/FEMA and DOD/NORTHCOM had a much clearer understanding of each organization's role before the onslaught of Hurricane Irene.

On August 27th, 2011 six years to the day after Hurricane Katrina reached the continental United States, this Hurricane struck the Outer Banks in North Carolina. Though this current storm only hit as a Category 1 hurricane, its impact reeled the east coast of the country until it dissipated three days later (NHC 1 2011, np). It was the first major hurricane and ninth named storm of the year of the 19 that occurred during this 2011 hurricane season

(NORTHCOM AAR 2012, iv - 1). As of August 29th, the storm's effects could be felt all the way up to Maine. Throughout late August, President Obama had made formal emergency declarations for the states of North Carolina, Virginia, Maryland, Pennsylvania, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, Vermont, Maine, the District of Columbia and Puerto Rico (FEMA IR1 2011, np). By this date, record flooding had been experienced in both New York and Vermont (Ifill 2011, np). President Obama was quoted on the Public Broadcast System (PBS) news hour on this same day as being committed to engaging FEMA and the federal response to ensure that everything that could be done was done (Ifill 2011, np). Early estimates of damage were from between \$10 and \$15 billion (NORTHCOM AAR 2012, iv). What resulted was 14 emergency declarations and 13 major disaster declarations by President Obama (FEMA Irene AAR 2011, 3).

The interest in this storm was to show DHS effectiveness linking it to vast land area affected by the hurricane. DHS got out in front of this catastrophe in the preparation phase of the disaster. FEMA, too, was proactive and stood up the National Response Coordination Center on August 21st of this year (FEMA Irene AAR 2011, 3). Two days before the

storm arrived on the east coast, DHS issued a press release outlining the preparatory efforts. Records showed that DHS had reached out to the governors of the states that ended up actually being effected by Irene (DHS IR1 2011, np). DHS, through the Federal Emergency Management Agency (FEMA), also activated its National Incident Management Assistance Teams (IAMTS); these teams were on the ground in North Carolina and Virginia as early as August 25th and were enroute to Maryland, Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont. These were part of the NIMS and made use of the ICS. Appearing on television on this same day, FEMA's Kertz Hare informed the country from Atlanta that everybody (all actors) were working together to put the pieces of the puzzle together to execute their single plan through fostering a collaborative effort (FEMA Media 1 2011, np). Furthermore, the proactiveness spanned vertically with both DHS and FEMA remaining synchronized with one another in the preparation phase as was also specified in the August 25th press release when the two organizations jointly contacted state, tribal and local governments (DHS IR1 2011, np).

Secretary Napolitano was interviewed by Neil Cavuto the next day; the day prior to the storm. Here, she asserted

the importance of preparation and looked to communicate using media imploring citizens to listen to their governors and emergency professionals (Cavuto 2011, np). She further underscored preparatory efforts by referring the audience to "ready.gov" a site dedicated to helping citizens prepare for catastrophic events (Cavuto 2011, np). On this same day, during a live briefing, Secretary Napolitano again emphasized the importance of coordination and the use of the National Incident Management System's assistance teams (FEMA Media 2 2011, np). Admittedly, Secretary Napolitano contended that efforts would not be perfect but recommended that the citizens listen for evacuation orders and heed advice of local and state governments capitalizing on lessons learned from Hurricane Katrina. FEMA's Administrator Fugate also accentuated the importance of planning and preparation efforts involving the full spectrum of government implying active collaboration to prepare for this event on August 26 (FEMA Media 2 2011, np).

On the day of the storm's arrival, President Obama made an unannounced visit to FEMA. He participated in a live video teleconference which also included Secretary Napolitano of DHS and Administrator Fugate of FEMA and many

of the east coast governors facilitating both communication and fostering coordination among all principals as the storm was making landfall (WHR1 2011, np). Collaboration did not just occur vertically throughout the federal and state levels of governments.

Secretary Napolitano was interviewed by PBS' Gwen Ifill on August 29th. During her remarks, she guided discussion along the three emergency phases of preparation, response and recovery (Ifill 2011, np). This was a way to help communicate intent, synchronize and coordinate efforts and direct attention throughout the relief process. On this date, her priority was still on aiding victims and ensured the public those governmental efforts in general and her organization in particular would work towards that end (Ifill 2011, np). To do this, liaisons (LNOs) used networking to facilitate action; these include DCOs and FCOs. Underscoring this, Administrator Fugate was quoted on live television acknowledging the record flooding from this storm and addressing FEMA's role in helping these efforts (Ifill 2011, np). Yet Craig Fugate never lost focus on the importance of collaboration and underscored this in addition to the effective use of communications

equipment and connectivity in a FEMA press conference this same day (FEMA Media 3 2011, np).

Lateral coordination leveraged networks that included the National Hurricane Center and DOD for resources and land space to be used for incident support bases (DHS IR1 2011, np). An affirmation of this was consistent with a press release issued by DOD a day later. FEMA had reached out to NORTHCOM via its DCOs (LNOs) for disaster assistance. Through NORTHCOM, DOD activated Defense Coordination Officers (DCOs) and Defense Coordination Elements (DCEs) in FEMA's Regions I, II, III, and IV which service most of the east coast of the United States again using the benefits of networking to foster greater effectiveness (NORTHCOMR1 2011, np). Specifically, DOD made available Joint Base Bragg-Pope (North Carolina) and McGuire-Dix-Lakehurst (New Jersey) as FEMA Incident Support Bases or ISBs (NORTHCOM AAR 2012, 4). McHale (2005, np) saw DOD's vitality in helping in response and recovery actions and went on to say that military facilities and capabilities were extremely important to the effort, including the logistics contribution.

DOD provided press releases regarding its actions. It stated that it was using its Defense Coordination Officers

(in each FEMA region), was making air & ground transportation experts available to FEMA, and was prepositioning food and other resources (not conducted during preparation efforts for Katrina) at the DOD provided incident support bases (DOD IR1 2011, np). Once again, evidence of networking took place. DOD even deployed 18 helicopters to the projected impact areas (problems previously noted following Katrina) the day prior to the storm reaching landfall (DOD IR1 2011, np). On August 26th, DOD and NORTHCOM designated and made available to FEMA military bases in New Jersey (Joint Base, McGuire-Dix-Lakehurst), Massachusetts (Fort Devens and Westover Air Reserve Base), and North Carolina (Fort Bragg) to serve as the actual incident support bases (NORTHCOMR2 2011, np).

In a press release dated August 29, NORTHCOM stated that it was providing DCOs to assist with coordination and assessments to FEMA's National Response Coordination Center; Fort A.P. Hill in Virginia was also designated as an additional military facility to provide support to the relief effort on this day (NORTHCOMR3 2011, np). Finally, DOD's Secretary Panetta reinforced dual-status commander memorandums to allow for seamless command of the incident from a defense perspective to ensure that challenges

arising from Katrina did not replicate following this event (DOD IR1 2011, np). This was unprecedented and Hurricane Irene was the first time that this took place (DOD IR2 2011, np). Dual status was actively agreed to by both DOD and the governors of the states demonstrating an environment of joint planning (through the adoption of the Joint Action Plan for Unity of Effort), communications and coordination all while supporting FEMA, and by extension, DHS through greater collaboration (DOD IR2 2011, np).

Networking continued and DOD stated that it was using its Defense Coordination Officers (in each FEMA region), was making air and ground transportation experts available to FEMA (a problem noted during Katrina), and was prepositioning even more food and other resources at the DOD provided incident support bases all in the effort to foster better communications, planning, coordination, and collaboration (DOD IR1 2011, np).

"Even before Hurricane Irene made landfall we were working with our federal, state, local, and tribal emergency management partners to prepare and minimize loss of life and damage. However, our work is not done—as we enter the next phrase, the Obama administration is leaning forward to support communities throughout the east coast as we respond and recover." Secretary Napolitano (DHS IR2 2011, np.).

Secretary Napolitano's quote came on August 31st during a press interview and accentuated the lateral and horizontal

efforts to foster coordination in the wake of this disaster. Administrator Fugate agreed and confirmed Secretary Napolitano's assertions and was subsequently quoted on the same day when he stated that FEMA's priority was to actively support both state and local officials as they continued their transition from the response to recovery phase of the operation (DHS IR2 2011, np).

Eight days later as the response phase was winding down, much had been accomplished. Over 10,000 National Guard troops had provided direct support to recovery operations, 307 shelters had been opened in 14 states and Puerto Rico, the Corps of Engineers had provided eight generator power plants to critical public infrastructure facilities in three states, and over 44,000 survivors had registered for federal assistance (FEMA IR2 2011, np). Success could be attributed in part to the NRF, the NIMS, and ICS. The NRF had codified procedures for voluntary and nongovernmental organizations in addition to the standard procedures for federal-state-local levels of government all hazards approach to disasters. Similarly the NRF called for a "lowest level" approach to incident management. This seemed consistent with what transpired following Hurricane Irene. Moreover, the NRF contained core documents,

emergency support function annexes, incident annexes, national planning scenarios, strategic guidance, and playbook (Sylves 2008, 149). It appeared that DHS had become much more adept and effective at implementing the NRF and using NIMS throughout Hurricane Irene and working in a more concerted effort with other federal departments notwithstanding DOD and NORTHCOM than it was using the NRF and NIMS during Hurricane Katrina. As Lester (2012, 160-161) stated, the NIMS is in a unique position to help foster collaboration at the federal level serving as a catalyst for intergovernmental contact.

The press releases and interviews with Secretary Napolitano and Administrator Fugate inferred a clear sense of communication and collaboration. The only challenge presented during FEMAs AAR for Hurricane Irene was the need to continue to improve on information technology information sharing capabilities (FEMA Irene AAR 2011, 10). Planning was acknowledged through the use of the Joint Action Plan for Unity of Effort which was agreed to in 2009 and referenced in a Hurricane Irene DOD press release (DOD IR2 2011, np). Likewise, the FEMA AAR made specific references to planning but stated that, though not a problem during Irene, it should work to plan beyond 24

hours in advance during the actual event (FEMA Irene AAR 2011, 9). They also demonstrated the involvement of key leaders at all levels of government, the use of systems, and plans.

In October of 2011, Administrator Fugate (2011) testified before the House Committee on Homeland Security. During this time, he declared improvements realized five years after the establishment of PKEMRA and even referenced the use of FEMA teams in partnership with those at the federal level to foster coordination and collaboration; likewise, FEMA was able to provide Mobile Emergency Response Systems (MERS) to meet and exceed the communications requirements of federal, state and local governmental partners during and following Hurricane Irene (Fugate 2011, 2-3). Other sources corroborated the effectiveness of communications in support of Hurricane Irene where critical communications assets were in place prior to the storm's arrival (State of FEMA 2012, 12-17). What's more was the adulation shared by both DHS and DOD regarding the continuous exchange of information, status updates and decision dissemination (NORTHCOM AAR 2012, 2).

What also contributed to the success was the promulgation of new plans emanating from the NIMS (Fugate 2012, 5).

Planning was also evident in the availability of new plans under the NIMS during Hurricane Irene (State of FEMA 2012, 13). What's more, in advance of Irene making landfall, plans were synchronized between NORTHCOM and FEMA (NORTHCOM AAR 2012, 4). Moreover, from a civilian perspective, the ICS proved invaluable in direct support of disaster relief efforts following Hurricane Irene particularly with regards to logistics (potable and waste water specifically) and the use of liaisons throughout the affected areas (Faryan 2012).

Assisting with plans and the planning process was communication and communication equipment. NORTHCOM deployed communication equipment during the preparatory phase in an effort to have functioning interoperable systems with civil authorities in advance of the storm making landfall (NORTHCOM AAR 2012, 4). Nevertheless, communications still had challenges that must continue to be worked and should consider a dedicated DSCA architecture (NORTHCOM AAR 2012, 181). Even more interesting was the effectiveness of the ICS in use of communications and backup systems among civilian agencies (Faryan 2012, 6). Regardless, DOD and DHS were still able to successfully pass information via voice and data systems to one another.

Coordination and collaboration were also evident at all levels of the federal government in Irene's preparation and response phases; specifically, DHS and DOD were seen as locked in step regarding these two variables as was covered in NORTHCOM's AAR (2012, 2). In a report on FEMA's 2011 performance, the use of assistance teams and their importance was underscored (State of FEMA 2012, 17). Seemingly, one could deduce that Posse Comitatus did not stymie efforts and that the federal response was able to show marked improvements through the proper implementation of HSPD-5 and PKEMRA.

Six months later, relations between DOD and DHS continued to proliferate. DHS' Director of the Office of Operations Coordination and Planning visited NORTHCOM in February 2012 (NORTHCOM Visit 2012, np). In his press release, Mr. Chavez noted the relationship between the two organizations and was quoted as referring to both organizations as neighbors and saw the vitality of the relationship to foster a concerted effort (NORTHCOM Visit 2012, np).

As 2011 closed, the federal government provided a substantial amount of support in that year (State of FEMA 2012). In summary, there were 98 major disaster declarations with 26 other emergency declarations (State of

FEMA 2012, 4). Of these, Hurricane Irene was identified as the one and only hurricane to strike the United States in 2011 whereby over a dozen states and 35 million people were affected (State of FEMA 2012, 12). It was hailed as a resounding success by FEMA (State of FEMA 2012). NORTHCOM also provided testimony of the highly successful operation (NORTHCOM AAR 2012, 8).

NORTHCOM also attested that Irene consumed the preponderance of support in that year by this headquarters (NORTHCOM AAR 2012, 1). 2011 rounded out what was to become understood as the third highest number of hurricanes to form since 1851; Hurricane Irene was also the most significant one to strike the U.S. Northeast since Hurricane Bob in 1991 (NORTHCOM AAR 2012, 1). The combatant command also reinforced prior lessons learned by expounding upon the relevancy of using unclassified networks and enhanced situational awareness and information sharing as was evidenced during Irene (NORTHCOM AAR 2012, 6).

Networking was critical to success. Though NORTHCOM's Irene AAR underscored the relevancy of DCOs, more could be done at the general and flag officer ranks to assist with communications, planning, and coordination (NORTHCOM AAR

2012, 142). This in part was underscored by a 2013 GAO study regarding Hurricane Irene (and its aftermath) and the fact that DOD still lacked training of active duty dual status commanders capable of serving in a leadership capacity over active and National Guard forces (GAO-13-128 2012, 18). This continues to make the case for networking at lower levels throughout DOD/NORTHCOM and DHS/FEMA.

Overall, effectiveness of the federal response was touted as a major success. Evidence of this was grounded in the 2012 NORTHCOM AAR (2012, 2) and the support through DSCA stemming from a standing executive order signed on February 10, 2011. This complemented a DOD Directive (3025.18) which expressly addressed DSCA (GAO-13-128 2012, 18). NORTHCOM went on by reinforcing the need to use proactiveness and collaboration to help infuse future success (NORTHCOM AAR 2012, 9).

When considering the data, Table 1 provides clarity. Specifically the chart below addresses main categories extrapolated out of the Logic Model from Figure 5. Each of the categorical (qualitative) variables are found along the horizontal axis; the vertical axis shows the two primary units of analysis (hurricanes) considered by this researcher. Within each box are the components of data

used to assess effectiveness. Visually it depicts those items used to assess each variable of both departments over the temporal period covered in this research. Collectively, this served as the basic matrix for the presentation of sources to help show parity of data contributing to the results that will be expounded upon in a subsequent chart.

SUMMATION OF SECONDARY SOURCES

	Communications	Planning	Coordination	Collaboration
Hurricane Katrina	Gov't documents Interviews Press Releases Biographies Key Leaders	Plans (NRP) Systems (NIMS) Interviews Press Releases Biographies Key Leaders Gov't Documents	Gov't documents Key Leaders	Gov't documents Interviews Press Releases Biographies Key Leaders
Hurricane Irene	Press Releases Interviews Key Leaders Testimony Gov't Documents ICS	Plans (NRF) Systems (NIMS) Assessments Key Leaders Gov't Documents	Press Releases Key Leaders Testimony Gov't Documents	Press Releases Key Leaders Testimony Gov't Documents ICS

Table 1

What was not refuted is the fact that data regarding Hurricane Irene was not as substantial as the other storm. On the contrary, a plethora of resources existed on Hurricane Katrina and have shed great light on the federal

response to that event. However, a multitude of qualitative data existed for both events and was quite similar affording a fairly easy comparison using hurricanes as a unit of analysis.

QUALITATIVE ANALYSIS

In the conduct of qualitative analysis, it is often useful to expand upon findings derived from a review of categorical evidence and assign a numeric rating based on clear definitions. Remler and Van Ryzin (2010, 256) go on to amplify the presentation of categorical data through cross tabulation. This analysis borrows in part from defining of terms as outlined by Mazmanian and Sabatier (1989, 123) when they asked questions related to policy implementation and looked at each variable independently. However, this study expands on that notion and sees utility in conducting analysis using numbers where possible even in the realm of qualitative research (Bardach 2009, 5). Goodsell (2011, 251) demonstrates precedence when he did so using numbers qualitatively to present data on six public sector organizations. Specifically, criteria received weights in importance and subsequently each organization received a numerical score depending on how well Goodsell interpreted the organization as fairing regarding each

criterion. Campbell (2012, 723-724) also writes on coding and its use in qualitative analysis to better categorize information; it also helps narrow samples. Miles and Huberman (1994, 55) espouse on the relevancy to employ coding techniques to help address the multiplicity of issues emerging from muddling through the data. Towards the end of this section, a conversion of the numerical ratings back to descriptive text will occur to expound upon the research's qualitative findings.

This research references the raw data listed in Annex A. This specific matrix borrows significantly from the Conceptually Clustered Matrix presented by Miles and Huberman (1994, 130) though modified to address the uniqueness of this study. When looking across the continuum of the variables and throughout the span of both hurricanes and the intervening years, empirically it becomes clear that improvements over time have taken place. In particular, when looking at words of enumeration regarding governmental efforts and when specifically turning to the various organizations, minor improvements have occurred regarding communications, with fairly substantial improvements occurring with planning, coordination, and collaboration. In turn, the confluence

shows betterment in effectiveness stemming from networking as evidenced through the recent outcome of Hurricane Irene.

Moreover, Lutton (2010, 140) references the utility of "moving up" from the data. Specifically, he covers several areas demonstrating the importance of such things as categorizing the data, sorting and organizing it, and the importance for use of comparisons (Lutton 2010, 140). This all contributes to the conduct of analysis activities (Lutton 2010, 138-141). Once again, through this categorization, one sees improvements from the year prior and through Katrina, during the intervening years, and culminating with the year preceding Irene and beyond.

Miles and Huberman (1994, 9) clearly state that affixing codes to observations and notes is a prerequisite in qualitative analysis. Moreover, sifting and sorting of the data helps one triangulate in on findings (Miles & Huberman 1994, 9). This made use of the sort function on an Excel spreadsheet (Annex A) and allowed for this to take place. From this, one can determine patterns and commonalities helping to identify consistencies (Miles & Huberman 1994, 9).

This section now turned to experts regarding emergency management to show improvements in networked relationship

effectiveness. Claire Rubin, Richard Sylves, William Waugh and Kathleen Tierney are recognized experts in this field. These authors and others covered in the preceding section have discussed the categories depicted in this research through the publication of text books and peer reviewed journal articles.

To better understand the process, it is important to operationalize the values through data coding. In doing so, this helps subscribe to what Dunleavy (2003, 162) refers to as a complementary role whereby text laden explanations support argumentative suppositions made by researchers through the use of condensed data. Dunleavy (2003, 185) lends support to the notion of charting data wherever possible especially in the realm of dissertation research; this assists in the multivariate analysis of data. Coding of data is useful to help interpret one's results as enumerated upon by Newton and Rudestam (1999, 22). In doing so, it affords the researcher an opportunity to more easily allocate data into a more reasonable and readable format to facilitate interpretation (Clark 2010, 96). This serves to further tease out the data reflected in Annex A. Remler and Van Ryzin (2010, 128) go farther and write on the technique whereby one takes categorical

data and converts the information to numbers to assist in the subsequent analysis of data. These values serve as estimates computed from the data collected within the established parameters of this study (Jaeger 1993, 140). Moreover, this analysis capitalizes on the observations and interpretation of words (Miles & Huberman 1994, 9). It is also useful in what Miles and Huberman (1994, 90) refer to as "describing and explaining." Specifically, point estimates will serve this purpose involving the assignment of values for each of the variables in the logic model to visually show change between Katrina and Irene. The following turns to a maximum value matrix where the higher the value, the better the outcome leading to greater effectiveness; this subscribes to what Miles and Huberman (1994, 91-92) refer to as "displaying the data" so that subsequent interpretations can take place and conclusions drawn from, in part, the visualization of data and assists with what the authors call Level 3 of the Ladder of Analytical Abstraction of data explanation. Moreover, weighting of data and evidence has utility according to Miles and Huberman (1994, 267) allowing for a researcher to compare results against averages in order to strengthen one's conclusion. The differences between the values of

three and two is the same as between the values of two and one therefore attesting to the idea that these numbers fall under an "interval" level of measurement (Jaeger 1993, 39). Both interval and ratio levels of measurement allow for the use of mean averages as an adequate measure for central tendency (Newton & Rudestam 1999). The table below uses a range of values from "1" being the lowest possible score to a high (maximum value) of "3" with data points falling on or between these two numbers.

