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United we stand, divided we fall : increasing response capability in Kentucky through regionalization and leadership

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THESIS

UNITED WE STAND, DIVIDED WE FALL: INCREASING RESPONSE CAPABILITY IN KENTUCKY THROUGH REGIONALIZATION AND LEADERSHIP

by

Amanda Bogard

March 2011

Thesis Co-Advisors: Richard Bergin
                                                  Lauren Wollman

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1. AGENCY USE ONLY *(Leave blank)*	**2. REPORT DATE** March 2011	**3. REPORT TYPE AND DATES COVERED** Master's Thesis	
4. TITLE AND SUBTITLE United We Stand, Divided We Fall: Increasing Response Capability in Kentucky through Regionalization and Leadership		**5. FUNDING NUMBERS**	
6. AUTHOR(S) Amanda Bogard			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000		**8. PERFORMING ORGANIZATION REPORT NUMBER**	
9. SPONSORING /MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A		**10. SPONSORING/MONITORING AGENCY REPORT NUMBER**	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government. IRB Protocol number NPS.2010.0091-1R-EP7-A.			
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited		**12b. DISTRIBUTION CODE**	

13. ABSTRACT (maximum 200 words)

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The 2009 Kentucky ice storm devastated the entire state. Some counties throughout the commonwealth collaborated during the response; however, only one region out of eleven formally regionalized. Possible factors related to regionalization will be explored, such as support and understanding by leaders of the concept and the importance of networking with a variety of agencies. Networking is described as interorganizational interaction and communication. Tools from social network analysis are used to visualize networking and collaboration during the 2009 Kentucky ice storm. In addition, regionalization is discussed in the context of area command.

Using a case study and interviews, this thesis investigates regionalization in Kentucky as it relates to the 2009 ice storm. Recommendations are presented for improving responses to future large-scale disasters utilizing regionalization.

14. SUBJECT TERMS Regionalization, Regions, Area Command, Leaders, 2009 Kentucky Ice Storm, Network Analysis, Collaborative Leadership, Leaders, Emergency Management	**15. NUMBER OF PAGES** 112
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT Unclassified	**18. SECURITY CLASSIFICATION OF THIS PAGE** Unclassified	**19. SECURITY CLASSIFICATION OF ABSTRACT** Unclassified	**20. LIMITATION OF ABSTRACT** UU

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UNITED WE STAND, DIVIDED WE FALL: INCREASING RESPONSE CAPABILITY IN KENTUCKY THROUGH REGIONALIZATION AND LEADERSHIP

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Submitted in partial fulfillment of the
requirements for the degree of

**MASTER OF ARTS IN SECURITY STUDIES
(HOMELAND SECURITY AND DEFENSE)**

from the

**NAVAL POSTGRADUATE SCHOOL
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LIST OF ACRONYMS AND ABBREVIATIONS

AAR	After-Action Report
CRI	Cities Readiness Initiative
EMAC	Emergency Management Assistance Compact
EMS	Emergency Medical Service
EOC	Emergency Operation Center
FEMA	Federal Emergency Management Agency
HPP	Hospital Preparedness Program
KRS	Kentucky Revised Statute
KYEM	Kentucky Emergency Management
MMRS	Metropolitan Medical Response System
MRC	Medical Reserve Corps
NIMS	National Incident Management System

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ACKNOWLEDGMENTS

To the Center for Homeland Defense and Security, thank you for believing in me and granting me the tremendous opportunity to be involved in the program. The professors were topnotch, and I could not imagine a more comprehensive curriculum. Lessons I have learned through the program have made me a more analytical public-health and homeland security professional.

To my fellow classmates, you have been instrumental in my learning journey. I will sorely miss our academic and practical discussions on homeland security issues. I will also forever be in your debt for teaching me to love baseball.

To my Mom, you are an inspiration and the strongest person I know. To my brother, Ben, you provided the constant encouragement that I needed. To my Dad, thanks for providing motivation by threatening me with bodily harm if I did not finish this degree.

Richard Bergin and Lauren Wollman, you both have been wonderful thesis advisors. I am grateful for your recommendations and support and for pushing me out of the nest when I needed it.

To the twelve leaders that agreed to be interviewed for this thesis, I am extremely appreciative that you shared your experience and knowledge with me. I hope I have done justice to your stories, successes, frustrations, and ideas.

I am very blessed to work with an amazing network of professional colleagues. Thank you for your feedback and candid conversations regarding questions I had along the way. Without you, this thesis would have been an extremely lonely adventure.

To my amazing husband, Matt, you are my foundation. Words cannot express the gratitude I have for the support you have provided me in life and throughout this program. Thank you.

I.   INTRODUCTION

A.   PROBLEM

Research indicates that regionalization is an effective means to improve relief efforts by dealing with the coordination problems endemic to disaster relief (United States Department of Homeland Security [USDHS], 2005; Foster, 2006; Heritage Foundation, 2006). However, in Kentucky, a recent statewide ice storm showcased the reality that regionalization was not utilized in the majority of responses.

By not formally collaborating during an emergency, many potential problems emerge related to the use of resources, communication gaps, and duplicate efforts—all of these issues were noted in after-action reports to the response to the ice storm.

1.   Defining Regionalization

While literature indicates that regions and regionalization are important, the definition of "regions" and "regionalization" many have different meanings to different people.

The national preparedness guidelines define a region as "a geographic area consisting of contiguous Federal, State, local, territorial, and tribal entities" (USDHS, 2005, p. 43).

Regionalization is discussed by William Austin, in his Naval Postgraduate School thesis, "The United States Department of Homeland Security Concept of Regionalization—Will it Survive the Test?" He states, "Regionalization at some level provides the opportunity to use mutual aid resources and deploy response assets that a single municipality acting alone may not even know exist. Arguably it provides a more effective and efficient use of resources, but it defines the human nature of the local government culture" (Austin, 2006, p. 21).

Regionalization has many widely accepted definitions. For the purpose of this thesis, a definition will be established. A "region" refers to a group of counties throughout Kentucky that have been established by a state-level government. "Regionalization" will refer to the act of the region collaboratively working across jurisdictional boundaries in a formal capacity to network, preplan, and respond during incidents.

2. County Governments and Emergency Management

The commonwealth of Kentucky is home to approximately 4.3 million people and contains 120 counties, each with its own unique set of resources to respond to natural and man-made disasters (United States Census Bureau, 2010). Every county has a chief elected official, the judge executive, who in turn appoints an emergency management director to assist in coordinating responses within the jurisdiction. According to Kentucky Revised Statute 39B.020, the county judge executive of each county shall appoint a local emergency management director within 30 days of obtaining office. The county judge executive in conjunction with the county fiscal court hires the local emergency management director as either a part-time or full-time employee.

Local emergency management directors, full-time and part-time alike, are responsible for "developing and maintaining local emergency operation plans; establishing local disaster and emergency services; notifying the County Judge and the Division of Emergency Management of an emergency; acting as the on-scene representative of the county during an emergency; supervising all paid or volunteer emergency management workers; and submitting activity reports to the Kentucky Emergency Area Manager" (Kentucky Revised Statute 39B.030).

Some county emergency management directors across the state are part-time employees, and those individuals may need to supplement their income by holding a full-time job. Part-time emergency management directors may not have time to attend preparedness planning meetings that occur during business hours.

If a large-scale incident occurs, the county will set up an emergency operation center (EOC) to oversee the command and control of the response and resource allocation. If a county cannot manage the incident with the resources it has access to, the state EOC is notified and becomes involved, especially with resource allocation.

3.   Kentucky Emergency Management

The Commonwealth's Division of Emergency Management is a division of the Kentucky Department of Military Affairs, and its role and function are governed by legislative action dictated in Chapter 39 of the Kentucky Revised Statutes.

There are 11 Kentucky emergency management area managers across the state, and each county is assigned to one of the 11 emergency management regions based on its geographical location (Kentucky Division of Emergency Management [KYEM], 2010a).

Kentucky Emergency Management regional staff "has the responsibility to carry out the coordination of information and resources within the region and between the state and regional levels to ensure effective and efficient support to local response. The Regions serve as the conduit for local and regional perspective and provide a physical presence for Kentucky Emergency Management functions at the local levels in all phases of Emergency Management" (KYEM, 2010b).

During large incidents, the KYEM area managers provide support to impacted counties, provide on-site coordination, and collect damage assessments, situation reports, and other information from their assigned counties to summarize and report to the state EOC. The Division of Emergency Management is responsible for managing the state EOC.

4. Current Protocol for Disaster Response in Kentucky

The current protocol described below represents a starting point for addressing regionalization in the commonwealth of Kentucky. Given that regionalization was only enacted in one region out of 11 during the ice storm, the normal protocol for disaster response should be explored.

During any event, requests for resources begin at the local level. County agencies and responders send requests for resources to the county EOC, where the county emergency manager contacts the state EOC to assist in the acquisition of resources. However, during a small event, the county emergency manager will often contact neighboring jurisdictions to request resources on a mutual aid basis without contacting or coordinating with the state EOC.

Each region has a Kentucky Emergency Management (KYEM) area manager who facilitates the response within each county and assists in regional coordination. The KYEM area manager also has the option to network and to request assistance from within the established region if resources within a particular county are scarce or nonexistent during a response.

5. Problems

The previous discussion illustrates the relationship between the county and the state emergency management divisions and the interaction of the agencies during a response. It is one thing to understand the current chain of command, but an assessment of the current response protocol can only be made by assessing observed behavior and identifying problems in the actual response.

A recent statewide emergency suggested that the responses involving multiple counties need to be examined, especially in regards to regionalization. In January 2009, Kentucky experienced an unprecedented ice storm that crippled the vast majority of the state. Out of 120 counties, 105 had declared a state of emergency (FEMA, 2009a). At one point, over 200 shelters had been set up

across the state, sheltering approximately 6,600 people (0.15% of the population) and more than 700,000 people (16.2% of the population) were without electricity (Kentucky's ice storm worse in aftermath, 2009, KYEM, 2009v).

Most counties activated emergency operation centers and submitted requests from the county to the state EOC without assessing the resources available within the region. This resulted in the state EOC being bombarded with calls and requests, making it very difficult to prioritize and fulfill requests. Information, questions, and requests from all 120 counties poured into one central location. Effectively managing massive amounts of information was nearly impossible for the state EOC and overwhelmed the resource management section. Resource requests were delayed, duplicated, or sometimes lost, complicating the allocation of scarce supplies of food, water, blankets, and generators.

6. Area Command Versus Regionalization

The documents of the National Incident Management System (NIMS) and the National Response Framework (NRF) both address the concept of regionalization through area command. Throughout NIMS and the NRF, area command is defined as "an organization to oversee the management of multiple incidents handled individually by separate Incident Command System organizations" (USDHS, 2008).

The concept of area command differs from regionalization. As discussed in Chapter II, area command is a framework established by the federal government for a large-scale or regional response. Area command does not address collaboration or planning in a formal capacity prior to the incident; rather, area command only addresses response.

7.   Leadership and Regionalization

The concept of regionalization is not new, and most leaders understand that for a successful response, collaboration and sharing must occur. In small, rural counties throughout Kentucky and the nation, it is understood that turning to a neighboring county in time of need is crucial for the mission to succeed. Since federal preparedness funding, such as the Cities Readiness Initiative (CRI) and the Metropolitan Medical Response System (MMRS), is not abundant throughout the state, Kentucky must make wise decisions about resource purchases in order to augment response. In a large-scale disaster, because of scarce resources, Kentucky relies on emergency management assistance compacts (EMACs) for assistance from outside states. Regionalization could be a mechanism for Kentucky to better utilize EMACs and FEMA resources or perhaps to rely less upon them.

During the 2009 ice storm, one of the largest disasters that Kentucky has faced within the recent past, only one functioning formal regional structure was established for response efforts. The KYEM area manager in Region 1 pulled together the counties in her emergency management region and activated a Region 1 area command center. All requests, situation awareness reports, questions, and problems in each Area 1 county were directed to area command, where they were compiled and analyzed before being sent to the state EOC. With the exception of Area 1, no other regions or area command centers were established during the event.

Just because regions exist does not mean that regionalization or collaboration will occur. In some cases, regions may only exist because they were formed by state-level agencies. Formal regionalization only occurs when a leader within a region recognizes the need for improved command and control and executes a plan or a structure for the counties within his or her region to collaborate through a formal mechanism. Networking and collaboration may occur from county to county; however, only with a formal structure can effective regionalization occur.

Just as regions do not imply regionalization, plans or structures for regionalization may not be implemented just because they exist. In "Translating a Regional Vision into Action," the authors claim that leadership is the proverbial key to regionalization. They state that "leaders who are passionate about the visioning initiative are also important in selling the effort to participants and contributors" (Cartwright & Wilbur, 2005, p. 8). It is wonderful that written and verbal plans exist, but without a visionary leader who can also "sell" the idea of working together to multiple jurisdictions and stakeholders, regionalization efforts may not be implemented. However, even the most passionate and visionary leaders may not embrace regionalization if they have a negative perception of the concept, if they do not understand the benefits, or if there are barriers to regionalization. Responders and leaders alike may also be hesitant to formally regionalize another layer of bureaucracy at the regional level is perceived to be necessary for resource procurement.

With the worst disaster in Kentucky in decades, only one area out of many established a formal regional structure. This fact demonstrates that established regions will not instantaneously emerge during a disaster.

During the ice storm in 2009, the one formal region that did form reduced the burden on the state EOC because the counties were working in concert with one another to allocate resources and the area command center was able to process information as a region. Instead of being sent directly to the state EOC, each county's requests were examined by the area command center to determine whether the requests could be fulfilled within the region or whether duplicate requests existed. Only in cases where requests could not be fulfilled by regional resources were requests forwarded to the state EOC. Unfortunately, formal regionalization was not utilized by any other region impacted by the ice storm. Despite efforts made in Kentucky Emergency Management Region 1, the state EOC was still bombarded with requests that might otherwise have been fulfilled without relying on the state EOC if regionalization had been implemented. If leaders implement regionalization, future response efforts could benefit.

B. RESEARCH QUESTIONS

❖ What were the roles, relationships, and perceptions of leaders fostering regionalization during the 2009 Kentucky ice storm, and what can this case study tell us about how to better implement regionalization during a large-scale crisis?

➢ What were the challenges and opportunities for leaders seeking to implement a coordinated regionalization response during the 2009 ice storm?

➢ What were the different perceptions among leaders regarding the role that leaders played in promoting regionalization during the 2009 ice storm?

❖ How did established regions (Emergency Management, Hospital Preparedness Program) assist leaders in creating a regional response during the ice storm?

➢ Did leaders network or collaborate in any way before or during the response?

C. ARGUMENT

Coming together is a beginning. Keeping together is progress.
Working together is success.

-Henry Ford

Literature supports the idea that regionalization can improve resource allocation. Regionalization could improve resource allocation by allowing local leaders more control of resources within the area as well as by reducing the amount of time for resource delivery if equipment is prepositioned within the region. Establishing formal regionalization can also allow regional leaders to make resource allocation decisions without involving the state EOC. Especially in tough economic periods, regionalization can assist counties in sharing precious resources.