-3 a meta analysis yielded (1) overall data analysis demonstrating strong and favorable tendencies regarding the variable in question, (2) the majority of adjective/phrases found during the data analysis describing the organization's use of the variable were seen as favorable, and (3) the policies regarding the specific variable were relatively clear at the time of the hurricane.

-2 a meta analysis yielded two of the following: (1) generally the overall data analysis was favorable to ambivalent regarding the variable and/or (2) the adjective/phrases describing the organization's use of the variable were seen as generally favorable to ambivalent,

and/or (3) the policies regarding the specific variable were ambivalent/not specified at the time of the hurricane.

-1 a meta analysis yielded (1) generally the overall data analysis was unfavorable regarding the variable and (2) the adjective/phrases describing the organizations use of the variable were seen as generally unfavorable, and (3) the policies regarding the specific variable were convoluted at the time of the hurricane.

QUALITATIVE DATA MATRIX

	Communications	Planning	Coordination	Collaboration	Effectiveness
KATRINA					
DOD/NORTHCOM	1	1	1	1	1
DHS/FEMA	1	2	1	1	1.25
Combined	1	1.5	1	1	1.125
IRENE					
DOD/NORTHCOM	2	3	3	2	2.5
DHS/FEMA	2	3	3	3	2.75
Combined	2	3	3	2.5	2.625

Maximum Relative Value Matrix (higher values = more favorable results) Table 2

Table 2 borrows from a concept used by Charles Goodsell (2011) on a numerical based concept to array qualitative data for public sector organizations. As Miles and Huberman (1994, 145) stated in their book on qualitative analysis, explaining it is often difficult to discern between explanation and causality. Yet, it is evident that

longitudinally, DOD/NORTHCOM and DHS/FEMA have demonstrated greater fidelity over becoming more effective organizations over time in general and in particular through their networked relationship. When going back to 2005, it was apparent that problems arose due to lack of communications, planning, coordination and collaboration (Table 2 above). DOD and DHS were running parallel structures and even within DOD serving in a support capacity, the active military and National Guard appeared to be operating in polar directions. These problems transcended horizontal communications; lack of vertical communications, planning, coordination and collaboration were evident by strife between DHS and FEMA and even within DOD. Though the NRP and NIMS were in place prior to Katrina making landfall, planning and coordination seemed non-existent. This contributed to a lack of collaboration and thwarted the collective effectiveness among all organizations.

Duplicative support existed where some relief areas received too much support whereas other areas lacked necessary resources altogether. In short, the conglomeration of works showed that DHS was clearly in a reactive mode responding to events rather than leading efforts. What's more, Katrina aptly proved that the

lackluster performance of the federal government exacerbated problems on the ground and demonstrably contributed to challenges rather than improving conditions especially in the response phase.

When juxtaposed against Katrina, the preponderance of evidence drawn from Hurricane Irene made a cogent argument showing holistically that DOD/NORTHCOM and DHS/FEMA as much more effective networked organizations. This Category 1 storm affected 13 states and the District of Columbia. Interestingly, networking between DOD and DHS has improved markedly; this was brought to light in the preparation and response phases of Hurricane Irene. Communication and coordination were clearly evident in the days preceding this event. States of emergency were declared in advance of the storm, and press releases among DOD, NORTHCOM, DHS, FEMA and others were simpatico with one another. Press interviews with Napolitano and Fugate demonstrated unity of effort. The NRF and NIMS also showed inclinations of them serving as a catalyst of the planning variable. Likewise, a 2012 GAO study showed that planning has improved at the federal level in particular regarding FEMA though more can be done by tying planning to its strategy (GAO-12-487 2012). Collectively, the communications, planning, and

coordination led to greater collaboration regarding the DOD/DHS interface.

Notably the evidence resulting from the qualitative assessment showed that scores improved across the continuum of variables. Coordination actually saw the greatest leap from an average of "1" to a high of "3" for DOD/NORTHCOM and DHS/FEMA.

Calculations for the measure of central tendency have utility when looking at distribution of scores (Jaeger 1993, 375). In the case of this study, these calculations considered the amalgam of variables to help measure for effectiveness. Overall, the mean average of effectiveness was rated as a "1" for DOD/NORTHCOM during Katrina. DHS and FEMA did not fair much better; the only salient point being that DHS/FEMA had a plan in place prior to the arrival of Hurricane Katrina, but due to a lack of understanding for who was responsible for what led to confusion in the execution. Accordingly, the overall effectiveness of both organizations was measured at a mean average just above a score of "1". Ultimately, the overall effectiveness level for DOD/NORTHCOM rose to "2.5" and the aggregate for DHS/FEMA even surpassed that level by reaching a combined mean average of "2.75" when looking at

Irene. In terms of collaboration, collectively the organizations showed improvement; NORTHCOM relied extensively on the DCOs and stood by to support civil authorities when requested to do so.

It is important to note that Hurricane Irene is a relatively new event. Through a review of the data sources, the evidence has guided the researcher to understand clear and unequivocal improvements in communications, planning, and coordination have led to better collaboration and effectiveness; studies regarding this event are still ongoing.

Both units of analysis provided empirical evidence on the change of the DOD/NORTHCOM and DHS/FEMA effectiveness longitudinally and make the case for causation. This analysis also leveraged experiences turning to why and how things happened to transcend what Taleb (2007, 84) refers to as the avoidance of the "narrative fallacy." Normative analysis is useful in descriptive statistics and is applicable to comparisons of ranked scores (Jaeger 1993, 6). In conducting an exploratory data analysis looking at normative values, interesting results surface. Specific to this study is that this analysis of DOD/NORTHCOM and DHS/FEMS shows that the latter actually performed better

overall during both hurricanes whereby the former (from a percentage standpoint) had demonstrated evidence of greater transformation and effectiveness improvements.

Collectively, the amalgam scores show network effectiveness improvements from Katrina to Irene. Specifically, congressional testimony in 2012 regarding disasters served as a litmus test backing these variables and findings (GAO-12-813T 2012).

QUALITATIVE ALTERNATIVES/CONTRARIAN VIEWS

When conducting qualitative analysis, it is often useful to help address issues that could be construed as contributing to spurious relationships. It is also useful to consider the counterfactual and having an understanding of how things would be had changes not been implemented. A useful way to do this would be to explore alternatives and contrarian views.

Two alternatives resonate to the forefront regarding whether or not DHS and DOD have become effective organizations. One alternative would be the pre-9/11 status quo (counterfactual), where FEMA would have served in the lead. A second alternative would be if DOD assumed responsibility as lead federal agency.

When considering the counterfactual or how FEMA would have acted if charged with leading federal efforts, consider the following. FEMA as an organization has roughly 3,000 employees; this is tantamount to a mere 1.5% of the manpower possessed by DHS at large. The world has also changed considerably over the years since September 2001. It is seemingly implausible that a small organization could lead the Herculean efforts and full spectrum missions of homeland security efforts with disaster management being only one component. What's more is that FEMA, like DHS was seen as ineffective in the wake of Hurricane Katrina when extrapolating its performance and even though it was a legacy organization with years of experience, it still shared a preponderance of the blame for governmental ineffectiveness. This led in part to the enactment of PKEMRA.

Paradoxically, indices show that FEMA has evolved and worked even closer with DHS since 2005. Specifically, role identification seems to have become increasingly clearer whereby DHS is seen as more of a planning organization fostering lateral and horizontal communication and collaboration. FEMA on the other hand has found a role of

serving as the DHS lead for execution of consequence management.

Landy (2008, S196), however, remains critical FEMA's administrative culture. He surmises that FEMA is still quite dysfunctional; most likely problems would have been exacerbated not made better if FEMA led efforts. Landy (2008, S196) continues his analysis by segueing into the FEMA's training program and promotion policy (and his perception of the lack of effectiveness of FEMA regarding these areas). He writes that issues gravitating around course of action implementation appear to be entangled in a web of overly legal reasoning inhibiting the execution of the organization's duties. He concludes by referring to the Stafford Act and defending this legislation by writing that the problem is not in the Act but in the oversight and administrative execution of said policy (Landy 2008, S196).

An audacious proposal considered giving DOD the lead role for homeland security functions to include disaster relief functions (Leshinsky 2006, 54). Though not fully demonstrating alacrity when addressing DOD's part in disaster relief, the DOD Assistant Secretary of Defense for Homeland Security (Paul McHale) in the aftermath of Katrina stated that the time might be right to break the current

paradigm of military support to catastrophic events, to even raise the bar and push for a more rapid response to future events (Krause & Smotherman 2006).

Other proposals looked at increasing DOD's role in disaster consequence management (Wise 2006, 309). Paul McHale also stated in his interview that not only should DOD work to prevent disasters and attacks that it should improve its preparedness to react to disasters (Krause & Smotherman 2006). However, to do so would most likely involve the repeal of Posse Comitatus. It is highly improbable that not only would Congress avoid repealing this law, but in light of the challenges associated with war in Afghanistan, ongoing peace enforcement operations in South Korea and the mission of the military to remain prepared to engage in a major regional conflict make it improbable that DOD is adequately staffed nor interested in taking over homeland security. If DOD had led efforts, challenges would manifest due to the lack of (1) interoperable communications and (2) full use of the ICS capabilities used by FEMA and all other civilian agencies (state and local) involved in emergency management functions.

Looking at contrarian views is also important. When turning back to the 3Cs, this research excluded "control" as a variable of choice. Though it is espoused as having merit in the emergency management profession, it is often most applicable to state events or local incidents where "control" can truly be achieved and excludes federal organizations where the chain of command (in particular between DOD and DHS) is less than clear.

During federally declared disasters when events transcend singular states, control becomes convoluted. Though states often avoid abdicating their roles in managing the preparation and response efforts, the reality is that the federal respondents can impact state and local efforts and often do so against the intent and/or desire of the states.

Essentially, this comes down to a lack of control when (1) federally declared disasters ensue and (2) when the federal government intercedes with agencies, personnel, and resources from its level. Likewise, control was excluded and this study used planning and collaboration instead.

CHALLENGES ARISING FROM QUALITATIVE ANALYSIS

Surprisingly, DOD and DHS lack true synchronization beyond the networked relationship. Specifically, when dissecting the second tier organizations responsible for

direct interface in the pre-disaster to post response phases, the two still don't mesh; networked relationships must be anchored to avoid departmental intransigence to foster adaptability and flexibility. Leading off this discussion, consider FEMA. It has broken down responsibility into 10 regions. Here one will see the deconstruction of the United States into various regions (FEMA Web 3 2011, np). Each region has a headquarters within a state found embedded in the region. These regions answer directly to FEMA for incidents occurring within their jurisdiction.

Conversely, with the exception of Joint Headquarters National Capital Region and Joint Task Force Alaska, the U.S. Northern Command is still organized along functional lines (NORTHCOM 2 2011, np). This encumbers interface between DOD/NORTHCOM and DHS/FEMA regarding communications, planning, coordination, and collaboration. With the exception of those in the networked relationship, outsiders serving as first responders will have a difficult time determining who will handle what in times of crisis. Moreover, the potential conduit for seamless support between DOD and DHS could suffer reducing the collective effectiveness of the federal response without leveraging

networks.

A look into the functional areas under NORTHCOM's Joint Task Force Civil Support (JTF Civil Support) would show that even though one would seemingly see this JTF as appropriately placed to request support leading up to, during and immediately following a national emergency or disaster would in fact find that this is not the case. When reviewing the mission of JTF Civil Support, one quickly surmises that this task force's mission gravitates around an incident involving a weapon of mass destruction on U.S. soil; specifically, this JTF addresses only chemical, biological, radiological, nuclear, and high-yield explosive incidents (CBRNE) and excludes all other disaster missions (NORTHCOM 2 2011, np).

Other challenges continue. FEMA's regions address all states and U.S. territories; NORTHCOM's area of responsibility does not (NORTHCOM 2 2011, np). Specifically, NORTHCOM excludes Hawaii (state), American Samoa, The Commonwealth of the Northern Mariana Islands, Guam, the Freely Associated States of Federated States of Micronesia the Republic of the Marshall Islands, and the Republic of Palau (U.S. territories) and leaves these to the responsibility of the U.S. Pacific Command (PACOM)

further complicating the coordination and collaboration of DHS/FEMA and DOD (Saul 2006, 41). Though the focus of this research was solely on hurricanes regarding the continental United States, it is important to note that FEMA potentially has to coordinate between two geographical combatant commands potentially harming the response time for DOD efforts in the wake of a major incident outside of the confines of the continent.

Once again, networking is the key to success. The continued use of defense coordination officers (DCOs) embedded in each FEMA region remains the crux to effectiveness. Working directly for NORTHCOM but serving as liaison officers, these DCOs are usually only one deep. Though they are often senior officers (usually colonels), they might lack the acumen with regards to logistics and engineering knowledge to render decision and provide recommendations having an affirmative bearing on the problem. Adding to the challenge is the fact that these DCOs are often outside of the sphere of influence of the unified coordination groups in joint field offices during incidents (Sylves 2008, 154). Other troublesome information is apparent. The DCOs are limited in their abilities. Accordingly, they are limited to forwarding

military support requirements to the correct military organization and assigning liaison officers when required (GAO 2 2010, 11).

Current challenges with Defense Coordination Officers surfaced in a 2010 Government Accountability Office (GAO) report. This report was replete with examples of shortcomings related to the DCO structure. It stated that DOD lacks clear defined rules (GAO 2 2010, 5). Adding to the challenge, it also reported that military doctrine and procedures lack depth inferring that codification is required; many of the DOD publications are either incomplete or out of date (GAO 2 2010, 12). Specifically, the report stated that there were no clear roles and responsibilities outlined for the DCOs. The strengths or weaknesses of DCOs are primarily personality based - and not grounded in training according to a GAO finding (GAO 2 2010, 7-15).

Training is critical. DCOs should not only know their roles and responsibilities, but should also receive training on the execution thereof (GAO 2 2010, 23). This will be critical to the liaison function when informing non-DOD departments and agencies on military capabilities better enabling coordination and planning among

governmental spectrum (GAO 2 2010, 23). It could also assist with communications and collaborative efforts. What cascades from this would be better resource allocation, reduction of gaps in support, and the overall performance of the DCOs in their supporting role to DHS/FEMA in the networked relationship (GAO 2 2010, 23). Since DOD lacks training, it is unable to evaluate the effectiveness of the DCOs at the current time (GAO 2 2010, 29).

As the study transitions into the qualitative summary, it is becoming increasingly apparent that the DHS to DOD interface is anything but perfect and still heavily reliant on networked relationships. As the United States moves forward into the 21st century, much can be done to improve federal collaborative efforts to increase overall effectiveness. Waugh and Tierney (2007, 329) provide clarity on the notion that clashes are likely to continue especially regarding the dichotomous relationship fraught with challenges between military who advocate centralization of power and civilian organizations supporting a more decentralized approach.

QUALITATIVE SUMMARY

After interpreting the data, indications clearly show that the DOD/NORTHCOM and DHS/FEMA networked relationship

has improved overall effectiveness over the last several years. This supports the premise offered by Feiock and Lee (2012, S58) whereby these authors have stated that relationships have an impact on inter-jurisdictional collaboration and see administration as interdependent on vertical and horizontal linkages. Using the Qualitative Logic Model appeared to be a worthwhile tool to help guide this researcher through the analysis of these organizations in the context of both Hurricanes Katrina and Irene.

The Federal Model of Qualitative Secondary Data Case Study Triangulation also proved to be quite useful based in large part on experiential data. Building on the logic model, this latter one enabled the researcher to look at various sources to methodically bring in the data to ensure that all sources for both units of analysis were afforded equal consideration.

Communications, planning, and coordination were used to look into the data in order to discern what seemed to work and led to greater collaboration. Numerical scores were assigned to communications, planning, and coordination, collaboration and mean averages calculated to determine effectiveness. Likewise, indices showed that through collaboration greater organizational effectiveness was

achieved resulting from organizational improvements emanating out of Hurricane Katrina in 2005 to Hurricane Irene in 2011. Jaeger (1993, 84) underscored content validation as a way to judge on the effectiveness of one's research; this study appeared to demonstrate this.

GAO provided a useful checklist to help validate the conduct of case study research (GAO 3 1990, 119-120). When looking at research design, this study considered the following. First, this project clearly stated the research questions, the time study, and application (PEMD-91-10.1.9 1990, 119). What's more, it justified this by referencing a similar study using disasters as units of analysis.

Data collection was clearly presented (GAO 3 1990, 119). Through the use of the Federal Model of Qualitative Secondary Data Case Study Triangulation in Figure 6 and the Qualitative Logic Model in Figure 5 the researcher was able to dissect the relationship network. Likewise, data were coded and presented in Table 2. Collectively, the process was able to gather factual information to lend greater credence to the notion of internal validity.

The use of the methodology was covered along with limitations and alternatives presented demonstrating efforts to mitigate bias. Formatively, this section showed

the indices of clear collective improvement in effectiveness of the DOD/NORTHCOM and DHS/FEMA relationship over time.

Further study to reinforce information collected here is recommended. Though strong DOD/DHS effectiveness is not necessarily ubiquitous regarding natural disasters, a propensity exists for these organizations to continue to improve over time.

Warner (2013, 176-177) stressed the importance of revisiting one's research questions when looking at findings. Research question Q1 and its corresponding sub questions focused on a deep look into effectiveness. Formatively, question Q1 captured the essence of the qualitative analysis. The collective amalgam of variables had empirically demonstrated that both DOD/NORTHCOM and DHS/FEMA had shown measurable improvement with regards to collaboration over the temporal period contributing to a combined overall effectiveness rating of "2.625". It was in major part due to the networked relationship that both DOD/NORTHCOM and DHS/FEMA were poised to provide more effective support provided that the strength of cooperation among these entities continues.

When disaggregating the data, careful examination was warranted through the three sub questions. Question Q1a looked specifically at communications as this variable had an intervening impact on collaboration. Though evidence showed improvements demonstrated in performance from Katrina to Irene, more can be done. Specifically, in terms of interoperable data transference and the use of satellite systems, though improved, still were less than perfect. However, the messages articulated by DOD/NORTHCOM and DHS/FEMA remain consistent with evidence of interdependency openly acknowledged by key leader support among the various organizations.

The variable on planning was covered by question Q1b. It was evident that this variable had significantly improved throughout time with the most improvement taking place within DOD/NORTHCOM; most notably from DOD's (1) embracement of its role in domestic disasters and (2) from its willingness to show a predilection for advance planning with civil partners in advance to the onset of Hurricane Irene. Accordingly, planning had helped lead to greater collaboration and hence improved effectiveness over time albeit at a smaller level than coordination but at a higher level than communications.

Finally, coordination was covered by question Q1c and its influence on collaboration. This variable showed evidence of the greatest improvement for both DOD/NORTHCOM and DHS/FEMA. Clearly, all indices pointed to coordination as being much better in 2010 than during the 2005 hurricane season. This in part was attributed to the efforts of the DCOs and FCOs across the continuum fostering social networking thereby ensuring that supplies and support were properly vetted and deconflicted before prepositioning or moving capabilities to projected impact areas just prior to and immediately following Hurricane Irene.

QUALITATIVE CONCLUSION

Lutton (2010, 140) writes of the importance regarding making meaning of the data. Specifically, one must be adept at interpreting the results. Hermeneutics allowed for this to take place. Here, through a demonstration of content validity, departmental and subordinate organizational effectiveness through networking during Hurricane Irene clearly shows improvement (normatively) moving along the path through the logic model leading to a better outcome. Though not perfect, the data were categorized and scored, measures of central tendency calculated demonstrating that in the case of Irene, based

on the interpretation of the result, DOD/DHS has improved to a level between moderate and strong performance. This is underpinned by conclusions drawn from what Miles and Huberman (1994, 9-12) state through the verification of the data and a methodical interpretation of patterns, similarities, and commonalities emanating from data collection, data reduction, and the display of data.

An analysis of plans and systems contributed to the findings. Through the emergence of the National Response Framework out of the former National Response Plan, greater clarity exists regarding the federal levels of responsibility when looking at the issue of exigencies in general and disasters in particular. Likewise, the adoption and further implementation of the National Incident Management System throughout the governmental continuum (notwithstanding DOD and DHS), the NIMS serves as a contributory catalyst fostering greater effectiveness through planning. It goes further; Lester (2012, 161) sees the NIMS and NRF as ways to provide a classroom for collaborative behavior. The Incident Command System also emerged as a pillar supporting effectiveness albeit challenges still exist regarding the full acceptance by DOD/NORTHCOM. Inherent to the ICS is a system that boosts

inter-organizational coordination (Buck, et al 2006, i). Nonetheless, plans and systems have guided DOD/NORTHCOM and DHS/FEMA and their networks well over the intermittent years between Hurricanes Katrina and Irene contributing to improvements in federal preparation and response efforts.

A plethora of government documents and peer reviewed journal articles also made the case for aggrandized network effectiveness over time. Commonalities were identified, explored, disaggregated, and analyzed as evidentiary support to the variables as viable means to demonstrated networked effectiveness between DOD/NORTHCOM and DHS/FEMA. Communications between the two departments and among NORTHCOM and FEMA have flourished; messages were consistent with one another showing that the actors were clear regarding the content they transmitted not just among themselves but to the public at large during Irene.

Likewise, the documents demonstrate a marked improvement in coordination over time. Clearly, the stove pipe modes that existed during Katrina still exist to some point but now include mechanisms to allow for the cross-pollination of ideas and plans to ensure a more concerted approach by DOD and DHS in the preparation and response phases of the disaster cycle. This in a major part is underscored by

better use of the DCOs and FCOs (in a liaison capacity) between DOD/NORTHCOM and DHS/FEMA and networked relationships.

Written data also provide evidence of greater collaboration among DOD/NORTHCOM and DHS/FEMA. Though not perfect, the clear trend from 2006 through the 2011 hurricane season showed that these organizations see that they are inextricably linked during both phases of the disaster cycle (preparation and response) allowing for each to leverage capabilities to bring these to bear at the right levels at the right time.

Over the years legislation and policies, and really culminating through the implementation of PKEMRA have improved as the federal government has evolved. This has been due in part to improvements and understanding in the context of natural disasters. In moving forward from Posse Comitatus, through HSPD-5 to PKEMRA, not only had implementation improved, but the strength of policy and legislation had grown and become increasingly effective. It was through the understanding of these that key leaders and liaison officers (and their networks) throughout DOD/NORTHCOM and DHS/FEMA have been able to use these to

guide procedures to enhance the qualitative variables through their networked relationship.

As was the case with planning, dissection of documents has clearly shown improvements in communications, coordination and collaboration. DOD/NORTHCOM and DHS/FEMA have better mechanisms to foster the relationship between them and are consistent in what is articulated both within and outside of their respective organizations. This was demonstrated in both phases of the disaster cycle.

Key leader statements provided amplification and testimony underscored what was discovered through the review of plans & systems and documents. A multitude of oral and written statements, press releases, interviews, and testimony served to complement the other components of the Qualitative Secondary Data Case Study Triangulation model. Collectively, these oral statements show the utility of communications, planning, coordination and collaboration as being vital in the execution of functions during the preparation and response phases. It was through this amalgam that DOD and DHS have become more responsive, flexible and able to surge a surfeit of resources in a concerted way to avoid duplicity while preparing for and in

the execution of disaster support leading up to and through Hurricane Irene.

It has been through the networked relationship that DOD/NORTHCOM and DHS/FEMA have become more effective resulting from their ability to communicate among one another as well as to the public. Underscoring this notion one finds in an article by Feiock and Lee (2012, S59) where they state that collaborative networks solve problems. Likewise, plans are better synchronized with DOD now embracing the domestic disaster mission and the implied resourcing and staffing requirements necessary to make it a significant contributory factor. Coordination between the two departments also is better than at any time since DHS' inception. Clearly both DOD/NORTHCOM and DHS/FEMA understand the implications of coordination failure and have made efforts to coordinate actions so as to not negate the other when providing support. Collaboration, a natural segue from the other variables serves to solidify what the organizations achieved through communications, planning and coordination. Through active partnering, the avoidance of implacable practices, and in remaining malleable both departments and their agencies leverage their strengths to bring about this collaboration.

As a result of this qualitative assessment, these two organizations have demonstrated greater effectiveness since 2005. However, there are more components to success than a rich interpretation of data showing how and why these improvements have been made. The next section leverages quantitative data on these variables and considers intervening and moderating relationship of others as well.

QUANTITATIVE FINDINGS

In keeping with the Sequential Exploratory approach to this research, the secondary focus of this study involved quantitative analysis with particular emphasis placed on variables not previously covered. This method added greater prominence to construct and concurrent validity by going into greater detail on the totality of the relationship by considering several other measures (Jaeger 1993, 80).

Though Jaeger (1993, 2) writes on quantitative analysis and how it is useful in the application of inferential statistics fostering applications of measurements beyond the sample (population) studied. Admittedly this research has limitations due to the smallness of the data set. The raw data for this section is found in Annex B.

This study also makes use of a quasi-experimental design where one looks at the treatment after the fact (Warner 2012, 19). Warner (2012, 19) continues by saying that in practical research, quasi-experiments are often good ways at measuring effectiveness in a real world setting (particularly in the social sciences). The quantitative portion looks at the effect of NORTHCOM exercises which were not present before Hurricane Katrina and their demonstrated effectiveness when juxtaposed against other variables during Hurricane Irene.

However, though challenged with limitations regarding power and generalizability, there is an upside to data permutations using parametric techniques. The primary strength resides in the availability of complete data. No data was missing therefore, there was no need to delete data nor was it necessary to execute imputation techniques (Newton & Rudestam 1999, 158-159). Likewise, holistic data on all elements (the states themselves) existed and could be analyzed.

To more aptly address the issue of collaboration at the federal level, hybrid data sources were chosen to look at DOD/NORTHCOM and DHS/FEMA exercises in the states affected by the two hurricanes in the year leading up to the

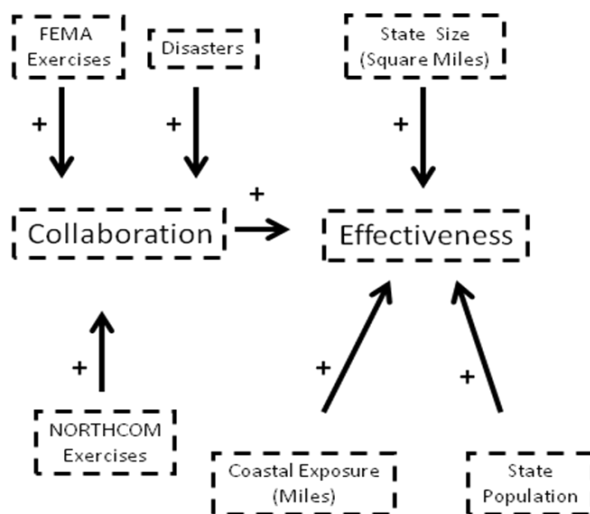
hurricanes. Likewise, it includes real world disaster experience (those declared federal disasters) in the season leading up to the one affecting states struck by Katrina and Irene. Len Clark (2010, 86-87) saw municipalities as a useful way to collect data for the aggregate of the state of New Jersey. Similarly, this study used states to help inform on the downward cascading outcome of federal effectiveness by DOD/NORTHCOM and DHS/FEMA.

Comfort and Waugh (2012, 546) see the interlinking of collaboration of federal, state, and local efforts as a way to balance the allocation of resources. More to the point, Lester (2012, 163) writes that the relationship between federal and state/local governments is important to collaboration. Likewise, this collaboration involves coordination and communications among said levels of government and the importance to integrate collective efforts (Comfort & Waugh 2012, 546). It is also through networks and the analysis thereof that affords researchers an opportunity to glean effectiveness of the functioning (or dysfunction) of relationships (Comfort & Waugh 2012, 546).

What's more, the states themselves were used as holistic units of analysis regarding several variables; this study

is limited to the states affected by Hurricanes Katrina and Irene. Yet Houser (2007, 2-3) writes that small samples can yield considerable effects.

Specifically, three independent variables were called into play to serve as quantitative enablers regarding collaboration: (1) the number of DOD/NORTHCOM exercises and (2) the number of DHS/FEMA exercises used by the states in the year leading up to the applicable hurricane season (specifically June 1 to 31 May in the years 2004-2005 and 2010-2011) and (3) the number of federally declared disasters that the states participated in during these same periods. Controls were also implemented for storm size. These included the number of deaths that occurred in each state (collaboration), state size, state population, and coastal exposure. Finally, the number of days that it took state emergency management centers to transition through the preparation and response phases served as a quantitative measure for effectiveness. Figure 7 below provides a visual representation of the quantitative variables used to assess collaboration and effectiveness by way of multivariate analysis.



Quantitative Logic Model Figure 7

Conducting analysis this way serves two primary purposes. First, as previously established in this research, disaster preparation and response efforts are not conducted in a vacuum. No sole level of government has primacy regarding preparatory functions and execution of relief efforts in the response phase regarding hurricanes. Intuitively, one could see the importance of corroborating evidence of effectiveness at a national level by juxtaposing the results to the state level.

Secondly, using quantitative analysis adds to the repertoire of methods so as to better triangulate in on results. Admittedly, challenges arise regarding the data used for this section. Ideally, when conducting hypothesis testing using numerical data, the randomization of selection is a critical component (Jaeger 1993, 372).

Nonetheless, since the quantitative analysis is used in a complementary and secondary role, census and emergency management data were accepted in exchange for the scope of data that could be derived from random surveys because other components of hypothesis testing are viable through the selection of the parameters and the test statistic used (Jaeger 1993, 372).

Inferential statistics is useful in conducting research regarding populations and has merit when making determinations applicable to larger groups (Jaeger 1993, 2). However, due to the small sample size, causality will be limited to these two hurricanes and it will be difficult to generalize results beyond the scope of this study; as is the case with many smaller studies, bias error could occur (Jaeger 1993, 126). That said one could still run permutations to see if findings arise regarding coefficients of determination and whether or not predilection is demonstrated to answer research questions for one to consider for future studies; the results would still be relevant to those within the tested population. When considering the practicality of applied research, generalization is not the central mission of the study (Jaeger 1993, 124).

Multiple regression analysis is a way for researchers to study interdependence and relationships that exist among a multitude of variables (Jaeger 1993, 337). From data crunching, a multiple correlation coefficient is calculated considering the amalgam of other coefficients for each variable studied; the closer to 1.0 or -1.0 the stronger the relationship (Jaeger 1993, 73).

In research, standard or simultaneous regression is often preferred over other regression techniques (Warner 2012, 550). Results emanating from data permutations using this technique often reveal results that are more conservative than stepwise regression and helps in reducing risks from inflated Type I errors (Warner 2012, 550). This study employed simultaneous regression.

Correlation does not necessarily equate to causality. Nevertheless, both are inextricably linked with the former predicated in part on the latter. The first step when trying to infer (or consider inferences to) causality would be to look at the correlation coefficients. The minimum value of .30 is what is generally accepted as the low end of what research considers as being moderately significant for the collection of variables (Jaeger 1993, 66). This was the standard used in this study.

The level of significance was set at .05. Jaeger (1993, 281-282) wrote on the use of this level as being generally accepted in the realm of social sciences as being the minimum accepted level for hypothesis/research question testing when using multiple variables.

Regarding this study, the parameter of this population is clearly defined and viable. Specifically, one must consider the characteristics of the population (Jaeger 1993, 138). This study sees the importance of emergency management professionals and their interface with state and local professionals of the same category as being important and therefore useful in the execution of one's study. This data source meets that requirement.

As with all research, the results are underpinned by the successful interpretation of the data. Jaeger (1993, 74) writes on the importance in using quantitative analysis and the subsequent circumspect interpretation of results when expounding on one's findings. Once again, the raw data are found in Annex B.

DESCRIPTIVE STATISTICS

To measure effectiveness, a single dependent variable to measure outcomes was considered. Specifically, the number of days that a state emergency operations center was stood

up from the outset of the preparation phase through the transition to the recovery phase was considered. This measure seemingly provides insight into how effective states were at executing relief functions and working with federal partners following Hurricanes Katrina and Irene.

The tumultuous destruction resulting from Katrina resulted in a significant loss of life. According to publically available data from the states, Hurricane Katrina saw a total of 1729 deaths resulting from this storm. Of the five states affected, the mean average was 346 with a clear preponderance of deaths (85.3%) occurring in one state (Louisiana). In terms of loss of life, Alabama, Florida, Mississippi, and Texas fared much better. The spectrum ran from a low of zero deaths (Texas) to a high of 1475 (Louisiana).

Conversely, the number of deaths experienced by Irene were much less but dispersed over a greater geographical area. A total of 61 persons lost their lives to this event. The continuum ran from a low of zero (Rhode Island) to a high of 11 (New Jersey) with a mean average of five deaths attributed to this hurricane.

DOD/NORTHCOM exercises are defined as those events whereby DOD runs and/or participates in an exercise that

either takes place in or is actually run by the state. These events usually encompass both natural and man-made disasters. Focus is on the communications occurring between DOD/NORTHCOM and emergency management professionals in the state where the exercise is taking place. Likewise, they involve planning and coordination among elements (federal and state) and their collaborative efforts to produce positive effects. Neither total number of participants nor total days were taken into consideration. An exercise was counted regardless of the size or duration. A score of one was assigned for each exercise; on average each state participated in 1.2 exercises for Irene; NORTHCOM did not run exercises in the year leading up to Hurricane Katrina.

DHS/FEMA exercises are essentially subscribing to the same definition as the DOD/NORTHCOM exercises but where DHS/FEMA participated in or ran the event. Most of these events focused on natural disasters endemic to the states in which the event took place, though some involved manmade disasters. Each exercise translated in a score of one being assigned for each event. On average, each state participated in 11.4 exercises in the year leading up to Katrina and 3.6 exercises leading up to Hurricane Irene.

Disasters experience is defined as a federally declared disaster that actually took place in the state in question in the year leading up to the season in which Katrina and Irene occurred. This near-term experience would (1) be at the forefront of state emergency management participants and (2) would most likely serve as a way to vet communications, planning, coordination and collaborative processes. Regardless of the severity, each disaster was counted as single event and therefore assigned a score of one. When looking at the temporal period leading up to the years that Katrina and Irene took place, the states experienced a mean average of two and one disasters respectively.

Emergency personnel from the states provided statistics on the transitory days (preparation through response) for their respective states. On average, it took Gulf coast states 116 days to make the transition to the recovery phase following Katrina. The continuum for this metric was quite large ranging from a low of 14 days (Florida) to a high of 274 days (Louisiana).

Collectively, when arraying deaths to transitory days for Hurricane Katrina, the two states that experienced the most deaths also took the longest to recover. It took

Mississippi over four months to make the transition and Louisiana over nine months to move into the recovery phase.

Hurricane Irene, though not as severe as Katrina, saw nearly 1200 miles of coastal area directly exposed to the brunt of this storm. Conversely, only a few hundred miles were affected by Hurricane Katrina. The latter saw a more dispersed less intense storm spread out over a longer period of time whereas the Gulf coast experienced a confluence of activity on a more concentrated level.

In looking at the days to restoration of normalcy (period encapsulating the stand up for preparation to the transition to recovery during Irene), the mean average per state was 14 days. This range ran from a low of seven days (Delaware) to a high of 28 days (New York).

INFERENTIAL STATISTICS

Collectively, there was strong correlation between deaths and the transition to the recovery phase. Bivariate regression analysis was run assessing the strength between these two variables, the Pearson R correlation coefficient was determined to be .947; this was statistically significant. When juxtaposed to population size, the adjusted R squared was .889 (refer to Table 3 below). Interestingly, as Warner (2013, 444) writes, one would

expect the adjusted R squared to be significantly smaller than the R squared when the N is small; the inverse is what took place showing evidence of a strong relationship between the two variables regardless of the relatively small population.

INFERENCEAL STATISTICS

	Adjusted r Squared	p Significance		
Deaths	0.889	0.001		

Deaths, Disasters, FEMA Exercises, NORTHCOM Exercises (without Controls)

	Adjusted R Squared	F Significance	Adjusted r Squared	p Significance	Coefficients
All Variables	0.91	0.001			
Constant					54.64
Deaths			0.86	0.001	0.17
Disasters			-0.12	0.228	-8.02
FEMA Exercises			-0.19	0.054	-1.03
NORTHCOM Exercises			-0.25	0.036	-24.58

Deaths, Disasters, FEMA Ex., NORTHCOM Ex., Population, State Size, Coastal Exposure (with Controls)

	Adjusted R Squared	F Significance	Adjusted r Squared	p Significance	Coefficients
All Variables	0.92	0.001			
Constant					36.94
Deaths			0.83	0.001	0.16
Disasters			0.08	0.689	5.39
FEMA Exercises			-0.42	0.066	-2.31
NORTHCOM Exercises			-0.16	0.268	-16.18
Population			-0.02	0.912	-1.78
State Size			0.37	0.203	1
Coastal Exposure			-0.24	0.12	-0.05

Table 3

This relationship was the most significant of any bivariate comparison of variables. Further data dissection led to even more interesting results. Multiple regression was run. When doing so, the results yielded a high F significance level at the .001 level. However when conducting an explanatory look at the data relative to the

actual cases considered (Katrina and Irene) the results provided inclinations towards causality at least internally regarding this specific population (and internal validity). In an exploratory sense, future research could be warranted considering these two variables to a larger population. As was the case, the significance was even more pronounced given the small N because of the closeness of the R squared and adjusted R squared of the collective variables.

Predictive modeling is often useful from a practical study's finding. In terms of this research, this most basic consideration is expressed using the following equation: the number of days that it take to move to restoration (preparation through response phases) equates to the constant 18.094 added to the coefficient of .182 times the raw value of the number of deaths.

Standard multiple regression was run without controls. In this iteration, collaboration was measured in terms of deaths, numbers of FEMA & NORTHCOM exercises along with real world disaster experience of the states affected by Hurricanes Katrina and Irene. The results were strikingly significant. The models were first run without controls and resulted in a very significant R (.965) and when

considering the population size the results produced an adjusted R squared of .91 (refer to Table 3).

Regression was run and the results demonstrated significance at the .001 level. The small population makes it difficult for a researcher to generalize findings. Future exploratory research could consider greater depth to see if correlations and significance are still warranted when larger populations are considered.

Of the variables considered in this latest model, the one with the most notable significance was deaths (correlation coefficient of .86 and a p-level of .001). FEMA exercises and NORTHCOM exercises produced negative low-moderate and negative moderate correlations respectively and past disaster experience produced relatively low correlation coefficient; only NORTHCOM exercises produces results significant at the .05 level. However, confirmatory analysis showed that a negative sign preceding the coefficients validated the notion that more of these events would contribute to less days for the restoration of normalcy.

When conducting exploratory research, a p-level of .10 can be accepted and is often used to expand on one's research (Warner 2013). FEMA exercises did show a

correlation coefficient of $-.188$ at a significance level approximating $.054$. Though this result was not statistically significant, this variable might warrant future consideration in a larger study.

Collinearity was performed to ensure that no two variables correlated too greatly with one another. Condition indexes were all below 3.0 except for NORTHCOM exercises which attained a score of 7.03 which is not too far out of tolerance to warrant any change; according to Wilson-Gentry (2012, np) any condition index below 15 is acceptable.

Practical results are warranted. Here, unstandardized coefficients were used for generalization and model testing (Newton & Rudestam 1999, 268). Pertaining to these cases, the following predictive equation (without controls) is what emerged: days to restoration (preparation and response) equaled the constant 56.64 added to $.17$ times the raw value of the number of deaths for all of the states during the current disaster, then subtract 8.02 times the raw number of disasters experienced by all states (in the year leading up to the current hurricane season), then subtract 1.03 times the raw number of FEMA exercises in the affected states (in the year leading up to the current

hurricane season) and once again subtract 24.58 times the raw number of NORTHCOM exercises taking place in the affected states (in the year leading up to the current hurricane season).

Controls are useful in equalizing for the effects that could have an impact on one's results and have utility as a method of variance partitioning (Warner 2013, 464). Three other variables were thought to have impact on the collective effectiveness; this is true when considering the federal to state continuum of IGR (Callahan 2011, 8). Specifically, the three included state size (square miles), state population size, and the number of miles of coastal exposure vulnerable to the effects of hurricanes. Statistical analysis using multiple regressions was run. The effects are displayed in Table 3. Results showed a slightly higher than 1% increase in the R and less than a 1% increase in the adjusted R squared.

Likewise, independent numerical variables (primary and control) were individually assessed using regression. These provided indications that the control variables were viable and had limited influence on the outcome of effectiveness regarding the states affected by Hurricanes Katrina and Irene. Table 3 showed the data resulting from

the regression modeling with F significance comparable to that of the model run without control variables and still showed significance at the .001 level.