In the context of the Kentucky 2009 ice storm, utilizing regionalization would have allowed counties to work together and optimize the resources within

the region. The state EOC would also have benefited if regionalization had been established statewide: they would have dealt with 11 regions, instead of 120 individual counties. The region itself would have had more control of resources by working together within the region, and the state would have received situational awareness reports and requests from each region instead of each county. Redundant requests from counties would hopefully be reduced: i.e., if a water treatment plant that covers multiple counties needs a generator and asks county "A" and county "B" to fulfill the request for the same purpose, without a regional coordination center, both of these requests would be submitted to the state EOC. Problems such as this can lead to confusion, poor resource utilization, and possibly delayed response.

If leaders fail to play a crucial role in regionalization and the concept is not well understood by leaders, then expectations for regionalization in future responses may not be met. Although the concept of regionalization for Kentucky is not a new concept, only one area during the ice storm set up an area command structure to ascertain the needs of the counties within the region and to help with resource allocation. As an example, the KYEM area manager in Region 1 requested that all of the counties within her jurisdiction report to the Region 1 area command center instead of contacting the state EOC directly. In the Region 1 command center, situation reports and requests were collected from all counties and submitted to the state EOC. This arrangement allowed the region to more easily prioritize needs, minimize duplicate and redundant efforts, and promote collaboration and resource sharing throughout the counties. The Area 1 command center was able to stage resources closer to the impacted areas and coordinate response activities over multiple counties. Other counties within the state may have partnered together; however, only one region out of 11 formally utilized the concept of regionalization during the ice storm.

Research indicates that collaborative leadership is necessary for regionalization; however, this concept goes beyond the formal role of leaders as defined by titles, plans, and organizational charts. Regionalization requires

leaders to exert influence over areas, organizations, and key players where formal authority may not be defined (Lichtenstein et al., 2006; Marcus, Dorn, & Henderson, 2005). During the ice storm, leaders did not have comprehensive plans to address regionalization, and they may have had misperceptions of what regionalization entails. As discussed in the literature review, Waugh and Streib point out that, with regard to disasters, emergency managers "generate a strong desire for hierarchy—somebody to take charge, or possibly someone to be held accountable" (Waugh & Streib, 2006).

Regionalization is important for Kentucky, as well as other rural states, to determine how resources could be better allocated, how information could be shared, and how networking between leaders and responders could be enhanced. Several formal regions exist throughout the state, including Kentucky emergency management regions, hospital preparedness regions, area development districts, and American Red Cross service areas, just to mention a few of the major players throughout the ice storm response. Although regions exist in Kentucky, if the leaders do not perceive that the currently defined regions are conducive to regionalization, they may not embrace regionalization. Regionalization requires collaborative responses: as a result, regionalization requires that leaders and responders be collaborative or support collaborative behavior. However, collaboration itself does not guarantee regionalization any more than the existence of regions will guarantee regionalization. Collaboration is only a prerequisite for regionalization.

Even if leaders embrace collaborative behavior, regionalization may fail to materialize if leaders have negative perceptions of regionalization. Despite what is known about regionalization from the current literature, some leaders may not be familiar with the concept or the benefits. Even if leaders support regionalization, there may exist barriers that prevent them from formally regionalizing. Responders also need to understand the concept and be willing to adopt regionalization.

Evidence related to collaborative response during the ice storm are found throughout after-action reports. These reports show what agencies collaborated during the storm, and the reports can be compared among various agencies to gauge collaboration. This evidence may demonstrate whether some agencies collaborated more than others or, if they worked in isolation, may indicate how well leaders embraced collaboration as a part of their respective agencies' responses.

In Kentucky, we have planned together to respond in a regional front as Hospital Preparedness Program regions as well as emergency management regions. However, without key leaders willing to "pull the trigger" and make regionalization happen, we will continue to respond with a fragmented county-by-county approach. A case study of the Kentucky ice storm can distinguish the role that leadership might have played in the materialization of regional response efforts, explain why collaboration failed to materialize, and result in recommendations to increase the use of regionalization.

D. SIGNIFICANCE OF RESEARCH

The current literature establishes the importance of regionalization and the types of leadership that seem conducive to regionalization. It does not address the current leaders' perceptions, regionalization efforts, or the method by which the theoretical framework from literature can be implemented at the state and local level given the current regional environment.

Previous research identifies the benefits of regionalization and the role of collaborative leadership in the twenty-first century. The author's research hopes to identify and assess current leaders and their efforts, knowledge, and perceptions in the context of regionalization in Kentucky. Future research may focus on testing specific recommendations or verifying whether the perceptions and challenges facing leadership in Kentucky are shared in other states.

Perceptions about regionalization could guide future educational efforts to ensure that leaders have a clear view of the benefits of regionalization. By

ascertaining the challenges to regionalization, as well as the barriers, leaders may be able to develop strategies to address these findings. Addressing the challenges and possible perceptions about regionalization may increase the likelihood that leaders will adopt a regionalized strategy during the next large-scale disaster. As previous literature indicates, this could lead to a more efficient use of resources by leaders and a more effective disaster response.

Immediate consumers would encompass Kentucky leaders, including local emergency management directors, KYEM area managers, the Division of Emergency Management, local public health officials, the Kentucky Department for Public Health, the American Red Cross, hospitals, EMS, fire, police, elected officials, lawmakers and participants in the Hospital Preparedness Program. Secondary consumers would include leaders, responders, and decision makers in rural areas or rural states.

By understanding the barriers to regionalization in Kentucky, homeland security leaders in other states can assess their own leadership and possibly address similar challenges. They may also benefit from any recommendations made. This research will help national leaders to recognize the gap between the theory and practice.

II.   LITERATURE REVIEW

The following literature review encompasses three major areas: regionalization, leadership, and the 2009 Kentucky ice storm. The literature primarily includes peer-reviewed journal articles, special reports issued by universities and think tank organizations, official government publications including the Government Accountability Office and FEMA, press releases, and publications by government organizations such as the Council of State Governments.

A.   REGIONALIZATION

Understanding how regionalization is defined and characterized by researchers will provide a strong foundation for examining the regions that exist in Kentucky. Exploring the benefits and challenges of regionalization may provide a framework to evaluate the possible successes and failures of previous disaster responses.

According to the National Incident Management System (NIMS) and the National Response Framework (NRF), area command "is an organization to oversee the management of multiple incidents handled individually by separate Incident Command System organizations or to oversee the management of a very large or evolving incident engaging multiple Incident Management Teams. An Agency Administrator/Executive or other public official with jurisdictional responsibility for the incident usually makes the decision to establish an Area Command." (USDHS, 2008, p. 62). The NIMS document goes on to state that area command is typically utilized for large-scale incidents that involve a variety of responders and is used "when a number of incidents of the same type in the same area are competing for the same resources" (USDHS, 2008, p. 62).

Responsibilities of an area command include:

- Development of broad objectives for the impacted area(s);
- Coordination of the development of individual incident objectives and strategies;
- (Re)allocation of resources as the established priorities change;
- Ensuring that incidents are properly managed;
- Ensuring effective communications;
- Ensuring that incident management objectives are met and do not conflict with each other or agency policies;
- Identifying critical resource needs and reporting them to the established EOC;
- Ensuring that short-term "emergency" recovery is coordinated to assist in the transition to full recovery operations (USDHS, 2008, p. 63).

B. DEFINING AND CHARACTERIZING REGIONALIZATION

In defining regions, three approaches emerge from the literature. One approach defines a region in terms of political or geographical boundaries. Another defines a region from the perspective of stakeholders in the area. Finally, regions may be defined in terms of effectiveness.

1. Geographical Boundaries

The National Preparedness Guidelines address regions in terms of political and geographic boundaries. A "region" generally refers to a geographic area consisting of contiguous federal, state, local, tribal, and territorial jurisdictions. Major events often have regional impact; therefore, prevention, protection, response, and recovery missions require extensive regional collaboration (USDHS, 2007, p.18).

2. Stakeholders

In "Regional Disaster Resilience: A Guide for Developing an Action Plan," a region is defined from the point of view of the stakeholders:

> Any area that is defined as such by resident stakeholders responsible for disaster preparedness and management. A region can be a municipality, a single state (or province), or a portion of a state and may be multi-jurisdictional or cross national borders. Regions generally have certain accepted cultural characteristics and geographic boundaries and tend to coincide with the service areas of the infrastructures that serve them. (Infrastructure Security Partnership, 2006, p. 2)

C. BENEFITS AND OPPORTUNITIES PRESENTED BY REGIONALIZATION

The federal government has also emphasized the benefits of regionalization. The Department of Homeland Security's "National Preparedness Guidelines," states that the federal government should encourage regional preparedness:

> Formal arrangements among geographic regions will enable the Federal Government, working with states, territories, local and tribal governments, and other partners, to coordinate preparedness activities more effectively, spread costs, pool resources, disburse risk, and thereby increase the overall return on investment. (USDHS, 2007, p. 12)

William Dodge, the previous executive director of the National Association of Regional Councils, identifies successful examples of disaster response on the part of the government agencies and credits regional cooperation. When devastating events occur in a community, more than likely surrounding jurisdictions will respond if they are able. Dodge points out that "regional cooperation became a life-saving necessity on September 11 and that "first responders performed admirably but encountered serious communications, data sharing, and coordination challenges" (Dodge, 2002, p. 4).

Dodge goes on to explain that regional cooperation existed before September 11 in the public and private sector and that citizens understood the necessity to cross jurisdictional boundaries to "compete successfully in the global economy, protect the air and water quality, and provide roads, transit, airports, parks, and other quality-of-life amenities. They had even begun to come together to shape sensible regional growth to avoid squandering increasingly scarce resources on profligate sprawl" (Dodge, 2002, p. 4).

Chad Foster, a special projects coordinator for the Emergency Management Accreditation Program, who wrote a report for the Council of State Governments, claims that sharing information across jurisdictional boundaries creates advanced situational awareness and can lead to better informed decisions (Foster, 2006, p. 10).

The report "Homeland Security: Effective Regional Coordination Can Enhance Emergency Preparedness" documents a study on six areas and has determined three benefits of regionalization that present opportunities for leaders to improve or enhance their response:

- Regional organizations serve as a great forum to discuss policy problems and research a consensus on potential solutions.
- Regions establish their own identity and membership for the collaborative process to succeed.
- Regions assist in solving resource allocation issues (United States House of Representatives, 2004, pp. 5–6).

D. CHALLENGES OF REGIONALIZATION

If regionalization has been recognized as a positive approach to planning and responding to disasters, how can we cultivate regional response? Dodge claims that states and the federal government support local responders but have yet to promote regionalization (Dodge, 2002, p. 6). He suggests that the federal

government could enhance and encourage regionalization by offering grants to regional jurisdictions but that it has made few regional grants available (Dodge, 2002).

The report "Homeland Security: Effective Regional Coordination Can Enhance Emergency Preparedness" also notes that the federal government can promote regional coordination: "in particular, through its grant design and requirements, it encourages structure and practices associated with effective regional efforts" (United States House of Representatives, 2004). Other literature indicates that leadership could play a key role in successful regional coordination.

E.   ESTABLISHED REGIONS IN KENTUCKY

Kentucky has a multitude of regions and districts throughout the Commonwealth ranging from governmental agencies to nonprofit regions. A snapshot of regions pertinent to disaster preparedness and management will be discussed to provide a foundation.

1.   Area Development Districts

Kentucky has fifteen area development districts (ADD), covering all 120 counties within the commonwealth. The ADDs were formed in the early 1970s as an asset to stakeholders and citizens of their respective region (Kentucky Council of Area Development Districts [KY Council], 2009). The mission of each ADD is to "bring local civic and governmental leaders together to accomplish major objectives and take advantage of opportunities which cannot be achieved or realized by those governments acting alone" (KY Council, 2009). Each of the fifteen ADDs are governed by local elected officials and nonelected officials from the region's social and economic agencies (KY Council, 2009).

2. Kentucky Emergency Management Regions

The Kentucky Division of Emergency Management has 11 regional offices covering the commonwealth (KYEM, 2010a). Eleven emergency management area managers collaborate with the county-appointed emergency management director during planning periods, as well as responding to emergencies.

3. Hospital Preparedness Program (HPP)

Since the attacks of September 11, 2001, and the subsequent anthrax attacks, the federal government has become more focused on enhancing healthcare systems at the local level. A survey conducted in November 2001 revealed that rural hospital responders believed their hospital was not prepared at all for a biological weapons attack, and urban hospitals felt only partially prepared. Not only did rural responders feel that they were not prepared, they lacked the basic necessary equipment to decontaminate victims. Rural hospitals surveyed did not have decontamination stations that could accommodate 10 to 15 casualties at one time (United States Department of Health and Human Services [USDHHS], 2002).

With a proactive approach to bioterrorism, Congress authorized funding through the Public Health and Social Services Emergency Fund to support bioterrorism planning for civilian populations. This funding allowed the Health Resources and Services Administration (HRSA) to award money to states to develop "regional plans to improve the capacity of hospitals, their emergency departments, outpatient centers, EMS systems and other collaborating health care entities for responding to incidents requiring mass immunization, treatment, isolation and quarantine in the aftermath of bioterrorism or other outbreaks of infectious disease" (USDHHS, 2002).

When the Kentucky Department for Public Health received notification of the Hospital Preparedness Program (HPP), the decision was made to partner with the Kentucky Hospital Association as the state governing agencies. The state was divided into 14 HPP regions; since 2002 each region has had varying levels of agency participation and success.

Typical agencies involved in HPP regions throughout the country include hospitals, outpatient facilities, health centers, emergency medical services, and health departments. In Kentucky, coroners, mental health agencies, the American Red Cross, and universities are also represented at regional meetings. HPP supports "priorities established by the National Preparedness Goal established by the Department of Homeland Security in 2005. The Goal guides entities at all levels of government in the development and maintenance of capabilities to prevent, protect against, respond to, and recover from major events, including Incidents of National Significance" (USDHHS, 2010).

When the Office of the Assistant Secretary for Preparedness and Response (ASPR) was created in 2007, the Hospital Preparedness Program was moved from HRSA to ASPR (Toner et al., 2009).

4.   Health Departments

Health departments across the commonwealth consist of either a single, independent county health department or are part of a district health department. There are 42 self-sufficient independent health departments with human resources, payroll, environmental services, disaster preparedness, and clinical services. There are 15 district health departments that serve two to ten county health departments. Typically, district health departments have a district office that supports each of the county health departments in administrative issues. Health departments that are part of a district are accustomed to reporting to the district office, and resources are shared among the counties within the respective district.

5.   American Red Cross

Nationally, the American Red Cross supports "domestic disaster relief; community services that help the needy; support and comfort to military members and their families; the collection, processing and distribution of lifesaving blood and blood products; educational programs that promote health and safety; and international relief and development programs (American Red Cross, n.d.).

The American Red Cross in Kentucky is structured differently throughout the commonwealth. For example, some chapters oversee one individual county, whereas other chapters may cover multiple counties. The local chapters look to the Louisville Area Chapter, a regional chapter, to "serve as the lead chapter for disaster response for all twenty-one Red Cross Chapters in the state of Kentucky" (American Red Cross, 2008).

F.   THE ROLE OF LEADERSHIP IN REGIONALIZATION

In "Homeland Security Effective Regional Coordination Can Enhance Emergency Preparedness," the authors note that "regional leadership or traditions that are focused on achieving collaboration can advance regional coordination by expanding collaborative efforts throughout a region" (United States House of Representatives, 2004, p. 15).

1.   Adaptive Leadership

In "Complexity Leadership Theory: An Interactive Perspective on Leading in Complex Adaptive Systems," the authors explain that hierarchical views of leadership are not appropriate for the complexities of the twenty-first century. The authors go on to define the term adaptive leadership, describing it as a "dynamic that transcends the capabilities of individuals alone; it is the product of interaction, tension, and exchange rules of governing changes in perceptions and

understanding (Lichtenstein et al., 2006, p. 2). The authors also distinguish between leadership and leaders and note that "leadership is not a leader" but the "outcome of relational interactions among agents (Lichtenstein et al., 2006, p. 2).

2. Meta-Leadership

In "Meta-leadership and National Emergency Preparedness Strategies to Build Government Connectivity," the authors seem to echo the views of Lichtenstein et al. by declaring that a different brand of leadership is a necessity for terrorism preparedness (Marcus, Dorn, & Henderson, 2005, p. 43). These authors stress the difference between traditional, organizational leadership and meta-leadership. Organizational leaders, they claim, derive their power and influence from their job and position, while meta-leaders encourage people and organizations to push beyond their day-to-day interests and activities (Marcus, Dorn, & Henderson, 2005, pp. 45–46.)

3. Collaborative Leadership

Russ Linden, a management educator writing for the Leader to Leader Institute, corroborates the sentiments of many of the previous authors by noting that "our notion of a leader must broaden." Linden defines collaborative leadership as the "art of pulling people together from different units or organizations to accomplish a task that none of them could accomplish—at all or as well—individually" (Linden, 2003). The concept of regionalization provided in William Austin's thesis on homeland security and regionalization seems to mirror Linden's notion of collaborative leadership:

> Regionalization at some level provides the opportunity to use mutual aid resources and deploy response assets that a single municipality acting alone may not even know exist. Arguably it provides a more effective and efficient use of resources, but it defines the human nature of the local government culture. (Austin, 2006, p. 21)

Waugh and Streib also discuss the importance of collaborative leadership in the journal article "Collaborative and Leadership for Effective Emergency Management" published in *Public Administration Review*. The authors define collaborative leadership as "a foundation for dealing with both natural and technological hazards and disasters and the consequences of terrorism. They also point out the relationship between collaboration and networks by stating that "collaborative networks are a fundamental component of any emergency response (Waugh & Streib, 2006).

G.   LEADERSHIP, REGIONALIZATION, AND NETWORKS

In "Leading Public Sector Networks: An Empirical Examination of Integrative Leadership Behaviors," the authors examine the differences in behavior between leaders acting within their agency, as opposed to within their respective network (Silvia & McGuire, 2010). According to the International Network of Social Network Analysis (INSNA), "social network analysis is focused on uncovering the patterning of people's interaction (Freeman, 2008).

Bruce Hoppe and Claire Reinelt apply social network analysis tools to evaluate leadership in the context of networks. The authors define four different types of leadership networks and pose questions that can be utilized to evaluate each type of leadership network (Hoppe & Reinelt, 2009). The authors' focus is specifically on leadership, and while they look at various organizations, regionalization is not addressed.

Throughout "Interorganizational Coordination in Dynamic Context: Networks in Emergency Response Management," the author addresses the importance of networking during a large-scale event, utilizing tools from social network analysis to derive metrics and to create network visualizations. The author's research "found that effective response and recovery require well-coordinated inter organizational networks and trust between government agencies at all levels and between the public and private sectors" (Kapucu, 2005, p. 33).

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In the *Journal of Homeland Security and Emergency Management*, David Call surveyed county emergency managers on three areas related to ice storm responses, including hazard awareness, planning, and hypothetical responses to the storms. The focus of the emergency managers was not from the context of regionalization, but their findings about the perceptions of establishing central command centers are interesting. Call found that during ice storms the establishment of central command centers ranked number two among all other priorities, second only to communication with utility companies (Call, 2010). Call also observes that "urban Emergency Managers were significantly more likely to open a central command center than rural Emergency Managers" (Call, 2010, p. 8).

Jixia Yang and Kevin Mossholder examined perceptions of trust in organizations and found four variants of trust (Yang & Mossholder, 2010). In "Disaster and Emergency Management: Canadian Nurses' Perceptions of Preparedness on Hospital Front Lines," the authors examined nurses' perceptions in terms of their confidence rating of their level of preparedness, awareness of hospital plans, perceptions of their risk, and access to resources (O'Sullivan et al., 2008, p. 12). Waugh and Streib point out that what emergency managers may perceive as a major challenge to leadership in regionalization efforts is collaboration. "Collaboration is the way professional emergency managers get the job done. That said, disasters and fear of disasters also generate a strong desire for hierarchy—somebody to take charge, or possibly someone to be held accountable" (Waugh & Streib, 2006, p. 138).

H.   THE KENTUCKY 2009 ICE STORM CASE STUDY

A review of Kentucky Emergency Management situation reports, the Kentucky Department for Public Health situation reports, FEMA documentation, and reports from the National Weather Service related to the Kentucky 2009 ice storm provides the sequence of events, the size and scope of the disaster, and an idea of the agencies involved in the response. The role of the state

emergency operation center during the response included fulfilling requests from the 120 counties throughout the commonwealth. The situation reports noted that Emergency Management Area 1 implemented a regional command as a method to assist in coordinating resources. A review of after-action reports and situation reports indicates that Area 1 was the only region out of 11 that established a regionalization. Further analysis of the after-action reports in terms of responding agencies and the key partnerships that evolved will be presented in Chapter IV of the thesis.

On Monday night, January 26, 2009, a winter storm began in southern Indiana and Kentucky that devastated the commonwealth of Kentucky. The storm started with light freezing drizzle and freezing rain that changed to a sleet-and-snow mixture, up to six inches in some areas (National Weather Service, 2009b).

At 9:00 a.m. on January 27, 2009, the entire state of Kentucky was covered with a mixture of rain, freezing rain, sleet, snow, and ice, impacting all areas of the commonwealth, especially power, communication, water, and the transportation infrastructure (KYEM, 2009b). Property throughout the commonwealth was also damaged because the weight of the ice caused trees and limbs to fall on power lines, homes, and vehicles (National Weather Service, 2009b). Kentucky Emergency Management had fully mobilized response resources and had prioritized response according to life safety, restoration of critical infrastructure, and recovery (KYEM, 2009b). Twenty-one National Guard Armories activated and 500 guardsmen were mobilized to support state, county, and local missions (KYEM, 2009b). Forty-four of the 120 counties in the commonwealth declared a state of emergency (KYEM, 2009b).
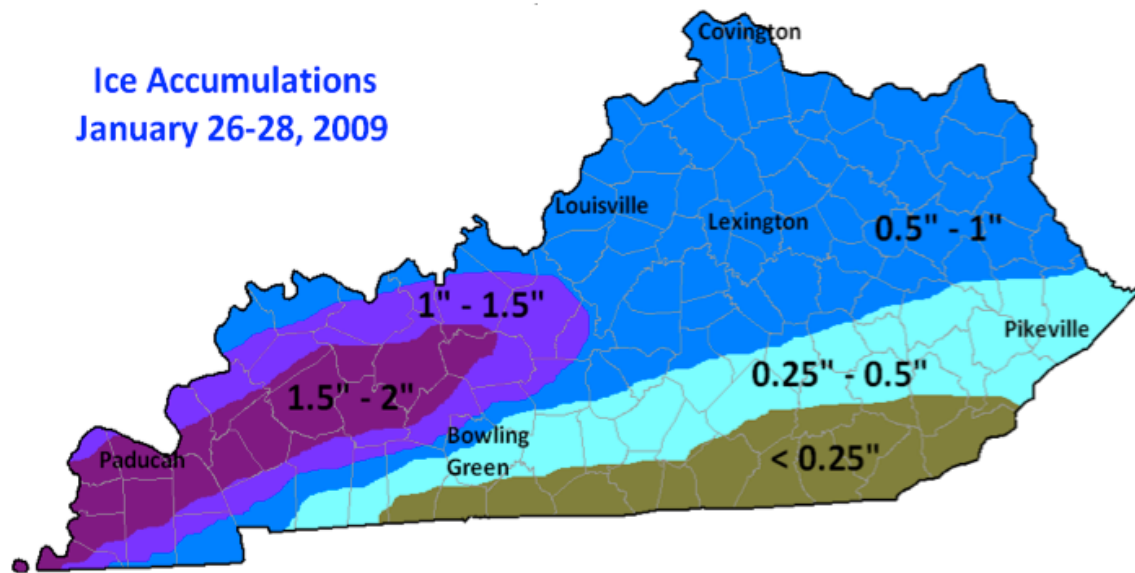
Figure 1.   Ice Accumulations Across Kentucky During the 2009 Ice Storm
(Source: National Weather Service, 2009a)

By the end of January 28, 2009, 91 shelters had opened across the state and 68 counties had declared a state of emergency (KYEM, 2009f). A regional coordination center was established in Emergency Management Area 1 to assist in coordinating resources (KYEM, 2009c). Approximately 473,000 customers across the commonwealth were without power, and it was estimated to remain off for up to three days (KYEM, 2009c). Telephone service, both landline and cell service, was unreliable, making resource coordination and situational awareness across the state extremely difficult (KYEM, 2009d). Fifty-four water systems across the state were affected due to power outages, leaving approximately 93,000 customers without water (KYEM, 2009e). Interstates across the state were clear; however, many local roads were blocked with trees (KYEM, 2009e). All sixteen Kentucky State Police posts were involved in weather-related response and recovery, and in the Bowling Green area they were utilizing four-wheelers and chain saws to help clear roadways (KYEM, 2009d). Governor Steve Beshear requested that President Barak Obama issue a presidential emergency declaration (KYEM, 2009f).

The Kentucky National Guard added 400 soldiers to the response, bringing the total guardsmen responding to 700 (KYEM, 2009g). Guardsmen were in 27 counties, assisting in road debris removal and transporting supplies such as water, cots, and generators (KYEM, 2009f). As nightfall approached, falling temperatures alarmed responders because of the loss of electricity and the lack of heat across the state (KYEM, 2009f).

Flooding became an issue on January 29, 2009, and the National Weather Service issued several flood warnings to locations across the commonwealth (KYEM, 2009h). The National Weather Service forecast temperatures to remain below freezing, and flooding on the highways remained a concern (KYEM, 2009i). Statewide approximately 582,000 customers did not have electricity (KYEM, 2009i). At noon, the commonwealth received the presidential emergency declaration that had been requested on January 28, which would allow the Federal Emergency Management Agency to assist with response and recovery efforts (KYEM, 2009j). By 15:00, the state emergency operations center in Frankfort had received over 200 requests for assistance from counties throughout the commonwealth, and resources throughout the state were dwindling (KYEM, 2009k). Citizens, government agencies, businesses, and schools voiced concerns over the lack of power, telecommunication issues, and blocked roadways (KYEM, 2009l).

On January 29, 2009, the Kentucky National Guard activated an additional 300 guardsmen, bringing the total number of National Guard activated to 1,000 (KYEM, 2009l). The guard was to work with state partners and FEMA to establish logistic centers and county points of distribution for FEMA supplies (KYEM, 2009l). Emergency management officials at state and local levels would validate all requests to fill orders from within their powers and only pass along requests to the state EOC for unmet needs (KYEM, 2009m).

By January 30, 2009, 178 shelters were open statewide, housing approximately 6,400 people (KYEM, 2009o). Necessities such as food, water, and supplies were distributed to shelters by state logistic centers (KYEM, 2009n).

The Kentucky Division of Emergency Management situation report number 30 states, "The emergency Regional Command established in Benton, Kentucky has been instrumental in coordinating the deployment of responder cots, meals, water, and generator assets in support of assistance to the hardest hit citizens" (KYEM, 2009p).

By 6:00 p.m., the state EOC had processed 326 requests for assistance from counties across the commonwealth (KYEM, 2009q).

The Kentucky National Guard had over 4,000 guardsmen actively involved in emergency response missions (KYEM, 2009s). Guardsmen were collaborating with emergency management officials and county judge executives across the state to validate requests, coordinate the delivery of requests, and report updates to the state EOC (KYEM, 2009r).

Support from outside the state began arriving to assist emergency medical services and local public health with response. Twelve emergency management aid compacts (EMAC) had been processed by the state EOC and included medical and public health support from North Carolina, Alabama, Mississippi, and Tennessee (KYEM, 2009t).

February 1, 2009, brought warmer temperatures to the commonwealth (KYEM, 2009u). Roadways continued to be cleared by the Kentucky National Guard, the Army Corps of Engineers, the Kentucky Division of Forestry, county personnel, and private entities (KYEM, 2009u). The Army Corps of Engineers also assisted with moving over 100 generators to be utilized in critical infrastructure facilities and shelters (KYEM, 2009u). The state EOC continued to receive requests for assistance from counties across the state.

Since 362,466 customers throughout the state were still without power, 210 shelters remained open, housing approximately 6,587 people (KYEM, 2009v). Ninety-three of Kentucky's 120 counties had declared a state of emergency (KYEM, 2009v).

The Kentucky Department for Public Health reported to the state EOC that FEMA had approved Health and Human Service Community Assessment teams to be deployed to assist with shelter morbidity (Kentucky Department for Public Health [KYDPH], 2009a). The state medical examiner reported 23 ice storm–related deaths, including nine suspected of carbon monoxide poisoning. Poison Control reported that 208 people had potentially been exposed to carbon monoxide because of misuse of alternate heating sources and 75 had been admitted to the hospital (KYDPH, 2009a).

By 18:00 on February 3, the state EOC had taken 867 requests from resource managers: 636 had been completed, 89 were waiting assignment, and 21 needed assignments (KYEM, 2009w). Ninety-six counties, 80% of the state, had declared a state of emergency (KYEM, 2009w). By February 5, ten long-term care facilities and one hospital within the state were still operating on generators (KYDPH, 2009b).

Carbon monoxide education remained a problem. The Poison Control Center reported receiving 238 calls regarding carbon monoxide and the state medical examiner had identified 10 suspected carbon monoxide poisoning deaths. AT&T's texting capability was leveraged, and the company agreed to send a text message to all phone users in the area not to use generators in enclosed spaces (KYDPH, 2009b).

On February 6, 2009, 20,600 Kentuckians remained without power, and two long-term care facilities remained on generators (KYDPH, 2009c).