Several control variables were considered (population size, state size, and coastal exposure); though coastal exposure and state size yielded correlations that were negative moderate and positive moderate respectively according to Newton and Rudestam (1999, 264), they were not statistically significant. Population provided neither a significant correlation nor did it yield statistical significance.

In terms of predicative feasibility, collectively the variables show a positive strong correlation and statistical significance. Once again, unstandardized coefficients were used for causation and model testing (Newton & Rudestam 1999, 268). The following predictive model employs the use of control variables: days to restoration (preparation and response phase total days) equates to the constant 36.94 plus .16 times the total number of deaths experienced by all affected states for the current event plus 5.39 times the total number of disasters experienced by the affected states (in the year leading up to the current hurricane season) minus 2.31 times the total

number FEMA exercises for all affected states (in the year leading up to the current hurricane season), subtract 16.18 times the number of NORTHCOM exercises for affected states (in the year leading up to the current hurricane season) add to that the absolute value of the state size of the affected states (in terms of square miles) subtract .05 times the total coastal exposure for affected states (in terms of nautical miles) then finally subtract 1.78 times the total population of the affected states.

This researcher realized that limitations exist when attempting to infer causality in most types of quantitative research. However, numbers and statistical analysis can still yield value especially in a descriptive assessment in a study.

Hoyle (1999) provides a perspective on studies involving small Ns. Specifically, he states that one should not be limited from using traditional approaches but should look at strategies that offer flexibility. This arises from challenges when not being able to increase size, using nonparametric means when wanting to use other techniques, and/or refocusing research efforts (Hoyle 1999, xvi). Underscoring this is the fact that much research in the

behavioral and social sciences work with small samples or populations (Hoyle 1999).

Newton and Rudestam (1999, 250-251) write that in addition to population size, researchers should afford attention to potential effect size, statistical power, and alpha levels. To overcome challenges with small populations, looking at effect size is often a useful technique (Hoyle 1999, 160). Considering the relationship between independent and dependent variables, Hoyle (1999) writes that the level of significance is just one step in proving one's findings; the estimate of the actual magnitude among the independent and dependent variables as measured by effect size contributes to one's findings. Also, effect size consideration assists researchers in discovering potentially valuable and interesting relationships that might have generated greater and more significant results if the population was larger (Hoyle 1999, 64). This is particularly true of small studies and applies to this one.

Regarding this study, a statistics calculator was used to determine the effect. After entering the data, this study achieved an effect size of 10.11 and 11.20 for and adjusted R squared of .91 and .918 respectively for data without and

with controls (Effect 2012, np). When effect size is large and the significance level is small, Hoyle (1999, 65) surmises that there is no problem with inference regarding the study. When turning to multiple regression, results exceeding .35 demonstrate a large effect (Newton & Rudestam 1999, 76).

Other problems are overcome by considering power. Newton and Rudestam (1999, 70-73) explain that testing for Type II errors vis-à-vis power helps lend credence to one's findings. Accordingly, these authors state that a level exceeding .80 is what is necessary to achieve an acceptable standard (Newton & Rudestam 1999, 70). In this study, statistical power considering predictor variables, the observed adjusted R squared and a probability level of .001 yielded .999 for both calculations with and without controls (Power 2012, np).

SIGNIFICANCE

As with the analysis using qualitative techniques, this section will now review the quantitative research questions to assist in the summative analysis of this research; Warner (2013, 176-177) stresses the importance of revisiting these in one's research to see what developed from conducting the study. Once again, this researcher

looked at one primary question and, specific to quantitative analysis - two sub questions.

Question Q2 considered collaboration between DOD/NORTHCOM and DHS/FEMA regarding the states affected by Katrina and Irene in relation to the effectiveness as measured by the number of days that it took for each state to transition through its preparation and response phases. The overall average of deaths was 99 (Katrina M = 346, Irene M = 5) and the days of transition from the beginning of preparation efforts to the end of response was 36 (Katrina M = 93, Irene M = 14).

After running simple linear regression, the data yielded very high R and adjusted R squared scores demonstrating very strong correlations between deaths and days to restoration. Understanding that deaths will always precede the transitory total number of days encapsulating the period between preparation and response phases, temporal ordering showed that the directionality between these two variables was correctly assessed; this also helped mitigate from spurious effects. Data from Hurricanes Katrina and Irene (without other variable consideration) served as a sound starting point. However, it was not enough to just run regression against these two variables; what was

necessary was the consideration of data from the two sub questions.

Question Q2a considered collaboration (deaths) as affected by three moderators from the temporal period of 1 June to 31 May in the year leading up to the respective hurricanes for each state: (1) the number of DOD/NORTHCOM exercises, (2) the number of DHS/FEMA exercises, and (3) the number of real-world disasters in which each state participated over that lead-up year. After running multiple regression analysis, the data yielded considerable results showing that over 90% of the variance (or the projected outcome of the mathematic formulas) regarding the data on states' number of deaths, and the total number of disasters / the total number of FEMA the total number of NORTHCOM exercises involving the affected states (in the year leading up to each hurricane season) that the overall effectiveness could be determined through the use of the variables without controls.

Other factors weigh in on effectiveness. Question Q2b looked at other issues that might have an impact to include (1) the population size for each of the affected states (as reported by the Census Bureau leading up to each hurricane), (2) the square miles of each state and finally,

(3) the total coastal exposure for each state. When running multiple regression the results produce positive yet mild correlations when using multiple regression without controls. An interpretation of these findings shows that state size, population and coastal exposure have negligible impact on effectiveness. However, due to the counterintuitive results in the directionality of the population and coastal exposure variables, more analysis will be required to see if things change if the N were increased.

Once again, due to the smallness of the N, further studies are warranted to test for external validity and generalizability of findings beyond the scope of this research. Regarding the internal validity of this specific study, the results demonstrate a high correlation coefficient (.90) and have a very high level of significance ($F < .001$). This demonstrates potential for a model to help predict overall transition through emergency response (practical implications) and the possible utility for this model to be used for other exigencies (theoretical contributions) where advance notice of impending events are known.

MIXED METHODS ANALYSIS AND SUMMARY

The multiplicity of data used for this study help in the verification and cross-validation of results. However due to the specificity regarding the two federal departments (qualitative) and the small sample size (quantitative) it would be a stretch to generalize findings beyond this study. However, forays through this project and the findings could serve as the nexus for a larger more purposeful study leveraging more widely accepted quantitative procedures like random selection and sampling for testing these results and generalizing beyond the limited scope covered in this study. The pantheon of stakeholders that could realize the results of this study should include DOD/NORTHCOM and DHS/FEMA liaisons and personnel working with regards to domestic disasters.

Nonetheless, interesting findings were realized when autonomously considering both the qualitative and quantitative approaches. Qualitatively, when including the amalgamation of variables, the collective reflection showed that effectiveness was achieved. Quantitatively, greater effectiveness was demonstrated through infinitesimal F significance levels and high adjusted R squares; these levels are fully consistent with what is generally accepted by social science standards (minimum levels considered

important include significant levels below the .05 level and adjusted R squares above .30) and, by extension, public administration. The rest of this section is dedicated to the collective grouping of qualitative and quantitative findings.

Relationships across the government spectrum are often fraught with challenges with individual organizations trying to assert their own relevancy while maintaining a sense of cynicism with the intent of promoting self preservation. What's more is that as budget challenges continue to beleaguer federal departments and agencies, one could see the potential for organizations to retract and attempt to promote their own self interests at the expense of others. A counter approach could also manifest within organizations seeing others as a way to maintain core competencies while leveraging the resources and talents afforded by other organizations. The evidence from each of the analytical techniques points to the latter; specifically, this regards the networked relationship of DOD/NORTHCOM and DHS/FEMA in the context of hurricanes.

As previously established, collaboration is a key component demonstrating both qualitative and quantitative traits. When synthesizing these, one sees that networked

relationships have flourished from Hurricane Katrina through Hurricane Irene. Though communications, planning and coordination underpin collaboration and, by extension - the effectiveness among DOD/NORTHCOM and DHS/FEMA, these variables also facilitate other events of equal importance to help bring about collaboration numerically speaking.

This section looks back on question 1 & 2 and their sub questions. Collectively, the evidence shows that at the federal level and cascading downward to the state level emergency management activities that communications, planning, and coordination have improved over the years. As was shown in the qualitative analysis section (Table 2), collaboration rose significantly from a value of "1" to a value of "2.5" when combining the interaction between DOD/NORTHCOM and DHS/FEMA with the tendencies/descriptive words/policies approaching strong and favorable. When superimposing this improvement to the quantitative findings, one sees that the variables without controls shows a model with a high adjusted R squared and a level of significance at the .001 level, to include the intuitive thoughts that the lower the total death rate and the greater the number of participation by affected states in disasters, FEMA & NORTHCOM exercises in the year leading up

to the affected hurricane season, will result in less total days spent in the preparation and response phases therefore reinforcing the improvements realized during the qualitative analysis. More to the point, the combined results of collaboration demonstrate that the networked relationship between DOD/NORTHCOM and DHS/FEMA has improved markedly from 2004 through 2011. Specifically, when looking at NORTHCOM exercises as a "treatment" in a quasi-experimental design, the data also underscored what was already covered that a negative moderate (and statistically significant) result occurred where it appears that this type of exercise can actually help in reducing the totality of days that states spend in the preparation and response phases regarding a hurricane.

When turning back to the literature, one can see relevancy of this study and the possible contributions of collaboration regarding the emergency management. The answers to the primary research questions and their sub questions provided indications that especially in the preparation and response phases that the intervening variables (qualitative) and the moderating variables (quantitative) have helped enhance collaboration. One can infer that these variables have direct relevancy to

networked relationships among those emergency management professionals at the federal level. Most notably, both qualitatively and quantitatively, collaboration among DOD/NORTHCOM and DHS/FEMA is paramount for success in the context of hurricanes.

Effectiveness was the other hybrid variable exhibiting both qualitative and quantitative traits. Like collaboration, this variable could not be measured directly and other measures were used to do so. Qualitatively, effectiveness was measured by the aggregated effect of all preceding variables. When referencing the maximum value matrix (Table 2) one sees an interval improvement in collective DOD/NORTHCOM and DHS/FEMA effectiveness from a score of 1.125 (Hurricane Katrina) to a rise in the value to a score of 2.625 (Hurricane Irene). The meaning of this is that there were strong and positive tendencies and favorable descriptive words as seen through a dissection of qualitative sources (hermeneutics) with clearer policies and laws during Irene than was the case during Katrina. This was corroborated not only through peer reviewed research, but was substantiated through government documents, press releases, congressional testimony, after action reviews and other secondary resources.

Through the analysis of the answers to the research questions, both the qualitative and quantitative data points show that through collaboration (once again, qualitatively, this included the aggregate of communications, planning, and coordination; quantitatively it included deaths, and the number of disasters/FEMA/NORTHCOM exercises in the year leading up to the affected hurricane season and also included three control variables: state size, coastal exposure and population), effectiveness has improved from Hurricane Katrina to the post Hurricane Irene period; these control variables had limited impact on the overall findings with two of the three showing counterintuitive tendencies. The literature can be revised to reflect this and subsequent studies could quite possibly look to inform on these practical implications and future research can look to test the theoretical possibilities of these models.

When combining the quantitative data results (without controls) to those realized through the qualitative analysis, one sees slightly increasing levels of effectiveness of the DOD/NORTHCOM and DHS/FEMA networked relationship; the literature can also be amended to reflect this. However, the directionality of the disasters changes

to show a finding that is counterintuitive (less disasters equate to an actual increase in the days to restoration of normalcy) most likely affected by two of the three control variables where their directionality is called into question (population and coastal exposure - where decreases in these actually increase the amount of days that it takes to return to normalcy). This population (N = 18) was small and therefore, could have contributed to counterintuitive findings regarding measures inclusive of controls. Yet when looking at individual relationships of variables to days to restoration (with controls), none of these counterintuitive variable correlations were statistically significant. Nevertheless, the interpretation of the collective model affording consideration to both hybrid variables (collaboration and effectiveness) shows that the networked relationship has become greater in recent years.

What is apparently necessary is the continued employment of DCOs and FCOs. These liaisons have been and most likely will serve as the impetus for continued networked relationships at the federal level. Wherever possible, DCOs (and by extension their DCEs) should deploy to the vicinity of the projected hurricane's impact area(s) prior to it making landfall. This would allow DCOs the

opportunity to gain clarity and granularity into situational awareness to better inform leaders at DOD and NORTHCOM.

It is not enough to deploy early (preparation phase). What the combined mixed methods analysis shows is that the DCOs/DCEs should co-locate as close as possible to the FCOs to better foster a networked environment to inculcate collaboration into their work routine to foster greater effectiveness of their networks. This could help provide early warning and management to help reduce the number of deaths; if the quantitative predictive models prove right (theoretically possible), then the number of days that the states remain in the preparation through response phases will compress leading to a decrease in total days for these two disaster phases.

Relevancy begins at the top. Empirically the data show that it is important for the heads of DOD/NORTHCOM and DHS/FEMA to articulate a clear and unified approach to disaster management; this was demonstrated in the press releases and media briefings provided by NORTHCOM and FEMA. Since Hurricane Katrina, messages released by the public affairs offices of these federal organizations have moved from information that was seemingly contradictory to

statements that were in concert with one another. This is important not just from a confidence perspective of the citizens to see the appearance of a concerted effort but the true manifestation of collective work to efficiently and quickly converge personnel and resources to the right places at the correct time to limit suffering; this can serve to expand on existing literature reflecting these improvements.

Future disaster policies and laws should be vetted through not only the LFA for disasters but throughout DOD as well. Invariably, DOD/NORTHCOM has become engrossed in hurricane management over recent years and clearly will see their involvement in the future. Therefore it is incumbent upon both the Executive branch and Congress to employ inclusive procedures to allow for deconfliction among the DOD/NORTHCOM and DHS/FEMA continuum to ensure that contradiction is avoided at all costs. This will serve two purposes. One, it will help ensure that the networked relationship continues with clarity of purpose regarding the express purpose of providing needed support when and where required. Secondly, it will help minimize duplicity by fixing clear responsibility with one organization or the other for the execution of certain functions. Once again,

this can inform the emergency management community and expand on existing literature on this topic.

Interestingly, systems continue to resonate and this included the NIMS and ICS. Collectively, these are seen as ways to codify emergency management procedures across the federal continuum while simultaneously pressing to reduce the fog and friction associated with resource mobilization in particular at the early stages of the disaster. Though DOD subscribes to the NIMS and has pushed for greater acceptance of the ICS, it still lacks "all in" support for the latter. That stated, the ICS and the Joint Field Office should be afforded greater consideration.

At the federal level, leaders at all levels could foster an environment of multi-organizational participation; the focus should include efforts to facilitate communications, foster planning, inculcate coordination, and develop collaboration. The former DHS Secretary accentuated collaboration is as being extremely important (Chertoff 1 2009, 117). Viable intergovernmental relations (IGR) are the linchpin to make this happen in order to expand on network success. Cooperative federalism is an extension of IGR and seemingly is what is required (Conlan & Posner 2008, 38). This is particularly evident in the DOD and DHS

relationship in general and the NORTHCOM and FEMA relationship in particular. It is through this understanding of the interdependence in governance, especially at the federal level, that improvements can be realized to more effectively support society in the realm of public administration (Conlan & Posner 2008, 38).

Roles and responsibilities among the various federal departments and agencies will continue to evolve especially regarding the 2003 reorganization of organizations under the newly formed DHS. Hurricane Katrina stressed the new organization regarding its newly defined roles and responsibilities (Dalton 2002, 2). Though improvements have occurred through the 2008 hurricane season (Ike and Gustav); improvements reached a pinnacle in 2011 (Irene).

After interpreting the results of the qualitative analysis the data show that networking between DOD/NORTHCOM and DHS/FEMA has worked moderately well in recent years. Collectively, this amalgam of federal players had contributed to reasonable effectiveness of national efforts in response to hurricanes in the continental United States. However, two unstudied variables can usurp informal relations emanating from networked relationships: personalities and clarity. Nothing exists to mitigate

differences between key leaders that can ensue from personality problems stymieing efforts towards common ends. Leaders that engage in recalcitrant behavior or obdurate practices can undermine the collective efforts of other organizations. Likewise, due to inconsistencies in language and acronyms, challenges can arise when developing subsequent plans (from the NIMS/NRF) and in the communications between DOD and DHS in general and specifically between NORTHCOM and FEMA. Accordingly, two systems can help: the ICS and the Multiagency Coordination System.

What is important to understand at the closing of the mixed methods analysis is the limitations of the data involved. Relevancy of the variables was established early on and used for this study, definitions codified and temporal ordering documented. However, as with any research (specifically that focusing on the behavioral and social sciences) is that it is often difficult to directly measure variables. Nonetheless, attempts were made to ensure a level of fidelity in the measuring of these to ensure reliability. Yet, this study is not a panacea for all emergency circumstances. This data focuses on the federal level of government (with some consideration

afforded to state level emergency management activities) and specifically turns to hurricanes (and quite possibly by extension other exigencies where advance notice of the impending event can be realized) as the units of analysis. Future applications of these models should look deeply at the type of disaster to be considered and the level of government warranting study to see if variable substitution should take place, definitions revised, and/or possible changes to temporal ordering.

UNEXPECTED FINDINGS

Several authors over the years have attested to the importance of the ICS (Morris 1986, Veintimiglia 1986, Ryland 1990, Carley, Cohen, Waisel, & Wallace 1993, Yeager 1997, and Kane 2001). When an incident is declared to be of national significance, the Incident Command System (ICS) is used to coordinate civil efforts and provide support to emergency personnel and first responders on the scene; in doing so, it attempts to link DHS headquarters, regions and field offices under one umbrella supporting a unified effort (Sylves 2008, 148). It is a core element of the NIMS that is both standardized and vetted to assist with on-scene all-hazards management (Sylves 2008, 150).

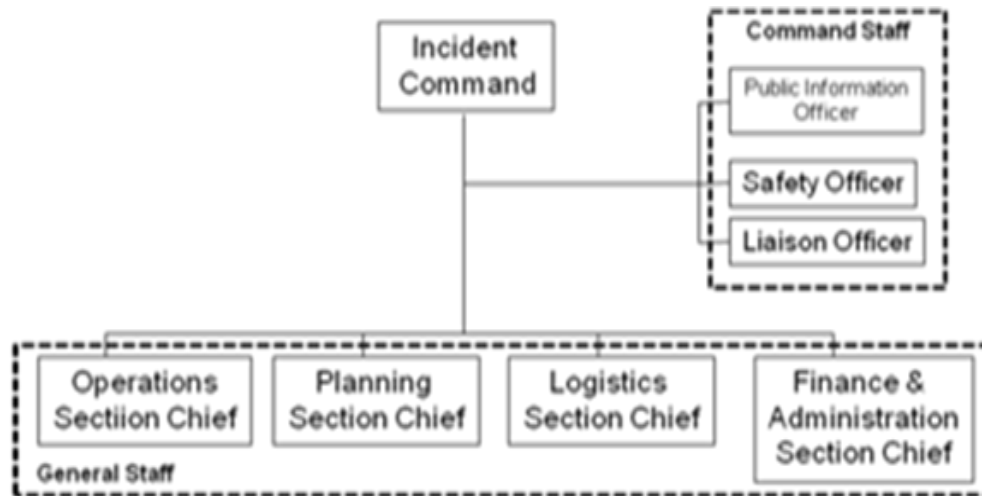


Figure 8 (Sylves 2008, 151)

The ICS officially consists of five major functional areas. These include command, operations, planning, logistics, and finance & administration; refer to Figure 8 (ICS 100 2011, np). The command function drives the process; it provides for direction and prioritization of efforts all while establishing objectives. The function that is responsible for execution is the operations component. Planning facilitates the maintenance of documentation and conducts resource tracking and the analysis of information. When moving towards the actual allocation of resources, this task is performed by the logistics function which monitors and tracks logistical efforts. Finally, disasters are costly; as such the finance and administration function serves to track

expenditures, use accounting & procurement procedures while also performing cost analysis. Sylves (2008, 152) goes farther by stating that, at times, there is a sixth function that includes intelligence and investigative services; this is used by exception.

When reviewing the data from Hurricane Katrina specifically and to a lesser extent Hurricane Irene, one could reasonably deduce that the ICS could have better facilitated networking whereby this could have facilitated better coordination and communication through the standardization of terminology among DOD/NORTHCOM and DHS/FEMA and better synchronized planning could have been realized through the uniformity of procedures. In doing so, overall effectiveness could have improved and resulted in better NORTHCOM and FEMA interface. This could further leverage strengths realized during the Hurricane Irene operation whereby this military-to-civilian interaction could have been enhanced further.

Preparedness is critically important. The degree to which DOD/NORTHCOM and DHS/FEMA are simpatico at the outset of disaster will set the stage for the transition to response in a way that can support a concerted effort by all. Through the adopting of the ICS, preparedness efforts

can be brought in line to consider resources that might be called upon when disaster strikes; what should naturally arise is a capacity of resources from which emergency management personnel can draw in the event that their use is warranted (Sylves 2008, 115). Equally important is the planning that goes along with resource utilization - a deep look into strategic management of logistics and engineering efforts between DOD/NORTHOM and DHS/FEMA could result in a more viable boilerplate plan complementing networking developed during the preparation phase from which first responders can use (and modify) should the need arise (Sylves 2008, 115).

Likewise during this same phase, DOD/NORTHOCM and DHS/FEMA working with those involved in emergency management could foster preparedness activities and assess personnel skill sets and resources necessary to address likely hazards (Sylves 2008, 145). These efforts should include the continued prepositioning or posturing of resources as close to but outside of the projected impact area as was evident before the onset of Hurricane Irene. Sequencing and synchronization should be considered and contingency plans in place and ready to execute once the

threat has passed and it is safe to commence the transition to response efforts.

Additionally, FEMA pushes to implement the understanding of ICS through offering various certification courses on the topic. The ICS 100 course is one that provides a perfunctory understanding of the ICS and a basic grounding in the system's utility. Upon completion of the course, trainees are administered an online test and upon passing it, are awarded a certificate of completion. This "certification" is awarded to those emergency management personnel that take and pass the same course. Local and state government personnel are also encouraged to participate not only in online training but to become involved in DHS/FEMA exercises utilizing the ICS (Sylves 2008, 150). Buck, et al (2006, 21) acknowledge that when official responders have been properly trained on the ICS, that it will work well and foster a sense of community (network).

However, the ICS is replete with challenges. It requires constant attention and the proliferation of this concept must occur across all levels of government and the governmental departments and agencies. Discrepancies in the clear understanding of ICS have been cited for

challenges in its past use (Rubin 2007, 192). Likewise, critics have stated that it is not sufficiently flexible to address the diversity of disasters and unexpected outcomes resulting from major events facing America as was seen firsthand following Hurricane Katrina (Rubin 2007, 213). However, failing to have any system is problematic in its own way. Oftentimes, it is useful to at least have something as a starting point and then through flexibility, one can adapt and task organize to address specifics of the requirements as they arise. Waugh and Tierney (2007, 18) underscore this but preach caution on being overly flexible when executing response and recovery. Recently, DOD has grown more accepting of the ICS but still falls short on acceptance let alone, full implementation. The military should consider mandating attendance by DCOs.

ICS CURRENT STRUCTURE

The ICS specific make up is not a fixed entity. It is flexible and adaptive to the scenario. If an incident commander does not require a function, he or she has the option to exclude it altogether (ICS 100 2011, np). However, there are some basic components endemic to most ICS structures. This is the practical application of the five functions covered in the previous section. Incident

command provides the overall leadership directly supported by a command staff consisting of a public information officer (media relations), a safety officer and liaison officer; the other four functions are covered in the general staff block; these are also depicted in Figure 8 (Sylves 2008, 151).

Notably, it is a top down structure using modularity based on the complexity and scope of the incident (ICS 100 2011, np). Also affecting the organization are the objectives and resources necessary to achieve desired outcomes. Likewise it can contract or surge in size depending on condition changes.

An Incident Commander is assigned and charged with running the ICS (ICS 100 2011, np). He or she can establish objectives, make assignments, and order resources based on their authority. In doing so, the Incident Commander works through the staff and subject matter experts to analyze the situation and consider alternative courses of action. They must have comprehensive situational awareness from the complete repertoire of organizations operating in the area of operations (AOR). In doing so, the Incident Commander fosters communications among participants, ensures that planning is congruent and

focused, that resource allocation is coordinated all while leveraging capabilities and skills through collaboration among participants. The ICS can build upon previously established networked relationships to bring effectiveness (or outcomes) to a new level.

Though not a panacea, it has received wide recognition as a catalyst to facilitate strengthened coordination (Waugh & Tierney 2007, 63). Inherently it inculcates a sense of collaboration rather than a system that relies on control and authoritative leadership making it more likely to be accepted (Waugh & Tierney 2007, 63). What's more, the ICS and the Multiagency Coordination System provide for common terminology fostering ease of understanding among those actors involved in disaster functions placing an emphasis on simplicity and understanding especially when communicating and planning among partners (Waugh & Tierney 2007, 327).

ICS CAPABILITIES

When looking to capabilities, it is useful to return to the ICS 100 course. Notably, there are many lessons learned from past disasters and the subsequent incident management promoting the notion of the ICS structure (ICS 100 2011, np). Unclear chains of command, as was the case

during Hurricane Katrina, complicated the execution of incident management as did the lack of networking among the participants; improvements were seen during Hurricane Irene. Moreover, poor communications and/or their misuse contributed to coordination challenges further exacerbated by differences in terminology and conflicting codes. Lack of systematic planning and an easy-to-understand structure were problematic and noted as impediments to incident management leading to little or no coordination and collaboration among emergency management personnel in particular and specifically between DOD/NORTHCOM and DHS/FEMA.

Additionally, the ICS is a management tool that is standardized that can be adapted to all incidents regardless of size (ICS 100 2011, np). Though flexible, the system could complement the informal networked relationships as it provides for a tighter command and control structure for making decisions, managing resources, and task assignment (ICS 100 2011, np). It can also foster the key tenants put forward by HSPD-5 and PKEMRA.

Theoretically, it makes use of interoperable communications equipment and procedures that have been vetted prior to an incident (ICS 100 2011, np). The ICS

should be able to facilitate communications across the spectrum of emergency management professionals notwithstanding DOD/NORTHCOM and DHS/FEMA assisting to overcome minor communications challenges found upon revisiting Hurricane Irene's emergency management implementation.

Theoretically, this would lead to greater congruency in planning and coordination and through the provision of a common operating picture especially when other organizations are involved through the Multiagency Coordination System. Buck, et al (2006, 2) underscore its utility in planning by acknowledging the function of planning as an integral and central theme to the ICS.

Finally, when used effectively, the ICS can help prioritize efforts and synchronize those activities in the preparation phase while mitigating duplicity in the response phase thereby avoiding profligate behavior regarding scarce resource allocation and subsequent utilization while rendering assistance.

DOD/NORTHCOM AND DHS/FEMA RELATIONSHIPS

Key observations resulting from this study demonstrate that both NORTHCOM and FEMA make use of DCOs and FCOs as liaison officers among NORTHCOM and FEMA in a useful way to

foment their networked relationship. They serve as a conduit facilitating interdepartmental communications, multiagency planning, coordination throughout their staff sections and better collaboration among the departments and subordinate organizations. Much of what follows results from semi-structured interviews with several professionals of both NORTHCOM and FEMA expanding on the secondary data used in earlier chapters to gain clarity and enumerate on the results. Insight into the LNO structure serves to aggrandize the understanding of networking between both departments.

The United States Northern Command is a traditional unified combatant command organized along the traditional joint staff structure with its headquarters in Colorado Springs, Colorado. These staff sections oversee the following functions: J1 - personnel and manpower, J2 - intelligence, J3 - operations, J4 - logistics and engineering, J5 - strategic policy and plans, J6 - command and control systems, J7 - training and exercises, J8 - programs and resources, and the Interagency Coordination Directorate (NORTHCOM 3 2011, np). At the United States Northern Command, FEMA has a sole liaison officer working at the Interagency Coordination Directorate; this is a

stand-alone staff directorate operating outside of and autonomous to the J staff. Alongside this single FEMA LNO are 50-60 other NORTHCOM and other government agency personnel working intergovernmental coordination.

Opposite NORTHCOM, the Federal Emergency Management Agency is staffed with both a DOD and NORTHCOM LNO. Additionally, NORTHCOM has provided a J4 representative to FEMA to assist at a macro level with the understanding of DOD logistics capabilities. Though stand-alone personnel in FEMA's structure, the two LNOs would reside in and work out of the National Response Coordination Center (NRCC). The NRCC is the main FEMA command post postured at the headquarters in Washington D.C. and used in times of crisis.

As previously covered, FEMA has divided the United States and its territories into 10 regions. Accordingly, each is staffed with Federal Coordination Officers (FCOs). These FCOs number between three and six and primarily focus daily efforts on developing relationships among the Defense Coordination Officers (DCOs), regional FEMA staff and state emergency management personnel. As of May 31, 2011 there were a total of 45 FCOs arranged by experience or type; here is the breakdown: five Type 1 (most experienced), 14

Type 2 (highly experienced), 20 Type 3 (experienced), and six Type 4 (just completed training). These FCOs can be directed to move forward into the impact area to respond to disasters when required. Their relationship transcends FEMA; they also have a responsibility to DHS under HSPD-5 (HSPD-5 2003, np). These FCOs train together nationally throughout the year and are also Certified Emergency Managers by the International Association of Emergency Managers. During exigent periods, these FCOs will often deploy forward to a Joint Field Office under the ICS.

Previously, this study addressed the fact that with two exceptions, NORTHCOM has not broken down geographical space to lower levels in the organization. It, as stated elsewhere, does make use of DCOs, though these are often only one person deep in each FEMA region. Notably, there is a defense coordination element (DCE) supporting the DCO, but these are small, non-fixed and non-standard in both number and function. The DCEs are basically internally focused.

The NORTHCOM after action review did shed light on the importance of DCOs. The AAR provided validation of the National Response Plan and the importance of DCOs in supporting relief efforts (NORTHCOM AAR 2005, 23). The

report went farther. It stated that the DCOs should be the sole entity representing DOD to the Federal Coordination Officers regarding DOD assets. Though the report clearly lends support to the DOD "supporting" relationship in the area of operations, it fell short of stating that DOD assets should come under the actual command of DHS/FEMA (NORTHCOM AAR 2005, 23).

Interestingly, the Army admits that during most instances, FEMA will lead the federal efforts; an Army field manual went farther by stating that even though forces could be put on alert even before a disaster strikes, capability gaps could exist until the military arrives on the scene (FM 3-28 2010, 3-3). What usually happens is that FEMA requests support vis-à-vis the DCOs who then pass requests up the chain of command contributing to a torpid and tortuous process (FM 3-28 2010, 3-10). Most likely, this request will end up at NORTHCOM headquarters. This still appears to be a pull system emphasizing reaction to an event that must have already occurred, tending to the challenge is that most LNOs still lack decision making authority.

Holistically, it is understood that a networked relationship do exist between DOD/NORTHCOM and DHS/FEMA.

What is also clear is that impediments exist minimizing what could be greater effectiveness in the relationships in terms of geographical standardization and the codification of training across the continuum of emergency management professionals notwithstanding those in DOD. This in turn could lead toward better interdepartmental communications and enhance coordination among the full spectrum of actors by possibly adopting the ICS.

When considering the NRF, NIMS, and ICS, NORTHCOM has a critical role. What has become apparent through the assessment of journals, government documents, interviews, discussions, and doctrine is the apparent need for better NORTHCOM/FEMA melding in particular in the areas of logistics and engineering support at the outset of preparation efforts and well into the response phase. It might be prudent for NORTHCOM to (1) standardized the DCE and (2) include engineer and logistics experts that could deploy forward from the FEMA region to assist in the preparation and response phases when the disaster is both imminent and forewarning exists (Waugh & Tierney 2007, 145). As it stands, the notional DCE Structure calls for a liaison officer, operations officer (and assistant), plans officer, and two communications & information systems

personnel all under the direction of the DCO; there is no mention of engineering or logistics personnel (FM 3-28 2010, 2-24). Figure 9 provides a pictorial of the notional structure.

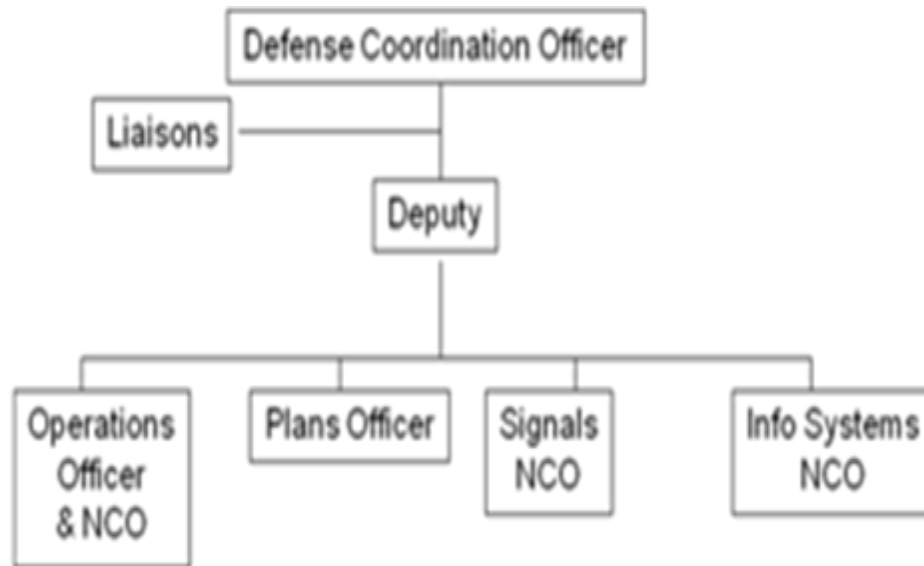


Figure 9 (FM 3-28 2010, 2-24)

The Government Accountability Office reported in 2006 that planning shortfalls among the federal, state, and local governments still existed with regards to capabilities (in particular regarding assessments and capabilities) and how DOD could have better supported the government in the wake of Hurricane Katrina (Walker 2006, 17). What's more, is this same report specifically addressed logistics and the challenges involved not just in

distribution and provision of support but in anticipating requirements and forecasting goods and services (Walker 2006, 17-18). Interestingly, DOD has a penchant for logistics and the anticipation and forecasting of these requirements are endemic to the military especially regarding large scale operations. In recent times, DOD has made efforts to change; it can deploy situational assessment teams to disaster areas in advance of a decision to commit forces, but this is still reactive according to doctrine in the sense that the event has already transpired (FM 3-28 2010, 3-13). Though markedly improved since Katrina, DOD with the exception of Hurricane Irene (and to a lesser extent in the 2008 hurricane season), still dawdles behind DHS in the realm of continental based disaster relief support. Admittedly, the military realizes that bringing military leaders that will operate in the impact area up to speed regarding situational awareness puts an increased burden on the civil and state emergency personnel dealing with the situation (FM 3-28 2010, 3-13).

When circling back to the ICS theme, DOD has not acquiesced to its use even though it signed the NRF which supports the NIMS and the NIMS in turn directs its (ICS) use. Joint Publication 3-27 unequivocally stated this in

its Appendix A acknowledging that the rest of the government (federal, state, and local) use the Incident Command System; conversely, DOD adheres to the traditional military command structure (JP 3-27 2007, 3-27). However, Hurricane Katrina revealed several complexities not just in communications throughout organizations but the importance of collaboration among actors for supplies, equipment, and services. Likewise, operations cannot be managed from Washington, D.C.; they require a forward presence as close to the affected area as possible (Waugh & Tierney 2007, 322-323). To that end, the evidence shows that that more can be done as was the case during Irene.

If DOD/NORTHCOM were to fully embrace the ICS and continue with the implementation of the NRF and NIMS, the military would be better suited to build upon its networks to support civil authorities in particular in the realm of planning. Moreover, the ICS lends credence to an idea of multiagency collaboration in particular during the preparation and response phases of the disaster cycle.

Returning to the subject of logistics, Static Joint Task Force North established a Joint Support Team (JST) to work closely with the USNORTHCOM Joint Support Group (JSG) (NORTHCOM AAR 2005, 52-53). Though the importance of

logistics was elevated, the AAR failed to address how the JST and JSG interacted with other external federal organizations and even the Defense Coordination Officers. Interpretation of the report also showed that the preponderance of the logistics focus was not on external support to hurricane victims but rather a focus on self sustainment. When looking back on DOD's actions during Irene, logistical preparations to include aircraft availability showed marked improvements.

Moreover, the report stated that FEMA lacked an understanding of military capabilities. Cultural differences between the way FEMA and the military operates were brought out; specifically, NORTHCOM stated that FEMA emphasizes "how" it wants something done rather than stating "what" it wants done (NORTHCOM AAR 2005, 72). This reinforced the need for the DCO/DCE structure to understand logistics to better enable FEMA to grasp what the military can bring to bear in the post disaster environment and to further complement networked relationships. Improvements occurred during the intervening years with significant progress throughout Hurricane Irene's preparation and response efforts.

PKEMRA called for a more coordinated system when

procuring and delivering goods and supplies. It has also elevated logistics to the directorate level (Cigler 2009, 763). Though logistics remained a central theme during Irene, federal actors must continue to build on what was identified in the after action reviews.

Additionally, there are calls for the General Services Administration (GSA) to improve their better business practices calling on the administration to learn from the private sector for the provision of better and more responsive logistics services (Cigler 2009, 763). GSA is a common supply and service provider to both DOD and DHS to leverage not just for routine activities but during exigent periods as well. Collectively, DOD and DHS could look to GSA as a starting point for the standardization of civil-military logistics standardization.

Improvements have also been made in the military as was evidenced in data triangulation. However, more can be done. Clarity must be brought about looking at the appropriate role of DOD regarding not just the disaster intervention but interaction with other government organizations especially in the context of logistics and transportation (Waugh & Tierney 2007, 11). A case in point was that in a PBS interview with Ray Nagin, Mayor of New

Orleans, where he stated that he had buses that could have assisted with evacuation, yet lacked the drivers to operate these vehicles - drivers that could have come from the military (Gaviria & Smith 2005, np). The severity of similar circumstances was not showcased during Hurricane Irene. Helping to improve in this area and others, as of 2009, four National Guard units have also been trained for homeland functions and could possibly be called upon to assist in meeting future transportation needs (Cigler 2009, 764).

SUMMARY

Collectively, the evidence leads one to reasonably understand that challenges will continue with the stove pipe structures of DOD and DHS; these will never completely dissolve and both will still operate in parallel regarding U.S. continental disaster support especially regarding hurricanes. However, a way to complement the networked relationship between DOD/NORTHCOM and DHS/FEMA could be further mollified through the adoption of the ICS (to include DOD). Serving in a complementary role, Lester (2012, 164-164) has written on the relevancy of the NIMS and NRF as ways in which the federal government can continue collaborative efforts to facilitate the role of

the national government overseeing disaster management. Effectiveness is what ensues.

In revisiting the relevance of legislation and policy, in the disaster context coordination is extremely important. Lester (2012, 165) stresses the relevance of national level laws and policies and the importance in facilitating collaboration to help achieve effectiveness. It is incumbent upon all stakeholders to inculcate an environment where this can be accomplished. Collaboration is clearly underpinned by communications, planning, and coordination.

The evidence had shown that disaster policy implementation has improved. As Van Meter and Van Horn (1975, 458) write, the process of implementation is affected by the amount of organizational change; incrementally both DOD and DHS have become more adaptive regarding disaster policy implementation expanding from Katrina through Irene. In part, this research focused on a policy trilogy. Posse Comitatus, Homeland Security Presidential Directive-5, and the Post Katrina Emergency Reform Act are three such laws/policies that are inextricably linked. These three served to help guide federal response regarding coordination, the home front, and how the national government responds to domestic

events. Posse Comitatus, HSPD-5, and PKEMRA draw together DOD and DHS as these two behemoth organizations work through preparation and response phases of the disaster management cycle. Provided that DOD and DHS coordinate effectively and leverage existing capabilities, there will most likely be a direct correlation to the overall effectiveness of the collective effort especially in the preparation and response phases resulting from their networks.

Legislation and policy alone do not guarantee successful implementation. What is required in the context of disaster relief involve several categorical variables. These include communications, planning, and coordination. When used together, the three can lead to better collaboration and ultimately produce an outcome of increased efficacy in policy implementation in the field of public administration. Collectively, these variables can improve the overall effectiveness of federal efforts.

Communications failures proliferate the entire Hurricane Katrina dilemma and were underscored in importance with the enactment of the Post Katrina Emergency Reform Act. Garnett and Kouzmin (2007, 171) expanded on this at the outset of their article when referencing gaps in

information, technological failures, and the connection among inter-organizational networks. Specifically when turning to inter-organizational networks, these authors see the primary communications conveyance as being able to span boundaries while sharing intelligence all while effectively coordinating and allocating resources (Garnett & Kouzmin 2007, 173). Clearly communications improved in the 2011 hurricane season. Communications among various governmental organizations and levels must include the effective use of written, oral, and electronic modes to properly articulate information to those that require it (Garnett & Kouzmin 2007, 180). Effective communications must also occur internally; Bryson (2004, 329) attests to this point when expounding on the notion that when organizations fail to foster communications, performance suffers and stakeholder dissatisfaction flourishes. Decision makers and leaders must be adept at bringing about sound communications practices (Bryson 2004, 323). Communications has improved since Katrina. Efforts regarding Hurricane Irene show that betterment has resulted.