By February 5, 2009, the state medical examiner's office had identified 33 deaths attributed to the ice storm, including carbon monoxide poisoning, hypothermia, motor vehicle accidents, an ambulance unable to reach the victim's location, house fires, falls, and patients reliant on oxygen with no electricity (KYDPH, 2009d).

Strike teams from across the state began to be demobilized (KYDPH, 2009d).

On February 27, during recovery efforts throughout the commonwealth, FEMA put out a press release with staggering statistics (FEMA, 2009a):

The Biggest. The storm has been called the most widely damaging Kentucky weather event in the commonwealth's modern history. Assessment teams from local governments, Kentucky Emergency Management, and FEMA returned estimates that push the total damage figure past $214 million.

The First. In response to the storm, Governor Steve Beshear made the first-ever total call-up of the Kentucky National Guard. He activated the commonwealth's entire Army National Guard and units of the Air National Guard. Altogether, 4,100 troops deployed in the largest call-up for a state disaster in Kentucky National Guard history.

The Worst. The 36 deaths classed as storm-related made this the commonwealth's most lethal ice storm in memory, and one of its deadliest modern events.

The Most. When more than 160 emergency generators were placed in critical facilities across Kentucky, partnering FEMA, the U.S. Army Corps of Engineers, and Kentucky Emergency Management, the campaign became the largest of its kind in the history of the Corps of Engineers.

The Cutting Edge. When FEMA communications teams in convoys of high-tech vehicles responded to help Kentucky's emergency communications network, Kentucky Emergency Management broke new ground in terms of partnering with FEMA and innovating to meet fast-changing needs.

Recovery was an obstacle, with more than 19 million cubic yards of debris. FEMA provided $52,421.05 in grant funding to assist 92 counties in removing ice storm debris (FEMA, 2009c).

A review of after-action reports provides an indication of the scope of the ice storm and the agencies involved in the response. However, the documentation leaves gaps in terms of providing a thorough identification of the

leaders, their actions, and the consequences of their decisions. For the purpose of uncovering more interesting dynamics, interviews will be conducted with leaders.

I.   GAPS IN REGIONALIZATION AND LEADERSHIP LITERATURE

Literature establishes the importance of regionalization and the types of leadership that seems conductive to regionalization, but it does not particularly address the current state of leadership and regionalization efforts or how the theoretical conclusions from literature can be implemented at the state and local level given the current leadership environment. The author's experience related to the recent ice storm indicates that regionalization efforts were only implemented in one area of the commonwealth. Given the almost state-wide disaster and the extent of the damage, literature indicates that regionalization efforts could have been beneficial if implemented. This research seeks to address these gaps by ascertaining the current perceptions of leaders in regard to collaboration and regionalization efforts in Kentucky.

III.   METHODOLOGY

In this chapter, I will explain the methodology used for assessing leaders' perceptions of regionalization in relation to the Kentucky ice storm, as well as the possible impact of leaders' perceptions on regionalization during the storm and in the future. The research for this thesis was a bifurcated approach: a case study was conducted of the 2009 Kentucky ice storm and interviews with leaders in the response were undertaken.

A case study was completed by reviewing the Kentucky Emergency Management situation reports and health department after-action reports. These documents allowed a deeper understanding of the timeline, the events that occurred, the agencies that collaborated together during the event, and the extent of regionalization practiced as part of the response to the storm. Since the commonwealth as a whole was affected, and only one area formally regionalized, this event allows the examination of factors that may affect why regionalization occurs.

While the case study was used to ascertain the environment, the use of after-action reports does not provide detailed information regarding key leaders or their role or influence on or their perceptions of regionalization. To ascertain this information, twelve in-depth interviews were conducted with Kentucky individuals who had been leaders during the ice storm, in order to obtain specific knowledge about the role that leaders' perceptions played in the response. Each participant played a lead role in the response to the storm and had influence on plans and policies within his or her respective jurisdiction. Interview questions focused on each participant's perceptions and understandings of regionalization and how those may have impacted response actions.

A.   SAMPLE

Each health department that submitted an after-action report to the Kentucky Department for Public Health was emailed a request to share its respective report for this thesis. Out of the sixteen reports, thirteen consented to share.

Table 1.   Health Departments That Submitted After-Action Reports

Health Department
Christian County Health Dept.
KY Dept. for Public Health
Garrard County Health Dept.
Mercer County Health Dept.
Barren River District Health Dept.
Green River District Health Dept.
Franklin County Health Dept.
Lexington-Fayette County Health Dept.
Lincoln Trail District Health Dept.
Marshall County Health Dept.
Lawrence County Health Dept.
Pennyrile District Health Dept.
Buffalo Trace District Health Dept.

The Department for Emergency Management was asked to share the after-action report from the 2009 ice storm; however, as of September 2010, the document was still in draft form and would not be released. In lieu of the after-action report, Kentucky Emergency Management provided the situation reports as documentation that could be utilized.

To ascertain information not provided in the situation reports, 12 interviews were conducted with key leaders from the 2009 ice storm.

Table 2.   Interview Participants

Agency	No. of Interviews Conducted
American Red Cross	1
District Health Departments	3
Emergency Medical Service	1
Kentucky Emergency Management Area Manager	1
Local Health Department	2
Local Emergency Management Director	4
Total	**12**

B.   INTERVIEW QUESTIONS

The following interview questions were posed to each of the 12 participants:

- I am interested in studying the dynamics of the 2009 Kentucky ice storm. Could you tell me about your experience in that response?
- What was your role?
- What were the response successes?
- What were the response failures?
- I would like to learn more of what you think of regionalization. For my research, I have defined a region as a group of counties throughout Kentucky that have been established by a state-level government. I will refer to regionalization as the act of the region collaboratively working to plan and respond to an incident. In your opinion, did your area formally regionalize during the ice storm?

<u>IF YES, Regionalized:</u>

- Since your area regionalized, what was the impact on the response effort?
- What regions did your agency collaborate with?
- Why do you think regionalization occurred?
- Hypothetical question: Imagine that your area <u>did not</u> regionalize, how would that have impacted the response?
- What role did leaders play in promoting regionalization during the ice storm?
- Would you say that leaders had a negative or positive impact on regionalization during the ice storm?
- What region (HPP, ADD, EM) would be the appropriate agency to promote regionalization?
- How can regionalization be promoted for future large scale events?

<u>IF NO, Did Not Regionalize:</u>

- Did you in any way collaboratively work with and plan with any agency in your area prior to the ice storm?
- Why do you think regionalization did not occur?
- Hypothetical question: Imagine that your area <u>did</u> regionalize, how would that have impacted the response?
- What role did leaders play in promoting regionalization during the ice storm?
- Would you say that leaders had a negative or positive impact on regionalization during the ice storm?
- What region (HPP, ADD, EM) would be the appropriate agency to promote regionalization?
- How can regionalization be promoted for future large-scale events?

C.   DATA COLLECTION

All interviews were conducted in late August through September 2010, were face to face or via telephone call, and ranged between 30 minutes to 120 minutes. All interviews were digitally recorded and transcribed to ensure accurate quotes. Interview participants were granted anonymity to encourage openness and honesty.

Interview participants were selected by the author's previous knowledge of leaders to the ice storm. The author also asked for recommendations from professional acquaintances on possible interview candidates.

The interviews were utilized to determine:
1.   Why regions formed or did not form during the ice storm.
2.   How leaders might have impacted regionalization during the storm by:
     a.   Understanding the perceptions of regionalization;
     b.   Ascertaining the knowledge of current regions;
     c.   Addressing challenges and opportunities that exist with through pursuing regionalization.

D.   DATA ANALYSIS

The Kentucky Emergency Management reports were compressed into one fluid document that details the events of the ice storm. Health department after-action reports were analyzed for those regions that each respective agency associates with (Hospital Preparedness Program, Emergency Management, and Area Development District). Partners mentioned throughout the after-action reports were extrapolated and a network visualization was created.

To analyze the after-action reports, a case study methodology was utilized. The case study provided a timeline and detailed descriptions of the events associated with the storm. A network analysis and visualization tool were

used to identify which health departments were the most collaborative, which partners each agency collaborated with, and which agencies and partners appeared to be outliers.

Each interview was transcribed and reviewed for themes that would explain perceptions of regionalization and the role that leaders have in implementing regionalization.

E.   CONCLUSION OF METHODOLOGY CHAPTER

The thesis utilized a case study and interviews to determine leaders' perceptions of the Kentucky ice storm and regionalization. The case study was used to better understand the environment in which leaders were acting and the partners involved; it also provided a way to measure collaboration and regionalization.

Interviews were utilized to gain perceptions of regionalization through the context of the ice storm and to anticipate future large-scale response actions. The results provided an indication of why leaders may not have regionalized during the storm and a possible direction for future efforts to promote regionalization.

IV. ANALYSIS OF HEALTH DEPARTMENT AFTER-ACTION REPORTS

Health departments across the state played a significant role in the ice storm response. Public health nurses worked in shelters; environmentalists were called upon to ensure that restaurants with power outages served safe food and assisted with boil water advisories; and Medical Reserve Corps volunteers, typically associated with health departments, were deployed. It is interesting to note from public health after-action reports (AAR) the relationship between the public health agencies and responding partner agencies. For my research, a region is defined as a group of counties throughout Kentucky that have been established by a state-level government, and regionalization is the act of the region collaboratively working to plan and respond to an incident. Analysis of the AARs will include analysis of the regions, regionalization, best practices, and recommendations.

According to the Kentucky Department for Public Health, 15 local health departments across the commonwealth and the Department for Public Health submitted an after-action reports for the 2009 ice storm. The table below illustrates the willingness of health departments to share their respective after-action reports for analysis and inclusion in this thesis.

A. ANALYSIS OF HOSPITAL PREPAREDNESS PROGRAM, EMERGENCY MANAGEMENT, AND AREA DEVELOPMENT DISTRICT REGIONS

Table 3 indicates the health departments that submitted an after-action reports to the Department for Public Health and the regions with which each agency is associated.

Table 3.   Regions Represented by Health Departments that Submitted After-Action Reports

Agency	Consented to Share AAR	HPP Region	EM Region	ADD
Barren River District Health Dept.	Yes	4	3	Barren River
Buffalo Trace District Health Dept.	Yes	8	7	Buffalo Trace
Bullitt County Health Dept.	No	6	4	KIPDA
Christian County Health Dept.	Yes	2	2	Pennyrile
Franklin County Health Dept.	Yes	14	5	Bluegrass
Garrard County Health Dept.	Yes	14	11	Bluegrass
Green River District Health Dept.	Yes	3	2	Green River
KY Dept. for Public Health	Yes	NA	NA	NA
Lawrence County Health Dept.	Yes	9	7	Fiveco
Lexington-Fayette County Health Dept.	Yes	13	11	Bluegrass
Lincoln Trail District Health Dept.	Yes	5	4	Lincoln Trail
Northern Kentucky District Health Dept.	No	7	6	Northern Kentucky
Madison County Health Dept.	No	13	11	Bluegrass
Marshall County Health Dept.	Yes	1	1	Purchase
Mercer County Health Dept.	Yes	14	5	Bluegrass
Pennyrile District Health Dept.	Yes	1	1	Pennyrile

The chart above indicates an overlap among many of the regions. While counties included in the Hospital Preparedness Program and Area Development District are typically consistent, the Emergency Management Regions do not

align. For example, Allen, Barren, Butler, Edmonson, Hart, Logan, Metcalfe, Monroe, Simpson, and Warren counties belong to HPP Region 4 and to the Barren River Area Development District; however, the Emergency Management Region includes the aforementioned counties plus Grayson and Todd.

The following maps give a geographic visualization of the various formal regions represented by agencies that filed after-action reports for the ice storm (indicated by an "X").

Figure 2.   Kentucky Emergency Management Regions Represented in After-action Reports (Source: http://www.kyem.ky.gov/about/regionalresponseoffices.htm)

Figure 3.   Kentucky Hospital Preparedness Program (HPP) Regions
Represented in After-action Reports (Received via e-mail from
HPP)
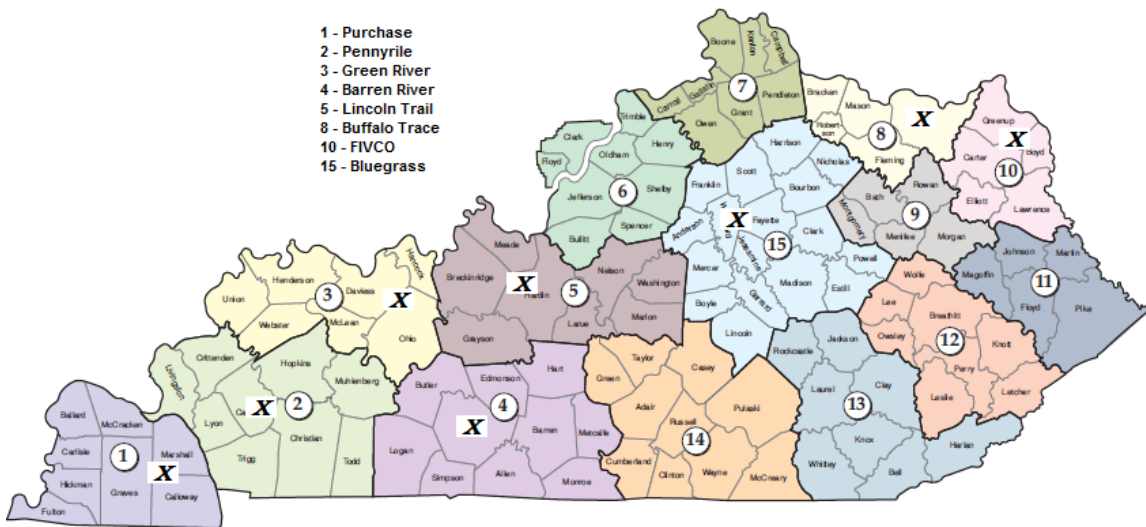
Figure 4.   Kentucky Area Development District (ADD) Regions
Represented in After-action Reports (Source:
http://www.kcadd.org/District_Contacts.html)

The maps in Figures 2, 3, and 4 indicate that the majority of Kentucky's regions are represented by health department AARs. The region most often represented includes the HPP Region 14 and the Bluegrass ADD. Emergency management regions are more evenly distributed in terms of health departments that provided after-action reports.