Strategic planning vis-à-vis the Homeland Security Presidential Directive 5 was given prominence through the

mentioning of both the NRP and the NIMS. Thematically, the topic of planning was also routinely covered in scholarly journals (Hendrick 2010, S222). Hendrick (2010, S222) supported the importance of planning at the governmental level and saw it as useful when looking to performance measurement. Bryson (2004, 8) went farther by stating that strategic planning helped in the pursuit of significance and helped in the manifestation of public value. It was through planning that one can drastically influence an organization's ability to make grounded decisions (Bryson 2004, 11).

Evidence of DHS planning and assessments were most recently corroborated in the February 2010 release of the first ever Quadrennial Homeland Security Review Report (QHSR 2010). This document made a cogent point of just how DHS is making greater strides to incorporate planning as a core component of what this department does working with DOD and leveraging the understanding of Posse Comitatus, HSPD-5 and PKEMRA. In the wake of Katrina, DHS and DOD lacked adequate planning; clearly Hurricane Irene showed a greater inclination of inter-organizational planning that took place between both of these departments.

Collaboration is particularly useful in shared power settings between units whereby common ends are pursued (Bryson 2004, 279-280). Moreover, collaboration is particularly useful in environments where no one organization is fully in charge (Bryson 2004, 280). This has particular utility when DOD and DHS find themselves complementing one another in a post-disaster phase (specifically in the response phase) and is clearly implied in both HSPD-5 and PKEMRA. Likewise, through breaking down the preparation and response efforts regarding Hurricanes Katrina and Irene, improvements have occurred regarding policy implementation and the area of collaboration, effectiveness, and have been enhanced through networks.

Quantitatively, though the population size was small (but inclusive of all data), one could clearly see a strong link between deaths and the number of days that it would take states to transition to normalcy (through the preparation and response phases). This correlation and high significance level show that internally, regarding Katrina and Irene, these two variables are seemingly inextricably linked.

When including the other variables (excluding controls), the results are even more profound. Collectively, the

interpretation of the data show that the days to restoration (inclusive days of the preparation and response phases) are predicated not just on deaths but by the number of real world disasters, FEMA and NORTHCOM exercises that the affected states participated in during the year leading up to the hurricane seasons for Katrina and Irene. These in turn had an impact on the overall effectiveness. Once again, the results were statistically significant.

However, when considering the control variables, though the results were statistically significant, the results appeared to be counterintuitive. Two things come to mind. One possibility could gravitate around the small N (18) of the population. Another possibility could be that the emergency management budgets and/or grants (money) would be a better control than the variables used in this study; further research could consider these possibilities either confirming or refuting what this study found.

Though DHS most likely will be the lead federal agency, it is unlikely that DOD will fall under the command of DHS. To help mitigate challenges, the National Incident Management System (NIMS) was created to help foster collaboration among the various levels of government and by extension their departments and agencies (Lester & Krejci

2007, 84). That dichotomy still exists and is likely to do so for the foreseeable future. The constitution divides and shares powers among federal and other levels of government; however in the world of disasters, all governmental actors are called together to both coordinate and respond quicker therefore improving effectiveness (Lester & Krejci 2007, 84). This is regardless of the limitations posed by Posse Comitatus.

Over the years the federal government has increasingly wielded its power and assumed greater control in the wake of disasters vying for a more centralized approach (Lester & Krejci 2007, 85). Provided that this continues and the federal government is less willing to abdicate responsibility and acquiesce to lower levels of government to execute relief functions, then the importance of collaboration becomes increasingly important (Lester & Krejci 2007, 85). Essentially, the NIMS is seen as the nexus for the implementation of effective collaboration throughout the government as directed by HSPD-5 (Lester & Krejci 2007, 87). Lester and Krejci (2007, 91) further enumerate on the potency of collaboration through their writing insofar as their understanding of various White House, Senate and House reports on the importance of

collaboration among the leaders of various governmental organizations.

DHS must not become complacent through the retention of the status quo. It will need to adapt and evolve and must strive to prove and sell its worthiness to not only the executive and legislative branches, but transcend these to include the external federal, state, and local departments and agencies as well. Courting of relationships between DOD and DHS must continue where communications, planning and coordination takes place help streamline capability requests from these external organizations should additional resources be required (Homeland Security 2002). In these difficult fiscal times, DHS must also prepare for austerity measures. DHS, in concert with Congress, should portray the organization as one that remains germane, viable, and steadfast to ensure the continued existence of the United States. It should also engage Congress to help facilitate the cause of homeland security while offering sage advice to its vertical and horizontal partners (to include DOD); the continuance of networks can help.

Since the 2005 Hurricane season, the federal government has improved its performance in the wake of major disasters. As Ingram and Schneider (1990, 68) wrote, it

was goal achievement and performance that really matter regarding effectiveness. This has been the case when dissecting HSPD-5 and PKEMRA. Trends seem to show that both DOD and DHS are better at using laws and policy to work together rather than creating polarized conditions that are analogous to dichotomous goal pursuit. This is evident through enhanced communications, planning, and coordination and by extension - collaboration and effectiveness between these two organizations.

However, it is not a foregone conclusion that the trends will continue. The proliferation of success will remain contingent upon a level of openness and cooperation between Defense and Homeland Security and by extension NORTHCOM and FEMA. This becomes especially apparent as austerity measures kick in; this is increasingly relevant as the manifestations of catastrophes are likely to require heavy economic resources to deal with the problems (Posner 2004, 246). Duplicity and redundancy of resources could be diminished therefore underscoring the relevancy of a strong networked relationship between the two departments. As legislation and policy continue to develop, agreement among stakeholders remains relevant (Ingram & Schneider 1990, 81).

The Incident Command System has been in existence for almost 40 years. When drilling down from the National Response Framework, the ICS is a key component to the National Incident Management System; it is used by state and local governments as the standard system used in response to a disaster, or when forewarning is known - in advance of the event. DHS, as the lead federal agency (LFA) for disasters, its headquarters, regions and field offices are fully compatible with the ICS (Sylves 2008, 148). It actively encourages state and local compliance vis-à-vis holding homeland security grants over their heads to succumb to adopt the NRF, and by extension the NIMS and ICS (Sylves 2008, 150). Likewise, other federal, non-military organizations have adopted this system.

The ICS has several strengths. According to FEMA, it is a scalable, minor-to-major incident system for day-to-day use. It is a tried and vetted field system that is most useful for paramilitary organizations using a hierarchical command structure (Sylves 2008, 153). Though it emphasizes standardization, common terminology, and implies military overtures in organization and execution, the ICS attempts to inculcate cooperative decision making and collaboration

when preparing for and responding to crisis (Sylves 2008, 192).

The ICS has also helped foster learning even during crisis. In doing so, it facilitates this through the predictable flows of information (communications) and through a forum-like process (Moynihan 2009, 196). It has also been noted that the ICS is useful in thwarting strategic uncertainty by bringing down barriers and therefore improving communications among those using the ICS (Moynihan 2009, 196).

The benefits transcend the crisis. Those adopting the ICS are more likely to capture lessons learned and by extension build on organizational SOPs (Moynihan 2009, 195). In turn, this could bring about better planning nested with hierarchal documents covered under the NRF and NIMS. This will better enable organizations (DOD and NORTHCOM included) to prepare for future events of a similar nature and understanding events in a more holistic setting transcending the specific procedures endemic solely to the organization when updating their SOPs. DOD and DHS networks could also benefit.

The advantages continue. Since the ICS is scalable, management layers can be added or removed and acceptable

span of control maintained. Accordingly, it is inherent to the system that no one supervisor will become too inundated with work (Davies, Deric, & Davies 2005, 61). Moynihan points out that crisis policy documents shed a positive light on the utility of the ICS resulting from the benefits of centralization when coordinating response (Moynihan 2007, 897). Practitioners of emergency management also subscribe to the notion of centralization (Moynihan 2007, 898). This provides greater credibility to DOD/NORTHCOM and DHS/FEMA networked relationships.

Theoretically, the ICS was created in part to overcome problems with integration, providing a standardized framework all while fostering common language & terminology among all agencies (Moynihan 2007, 905). Operating toward a common outcome should be the desired end state; the ICS was created to help achieve just that. This could therefore enhance the overall effectiveness of the DOD/NORTHCOM and DHS/FEMA networked relationship through the variables covered in this study.

Conversely, there are weaknesses. The ICS appears to become too stressed when dealing with major disasters covering large geographically dispersed areas (Rubin 2007, 192). An example would be Hurricane Katrina and the fact

that it involved multiple states and multiple FEMA regions (regions IV and VI). Under this circumstance, multi-organizational coordination and collaboration become increasingly important (Rubin 2007, 192). Challenges of ICS continued during Hurricane Katrina. There were still disparities in both the knowledge pertaining to and awareness of the ICS in the aftermath of this catastrophic event (Rubin 2007, 192). Not only did FEMA fall short of leading a coordinated overall emergency response effort, it failed to do so with both the military and international organizations and their respective aid efforts (Rubin 2007, 192). Improvements in these areas occurred during Irene. Efforts along these lines should continue. Full embracement of the ICS has yet to take place within DOD.

Having no system would only exacerbate problems in times of natural disaster. Admittedly, the ICS is not perfect and replete with minor flaws. However, provided that the ICS gains greater prominence, DOD/NORTHCOM and DHS/FEMA must leverage and not stymie gains and effectiveness achieved through their existing LNO and other networks. Therefore, the ICS could foster greater communications, planning, coordination, and collaboration to contribute toward improved effectiveness.

DISCUSSION

This study analyzed, using a mixed methods approach, the effectiveness of networked relationships of two major federal departments. As Clark (2010, 173) wrote, the goal in emergency response is the restoration of order out of chaos; the logic model referenced throughout this project served that end. Specifically, this researcher hoped that this model will help serve as an instrument to guide future research looking at capabilities, resources and needs that exist at the time of future exigencies. What should appear as a salient point is the need to enhance the effectiveness of the federal emergency management continuum of actors, namely the Departments of Defense and Homeland Security and more specifically NORTHCOM and FEMA.

Complexity in the realm of disaster management is not new. Uncertainty, chance, friction, and the fog of decision making abound in times of quandaries inhibiting collective progress; this is particularly the case when the federal government is called to act. The study findings are preliminary in nature and would best be vetted through replication by looking at the effectiveness of the DOD/NORTHCOM and DHS/FEMA relationship in the context of the variables used in this study. Likewise, future

research might consider expanding on the study's logic model (Figure 3) through the application of it to other federal departments that either have a part in or are affected by disasters. Additional consideration could be applied to the utility of the logic model (Figure 3) to state and local emergency management efforts.

Using a mixed methods approach did yield interesting findings. This methodology helped strengthen the protection of validity vis-à-vis the inclusion of both qualitative and quantitative techniques in the manifestation of inferences (Tashakkori and Teddlie 2003, 709-710). Though inferences of causality were limited regarding the quantitative section (limited generalizability), the amalgam of both qualitative and quantitative approaches utilized controls to add to the legitimization of the findings endemic to hurricanes and the temporal period from 2004 through 2010 however, more research must be conducted to test the worthiness of these controls (particularly focusing on population and coastal exposure).

Once again, networking is the key to success. Tensions will continue to resonate throughout all levels of government, particularly in the context of

intergovernmental relations (Meek & Thurmaier 2012, 310). The future prognosis is that IGR and network relations should continue to be examined in the future to help bring about greater effectiveness (Meek & Thurmaier 2012, 313). Moreover, where sharing of resources is concerned, networked relationships will be required for the proper use regarding combined resources (Meek & Thurmaier 2012, 313). The continued use of defense coordination officers (DCOs) embedded in each FEMA region remains the crux to effectiveness. Working directly for NORTHCOM but serving as liaison officers, these DCOs are usually only one deep. Though they are often senior officers (usually colonels), they might lack the acumen with regards to logistics and engineering knowledge to render decision and provide recommendations having an affirmative bearing on the problem. Adding to the challenge is the fact that these DCOs are often outside of the sphere of influence of the unified coordination groups in joint field offices during incidents (Sylves 2008, 154). Other troublesome information is apparent. The DCOs are limited in their abilities. Accordingly, they are limited to forwarding military support requirements, mission assignments to the correct military organization and assigning liaison

officers when required (GAO 2 2010, 11).

As pointed out during the qualitative analysis, issues regarding DCOs were brought to light in a 2010 Government Accountability Office (GAO) report. This report accentuated several examples of issues related to the DCO structure. DOD could do more to clearly define rules (GAO 2 2010, 5). Military publications and processes fall short in depth where one could reasonably see a need for codification; several of these manuals and publications need to be updated (GAO 2 2010, 12). Role clarity and responsibilities must be outlined for the DCOs. The strengths or weaknesses of DCOs still remain contingent upon personalities - and not grounded in training according to these same GAO findings (GAO 2 2010, 7-15).

Training is also key. DCOs should be afforded training on the execution of their responsibilities prior to disasters (GAO 2 2010, 23). This will be increasingly important to the LNO function performed by the DCOs when educating non-DOD departments and agencies on military capabilities to foster better coordination and planning among the continuum of governmental actors (GAO 2 2010, 23). This could also help with improved communications and manifest in better collaborative efforts. Resource

allocation could improve, reduction of gaps in support, and the overall performance of the DCOs/DCEs in their supporting role to DHS/FEMA in the networked relationship could result (GAO 2 2010, 23). Once again, because DOD lacks training, it is unable to evaluate the effectiveness of the DCOs at the current time (GAO 2 2010, 29).

Equally important to this process are the federal coordinating officers. These FCOs are the key civil personnel on the scene orchestrating relief efforts and overseeing collective action in the affected areas. They are the focal linchpin for ensuring a concerted effort by all federal participants.

Accordingly, the FCOs and DCOs should work together towards common ends. Their networked relationship has proven effective in this study's temporal period and will most likely be critical in the years ahead.

In the age of austerity, public administration could find itself in need of more collaboration. Now, more than ever, governmental organizations should leverage capacity and capabilities of each other while avoiding or at least trying to mitigate duplicity. In this world of uncertainty and complexity regarding disasters in a period of

decreasing resources, partnerships should burgeon leveraging from successful networks of actors at the federal level. Administrator Fugate (2012, 4-7) during Congressional testimony accentuated the importance of his agency and governments of all levels to continue to evolve and improve through revisiting and enhancing among other things planning from the National Disaster Recovery Framework (NDRF) and betterment of communications vis-à-vis the Personal Localized Alerting Network (PLAN).

Running parallel operations fosters not just profligate behavior regarding scarce resources; running such events can expand the time to react during preparation and response phases. Throughout this research, challenges have been demonstrated as they relate to communications and collaboration among the two large federal departments. What is apparent is the desire for both DOD and DHS to prepare for and respond to and work through crisis as quickly as possible. In the long term, it might be useful to research the viability of rolling NORTHCOM under the operational command of DHS/FEMA during domestic disasters. Though not tenable at this time, there are steps that can be undertaken to further reduce obstructions between DOD

and DHS when responding to disaster to enhance networks and collective effectiveness.

The Incident Command System (ICS) is a common denominator and through its more prevalent use, can help solidify DOD/DHS relationships. Working in concert with the NRF and through the NIMS the ICS helps standardize processes and procedures to mitigate stress especially in the preparation and immediately in the post-disaster environment (response phase). Provided that it is adopted by actors on the ground, it could reduce spin up times in bringing organizations up to speed with what is occurring especially in the preparation phase and the early transition into response.

Specifically it might be useful to (1) enhance the Defense Coordination Officer's staff (the DCE) and (2) roll the DCO/DCE into the Joint Field Office's Federal Coordination Officer's cell. More research will be required and a start could include administering surveys to both DCO and FCO personnel and their staffs regarding past experience in disasters and for perceived future efficacy that could be achieved through appropriation of the DCE construct in the context of the JFO to enhance networked relationships. However, what is clear is the continued

need for DCO/FCO interface in order to help minimize barriers and increase efficiency through which requests for assistance can be processed (NORTHCOM AAR 2005, 72).

Disasters will continue to occur regardless of preventative and mitigation efforts. Moreover, preparatory measures will only go so far. Yet what is apparent at the federal level is DOD's increasing role regarding support to domestic relief efforts. Seemingly, there is viability in implementing measures designed to bring about better communications, planning, coordination and collaboration stemming from networked relationships. Time in the ensuing hours and days following a disaster is ephemeral yet the implications regarding prolonged suffering and death are not something to be taken lightly. As close to the time that the incident occurs, both departments should synchronize efforts; by extension this translates to improve interoperable networked relations between NORTHCOM and FEMA vis-à-vis possible ICS adoption and JFO use while promoting the continuance of DCOs and FCOs.

When turning to the preparation and response phases of the disaster cycle, the federal government can be even more proactive than what was seen during Hurricane Irene. Taleb (2007, 2003) underscores the importance of not just

predicting where possible but to be prepared for the onslaught of disasters and catastrophes and the relevant eventualities that will likely ensue.

Flexibility on the part of all is paramount for success. Both departments and subordinate organizations should work closer together with a utilitarian approach for the greatest good of the American public. Going back to the 2008 National Defense Strategy - it states that a holistic government approach is only possible when every government department and agency truly understands the roles, competencies and missions of its partners (GAO 2 2010, 19).

Cooperative federalism underpins what is required (Conlan & Posner 2008, 38). An understanding of interdependence of governance, especially at the federal level, requires better communications and an ability for major players to work together to nurture a professional relationship among all parties to improve society (Conlan & Posner 2008, 38). President George W. Bush provided amplification on this. He called for the increase in efficiency and effectiveness across all levels of government in the wake of the 9/11 attacks and Hurricane Katrina to work together and coordinate efforts (Conlan & Posner 2008, 77). More effective intergovernmental relations are required.

According to Meek and Thurmaier (2012, 318), the complexity of IGR will only increase over the next decade; networked relationships between DOD/NORTHCOM and DHS/FEMA could help improve effectiveness in the context of hurricanes (and possibly other disasters where advance notice is known).

Interestingly, Pandey and Wright (2006) brought out that there is a positive correlation among those public organizations that interact with other federal agencies; this appears to have applications to networked relationships. The consequences of this could result in role ambiguity within public organizations whereby clear lines of who is responsible for what become blurred (Pandey & Wright 2006). The effect of said argument could prove cataclysmic for DOD and DHS in response to future domestic disasters. Moreover, though relations between both organizations have improved, now is not the time for these departments to rest on their laurels. They must continue to work together to improve relations and their effectiveness through networks with a basic understanding of organizational goals, objectives, and missions with the express intent of improving in terms of communications, planning, coordination, and collaboration. GAO testimony in 2012 on disasters reinforces this especially in the

context of the participants clearly understanding roles and responsibilities when coordinating efforts (GAO-12-813T 2012, 3)

What is also apparent is that DOD (NORTHCOM) and DHS (FEMA) are working more effectively together (Cigler 2009, 762). However, the military role in domestic catastrophes at times still remains a contentious issue (Cigler 2009, 762). DOD, is looking to continue to improve relations with DHS, and by extension, FEMA by training National Guard units for disaster related functions (Cigler 2009, 764).

More can be done. The military has a repository of knowledge regarding the execution of large scale operations and has a keen understanding of chain of command. Though the ICS (vis-à-vis the NIMS) could be used as an effective way to run operations, reciprocity can take place whereby the civilian departments and agencies can learn from the military model of command (Lester and Krejci 2007, 89).

DOD has made great strides to increase DSCA; DOD turns to the combatant commanders and the reserve forces for proliferating efforts designed to improve its Emergency Preparedness Liaison Officer (EPLO) program (DOD Instruction 3 2011, 1). Moreover, this mission has increased in prominence as the U.S. retracts its forces

from combat and peacetime overseas installations (TRADOC 2012, 10).

DOD also continues to subscribe to using Defense Coordination Officers (DCOs) as a focal point for departmental response to disasters (DOD 3025 1994, 87). These DCOs have proven to be adept at understanding military capabilities and how to leverage military resources to support validated requirements (DOD 3025 1994, 87). However, as covered in this dissertation, neither the DCO nor the DCE have specified skill sets or are their structures standardized; this could inhibit collaborative efforts (DOD 3025 1994, 89-90); also lacking is a baseline understanding and resident expertise in the DCE regarding logistics and engineering support.

Challenges continue. Most likely DOD would stand up a joint task force (JTF) to help in the response phase (DOD 3025 1994, 90). However the DCO and DCE are not in the JTF structure. This further underscores the importance of continued active networking to enhance situational awareness especially with regards to fostering communications, planning, coordination, and collaboration until such time that DOD looks to either adopt the JFO/ICS or develop some other viable alternative fostering unity of

command/unity of effort subscribing to the LFA concept. DCOs must continue to work closely with the FCOs who oversee nonmilitary response and recovery operations from within the Joint Field Office (JFO) in close proximity to the disaster's impact area to help coordinate response and recovery efforts (Murphy 2010, 37). Collectively, the DCOs and FCOs are the linchpins to foster interdepartmental networks.

Organizational flexibility must continue within DOD and DHS for both to remain effective (Ring & Perry 1985, 283). Even if the DOD JTF were to embed into the JFO structure and if DOD would fully adopt the ICS, rigidity could obviate effectiveness.

Strategy formulations between departments should be coordinated. Likewise, this planning should include the clear statement of goals supporting one's mission (Ring & Perry 1985, 282). Through a continued understanding of each other's goals and objectives as they support plans, open communications and collaboration, DOD and DHS can more effectively coordinate domestic disaster preparation and response efforts enhancing the effectiveness of federal response. This could help minimize what Ring and Perry (1985, 284) refer to as discontinuity.

Trust and working relationships among organizations continue to serve as an imperative for success. This is especially true when looking at conflict mitigation, resource sharing, and overall coordination (Moynihan 2009, 904). When turning to relationship development between the Departments of Defense and Homeland Security, both should view one another as a way to achieve synergy and unity of action. As was the case in Hurricane Katrina, past incidents where competition between departments occurred have resulted in less than a stellar overall performance on the part of the government, in particular at the federal level (Moynihan 2009, 904). Now, more than ever, networks are important between DOD and DHS until such time that a true unified chain of command regarding domestic disasters is put in place.

Ultimately it is through communications, planning, and coordination that collaboration can manifest and therefore achieve greater effectiveness. Social networking between DOD and DHS helps. This should improve effectiveness of the partnership between DOD and DHS in reducing loss of life and minimizing suffering in the wake of a disaster.

It is clear that DHS has the lead for coordinating homeland security functions which include emergency

management but still lacks sole primacy regarding authority for said functions. In a Government Accountability Office report issued in September of 2011 showing the progress of homeland security 10 years after the 9/11 attacks, DHS has improved in this role (GAO-11-881 2011, ii). Though improvements have been made, DHS still lacks fully effective partnerships and must take measures to continue to improve upon these (GAO-11-881 2011, ii).

Efforts must continue to solidify efforts among homeland security partners, like DOD and by extension NORTHCOM, to improve communicating information and providing a deeper leadership role in coordinating efforts (GAO-11-881 2011, 29). Social networking between these two partners remains critical.

Efforts must continue to flush out key roles and responsibilities. What was identified in reports following Hurricane Katrina still exists today. McGuire and Schneck (2010, S201) pontificate on whether or not government will be ready for future Hurricane calamities. Government leaders must be externally focused and concentrate on generating success predicated upon the integration of planning inferring social networking (McGuire & Schneck 2010, S201).

Proactiveness is also a precursor for success; the lack of initiative and forward looking approaches led to failures in Hurricane Katrina (Koliba, et al 2011, 215). Hurricane Katrina showed first hand that a lack of adequate preparation was a contributory factor to the failure in the response phase (McGuire & Schneck 2010, S203). McGuire and Schneck (2010, S205) seem to think that the U.S. is on the right path vis-à-vis the governmental performance during Hurricanes Gustav and Ike in 2008. Even more improvement regarding proactive behavior was realized during Hurricane Irene.

Power sharing should continue to flourish. Likewise, multiple group participation leads to great flexibility regarding public agencies (Rainey 2003, 109). Though one could reasonably advocate for a single lead, power should be shared to the greatest extent possible (Lester & Krejci 2007, 86). This will help foster greater collaboration resulting in improved effectiveness especially in the response efforts following a catastrophe by way of social networking. President Obama underscores the importance of federal organizations working together specifically mentioning DOD and DHS when speaking at the Pentagon in January of 2012 (Pentagon 2012, 2). In his speech on the

Defense Strategic Guidance, the President specified that all elements of national power must work together (Pentagon 2012, 2.).

During this same press conference, Secretary Panetta attested to DOD's support to civil authorities in the execution of DOD missions across the full spectrum (Pentagon 2012, 4). Complementing this is the idea that DOD could possibly come under civilian control under certain circumstances (DOD Directive 2009, 6). It could make the JFO and ICS an even more viable system for a holistic and unified leadership approach to enhance collaboration and effectiveness all while fostering communications, planning, and coordination throughout the disaster lifecycle all while strengthening the emergency management social network.

This will become increasingly important in the age of austerity. Consequently, government in the foreseeable future will be in a state of contraction whereby public administration organizations will become smaller with less available financial resources. Now, more than ever, governmental levels in general and departments at the federal level in particular will not have the luxury of redundancy. Organizations will have to become reliant on

each other, working together and sharing power to solve future problems. Networks can foster collaboration to encourage the development of common perspectives (Berry, et al 2004, 542). Likewise, communications, planning, and coordination can bring about enhanced collective performance. What should segue from this are collaboration and interdepartmental dependency and trust leading to better effectiveness (Berry, et al 2004, 542-543). Waugh and Streib (2006, 138) even drove this point home when they wrote that manifestation of effective response would probably not take place without collaboration.

Challenges exist though because organizations are run by people and this is equally true in public sector organizations. This is often the case in multi-organizational environments where the desire to solve problems is impeded by bringing into fruition desired effects (Berry, et al 2004, 544). Those in the public sector must be cognoscente of this when looking at the variables covered in this piece in general and the value of social networking in particular. In closing, the operational capacity of the multiple governmental actors involved in crisis develops and adapts to changing conditions and further underscores the importance of

networked relationships (Comfort 1999). This too is the case between DOD/NORTHCOM and DHS/FEMA. Ethically, both organizations have an ability to prepare for and respond to major disasters thus should work together to minimize suffering and loss of life; Gawthrop (1993) writes of the importance and responsibility of the government to step in and not sit ideally as problems emerge.

RECOMMENDATIONS FOR THE FUTURE

Qualitatively, one could use this extrapolation of the logic model to test the practical implications and relevancy to other hurricanes in the post 9/11 and post-DHS stand-up environment. This could then see if the model could be generalized beyond this study's two primary cases: Hurricanes Katrina and Irene. Moreover, from a theoretical possibility, the model could also be applied and tested to other federal level organizations (and applicability to hurricanes) and/or other disasters (whether natural or manmade) where (1) advance notice of the event is available and (2) the ability of the federal government to deploy resources in the preparation phase can occur to study those findings.

Quantitatively, this study yielded significant findings though generalization to events beyond Hurricanes Katrina

and Irene would be met with trepidation. That stated, future research could test the two predictive equations depicted in the quantitative findings section to see if they are credible when including additional hurricanes thereby increasing the overall size of the population. When including data from other hurricanes, running new permutations could validate the quantitative model excluding controls (looking at previous disaster experience by states, and the participation by states in FEMA and NORTHCOM exercises in the year leading up to the affected hurricane season) and could test to see if the one inclusive of control variables results in findings that are more analogous to what one would expect to find when controlling for state size, coastal exposure, and population. Additional consideration could also be afforded to excluding the control variables of this study and substituting disaster grants to states for them. This would have an added benefit by now considering the mitigation phase of the disaster cycle.

It might be useful to build on this study and conduct a more detailed look at these issues by querying civilian and military personnel, specifically the federal coordinating officers and defense coordinating officers respectively and

conducting a more comprehensive analysis to study for correlations regarding the variables addressed in this study and looking for possible causation considering such intervening and moderating effects such as years of government services, experience in disaster relief, gender, age, status (military or civilian), education level, and grade (rank). Beverly Cigler points out that those who train together can better respond together (Cigler 2009, 760). Accordingly, primary sources vis-à-vis surveys could assist with determining the viability of this.

Some within government would also argue that DOD should take control of FEMA from DHS and advocating a stronger DOD role in emergency response (Wise 2006, 302). There are also examples when DOD has been proactive prior to an ensuing disaster. Officially it can still appear apathetic in its adherence to the status quo by stating that a formal request must come through DOD subject to the approval of the Secretary of Defense (Wise 2006, 309).

Conversely, there are critics of the "militarization" of domestic disaster relief functions. Those offering contrarian views will state that the military is charged with fighting and winning this nation's wars; others offer that if the military constantly steps in the state & local

governments will more than likely acquiesce spending less time and resources addressing the disaster lifecycle and increasingly their reliance on federal assistance (Waugh & Tierney 2007, 324). What's more is that some of the most senior military officers don't advocate increasing the military's enhanced civil role. Some go farther when openly stating that the military culture is one that lacks compatibility with civil authorities (Sylves 2008, 192).

However, DOD has incrementally moved forward providing increased disaster relief assistance longitudinally (Sylves 2008, 323). It can solve serious problems and do so quickly. NORTHCOM was created for, among other purposes, the interface with the civil sector regarding issues of homeland security (Sylves 2008, 323). It was a creation of hindsight from the challenges that developed between civil-military authorities in the aftermath of 9/11 and its inchoate beginnings during Hurricane Katrina. In the years since, it has provided incredible capabilities in the wake of several U.S. based hurricanes.

In an opening section of an Army handbook on catastrophic disasters response, a colonel was quoted for comments originating from his experience during Hurricane Katrina. To paraphrase, he stated (1) that sooner is better than

later to establish relationships with local, state and federal actors, (2) good communications flow is imperative, (3) to the greatest extent, avoid duplication of effort and finally (4) support the victims with whatever is required in terms of humanitarian supplies among other things (Saul 2006, ix). Those advocating for an increased military role turn to its command and control system, along with its expertise in the provision of contingency and expeditionary logistics support; these were shortcomings resulting from Hurricane Katrina lessons' learned (Sylves 2008, 175). This does not include just food (meals ready to eat) and reverse osmosis water purification units (ROWPUs), but can include helicopter and marine craft as well as all terrain multipurpose cargo vehicles capable of navigating difficult ground and reaching those in need at remote locations (Sylves 2008, 175).

This study also uncovered some interesting new findings. These stem from the qualitative analysis focused on logistics and engineering support. DCOs and, by extension the DCEs are critical to support and networked relationships. To the best extent possible, they should be well versed in the ICS concept and use it. They should be given maximum latitude to coordinate decisions at the

behest of DOD and NORTHCOM while on the scene with FEMA representatives in the Joint Field Office (JFO) structure (Sylves 2008, 175). As was previously covered, the traditional request process goes through 21 steps. Though the DCOs work for NORTHCOM, the formal request process is still seemingly dysfunctional. The DCO does not route the request for assistance (RFA) to NORTHCOM. The RFA rather is passed to the Office of the Secretary of Defense (OSD), where it is subsequently passed to the JDOMS then on to NORTHCOM only if both OSD and JDOMS concur (Sylves 2008, 175). At a cursory level, it is possible for the timeline to drag out all the while human suffering might continue. Efforts should be considered to better enable the DCO/DCE structure to remain both relevant and viable as should efforts to further solidify networks. Challenges to these issues can, in part, be marginalized through the adoption of the NIMS as was recommended by NORTHCOM in its 2005 AAR (NORTHCOM AAR 2005, 11).

DCOs should continuously strive to maintain relationships with the FCOs in each of FEMA's 10 regions. Neither the Joint Field Offices nor the Incident Command System is put into operation until there is either forewarning of a crisis or response to a major event. The conduit between

the DCOs and FCOs will continue to be critical especially under the ICS in the JFO structure. Credence of this could be seen when NORTHCOM examined its performance during Katrina (NORTHCOM AAR 2005, 23). Successful DSCA was seen as predicated upon the information sharing that took place during Hurricane Irene whereby requirements, capabilities, and courses of action could be widely disseminated to other agency partners (NORTHCOM AAR 2012, 134). DCOs played a significant role in this.

Though many of these issues did not surface during Hurricane Irene, it is plausible that challenges could persist in the future if not properly addressed. A way to address this could consider changes and a study focusing on the Joint Field Office structure.

After an extensive review of multiple sources of data, the following appear to be lacking. First, there are no habitual logisticians nor are their engineers as part of the DCO/DCE structure. Secondly, the NORTHCOM structure, holistically speaking, is seemingly incompatible with FEMA barring the DCOs/DCEs. Even so, the DCO/DCE structure seems to lack empowerment. These could all enhance networks and the prominence of communications, planning, coordination,

and the subsequent collaboration and effectiveness derived from these other variables.

The ICS, though admittedly imperfect, seems to be a nexus from which both DHS (FEMA) and DOD (NORTHCOM) can use and build upon to better collaborate disaster response to leverage the networked relationship between DOD/NORTHCOM and DHS/FEMA to achieve greater effectiveness. It seems challenging that in the post Katrina disaster environment that parallel systems of command would be used; what's more is likelihood of duplication of effort, prodigal resource allocation, incoherent response, and the prolongation of human suffering would likely ensue. Indirectly, NORTHCOM attests to the relevancy of ICS-like structure when it reported on the need to increase interoperability and collaboration during its 2005 AAR (NORTHCOM AAR 2005, 28).

Lending greater credence to this idea is the fact that during Hurricane Katrina, there were three major and separate operational commands coordinating efforts (Moynihan 2007, 902). One was commanded by the Federal Coordinating Officer, a second commanded by the Principal Federal Official and a third by Lieutenant General Honoré; none provided unity of command or effort (Moynihan 2007, 902-903). Though Moynihan believes that challenges

gravitated around diffuse networks, interpretation arising from this study showed that lack of unity of command is what ultimately contributed to problems with the response efforts. Likewise, Moynihan proffers the idea that coordination breakdowns occur, with consternation over who was to do what led to problems; that these arose from ICS use (Moynihan 2007, 903). However, one could make a cogent argument that it was equally likely because the ICS was not properly used and by extension DOD was not complying with the ICS that this was the major contributing factor to breakdowns in the response efforts. Irene saw improvements but still lacked DOD full-on adoption of the ICS.

The competition among various actors vying to look good in the eyes of the public at the derivation of the other contributors, and worse - at the expense of the victims as was the case following Hurricane Katrina is widely seen as unacceptable (Sylves 2008, 39). Collectively, the government and in particular, the civil-military interface at the federal level must continuously improve. Unity of effort must be established and can be enhanced by adopting the ICS and a modified JFO structure with more participation by the DCO/DCE structure. This could be a viable step in the achieving this. Notably, this research

only addresses NORTHCOM's AOR; not addressed was PACOM and its responsibility for Hawaii and the U.S. territories falling under its responsibility which also includes FEMA's AOR.

As was pointed out in the DHS Quadrennial Homeland Security Review Report, despite intergovernmental efforts, future attacks, incidents, and disasters will occur (QHSR 2010, 15). Collectively, effective intergovernmental efforts will be required in particular regarding DOD and DHS and quite possibly under the ICS/JFO structures. In looking toward risk, government must look to the future; where possible policies and procedures should be in place to ensure the promulgation of effective intergovernmental relations regarding both coordination and collaboration. Comfort (2007, 190) writes that hierarchical structures with rigidity of a chain of command is not in and of itself a panacea; networking and the flexibility will most likely be a necessity to proliferate effectiveness.

ACRONYMS

AAR: After Action Review

AOR: Area of Operations

BUR: Bottom Up Review

COP: Common Operational Picture

DHS: Department of Homeland Security

DCE: Defense Coordinating Element

DSCA: Defense Support of Civil Authorities

DCO: Defense Coordinating Officer

DOD: Department of Defense

EPLO: Emergency Preparedness Liaison Officer

ERT: Emergency Response Team

ESF: Emergency Support Function

FCO: Federal Coordinating Officer

FEMA: Federal Emergency Management Agency

FIRST: Federal Incident Response Support Team

FRP: Federal Response Plan

GAO: Government Accountability Office

GSA: General Services Administration

HSP: Homeland Security Plan

ICS: Incident Command System

IGR: Intergovernmental Relations

ISB: Incident Support Base

JDOMS: Joint Directorate of Military Support

JFO: Joint Field Office

JP: Joint Publication

JTF: Joint Task Force

LFA: Lead Federal Agency

LNO: Liaison Officer

MACA: Military Assistance to Civil Authorities

MCS: Multiagency Coordination System

MOU: Memorandum of Understanding

NIAMTS: National Incident Management Assistance Teams

NIMS: National Incident Management System

NORTHCOM: Northern Command

NRCC: National Response Coordination Center

NRF: National Response Framework

NRP: National Response Plan

NSS: National Security Strategy

OCD: Office of Civil Defense

OCDM: Office of Civil Defense Mobilization

OEP: Office of Emergency Planning/Office of Emergency Preparedness

PACOM: Pacific Command

PBS: Public Broadcast System

PKEMRA: Post Katrina Emergency Management Reform Act

PPA: Performance Partnership Agreement

RFA: Request for Assistance

ROWPU: Reverse Osmosis Water Purification System

SOP: Standing Operating Procedure

TRADOC: Training and Doctrine Command

Annex A

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental	Communications fosters better coordination resulting in favorable outcomes	called for intergovernmental communications	Communications fosters better coordination resulting in favorable outcomes	Intergovernmental relations predicated on successful policy implementation; consensus called for intergovernmental collaboration	Communications fosters better coordination resulting in favorable outcomes		successful	Van Meier & Van Horn	JOURNAL	Administration and Society	1975	452, 456, 458
Governmental	called for intergovernmental communications	called for intergovernmental communications	called for intergovernmental coordination	intergovernmental collaboration		Networks useful and have merit for strategic interactions across a multitude of actors	Recognized effort	Drabek	JOURNAL	P.A.R.	1985	45
Governmental	Utility of planning, communications, coordination and collaboration as variables for measuring public policy	Utility of planning, communications, coordination and collaboration as variables for measuring public policy	Utility of planning, communications, coordination and collaboration as variables for measuring public policy	Utility of planning, communications, coordination and collaboration as variables for measuring public policy			useful, merit	Sabatier		Journal of Public Policy	1986	33
Governmental	Utility of planning, communications, coordination and collaboration as variables for measuring public policy	Utility of planning, communications, coordination and collaboration as variables for measuring public policy	Utility of planning, communications, coordination and collaboration as variables for measuring public policy	Utility of planning, communications, coordination and collaboration as variables for measuring public policy			Important variables	O'Toole	JOURNAL	LAW & Policy	1986	185-187
Governmental, FEMA		Relationships between response organizations will remain troublesome	Relationships between response organizations will remain troublesome	Relationships between response organizations will remain troublesome			Federal government has an important role, troublesome relationships	Schneider	JOURNAL	Public Administrative Quarterly	1998	39, 53
Governmental					higher organizations must work with subordinates so as to not inhibit effectiveness			Rainey	BOOK		2003	80

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental, DHS, DOD, FEMA, NORTHCOM		NRP calls for DHS to be focal point of planning for government						NRP	PLAN & SYSTEM	NRP	2004	
	White House acknowledged problems exacerbated by poor communications; breakdowns	What was evident was a need to revamp the NRP	Lack of effective integration of capabilities between DOD and DHS; armed services lacked coordination	Lack of collaboration between DOD and DHS; need for integrated military capabilities	how blind federal government was in response to Katrina; stove piping, must be dismantled		Problems, lack of, need for more planning, coordination, involvement (collaboration implied) within emergency management field; systemic failures	Menzel	JOURNAL	P.A.R.	2004	808-812
Governmental, DHS, DOD	communications, planning, coordination and collaboration are components to successful networks	communications, planning, coordination and collaboration are components to successful networks	communications, planning, coordination and collaboration are components to successful networks	communications, planning, coordination and collaboration are components to successful networks		communications, planning, coordination and collaboration are components to successful networks			JOURNAL	P.A.R.	2004	
Governmental			Intergovernmental management	Intergovernmental management			Improvement	Berry, et al	JOURNAL	P.A.R.	2004	542
Governmental			full adoption of NRP				Support	NRP	PLAN & SYSTEM		2004	v-viii
	Implications on lack of communications, planning, and collaboration when interviewing Administrator Brown (FEMA)	Implications on lack of communications, planning, and collaboration when interviewing Administrator Brown (FEMA)		Implications on lack of communications, planning, and collaboration when interviewing Administrator Brown (FEMA)								
Governmental, FEMA	Implications on lack of communications, planning, and collaboration when interviewing Administrator Brown (FEMA)						Lack of	Gaviria	INTERVIEW	PBS	2005	np