In addition to mapping AARs to the regions established throughout the commonwealth, it is also interesting to note the severity of the ice storm related to each area. The figure below indicates the geographic intensity of the ice storm throughout the state.
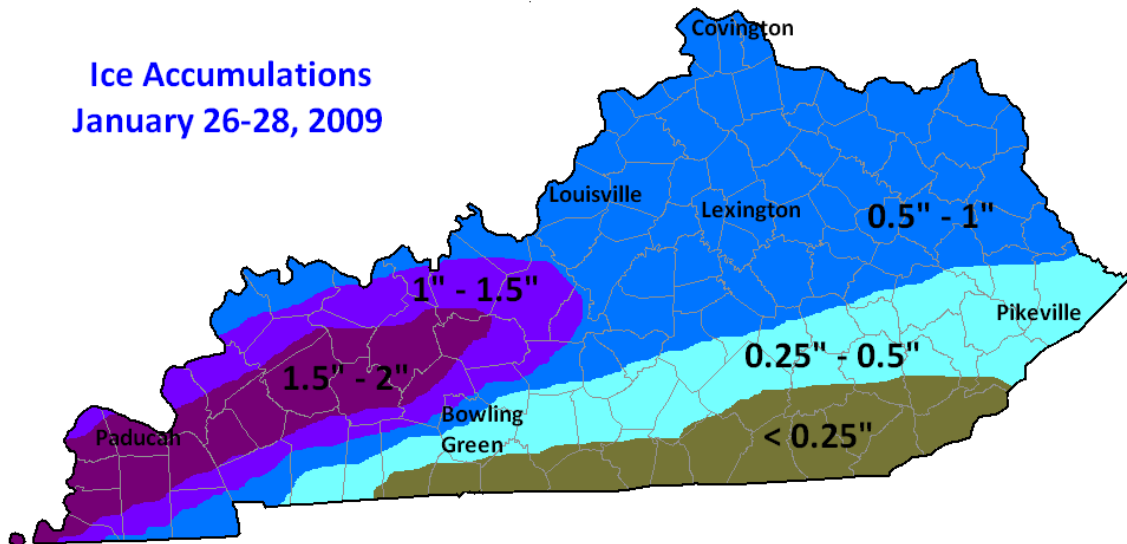
Figure 5.   Ice Accumulations Across Kentucky During the 2009 Ice Storm
(Source: National Weather Service, 2009a)

Table 4 utilizes the information provided by the National Weather Service to indicate the severity of the ice storm accumulation experienced by each health department across the Commonwealth. Approximately half of the ice storm AARs are from health departments that experienced the most severe ice accumulation.

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Table 4.   Ice Accumulation and Health Departments

Agency	Approximate Ice Accumulation
Marshall County Health Department	1.5-2"
Pennyrile District Health Department	1.5-2"
Christian County Health Dept.	1-1.5"
Green River District Health Dept.	1.5-2"
Barren River District Health Dept.	1.5-2"
Lincoln Trail District Health Dept.	1.5-2"
Buffalo Trace District Health Dept.	.5-1"
Lawrence County Health Dept.	.5-1"
Lexington-Fayette County Health Department	.5-1"
Garrard County Health Dept.	.5-1"
Mercer County Health Dept.	.5-1"
Franklin County Health Dept.	.5-1"
KY Dept. for Public Health	NA

Mapping the health departments back to their regions indicates the regions that experienced the most severe ice accumulations. Hospital Preparedness Program Regions 1–5, Emergency Management Regions 1–4, and the Purchase Area Development District, Pennyrile Area Development District, Green River Area Development District, Barren River Area Development District, and Lincoln Trail Area Development District had the most significant ice accumulation. A more thorough analysis of AARs in relation to the aforementioned regions and responses will be discussed.

B.   REGIONALIZATION

While formal regions have been established in Kentucky (HPP, EM, Area Development Districts) and health departments within those regions were involved in response to the ice storm, regionalization as referred to in this thesis did not necessarily occur. During the ice storm, only Emergency Management Region 1 formally instituted regionalization as part of the response. While only one region was noted to formally regionalize, it would be interesting to note

whether any aspects of regionalization can be gleaned from the after-action reports. In particular, and based on regionalization as defined by this thesis, an important aspect of regionalization is collaboration.

It may be possible to determine an agency's collaborative culture as a result of examining after-action reports. Three local health departments, when asked to provide their respective AARs, refused or did not respond to the e-mail request. Health departments may have been leery of how the reports would be utilized or what negative information may have been included within the analysis; in the alternative the health department director may have withheld the report. In the fact of health departments that are unwilling to share their AARs, we might wonder whether this reflects on the agency's willingness to collaborate, share information, and assess failures and successes with partner agencies, or whether it reflects political or bureaucratic barriers that inhibit collaboration. This may explain why a health department in Emergency Management Region 1, which regionalized, failed to share its after-action report related to the response.

Health departments that provided their AARs, agencies specifically listed as collaborators or partners, are indicated in the chart below. The chart by no means includes every health department partner; rather, the agencies are listed within their respective after-action reports.

One method to gauge the level of collaboration for each health department may be to identify the agencies that were mentioned within the respective after-action reports. Did some health departments collaborate with more agencies than other health departments? The table below summarizes the number of agencies that each health department mentioned collaborating with in its after-action report. It is important to note that health departments may have collaborated with other agencies; however, the AAR did not reflect those partnerships because they were not documented.

Table 5.   Partners Listed in Provided Health Department After-Action Reports

Agency	Area Development District	City Mayor	Centers for Disease Control	Community Emergency Response Team	County Judge Executive	Dept. of Health & Human Services	FEMA	KY Community Crisis Response Board	KY Dept. for Community Based Services	KY Dept. for Public Health	KY Division of Emergency Management	KY Hospital Assoc.	KY Pharmacist Assoc.	KY State Police	Local American Red Cross	Local County Coroner	Local Emergency Management	Local EMS Agency	Local Health Dept.	Local Highway Dept.	Local Hospital	Local Police Dept.	Local Public Works	Local Sheriff's Office	Medical Reserve Corps	National Guard	Office of the Governor	Region 4 Unified Planning Coalition (EMAC)	Regional Hospital Preparedness Program	Regional Response Manager (KY EM)
Barren River District Health Dept.			X					X			X				X		X	X	X		X				X				X	X
Buffalo Trace District Health Dept.								X							X		X		X											X
Christian County Health Dept.		X		X		X		X	X						X		X	X	X	X	X	X	X	X	X	X				X
Garrard County Health Dept.		X	X		X	X	X	X	X						X	X	X	X	X	X		X		X						
Green River District Health Dept.			X					X							X		X	X	X						X	X		X	X	
KY Dept. for Public Health		X			X	X	X	X	X	X	X	X	X	X	X				X			X	X	X	X					
Franklin County Health Dept.						X		X	X						X		X		X		X			X	X					
Lawrence County Health Dept.								X							X		X		X		X	X			X					
County Health Department								X	X						X		X	X	X		X				X					
Lincoln Trail District Health Dept.	X							X						X	X		X		X		X				X					
Marshall County Health Department			X			X		X							X		X				X				X			X		
Mercer County Health Dept.		X		X				X							X		X	X	X		X	X	X	X	X	X				
Pennyrile District Health Department				X		X		X						X			X				X									

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Table 6.   Total Number of Agencies Health Departments Coordinated With Based on After-Action Reports

Health Department Agency	Total Agencies Coordinated With According to AARs
Christian County Health Dept.	16
KY Dept. for Public Health	16
Garrard County Health Dept.	15
Mercer County Health Dept.	13
Barren River District Health Dept.	11
Green River District Health Dept.	10
Franklin County Health Dept.	9
Lexington-Fayette County Health Depart.	8
Lincoln Trail District Health Dept.	8
Marshall County Health Department	8
Lawrence County Health Dept.	7
Pennyrile District Health Dept.	7
Buffalo Trace District Health Dept.	5
Total Agencies Mentioned	**133**

Based on Table 6, it appears that several health departments collaborated with 10 or more outside agencies. The Kentucky Department for Public Health is a statewide agency, and it would be expected to be one of the most collaborative. Excluding it from the list, we find that three of the remaining top five collaborators are from regions that experienced the most intense ice accumulations. It is also interesting that Marshall County Health Department, from Region 1, where formal regionalization was implemented, collaborated with about half as many agencies as Christian County Health Department, which was from a region that did not formally regionalize.

Table 7 indicates the agencies mentioned in health department AARs and the number of health departments that listed them within their report.

Table 7.   Total Agencies Mentioned in After-Action Reports

Health Department Partners	Total
KY Dept. for Public Health	13
Local American Red Cross	12
Local Emergency Management	12
Local Health Dept.	12
Medical Reserve Corps	10
Local Hospital	9
FEMA	6
KY Division of Emergency Management	5
Local EMS Agency	5
County Judge Executive	4
Local Police Dept.	4
National Guard	4
City Mayor	3
Community Emergency Response Team (CERT)	3
KY State Police	3
Local Public Works	3
Local Sheriff's Office	3
Region 4 Unified Planning Coalition (EMAC)	3
KYEM Area Manager	3
Centers for Disease Control	2
Dept. of Health & Human Services	2
KY Hospital Association (KHA)	2
Local Highway Dept.	2
Regional Hospital Preparedness Program (HPP)	2
Area Development District	1
KY Community Crisis Response Board	1
KY Dept. for Community Based Services	1
KY Pharmacist Assoc.	1
Local County Coroner	1
Office of the Governor	1
Total:	**133**

Excluding the Kentucky Department for Public Health and local health departments, the most collaborative partners mentioned throughout the after-action reports were the local American Red Cross, the local emergency management agency, Medical Reserve Corps volunteers, and local hospitals.

C.   HEALTH DEPARTMENTS AND AGENCIES WITH THE MOST CONNECTIONS

An alternative way of viewing the information presented above is in the form of a network visualization. According to the International Network of Social Network Analysis (INSNA), "social network analysis is focused on uncovering the patterning of people's interaction (Freeman, 2008). In the journal article, "Interorganizational Coordination in Dynamic Context: Networks in Emergency Response Management," Naim Kapucu utilized FEMA situation reports from September 11 and applied network analysis and visualization to analyze the interactions of public and private organizations throughout the response (Kapucu, 2005). The pattern of interaction between health departments and partnering agencies as described in the after-action reports and Table 7 can be visualized by the network map below. This map was designed, utilizing NetDraw free software, found at http://www.analytictech.com/downloadnd.htm.
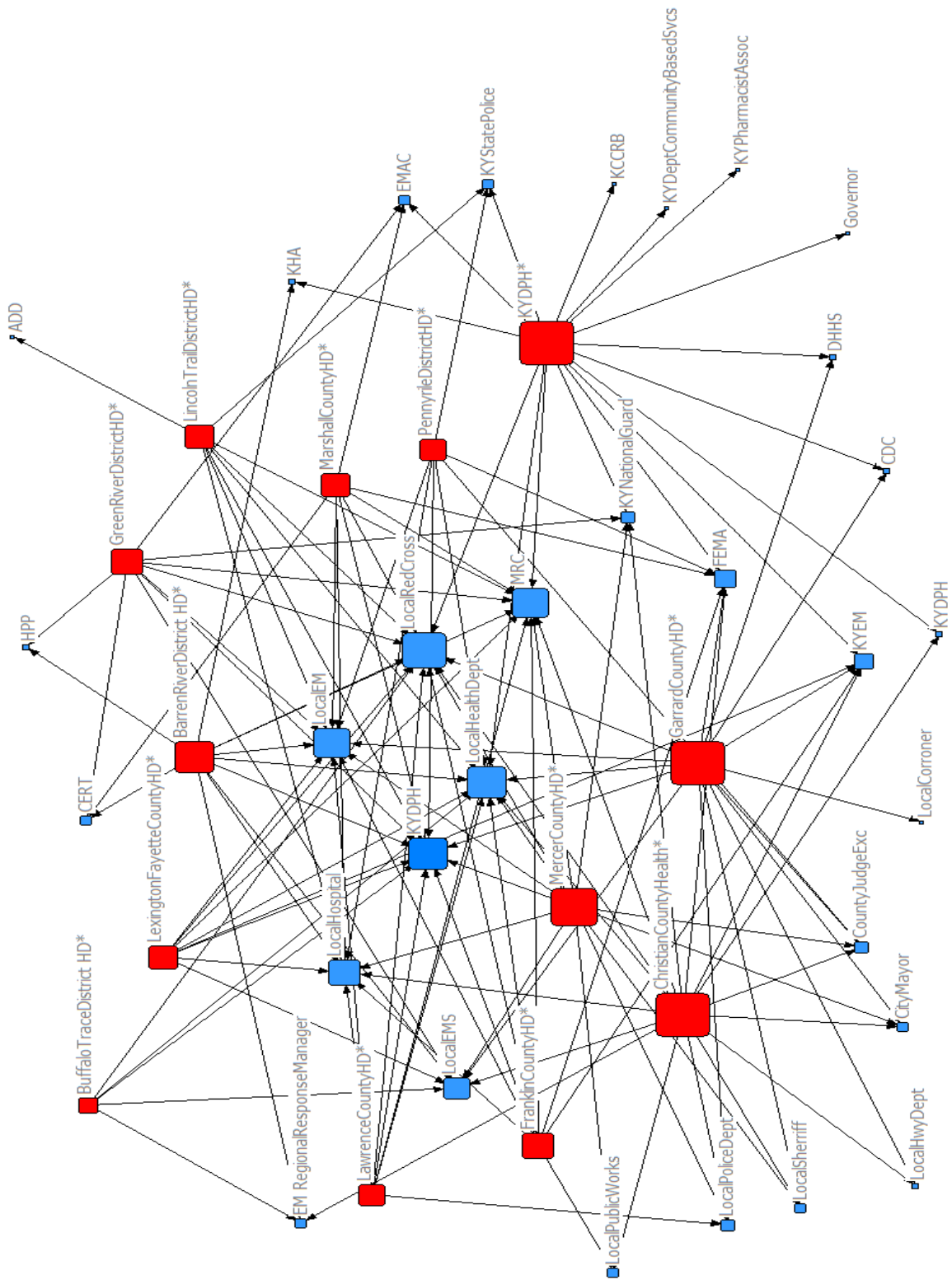
Figure 6.   Network Visualization of Health Departments' AARs

In the network visualization, the red nodes or squares represent health department agencies, and the blue nodes represent collaborating partners. Each health department node is connected to a partner node based on the relationships noted in Table 7. The size of the node is significant and is based on the total number of connections or collaborations that each health department had with partner agencies. The most collaborative agencies, or the largest red nodes, include the Kentucky Department for Public Health, Garrard County Health Department, Christian County Health Department, and Mercer County Health Department. The local American Red Cross and local emergency management agencies are also depicted as larger blue nodes, signifying their significant contribution to health departments.

According to Kapucu, "Actors who have more ties to other actors may have access to, and be able to call on, more of the resources of the network as a whole" (Kapacu, 2005). Recall that one benefit of regionalization is improved access and sharing of resources throughout a region.

Besides giving an alternative representation of the most collaborative agencies, the network visualization also allows viewing of other dynamics that are not as easy to see from reading the tables above. It is clear from the network visualization that the Kentucky Department for Public Health is one of the few agencies connected to the Kentucky State Police, the Centers for Disease Control and Prevention, and the Department for Health and Human Services, as well as being connected to the rest of the nodes within the network. While a few agencies are also connected to these partner organizations, the Kentucky Department for Public Health is unusual because that node is connected to so many other partner agencies, illustrating its dual role as a state health department and a partner agency. In essence, that entity seems to serve an important role in bringing together various agencies and perhaps sharing their knowledge and resources during a response effort.

In terms of the role of regions in the ice storm response, the network visualization provides interesting insight. On the periphery of the network, only the Barren River District Health Department and Green River District Health Department mention collaborating with their respective Hospital Preparedness Programs, and Lincoln Trail District Health Department was the only health department to mention collaborating with its respective area development district. It is also interesting to note that the county judge executive was also included on the periphery of the network. This finding is interesting because the county judge executives were mentioned during the interviews by four leaders as a possible hindrance to regionalization during a response because they would not be comfortable giving up the power of their county to a region.

It is also interesting to note how the most collaborative partnering agencies appear to have inserted themselves into the core of the network. As pointed out, the larger blue nodes have the most connections with health departments, and they tend to be local agencies. We also see clustering with state and federal agencies, including Kentucky Emergency Management, FEMA, and the National Guard. One may argue that it makes sense that the local partners will be the ones with the most collaborative connections, due to the local nature of disasters. Through the network visualization, it is apparent that among health departments, the most collaborative agencies worked with both their local, state, and federal partners.

D.   SUMMARY

While review of the AARs provides some insight into the nature of collaboration and regionalization during the ice storm, and a network visualization provides a method for analyzing the collaboration, many more questions remain that cannot be answered within the reports. It may be feasible to assume that some organizations had greater leadership roles with regard to regionalization and collaboration, based on the number of agencies they collaborated with during the ice storm in the context of the regions in which they were involved.

Viewing the AARs in this context, the most collaborative health department agencies were from formal regions most heavily affected by the ice storm, whether formal regionalization was established or not. The after-action reports do not provide any information regarding the characterization of which leaders or agencies did a better job responding to the ice storm, or why certain events occurred. To address the gaps from AARs, interviews with specific leaders and responders will be utilized to specifically characterize leadership and regionalization in the context not addressed in the AARs. Specifically, the perceptions of leaders regarding regionalization, whether they felt they were involved in a formal regional response, successes and failures, why formal regionalization may or may not have occurred, and leaders' suggestions about future regionalization efforts will be included.

Previous chapters raised the point that regions are necessary but not sufficient for regionalization. One of the research questions posed in this thesis is whether established regions assist leaders in creating a regional response during the ice storm. This chapter ties regions in the argument and research questions directly to the ice storm. It also helps to identify characteristics of regions throughout the commonwealth and provides a framework and context for further discussion and analysis throughout the remaining chapters of the thesis.

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V.   FINDINGS

Chapter V addresses the findings from the interviews conducted with leaders of the 2009 Kentucky ice storm. Twelve leaders were interviewed, identified with the following roles:

American Red Cross—1 leader

District and Local Health Department—5 leaders

Emergency Medical Service—1 leader

KYEM Area Manager—1 leader

Local Emergency Management Director—4 leaders

A.   IDENTIFIED RESPONSE SUCCESSES

Although the ice storm challenged much of the state, response successes emerged. An astounding eleven 11 of 12 (91.6%) responders identified paid responders, including EMAC teams and the Kentucky National Guard as a response success. Volunteers, including volunteer fire departments, Community Emergency Response Teams (CERT), Medical Reserve Corps (MRC) and HAM radio operators were mentioned by seven leaders (58.3%). Half the leaders also stated that local retailers, such as Wal-Mart and locally owned grocery stores, were instrumental in providing food and supplies during the response.

Over half (58%) of the leaders mentioned that the networking before the ice storm occurred was instrumental in the success.

> That's why our response was successful because it was a ground level networking and knowing day-to-day who the players are at the ground level.[1]

> We network and meet a lot throughout the year. We train, we network, we meet. We have a face that goes with a voice, we have all the secret phone numbers.[2]

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[1] Anonymous emergency medical services official, interviewed by the author on August 30, 2010.

> We had worked in advance looking at where resources were stored and who the contact for those resources were.[3]

Five (41.6%) leaders felt that the shelters located in their respective areas were successful.

One-third reported that local media outlets were very helpful in relaying pertinent information to the public, such as shelter locations, food safety practices, carbon monoxide information, and chain saw safety.

One-fourth claimed that political leaders, such as county judge executives and mayors, were extremely helpful and assisted with the response efforts.

> One of the mayors gave me their city employees and told me they could do whatever I need them to do. I used them as runners and helpers, which worked out great. I was told, "Here are my people, here are my trucks, do what you got to do to make this work."'[4]

> My county judge (executive) stepped up to the plate and had great foresight, and our citizens would have suffered if he hadn't. A local mayor put on coveralls and was out operating a log splitter (to help remove debris from the road).[5]

B. IDENTIFIED RESPONSE FAILURES

A plethora of themes emerged throughout the interviews conducted on response failures. The top reported concerns included communication, resource procurement, an overrun state EOC, lack of pet shelter and special medical need shelter planning, and the lack of regional leadership.

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[2] Anonymous emergency management official, interviewed by the author on September 20, 2010.

[3] Anonymous American Red Cross official, interviewed by the author on September 9, 2010.

[4] Anonymous emergency management official, interviewed by the author on September 22, 2010.

[5] Anonymous emergency management official, interviewed by the author on September 17, 2010.

1. Communication

One hundred percent of leaders identified communication as a failure during the response. Leaders commented that the infrastructure failed as well as the personal communications between responders, agencies, and established EOCs.

> We had total power outage in our county. We had 48 hours of total communication failure and what I mean by that is no landlines, cell phones, or radios for fire or police. If we needed something, we had to send runners.[6]

> I did not know where the EOC was. Sometimes we don't know the right questions to ask. I wish I had known at the time so that I could have gotten involved in the EOC. Since then, we have made some changes.[7]

> There were problems with shelters. Some (shelters) would open and that wasn't communicated to emergency management. We didn't know they were open, what their environmental or medical needs were.[8]

> I don't think the state knew how bad it was because we couldn't communicate with them.[9]

2. Resource Ordering, Mobilizing, Receiving, Reimbursement

Seven (58.3%) of the leaders were not satisfied with the procurement of resources, and the lack of communication infrastructure hampered resource mobilization. During the event, a new online software, WebEOC was utilized to order and track resource requests; however, many responders at the local, regional, and state level had not been properly trained on the system. Leaders were supportive of WebEOC but felt that training on the system was lacking at the time of the response.

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[6] Anonymous emergency management official interviewed by the author on September 22, 2010.

[7] Anonymous American Red Cross official, interviewed by the author on September 9, 2010.

[8] Anonymous health department official, interviewed by the author on September 20, 2010.

[9] Anonymous health department official, interviewed by the author on September 22, 2010.

Western Kentucky had put a request in to Frankfort [the state EOC] that they needed 3,000 cots but whoever was entering into WebEOC put 30,000 cots. Frankfort said they couldn't supply it (the 30,000 cots) and took the entire order out without checking first. The software (WebEOC) tracking actually hindered us on this response.[10]

I requested 300 cots and somewhere along the line, someone else had requested 300 cots for my county I didn't know about. So, I got a call from the state EOC, and they told me that my 600 cots would be delivered. I said that I only needed 300. The state EOC said that they had received two requests from two different people, and I explained that one of them was a duplication and I only needed 300.[11]

Three leaders commented on the Federal Emergency Management Agency's (FEMA) reimbursement procedures. One official, because of a lack of proper authorization to utilize local resources, did not receive reimbursement from FEMA. Another official noted that, after the appropriate paperwork was submitted, reimbursement was not timely.

Our HPP region had purchased about 3,000 blankets as a regional asset, and all the blankets were used in the ice storm response. The blankets were split up among each of the counties, and everyone got an equal portion. We thought that the blankets would be reimbursed by FEMA, but we were wrong. When FEMA came in, they asked us who instructed us to use the blankets, and the answer was common sense, and they told us they wouldn't reimburse us. If the local emergency manager would have been contacted and approved the use of the blankets, FEMA would have reimbursed us. Since we did not get reimbursed, we do not have a stockpile of blankets in our HPP region.[12]

FEMA came in quick, which was good, but the payment wasn't as quick as everyone would have liked it to be. They want you to go through the process—you have to document, document, document—you have to show FEMA everything you purchased,

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[10] Anonymous emergency management official, interviewed by the author on September 17, 2010.

[11] Anonymous emergency management official, interviewed by the author on September 20, 2010.

[12] Anonymous health department official, interviewed by the author on August 27, 2010.

everything you went through. You have to keep every receipt and document everything you can. This isn't a response failure but it took a long time for reimbursement.[13]

These negative encounters with FEMA may have impact on future response efforts. Leaders may not be as willing to utilize local resources that must be replaced for fear that FEMA will not provide reimbursement. Local officials may be hesitant to allocate funding to the response because proper documentation may not be conducted or reimbursement from FEMA may be delayed.

3.   The State EOC Was Overrun

Half the leaders reported that the state EOC was overwhelmed with the number of counties affected and the number of requests that were submitted to one location.

> In our county, we had no outside help for the first eight days. For eight days, we ran this county by ourselves, no outside help. We did not have state or federal help until eight days in. The state was a failure during the ice storm. Any time a county in the commonwealth goes for eight days without being contacted by the state, something's wrong.[14]

> As far as I'm concerned, the breakdown was at the state level. They were understaffed and undertrained.[15]

Three leaders noted that. although the current protocol is that any requests at the county level are to be sent to the county EOC and forwarded on to the state EOC, this process was botched. Elected officials who were not at the county EOC called the state EOC, requesting resources and status updates. Instead of asking the elected officials to go through the established county EOC, the state EOC took the requests.

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[13] Anonymous emergency management official, interviewed by the author on September 20, 2010.

[14] Anonymous emergency management official, interviewed by the author on September 22, 2010.

[15] Anonymous health department official, interviewed by the author on September 22, 2010.

We had mayors that didn't think things were moving quick enough and elected officials would call (the state EOC) and cause problems. Whoever had the biggest clout got it done. The way it is supposed to work is only the (county) EOC calls the state EOC. I think that is where the state EOC needs to tell people to go through the local EOC, but the state didn't tell them that. They took their information down, and sometimes it caused more chaos than help.[16]

When a county needs something, the EOC gets on the phone and they call the duty officer (at the state EOC), and they take your request for resources, and you tell them what you need. They were so overwhelmed, every EOC plus every little city (inside the county) was calling the state EOC. Things would get duplicated, and things wouldn't get through. So what should happen in the future is that anyone requesting resources should go through the county emergency manager (or county EOC).[17]

This finding poses a problem to the proper chain of command. If any elected official or person in a position of power can call the state EOC and request resources, county EOCs and local emergency management directors may feel slighted.

Another leader pointed out that his county did not even activate the county EOC.

We tried to help out with Emergency Management but they really didn't set up any kind of (county) EOC.[18]

The state EOC may have felt obligated to take calls and requests from leaders not involved in the county EOCs due to the fact that some individual counties did not activate an EOC. However, according to two of the interview participants, county EOCs were active within their respective county, and the state EOC still accepted calls from leaders not associated with the county EOC.

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[16] Anonymous emergency management official, interviewed by the author on September 22, 2010.

[17] Anonymous emergency management official, interviewed by the author on September 20, 2010.

[18] Anonymous health department official, interviewed by the author on September 9, 2010.

4. Lack of Planning for Special Medical Needs Shelters and Pet Shelters

The lack of plans in place to establish and run special medical needs shelters (41.6%) and protocols on how to care for pets and farm animals (50%) presented problems during the response.

> Practical special medical needs and sheltering capabilities and plans were lacking. Equipment and protocols need to be prepared to do something like that for any sustained period of time.[19]

> Some people (in the shelter) had pets, and the shelters did not take any pets. Some older people in the shelters had animals at home and were very frantic about their pets. Public health environmentalists, on their own, went to people's homes to give the pets food and water.[20]

> Special-needs shelters goes under the umbrella of the health department, but it is foggy what defines a special need.[21]

> One thing that needs to be done is special-needs shelters. More policy and direction needs to be done. We need to be very careful; our nurses haven't been in the clinic for maybe ten years. Common thoughts of everyone is that public health has staff that can go in and open up a shelter and we can't. [We] had a lot of people dropped off at the shelter that needed medical care. We had a special-needs shelter open, but once we were put in the situation, we realized quickly that more planning and policies need to be developed on how it has to be done.[22]

> Everything is about money, and our funds only went so far. Special needs was an issue that slipped through the cracks. No one anticipated public health being put in charge of special-needs patients, and [we] didn't know that public health was going to be asked to man all special-needs shelters. No one could define special needs without making it so broad that everyone was in there [special needs].[23]

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[19] Anonymous emergency management official, interviewed by the author on August 30, 2010.

[20] Anonymous health department official, interviewed by the author on August 27, 2010.

[21] Anonymous American Red Cross official, interviewed by the author on September 9, 2010.

[22] Anonymous health department official, interviewed by the author on September 20, 2010.

[23] Anonymous health department official, interviewed by the author on August 27, 2010.

5. Regional Hospital Preparedness Program Trailers

In late 2007, the Department for Public Health issued medical surge trailers to each of the 14 HPP regions. The trailers were equipped with supplies to support 25 patients for 72 hours. The medical surge trailers were stocked with medical equipment, shelter equipment, and pharmaceuticals. The purpose of the trailers is to assist the region during a medical surge, as well as to serve as a state asset that can be quickly deployed during a large-scale event. Each HPP region was asked to determine an agency within the region to store the trailer.

One-third of leaders recognized that, while the HPP trailers were a great asset, problems did arise because at the time no clear protocol on how to deploy the trailers existed.

> It [the medical surge trailer] was a wonderful asset, and everyone wanted it, but there wasn't enough on the trailer to sustain one county. We did receive another trailer from an HPP region, but even having two medical surge trailers was not enough. The state did not have any idea on how to deal with the regional equipment, and the program was not thought through. The state did not consider how to restock the trailers, they just saw that they put regional assets out.[24]

> They didn't even want to share the regional trailer. The county that had it didn't want to give it up. I don't think they really needed it as bad as the county that requested it, but they didn't want to give it up.[25]

> The surge trailer had meds [medication] that were expired.[26]

> The host site that possessed the trailer and maintained it did not want to release it because they were worried they might have a future need for it.[27]

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[24] Anonymous health department official, interviewed by the author on August 27, 2010.

[25] Anonymous health department official, interviewed by the author on September 9, 2010.

[26] Anonymous health department official, interviewed by the author on August 24, 2010.

[27] Anonymous emergency medical services official, interviewed by the author on August 30, 2010.

6. Issues With Regional Emergency Management

Two leaders commented that at the time of the ice storm, no KYEM area manager from emergency management had been named. The quote demonstrates the perceived impact to locals that an area manager may have during a response.

> [My] area manager had retired, and he had not been replaced. When the ice storm hit, I had no idea who my area manager was. I had not been contacted by the state before the ice storm, telling me who to call for an area manager. One of my [neighboring] counties had only 20 people in a shelter, and I had over 500. We both sent the same request [for support at the shelter] in at the same time. Within 12 hours, he had 18 wheeler trucks full of resources. His area manager had sent in his request. About 72 hours later, I finally got the resources I ordered. I sent mine in as a county, he went through his area manager."[28]

Another leader explained that, because of retirements or vacancies, the KYEM area manager's area had been expanded at the time of the storm.