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental		ICS to Improve coordination	ICS to Improve coordination					Hansen	JOURNAL	Journal of Homeland Security and Emergency Management	2006	1
DOD, NORTHCOM			Coordination process convoluted (21 steps)				convoluted, suboptimal, contingent	Wise	JOURNAL	P.A.R.	2006	302, 309
Governmental, DHS, DOD, FEMA, NORTHCOM	Need for better planning, communications, coordination, etc	Need for better planning, communications, coordination, etc	Need for better planning, communications, coordination, etc				Need for improvement during Katrina	Bowman	GOV REPORT		2006	
Government					Effectiveness reduced due to political meddling during Katrina			Wise	JOURNAL	P.A.R.	2006	302
DOD, NORTHCOM			Use of DCOs				to enhance coordination	Saui	GOV PUBLICATION		2006	
DOD, NORTHCOM			coordination of interagency process				Integrate, leverage, complicated, robust, coherency, enhance, enable civil authorities	JP 5-0	GOV PUBLICATION		2006	II-6

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
DOD, NORTHCOM	Failure of unity of command	Failure of unity of command	Failure of unity of command	Failure of unity of command	Failure of unity of command		failure	Wise	JOURNAL	P.A.R.	2006	309
Governmental					Increase effectiveness among all federal entities		effective	PKEMRA	LAW	PKEMRA	2006	mp
Governmental DHS	Breakdown in communications during Katrina	Little planning regarding communications before Katrina	Lack of coordination		Failure of policy implementation; lacked unified management; insufficient coordination and planning		Breakdown, information flow lacked; failure	Ink	JOURNAL	P.A.R.	2006	800, 801, 802
Governmental, DHS, DOD, FEMA, NORTHCOM		PKEMRA, Importance of planning, training, exercises, and coordination	PKEMRA, Importance of planning, training, exercises, and coordination						LAW	PKEMRA	2006	mp
Governmental		ICS focus on planning	ICS useful for inter-organizational coordination				Important component (planning); useful (coordination)	Buck, Trainer, Aguirre	PLAN & SYSTEM	Journal of Homeland Security and Emergency Management	2006	i, 1
Governmental	Collaboration suffered during Katrina due to an overly mechanistic less collaborative environment complicating communications throughout the federal level		Katrina demonstrated disarray and incapacity of FEMA/DHS to coordinate relief	Collaboration suffered during Katrina due to an overly mechanistic less collaborative environment complicating communications throughout the federal level			Disarray, lack of understanding of understanding	Wangh & Streib	Journal	P.A.R.	2006	131, 136

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental, DHS, FEMA		Requires detailed planning but must retain flexibility within the network	Emergency managers must interact effectively with other government officials (intergovernmental, intersectoral, multi- organizational)	Capacity to collaboration effectively with disaster networks is imperative	Capacity to collaboration effectively with disaster networks is imperative	Effective response unlikely to occur without collaboration	Essential, interact effectively, integration, meticulous, flexibility, crucial, get the job done	Waugh & Streib	Journal	F.A.R.	2006	132, 135, 138
Governmental	Scope of Katrina exceeded capacity of government to respond (communications infrastructure and coordination)	Discrepancy between plans and practical implementation	Scope of Katrina exceeded capacity of government to respond (communications infrastructure and coordination)							Public Works Management & Policy	2006	1, 2, 3, 4
Governmental	Greatest barrier to interoperable communications has been lack of effective collaborative...and intergovernmental planning (KATRINA)	Greatest barrier to interoperable communications has been lack of effective collaborative...an d intergovernmental planning (KATRINA)		Greatest barrier to interoperable communications has been lack of effective collaborative...and intergovernmental planning (KATRINA)	Lack of effectiveness (KATRINA)		Barriers	Walker	TESTIMO NY	G.A.O. (06- 442T)	2006	17

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION DATE	PAGE
Governmental DHS, DOD, FEMA, NORTHCOM	communications, planning, coordination and collaboration are components to successful networks; use of ICS for communications	communications, planning, coordination and collaboration are components to successful networks; use of ICS for planning	communications, planning, coordination and collaboration are components to successful networks	Collective nature of working together fosters effectiveness	Collective nature of working together fosters effectiveness but more must be done (as of 2007)	Collective nature of working together fosters effectiveness; NIMS touts use of coordination, planning, and collaboration	effective, collective, successful, essential, promote, jointness	Lester & Krejci	JOURNAL	2007	84- 90
DHS, DOD, FEMA, NORTHCOM			DCOs coordinate for DOD Actions during Katrina were fragmented					Elsa	GOV REPORT	2007	
Governmental DHS, DOD, FEMA, NORTHCOM	FKEMRA, importance of national communications system	Governmental					fragmented	Garnett & Kouzinin	JOURNAL P.A.R.	2007	193- 195
Governmental	Lack of understanding of Katrina and the severity of the event did not engage a communications system to foster preparedness and response efforts to help control the scale of the event		Collapse of intergovernmental system	Collapse of intergovernmental system			Importance	Rubin	LAW BOOK	2007	190, 192
							Without, did not engage, collapse	Comfort	JOURNAL P.A.R.	2007	190, 192

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental					Suffering ensued due to bungling by government in Katrina			Davis	JOURNAL		2008	
	Coordination and communications necessary for direction that is centralized		Coordination and communications necessary for direction that is centralized	Collaboration is integral component when dealing with multiple stakeholders when considering ICS		At times a dichotomy exists between networks and a need for centralization (ICS); this must be managed						898, 912-913
Governmental							Integral	Meynihan	JOURNAL	Governance	2008	
DOD, NORTHCOM			Posse Comitatus does not inhibit DOD from providing non-policing support, coordination and/or collaboration to civil authorities	Posse Comitatus does not inhibit DOD from providing non-policing support, coordination and/or collaboration to civil authorities			Support	Stives	LAW	BOOK	2008	172, 181

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental, DHS, DOD, FEMA, NORTHCOM			HSPD-5 calls for DHS to lead but all government elements to support adopting four phases of disaster cycle, use of NIMS, and a comprehensive approach to supporting disasters; DHS coordinates efforts; doing well but must do better				Comprehensive, needs to continue to improve	HSPD-5	POLICY	G.A.O. (08-868T)	2008	3, 5
Governmental	key components contributing to success, collaboration, communications, planning (formalized agreements) and coordination	key components contributing to success, collaboration, communications, planning (formalized agreements) and coordination	key components contributing to success, collaboration, communications, planning (formalized agreements) and coordination	key components contributing to success, collaboration, communications, planning (formalized agreements) and coordination			Maximize effective response, nationwide approach, partners equal as collaborators, acknowledged strengths & weaknesses, pursue effective communications, rapidly create trust, previous networked partnerships, success factors		JOURNAL	IBM	2008	11, 13, 15, 16, 17, 20

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental			Hurricane Katrina showed lack of effective coordination		Hurricane Katrina showed lack of effective coordination			Landy	JOURNAL	P.A.R.	2008	5186
Governmental						Intertwining throughout the network	successful	Lee, Rainey, Young	JOURNAL	P.A.R.	2009	457
Governmental, DHS, DOD, FEMA, NORTHCOM	Failure to communicate, coordinate and plan prior to Katrina	Failure to communicate, coordinate and plan prior to Katrina	Failure to communicate, coordinate and plan prior to Katrina				Failure, misplaced priority, finger pointing, flaws	Murphree, Reber, Blevins	JOURNAL	Journal of Public Relations Research	2009	278-289
DHS, FEMA, DOD, NORTHCOM	Unity of command	Support of NIMS, NRP	Unity of command	Unity of Command	Unity of Command; FEMA and NORTHCOM increasingly working together		train and work together helps during real events; integration center	Cigler	JOURNAL/ LAW	International Journal of Public Administration	2009	760-763
DOD	To overcome challenges in communications, DOD is making available unclassified communications systems for disasters (voice and data);	Sharing expertise	Sharing expertise	Sharing expertise			Overcome, sharing		GOV PUBLICATION	DOD Instruction 1	2009	2

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental, DHS, FEMA		Lack of responsibility preparing for event (NRF/NRP)		Lacks appreciation for collaboration; lacks congruency			Policy failure, bureaucratic morass, major problems, strained, overwhelmed, turned on its head, lack of	Birkland	JOURNAL	Review of Policy Research	2009	423, 424, 425, 429
DOD		DOD committed to synchronize efforts to NRF					Committed		GOV PUBLICATION	DOD Directive	2009	4
Governmental, DHS, FEMA		Lack of adequate planning before Hurricane Katrina; FEMA unprepared		Implied fragmentation of collaboration			Lack of	Chertoff	BOOK		2009	5, 42
Governmental				Networks must work with full continuum of levels of government			Concentrated and orchestrated approaches			Public Administration Times	2009	5, 14
DOD, NORTHCOM	Shall share information and expertise		Shall work with DHS	Shall work with DHS		Supports interagency efforts	Supports	Henderson	Journal GOV PUBLICATION	DOD Instruction 5535.10	2009	2
Governmental, DOD, NORTHCOM	Provide information and communications technology (voice and data)		Facilitate coordination	Facilitate cooperation			Providing capabilities (disaster relief)		GOV PUBLICATION	DOD Instruction 8220.02	2009	1-2

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
DOD/NORTHCOM		Aligns Quadrennial Defense Review with NRF and	Supports coordination among other federal agencies for DOD resources including non-lethal and other capabilities	Collaboration among DOD and federal agencies for forces/capabilities in support of homeland functions			Civilian control		PLAN & SYSTEM	DOD Directive 5111.13	2009	3, 4, 6, 7
Governmental, DHS, DOD, FEMA, NORTHCOM	Communications to convey consistent messages; useful for effective planning	NSS calls for collective approach	Collective approach to all hazards	Continue to collaborate; integrate all levels of government in emergency management field	Effective cooperation between within government		Collective, improving, complementary, integrated	NSS	PLAN & SYSTEM	NSS	2010	14, 16, 18, 46, 51
Governmental	Provide greater flexibility and adaptability; planning must fan out throughout governmental system; NRF to overcome issues realized during Katrina	Need for intergovernmental relations to achieve success (following Katrina)	Need for intergovernmental relations to achieve success; involves working collaboratively (NRF)	Need for intergovernmental relations to achieve success; involves working collaboratively (NRF)	Need for intergovernmental relations to achieve success; experience during Hurricanes IKE and Gustav in 2008 show that the U.S. is on the right track		Greater, success, importance of	McGuire & Schneck	JOURNAL	P.A.R.	2010	S202-S204

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental, DOD, NORTHCOM	DOD acknowledges importance of (but falls short of openly adopting) ICS & NIMS with implications for coordination and collaboration (integration); DCOs plan and coordinate	Required for coordination among federal entities; DOD acknowledges importance of (but falls short of openly adopting) ICS & NIMS with implications for coordination and collaboration (integration); DCOs plan and coordinate	DOD acknowledges importance of (but falls short of openly adopting) ICS & NIMS with implications for coordination and collaboration (integration); sees JFO as center of gravity				Comprehensive, required, concerted, integrating, acknowledges	Murphy	PLAN & SYSTEM	Disaster Response Staff Officer's Handbook	2010	25, 32, 35, 41
Governmental, DHS, DOD, FEMA, NORTHCOM	HSPD-5 calls for a concerted effort by all in the federal government under a single organization, DHS	HSPD-5 calls for a concerted effort by all in the federal government under a single organization, DHS	HSPD-5 calls for a concerted effort by all in the federal government under a single organization, DHS				Concerted effort	Murphy	POLICY	Journal	2010	25
Governmental	Replacement of NRP by the NRF		Replacement of NRP by the NRF				Subsumed	Comfort, Birkland, Cigler, Nance	PLAN & SYSTEM		2010	673

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental		Critical role of collaboration in planning		Critical role of collaboration in planning; collaborative relationships; have improved since 2005 in all four phases of the disaster cycle	Lack of collaboration led to breakdowns of effectiveness during Katrina	Collaboration is a keyword in networks; paramount in multi-organizational involvement	Grounded	McGuire & Silvia	JOURNAL	F.A.R.	2010	279, 280, 283
DHS, FEMA			National Response Coordination Center following Katrina				enhance	DHS Archives	GOV REPORT		2011	mp
Governmental, FEMA	Communications failures (Katrina)	Lack of planning (Katrina)	Lack of coordination (Katrina)		Katrina showed lack of coordination, planning, and communications	communications, planning, coordination and collaboration are components to successful networks	successful (future), massive breakdown in communications during Katrina	Koliba, Zia & Mills	JOURNAL	F.A.R.	2011	215
Governmental	Communications failures among networks during Katrina inhibited planning	Communications failures among networks during Katrina inhibited planning				Communications failures among networks during Katrina	Failure	Koliba, et al	JOURNAL	F.A.R.	2011	215
DHS	Importance of communications to share information		Importance of coordination as a critical component of emergency management				Importance	Dodaro	TESTIMO NY	G.A.O.	2011	mp

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
DHS	Improved national emergency communications, implemented first-ever National Emergency Communications Plan						Improved		GOV REPORT	G.A.O. (11-881)	2011	52
DHS		DHS still has work to perform to improve nesting of plans					Need to improve		GOV REPORT	G.A.O. (11-881)	2011	142
DOD, NORTHCOM			DOD required to support DHS when directed by the president	DOD required to support DHS when directed by the president			Support	HSPD-5	POLICY	HSPD-5	2011	np
Governmental, DHS, FEMA	DHS required to establish standards across government, to enable it to effectively manage disaster response, and the codification and promulgation of standards	DHS required to establish standards across government to enable it to effectively manage disaster response, and the codification and promulgation of standards			DHS required to establish standards across government, to enable it to effectively manage disaster response, and the codification and promulgation of standards		Effective		POLICY	G.A.O. (11-518)	2011	16-18

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental, FEMA		Informed the country from Atlanta that everybody (all actors) where working together to put the pieces of the puzzle together to execute the plan through fostering a collaborative effort		Informed the country from Atlanta that everybody (all actors) where working together to put the pieces of the puzzle together to execute the plan through fostering a collaborative effort								
Governmental, FEMA		Administrator Fugate also underscored the importance of the full spectrum of government implying active collaboration to prepare for this event on August 26, 2011	Secretary Napolitano again emphasized the importance of coordination and the use of the National Incident Management System's assistance teams, on August 26, 2011	Administrator Fugate also underscored the importance of the full spectrum of government implying active collaboration to prepare for this event on August 26, 2011			Coming together	Hare	PRESS RELEASE	FEMA Media	2011	np
Governmental, DHS, FEMA		Administrator Fugate also underscored the importance of planning and preparation on August 26, 2011		Importance of collaboration and underscored this as well as the effective use of communications equipment and connectivity								
Governmental, FEMA		Importance of collaboration and underscored this as well as the effective use of communications equipment and connectivity		Importance of collaboration and underscored this as well as the effective use of communications equipment and connectivity			Outstanding collaboration. Provided additional communications support	Napolitano, Fugate	PRESS RELEASE	FEMA Media	2011	np

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
DOD, NORTHCOM		Foster planning of EFO's	Manage and coordinate EFO program				Manage, foster		GOV PUBLICATION	DOD Instruction 3025.16	2011	4
	Mobile Emergency Response System met communications needs leading up to and throughout support; no unmet communications requests (Hurricane IRENE)	Clear guidance on mission and priorities (PEMIRA - 5 years later); Key success was in promulgating NIMS training plan during 2011										
Governmental, DHS, FEMA				Consolidation of response teams invaluable (Hurricane IRENE)	Improvements in preparedness approach (PEMIRA - 5 years later)		Improvements	Fugate	TESTIMONY	25-Oct	2011	2
Governmental, DOD, NORTHCOM					Support Civil Authorities		Support	Fanetta	PRESS RELEASE	009-12	2012	np
Governmental, DOD, NORTHCOM				Strategy stems from a collaborative process within and outside of DOD			Sought out	Dempsey	PRESS RELEASE	010-12	2012	np
Governmental, DHS, DOD, FEMA, NORTHCOM				Contributions from all elements of national security team	Respond quickly and effectively to a variety of contingencies		Support to civil authorities	Obama	PRESS RELEASE	5-Jan	2012	np

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUB TYPE	PUBLICATION	DATE	PAGE
Governmental, DHS, FEMA		FEMA must continually plan; failing to plan is akin to planning to fail; must continue to plan in order to prepare; "Go Big, Go Early, Go Fast, Be Smart for planning		FEMA has never been better...along with the rest of the federal government (Hurricane IRENE); new goal to meet survivor needs within 72 hours and restore basic services within 60 days.			Never been better, achieving desirable results	State of FEMA	GOV PUBLICATION		2012	7, 9, 11
Governmental, DHS, DOD, FEMA, NORTHCOM	Lack of communications contributed to coordination problems; NORTHCOM must continue to utilize unclassified networks to assist with communications	Lacked ability to plan; FEMA requires DOD & NORTHCOM planning expertise to assist with military requirements	Need better interagency coordination; need to establish coordination authority; flowed forces without coordination	Should support adopting NIMS for civil support operations; DOD collaborative efforts with FCOs necessary under NRP; develop interoperability and collaboration								4, 7-9, 11, 19-21, 23-26, 28, 45, 71
					Degraded unity of effort let to inefficient operations	DOD must continue partnership of DCOs and FCOs	Lacked, inefficient, need to develop	NORTHCOM Katrina AAR	GOV PUBLICATION	22-Nov	2005	

ORGANIZATION	COMMUNICATIONS	PLANNING	COORDINATION	COLLABORATION	EFFECTIVENESS	NETWORKING	ADJECTIVES	AUTHOR	PUBTYPE	PUBLICATION	DATE	PAGE
	<p>Videos and teleconferences took place daily to facilitate coordination and collaboration; deployed communications packages forward; need to continue to enhance communications; though communications has improved, a recommendation was for a dedicated communications package for civil support operations; evidence of DSH</p>	<p>DOD provided military planning support to FEMA</p>	<p>DHS & DOD coordination and collaboration took place on a routine basis; information synchronization remains critical to successful support to civil support operations</p>	<p>DHS & DOD coordination and collaboration took place on a routine basis; NORTHCOM will continue to collaborate to respond to future events</p>	<p>Flexible and responsive needs to victims; greater situational awareness; execution of operations highly successful</p>	<p>Though a success, future efforts must look at providing standardization to processing requests for information (RFIs) from other agencies</p>	<p>Routine, flexible, responsive, provided, information sharing</p>	<p>NORTHCO M IRENE AAR</p>	<p>GOV PUBLICATI ON</p>	<p>14-Dec 2012</p>	<p>2, 4, 8-9, 134, 142, 171, 181, 199</p>	
<p>Governmental, DHS, DOD, FEMA, NORTHCOM</p>	<p>Continue to improve on communications infrastructure</p>	<p>Strive to move beyond 24 hour planning cycle</p>						<p>FEMA IRENE.AAR</p>	<p>GOV PUBLICATI ON</p>	<p>Oct 2011</p>	<p>3, 9, 10</p>	

Annex B

	Dependent	Independent	Independent	Independent	Independent	Control	Control	Control	Dummy
		Number of		Number of	Number of				
		People Killed	REVISED	Emergency	Emergency				
	Days Until	Resulting From	Number of	FEMA	Northcom			Hurricane	
	Restoration	Hurricane Katrina	Disasters	Exercises	Exercises	Control	Control	Coastal	
	to Normalcy	and Irene	1 June- 31 May	1 June - 31 May	1 June - 31 May	for State	For State	Exposure	Hurricane
	After Hurricane	August-September	2004-05 and 2010-11	2004-05 and 2010-11	2004-05 and 2010-11	Population	Size	(Miles)	Irene
North Carolina	13	7	1	8	1	9222000	52,672	301	1
Virginia	12	4	0	2	1	7761000	40,598	112	1
Maryland	20	3	0	2	2	5634000	10,455	31	1
Pennsylvania	15	6	0	2	2	12448000	45,310	0	1
Delaware	7	2	0	0	2	873000	2,026	28	1
New Jersey	15	11	1	8	1	8613000	7,790	130	1
New York	28	9	2	6	1	19490000	49,112	127	1
Connecticut	12	2	1	1	1	3501000	5,006	0	1
Rhode Island	9	0	0	5	1	1051000	1,213	40	1
Massachusetts	12	3	1	4	1	6498000	8,262	192	1
New Hampshire	12	6	0	2	1	1316000	9,283	13	1
Vermont	18	6	1	3	1	621000	9,615	0	1
Maine	14	2	1	4	1	1315000	33,128	228	1
Florida	14	14	4	1	0	17768000	58,681	1350	0
Alabama	33	2	1	2	0	4548000	51,718	53	0
Louisiana	274	1475	2	0	0	4507000	47,720	397	0
Texas	1	0	0	54	0	22929000	266,874	367	0
Mississippi	143	238	1	0	0	2908000	47,695	44	0

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