> We started out with eight counties in our emergency management region. There was not an area manager in Region 2 or 3, and therefore, the regional response (for Area 1) was expanded to 19 counties for several days, with no additional state support.[29]

C. PREVIOUS PLANNING WITH PARTNER AGENCIES

Table 8 details the total reported responses, by discipline, of identified agencies that each leader collaboratively worked or planned with before the ice storm occurred.

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[28] Anonymous emergency management official, interviewed by the author on September 22, 2010.

[29] Anonymous health department official, interviewed by the author on September 22, 2010.

Table 8.   Prior Planning and Collaboration Reported before the Ice Storm

Agency	Interviewed Emergency Management Officials	Interviewed Health Department Officials	Interviewed Emergency Medical Service Official	Interviewed American Red Cross Official	Total
American Red Cross	1	2	0	0	3
Emergency Management	3	3	1	1	8
Emergency Medical Services (EMS)	0	0	1	0	1
Fire Chiefs Association	1	0	0	0	1
Health Departments	3	1	0	1	5
Homeland Security Group	1	1	0	0	2
Hospital Preparedness Program	4	5	1	0	10
Law Enforcement Agencies	1	0	0	0	1
Local Emergency Planning Committee (LEPC)	1	0	1	1	3
Metropolitan Medical Response Systems (MMRS)	1	0	0	0	1
Salvation Army	0	0	0	1	1
Special Ad-Hoc Earthquake Planning Group	1	0	0	0	1

It is apparent from Table 8 that the majority of the interviewed leaders participate in or were involved with planning initiatives through the regional Hospital Preparedness Program. It is important to note that the Hospital Preparedness Program encompasses a plethora of agencies, including hospitals, health departments, mental health officials, the American Red Cross, emergency medical services, coroners, emergency management, and long-term care officials.

In the analysis of health department after-action reports, only two health departments included the HPP; however in the interviews 10 of the 12 leaders mentioned HPP. This may imply that while the HPP program is not utilized as a responding organization, the networking and planning that occurs during HPP meetings and exercises make an impact on how response is conducted.

D.   REGIONALIZATION

Three of the participants (25%) reported that their area formally regionalized and had an established area command. Six participants (50%) did not formally have a regional command set up; however, they did provide assistance to areas outside their respective jurisdictions. "We were in contact with our surrounding counties and asked if they needed anything, even though we didn't have an area command."[30] One participant commented that while his area did not formally regionalize, the Hospital Preparedness Program (HPP) provided a structure for organization. "We talked among the HPP counties, we had a lot of personal contacts, and we spread around a health and medical disaster resource list that lists every trailer, every piece of equipment, anything that could be deployed."[31] Three participants (25%) stated that they did not regionalize, and one participant commented, "No, we did not regionalize, it was every county for themselves."[32]

Each of the interview participants in the regionalized area attributed the implementation of an area command to the prior regional planning and exercises that had been conducted. The counties that encompass Emergency Management Area 1 were heavily involved in earthquake planning on a regional level because of their proximity to the New Madrid fault line. The concept of

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[30] Anonymous emergency management official, interviewed by author on September 17, 2010.

[31] Anonymous emergency management official, interviewed by author on August 30, 2010.

[32] Anonymous health department official, interviewed by author on August 27, 2010.

regionalization was implemented during an earthquake exercise in March 2008 that involved the Army National Guard. During the exercise, regionalization was established and tested.

Of the interview participants who regionalized, 100% concurred that regionalization was beneficial to the response. Themes such as organizational structure, accountability, and resource allocation emerged.

One leader commented that people working at a local county EOC may not have seen the impact of regionalization: "Area command was helpful depending on your perspective of the situation. Since I am a multicounty employee, it was helpful for me. From the perspective of the people working in individual counties, they probably saw it as another layer of bureaucracy. Everyone had a different take and everyone saw the response from their own degree of anxiety and discomfort.[33]

Leaders perceived regionalization as a mechanism for promoting communication and resource allocation and obtaining resources from the state, since the requests were submitted from a larger area rather than a single county. It was noted that regionalization may have ultimately helped the state agencies: "The regionalization may have helped the state more than it helped us."[34]

E.   WHY REGIONALIZATION DID NOT OCCUR

In trying to understand why regionalization did not occur, three main themes emerged: the inability to communicate because of infrastructure failure, single counties overwhelmed with their own responses, and political barriers.

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[33] Anonymous health department official, interviewed by the author on September 22, 2010.

[34] Anonymous health department official, interviewed by the author on September 22, 2010.

1. Inability to Communicate

Sixty-six percent of leaders of areas that did not regionalize noted that the communication failure was a primary reason for not formally regionalizing.

> We couldn't communicate across county lines to even think about regionalizing.[35]

> We couldn't communicate with each other or reach some other counties for a week. We didn't know what was going on.[36]

2. Counties Were Overwhelmed

One-third of leaders cited the fact that each county was dealing with its own problems and did not have the resources to assist outside jurisdictions.

> Everyone was so overwhelmed in their own county; you couldn't get help from anyone else because they couldn't get it to you anyway.[37]

> It [the ice storm] was so widespread; there was no need in calling the next county over because they were in the same boat I was in. Each county was overwhelmed, and people didn't think beyond their county.[38]

3. Political Barriers

One-third of leaders responded that one reason that regionalization did not occur was the result of political barriers. "No judge is going to give up what he perceives as to be giving up control of his county. Until something legislatively is changed and committed a construct under which you could have a unified command that has the authority to exercise decision-making over multiple counties, I just don't see it [regionalization] happening."[39]

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[35] Anonymous health department official, interviewed by the author on August 27, 2010.

[36] Anonymous health department official, interviewed by the author on September 9, 2010.

[37] Anonymous emergency management official, interviewed by the author on September 20, 2010.

[38] Anonymous health department official, interviewed by the author on August 24, 2010.

[39] Anonymous emergency management official, interviewed by the author on August 30, 2010.

4. Lack of Training

Two (16%) leaders recognized that their respective jurisdictions had not planned or trained on regionalization.

5. Lack of Emergency Management Area Managers

Two interviewees noted that, at the time of the ice storm, the emergency management area manager position was vacant. Both leaders felt strongly that if a KYEM area manager had been in place, their respective areas would have regionalized.

Other notable reasons for not regionalizing included a weak region that existed, personality conflicts present before the ice storm occurred, and the realignment of emergency management regions by the Kentucky Emergency Management Agency.

F. HOW REGIONALIZATION MIGHT HAVE IMPACTED THE RESPONSE

Of the leaders who did not regionalize, three main perceptions emerged when they were asked whether regionalization would have impacted the response. The themes included obtaining resources more quickly, utilizing resources more efficiently, duplication within the county, and reduction in area and better communication.

Six leaders (67%) reported that resources may have been allocated more quickly or in a more efficient manner. "They [regionalization] are able to prioritize the resources and can look at what is ordered and check to be sure they know what you want and why you want it. A regional person has time to reach out to the (local) emergency management directors where the state EOC doesn't have time to do that."[40]

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[40] Anonymous emergency management official, interviewed by the author on September 22, 2010.

Duplication of efforts may have also been reduced, claimed six of the leaders. Of the six that identified duplication of efforts, three leaders specifically mentioned that duplication of shelters could have been addressed with regionalization.

> We had some special medical needs shelters that we could have merged people into and not had 60 shelters across the district. We could have combined the shelters and had more resources, more efficient, better run, with more resources. We could have had 30 shelters instead of 60.[41]

> It [regionalization] would have eliminated some of the duplication we had. Some counties set up shelters all over the place because they didn't know where the shelters were. We could have combined the resources, rather than having them spread out all over the place.[42]

> If we had a huge event and needed a special medical needs shelter, we could have a regional special medical needs shelter. If we have a small county in the area they might have problems setting up a special medical needs shelter. We could bring or move people from other impacted counties instead of trying to push resources to smaller counties.[43]

Fifty-five percent claimed that if their respective area had regionalized, communication would have improved. One leader stated that in his/her respective county regionalization would not have improved the response.

G.   LEADERS' PERCEPTIONS OF REGIONALIZATION

Since leaders are indispensable to implementing regionalization, each interviewee was asked to gauge leaders' perceptions of regionalization during the ice storm. Five leaders (41.6%) stated that leaders had a positive impact on regionalization.

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[41] Anonymous health department official, interviewed by the author on August 27, 2010.

[42] Anonymous health department official, interviewed by the author on September 9, 2010.

[43] Anonymous emergency management official, interviewed by the author on August 30, 2010.

Five leaders (41.6%) felt that leaders have a positive and negative impact on regionalization:

> The county judge is open to it [regionalization], but he still isn't going to sit around and twiddle his thumbs and wait on other things to happen and let our citizens suffer for it. He would be okay with it if it worked well but if he didn't get what he needed, he's going to make it happen.[44]

> If you have an emergency management director that works for a county judge, and the judge doesn't allow them to work cooperatively, you are going to have struggles.[45]

> [The] majority of people don't really think about it. The people that do think about it have mixed feelings, depending on their job title and how their organization is set up. I can see political people worrying more about the loss of autonomy and loss of control. The political ramifications … maybe it looks like I can be replaced or I'm not doing my job or if I am not in charge and someone is going to send my resources to a neighboring county, even though I think that they are needed worse here.[46]

Two (16.6%) stated that leaders had a negative impact on regionalization. "It was me and my county, my jurisdiction, my borders."[47] "A lot [of leaders] are scared they are going to lose their assets and resources. They see it as giving up things that belong to them, whether it is people or supplies or whatever. Some people tend to not want to do that."[48]

All leaders were asked about the role of leaders in promoting regionalization during the ice storm. Two-thirds (68%) of leaders recognized that, before a response, it is imperative that leaders network throughout their respective communities. It was also recognized that leaders facilitate pulling

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[44] Anonymous emergency management official, interviewed by the author on September 17, 2010.

[45] Anonymous American Red Cross official, interviewed by the author on September 9, 2010.

[46] Anonymous emergency medical service official, interviewed by the author on August 30, 2010.

[47] Anonymous health department official, interviewed by the author on August 24, 2010.

[48] Anonymous health department official, interviewed by the author on September 9, 2010.

agencies together or have the authority to pull people together (50%). Two leaders (16%) stated that leaders were resistant to regionalize during the ice storm response.

H.   PROMOTING REGIONALIZATION

Nine of the leaders interviewed (75%) slated Kentucky Emergency Management as the lead agency in promoting regionalization.

> Emergency management area managers have to be the ones to pull it [regionalization] together. Emergency management is associated with all hazards and all responders; they work with all agencies.[49]

> Emergency management, no question about it.[50]

When leaders were asked how regionalization could be promoted for future large scale events, 58% claimed that education, including case studies, was key. Fifty-eight percent also noted that, for regionalization to work, political leaders' buy-in and perhaps legislative action was necessary. Thirty-three percent noted that exercise and training on regionalization was essential.

One leader noted that local responders often are opposed to mandates pushed down by a state agency. "When we have the state come down, people will be resistant."[51]

I.   SUMMARY OF FINDINGS

Interview data provided by leaders of the ice storm assisted in ascertaining response successes and failures; examining why regionalization did or did not occur; and provided evidence for regionalization that was not included in after-action reports.

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[49] Anonymous emergency management official, interviewed by the author on September 17, 2010.

[50] Anonymous health department official, interviewed by the author on September 22, 2010.

[51] Anonymous emergency medical service official, interviewed by the author on August 30, 2010.

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VI. CONCLUSION AND RECOMMENDATIONS

Knowing is not enough; we must apply. Willing is not enough; we must do.

-Johann Wolfgang von Goethe

This chapter will provide recommendations on strengthening formal regionalization within the commonwealth. An important question is how to better implement regionalization during a large-scale emergency. As a result of the findings, the following recommendations are suggested:

- Both state agencies and local agencies would benefit from regionalization if leaders and responders were trained and staffing were adequate.

- Emergency management should be the lead for regionalization.

- County emergency management directors should be staffed full-time.

- Hospital Preparedness Program (HPP) regions created relationships and promoted networking before the storm occurred. Leaders should be encouraged to attend multidisciplinary coalitions.

- Educating leaders and responders on issues such as regionalization, NIMS, and area command are necessary.

- State laws should be aligned to promote regionalization.

A. LIMITATIONS OF THE STUDY

The sample size was a relatively small compared to all the leaders and agencies involved with the 2009 ice storm. The ice storm occurred early in 2009, and the interviews were conducted in late 2010. The participants may not

accurately recall events, and they may have been exposed to media and professional influences that may have shaped their perceptions.

The anonymity of leaders made it difficult to map people and agencies to regionalization. However, without anonymity, participants may not have been as open and forward with information.

The author had worked on a professional level with four of the leaders, and that may have possibly biased their response.

B.   OPPORTUNITIES FOR REGIONALIZATION, PAST, PRESENT, AND FUTURE

> The ice storm out west was an excellent example to point out.
> Look, this [regionalization] does work; there are circumstances
> where this makes sense, it's not usurpation of authority for
> somebody. If it gets bad, this is the most efficient way to do it. If you
> can do this when memories are fresh, it is usually more
> successful.[52]

This thesis set out to investigate opportunities for leaders seeking to implement a regionalized response. In addition, it was argued that collaboration was essential to a regionalized response and that leaders or organizations that failed to collaborate might not embrace regionalization. While emergency management in Area 1 proved that formal regionalization is successful, there have been other examples of informal regionalization and collaboration in which Kentucky has benefited from working across jurisdictional boundaries. The 2010 World Equestrian Games was held at the Kentucky Horse Park in Lexington. These international games are held every four years, and this was the first time that the event had been held within the United States. State, regional, and local leaders planned for months to host the event and to prepare for a variety of incidents that could have occurred, including a variety of natural disasters and terrorism incidents. Federal, state, and local public health practitioners provided environmental and epidemiological support. Law enforcement from the Kentucky

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[52] Anonymous emergency management official, interviewed by the author on August 30, 2010.

State Police, Lexington Police, Louisville Police, and Georgetown Police departments collaborated with federal law enforcement officials to assure that security and personnel were available for the event. This event highlights the benefits to Kentucky from collaboration that occurs when leaders at all levels work toward one common goal.

The western part of Kentucky lies in the New Madrid seismic fault line. If an earthquake were to occur, it has the potential to be much more devastating than the 2009 ice storm. The ice storm wreaked havoc on the communication infrastructure and the electrical infrastructure; water systems failed because the lack of electricity impacted the pumps and roadways due to debris. If an earthquake occurred, the aforementioned infrastructures would be impacted, as well as interstate petroleum pipelines, natural gas lines, and water and sewer lines. Other potential issues include mass casualties, fatalities, sheltering people, loss of critical facilities such as hospitals, long-term care facilities, and EOCs. To work in a more formal collaborative environment, it is crucial that Kentucky leaders begin to provide education on regionalization, develop comprehensive plans, and conduct exercises.

C.   REGIONALIZATION VERSUS AREA COMMAND

The concept of area command differs from regionalization. As discussed in Chapter II, area command is a framework established by the federal government for a large-scale or regional response. NIMS, however, does not address the groundwork that should be established before a response involving area command. Collaboration, planning, networking, and exercises should be conducted before the response or area command is established. Regionalization as presented in this thesis incorporates the planning, networking, collaboration, and exercises necessary fill the gap between preparation and execution of area command.

D.   BENEFITS TO COUNTIES AND THE STATE EOC

It was argued that some leaders may not be familiar with the benefits of regionalization, and that may have affected the decision to regionalize.

> I have discussed with the state the utility of creating an area command for certain circumstances. Area command should be set up during certain events, like if an earthquake hit the western part of the state. The state of Florida does it that way, for example when they gear up for hurricanes; they divide themselves into areas of the state for area command.[53]

1.   County Benefits

One idea that emerged from the interviews was that regionalization could actually lessen the response burden on individual counties. The status quo of the county-by-county approach compartmentalizes and fragments responses. For example, at one point there were over 200 shelters opened throughout the state, and a plethora of those shelters accommodated special needs. Many of the special-needs shelters could have been consolidated to improve service delivery and reduce the demand on personnel and resources.

Regionalization, in the argument statement, was assumed to improve resource allocation. For Kentucky, the concept of special-needs shelters is relatively new. Comprehensive plans are nonexistent, and the definition of what constitutes a special-needs individual has yet to be determined. Almost half the leaders interviewed voiced concerns over special-medical-needs shelters and pet shelters. Leaders recognized the tremendous amount of resources and staff that are required for a special-needs shelter. If regionalization was implemented, special-needs shelters, as well as pet shelters, might be less of a burden for each individual county. Preplanning could be conducted in each region, and the leaders throughout the region could determine the best regional approach to

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[53] Anonymous Emergency Management official, interviewed by the author on August 30, 2010.

these problems. Instead of opening a special-needs shelter in each county, select counties could be tasked to open a regional special-needs shelter with the understanding that people from neighboring counties would be sent there.

Planning together as a region would also increase the networking opportunities among leaders. Increased knowledge of responding partner capabilities, resources available within each county and the region, and transparent protocols for response could enhance relationships and establish trust among agencies, as well as improve the service provided to the citizens of the commonwealth.

2. State EOC Benefits

You can't have 120 counties calling you—there is no way that the state EOC can handle that. There is no way. You are going to have to somehow pare that down, and regionalization is the only thing that makes us do that. You have your area managers already set up. You can funnel all those requests, all that information, all the sit reps [situation reports], all of your recovery plans, all of your requests for assistance, all of your damage reports—all of that through the regional EOC. Instead of having 120 counties, the state EOC would have 11 emergency management eegions, which is extremely manageable.[54]

When I'm calling Frankfort [state EOC], I'm just another one of the 120 emergency management directors. If an area manager calls, there is only 11 of them, they are going to listen to them before they do anyone else.[55]

NIMS identifies a span of control as "the number of resources for which a supervisor is responsible, usually expressed as the ratio of supervisors to individuals. Under NIMS, an appropriate span of control is between 1:3 and 1:7, with optimal being 1:5, or between 1:8 and 1:10 for many large-scale law enforcement operations" (USDHS, 2008).

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[54] Anonymous emergency management official, interviewed by the author on September 7, 2010.

[55] Anonymous emergency management official, interviewed by the author on September 22, 2010.

While NIMS addresses area command, it does not specify the span of control that would be recommended for the area command to oversee. Since area command is included in NIMS, one would assume that the same basic principles such as the span of control would apply.

During the ice storm, the state EOC essentially assisted 120 counties within the commonwealth. Leaders who participated in the interviews were frustrated at the length of time it took for resources to arrive.

If an area command was established through KYEM area managers, resources from within the region could be deployed in a more prompt manner. With the necessary information from local EOCs, the KYEM area manager would be able to prioritize needs and requests and provide a more holistic picture to the state EOC. In turn, the state EOC could focus on managing 11 regions, instead of 120 counties.

E.   RECOMMENDATIONS FOR REGIONALZATION

1.   What Agency Should Implement Regionalization?

One question posed within this thesis is related to the differences in perceptions among leaders regarding the role that leaders play in promoting regionalization. Kentucky Emergency Management at the state, regional, and local level should be the agency to promote regionalization. Seventy five percent of leaders interviewed agreed that Emergency Management must be the catalyst or must have a significant role in regionalization for the concept to reach fruition. Interview participants viewed emergency management agencies as having an "all hazard" approach and as being accustomed to working across agencies. Specifically, KYEM area managers were viewed as the ones to implement regionalization during an event.

There are 11 emergency management regions across the state of Kentucky. To me, that is the administrative division and structure to use [for regionalization]. Each one of those has an area manager.[56]

According to NIMS, area command may be implemented by "an Agency Administrator/Executive or other public official with jurisdictional responsibility for the incident" (USDHS, 2008). KYEM area managers with the Kentucky Division of Emergency Management could fulfill this role. However, regionalization or area command is not addressed in the current Kentucky Revised Statutes. KRS 39A.230, procedures for one multirisk, multiagency, unified incident command or management systems, includes the following language:

(1)   The Kentucky Emergency Operations Plan shall include procedures for one multirisk, multiagency, unified incident command or management system to be used by all state agencies responding to the scene of an emergency, declared emergency, disaster, or catastrophe, as contemplated by KRS 39A.010, 39A.020, or 39A030.

(2)   Local emergency operations plans shall include procedures for:

a.   An incident command or management system to be used by individual local agencies or departments when responding to the scene of day-to-day, routine emergency incidents; and

b.   One unified incident command or management system to be used by all local agencies or departments when responding to the scene of a multiagency or multijurisdictional emergency, declared emergency or disaster.

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[56] Anonymous emergency management official, interviewed by the author on August 30, 2010.

The statute addresses local or county plans but does not address regionalization or crossing jurisdictional boundaries. Without regionalization addressed through legislation, county political leaders, county agencies, and local emergency management directors may not agree to embrace the concept.

2. Full-Time Local Emergency Management Directors

This research investigated the challenges for leaders seeking to implement formal regionalization. Many local emergency management directors in Kentucky are employed part-time by their respective counties. Each of Kentucky's county judge executives are at liberty to determine whether a full-time or part-time position is required to successfully fulfill requirements set forth in the Kentucky Revised Statutes for emergency managers. Part-time emergency managers are likely not to have time to devote to attending meetings, trainings, and exercises that occur throughout the year, limiting the amount of networking and learning that full-time emergency managers have the opportunity to participate in.

County emergency management directors are seen as the "go to" people for knowledge of the resources, programs, and people within their county. Without proactively becoming involved in planning efforts and meetings within his respective county, the director cannot fulfill his or her job.

All counties within the commonwealth should have a full-time emergency management director to increase the time spent on emergency planning and networking within the county and throughout the region. Currently, the Kentucky Division of Emergency Management allocates funding to each county to offset expenses incurred by local emergency management directors. The Kentucky Division of Emergency Management has approached counties that currently have part-time directors and offered to match funding to support a full-time position; however, many county judge executives have declined the offer. One could speculate that the county judge executives declined the offer due to county funding or the perception that they do not currently need a full-time emergency

management director. The Kentucky Division of Emergency Management must make funding full-time emergency management directors a priority for all counties throughout the commonwealth. In addition to funding full-time emergency management directors, the Kentucky Division of Emergency Management should provide education to all county judge executives on the importance and necessity of each emergency management director.

3. Chain of Command for Resource Requests

When local emergency management directors have resource requests that cannot be fulfilled within their counties, a call is made to the state EOC.

During the ice storm, interview participants reported that the state EOC accepted resource requests from political officials not involved in the county EOC.

A clear chain of command from the county to the state EOC must be upheld during an emergency. If regionalization is to advance in Kentucky, a protocol must be established to address how resources can be requested and who can make requests at the local and regional levels.

4. Area Commands Must Be Adequately Staffed

The state should have sent people down to the regions if they intended for it [the area command center] to function, but the truth of the matter is that people were so overwhelmed, no one did anything.[57]

Incident management teams could be sent to the regions to augment the regional manager.[58]

The state EOC was bombarded with requests during the ice storm; likewise, if regionalization is established through KYEM area managers, that individual will be overwhelmed if every county within the region calls. If

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[57] Anonymous Health Department official, interviewed by the author on September 22, 2010.

[58] Anonymous Emergency Management official, interviewed by the author on August 30, 2010.

regionalization is pursued, the capacity must exist to staff local EOCs, as well as the area command. KYEM area managers must have trained people who will be able to be activated to the area command center during an emergency. According to NIMS, area commands are typically staffed with an Area Commander, Assistant Area Commander for Planning, and an Assistant Area Commander for Logistics, and support positions including a Resources Unit Leader, Situation Unit Leader, Public Information Officer, and Liaison Officer (USDHS, 2008).

As of November 2010, the Kentucky Division of Emergency Management has plans to establish incident management teams (IMT). The IMTs will be made up of a plethora of trained responders trained to serve as command and general staff within the incident command system. There will be IMTs throughout the state that could respond during a disaster. The IMTs should be cross-trained to fulfill roles within an area command and be assigned to one of the 11 emergency management regions.

State-level agencies within the commonwealth have already begun development of IMTs, including the Kentucky Department of Agriculture and the Kentucky Department for Public Health. The Department of Agriculture has participated in multistate training to develop agriculture IMTs. The Department for Public Health has leveraged Health and Human Services funding to sponsor all-hazard incident management trainings to train state partners on IMTs. The Department for Public Health has also requested that FEMA conduct an EOC/IMT Interface Integrated Emergency Management course. This course is designed to provide education and an exercise environment to coordinate the interface between leaders in the EOC and field operation command centers, similar to what an area command center set-up would entail.

5.   Education, Plans, and Exercises

Area command should not materialize only when you have a
disaster. If done right, it needs a group of people to meet, train, and
talk about stuff. In the process of that, they are going to be
networking and have the same mindset and priorities.[59]

It was hypothesized that leaders may not be familiar with the concept of
regionalization, and that may have been a factor as to why regions did not
regionalize. Local leaders and responders must be educated about the rationale
and benefits of regionalization. According to KRS 39C.050, to be eligible for state
funding for local emergency management directors, at least one representative
must attend an annual emergency management workshop (KRS 39C.050).
Regionalization could be featured at a Governor's Emergency Management
Workshop, the Kentucky Emergency Management Association's annual
conference, and other stakeholder annual workshops such as the Kentucky
Public Health Association's annual conference. Kentucky leaders should
understand the distinction between area command and regionalization and
should strive to promote both concepts.

Plans at the local, regional, and state level must be designed to address
regionalization. Organizational charts and the concept of operations for area
commands may exist within the state; however, the author did not have access to
the documents.

Currently, the Kentucky Division of Emergency Management's
Catastrophic Earthquake Response Basic Plan states, "The KYEM Area
Manager will activate a Regional Coordination Center (RCC) to assist counties in
the development of a coordinated response to the incident. As it becomes
possible all State Regional / District offices will dispatch a representative to the
RCC and assist in the general response to the incident" (Kentucky Division of
Emergency Management, 2009a). Less than one page in the Catastrophic

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[59] Anonymous emergency medical services official, interviewed by the author on August 30,
2010.

Earthquake Plan is devoted to addressing regional coordination centers. Plans addressing regionalization must be much more comprehensive and translucent for local leaders to understand the concept and intent.

After education and plans are complete, regionalization exercises should be completed. Funding should be secured at the state level for each of the 11 regions to participate in a full-scale area command exercise. Until plans are taken from paper to implementation, problematic areas will not be addressed.

6. Emergency Management and Networking

The fact that we had worked with the healthcare community through the HPP program made a huge difference. When you look back at the planning that went on, there was more benefit from that than there was from any staff trainings or anything like that. We were familiar with all the other agencies. So then, when we had a role of ESF 8 [public health response] thrust upon us, we had all of those relationships that we had developed with the hospitals, nursing homes, and EMS. All those relationships bore more fruit than any other relationships. The relationships we made with local EM and regional EM made a huge difference.[60]

In the argument, it was hypothesized that regionalization could enhance networking and that networking was important for response. More than half the leaders interviewed mentioned that networking before the ice storm was crucial to the response success. One way of networking is to participate in local and regional meetings, trainings, and exercises.

Emergency Management at the local, regional, and state level is seen as a leader in disaster response. Many other agencies may also be viewed as responders during an emergency, but within a certain parameter, for example, public health is viewed as responding to issues that have an impact on health. Emergency Management has the authority to lead during any emergency, regardless of the event.

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[60] Anonymous Health Department Official, interviewed by the author on September 22, 2010.

Encompassing the all-hazards approach, Emergency Management, at the local and regional level especially, must network within its respective areas. It is crucial that local emergency management directors are involved in meetings that involve response planning, such as the Hospital Preparedness Program. Many local emergency management directors and KYEM area managers across the state are not consistently involved in HPP meetings due to the fact that they are part-time, there is no funding in the budget for travel, or they choose not to participate. HPP regions plan how to respond to large-scale public health emergencies and allocate yearly grant funds toward increasing healthcare capacity. The groups typically consist of a plethora of leaders that Emergency Management will be responding with during a disaster.

By actively participating in meetings such as the regional HPP, emergency managers will become more familiar with agency plans, protocols, and resources at the local and regional level, answer questions specific to the county emergency operation plan, and most importantly, know whom to call for resources during an emergency.

7.   Framework for Regionalization

One approach to regionalization is the concept of a megacommunity. Booz Allen Hamilton consulting firm has defined a megacommunity as "a public sphere in which organizations from three sectors—business, government, and civil society—deliberately join together around compelling issues of mutual importance, following a set of practices and principles that make it easier for them to achieve results without sacrificing their individual goals" (Gerencser et al., 2008). In *Megacommunities, How Leaders of Government, Business and Non-Profits Can Tackle Today's Global Challenges Together,* chapters throughout the book address the definition of a megacommunity, initiation of a megacommunity, the structure and sustainability of the megacommunity, and recommendations for leaders of megacommunities (Gerencser, et al., 2008).

Five critical elements of a megacommunity include:

- Tri-sector engagement from business, government, and nongovernmental organizations;

- Identified interest that impacts all members;

- Mutual action for all members;

- A structure that establishes protocols and principles;

- The ability of the megacommunity to make progress. (Gerencser et al., 2008).

The Kentucky Division of Emergency Management should consider the megacommunity model for approaching regionalization.

F.   CONCLUSION AND FUTURE RESEARCH

Kentucky leaders and responders have a reputation of willingness to assist one another as well as deploying resources to assist other states during times of disasters. By implementing regionalization, Kentucky could take the next step toward improving responses during a large-scale disaster.

If regionalization is pursued, future research could be conducted on how Kentucky has improved resource allocation, regional decision making, and networking throughout the state.

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