Intergovernmental Interactions in Threat Preparedness and Response: California's Networked Approach

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Two incidents have forced the United States to take significant steps to prepare for large-scale disasters: the attacks on September 11, 2001 and the devastation that resulted from Hurricane Katrina on August 29, 2005. Emergency managers respond under the mantra "all emergencies are local." While this is a good tag line, it is through the planning and preparation efforts at all levels of government that an emergency response system can work efficiently and effectively. This study focuses on the state level to first, understand how organizations can be designed to contain both structure and flexibility in the emergency management context, and second, identify the role of personal interactions, communication, legal structures and leadership within these types of organizations. California was carefully selected because of its size, national economic importance, and experience with preparing for and responding to multi-jurisdictional incidents.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

PREFACE

Life is full of transitions. It is through these transitions that we learn and grow as humans. As much as I would like to believe that this dissertation, as a symbol of my academic accomplishments and of another major life transition, was created alone, it was not. With all great accomplishments, it can only be obtained through the support of loved ones who believed, encouraged and supported me along the way. I would like to recognize a few of these people:

First, to my parents, Rich and Barbara, who, through their actions and lessons, taught me the importance of hard work and academic achievement, while not forgetting the love, acceptance and understanding needed for all relationships, including towards family and close friends.

Second, to my academic mentors, particularly those who were kind enough to be on my dissertation committee. Dr. Comfort shared with me her passion for creating flexible organizations under chaotic environments as she guided me through the dissertation process. Dr. Coontz challenged me to understand American-societal relationships with kindness, understanding and objectivity. Dr. Nelson, from my first day at GSPIA, welcomed me as my initial advisor, and from his professional leadership, showed me the rewards and challenges that universities offer. And, Dr. Newland, my first academic and professional mentor, stressed the importance of searching for reasonableness and human dignity under a rule of law. He counseled me many times and reminded me that my goal was not to find reasonableness, but to search for it, especially in the most challenging of times.

Third, to my coworkers, Scott Steele and Ana Estrada, for their objective and positive approach towards human dynamics and for their strength when my burdens could not be carried alone; to Kristen Soares, whose professionalism and kindness I can only strive to model; and to my professional colleagues, especially Drs. Rich Callahan, Henry Zaretsky, Jon Brown, Carol Ackerson, Dan Haverty, Lorraine McCall and Cathy Horriuchi, who prodded me along so that I could join their ranks.

Finally, to my friends, whom I shall not name, who through their support and understanding, empowered me to search for reasonableness and human dignity in every component of life's journey.

1.0 CHAPTER 1: THE NECESSITY AND EXPERIENCES OF EMERGENCY MANAGEMENT IN CALIFORNIA

Emergency preparedness and responses within the United States entail huge challenges. Besides the most obvious, responding to a disaster when it occurs, William Waugh and Gregory Streib point out a more significant concern. “Modern emergency management presents a paradox. On one hand, emergency response requires meticulous organization and planning, but on the other hand, it is spontaneous” (Waugh and Streib, 2006, 132).

Because emergency preparedness and response activities are governmental responsibilities, traditional management techniques are used in part to define organizational structures. Rule of law is basic. Yet, these approaches, while important to responsible governance, can be too cumbersome to meet the rapid, changing and uncertain conditions that large-scale emergencies present. To deal successfully with these challenges, more flexible governmental organizations and processes need to be present. The question is not *if* it is possible to have this type of governmental framework, but *how* arrangements of this magnitude can operate effectively, efficiently and economically. The “how” is answered through intergovernmental interactions utilizing the best of traditional management structures and network theory after organizational learning takes place.

For this research, the State of California is studied because of its size and national economic importance. From the 2000 United States Census, California has 33,871,648 residents

and a total land and water area of 163,695.57 square miles (United States Census, 2000). The state with the next largest population is Texas at 20 million people. These two states dominate the other continental states by both population and, except for Alaska, total land and water area. Table 1 compares the five highest ranked states in terms of population.

Table 1. Five highest ranked states in terms of population with the housing units and area also identified (United States Census, 2000).

Rank	Geographic area	Population	Housing units	Area in square miles		
				Total area	Water area	Land area
	United States	281,421,906	115,904,641	3,794,083.06	256,644.62	3,537,438.44
1	California	33,871,648	12,214,549	163,695.57	7,736.23	155,959.34
2	Texas	20,851,820	8,157,575	268,580.82	6,783.70	261,797.12
3	New York	18,976,457	7,679,307	54,556.00	7,342.22	47,213.79
4	Florida	15,982,378	7,302,947	65,754.59	11,827.77	53,926.82
5	Illinois	12,419,293	4,885,615	57,914.38	2,330.79	55,583.58

California was also selected because of its experience with preparing for and responding to multi-jurisdictional emergencies, such as those so severe that a federal disaster is declared. From 1953 to August 2008, California had 73 federally declared disasters. This record is only exceeded by Texas, which has 82 federally declared disasters. The medium number of federally declared disasters per state is 35 from 1953 to August 2008. In addition to the major disaster declarations, California received six emergency declarations and 91 fire management assistance declarations (FEMA, 2008). The categories of disasters or years of assistance are described in Table 2.

Federal declarations are made subsequent to a series of events that must take place. After a major incident, the local government, if mutual aid support is not sufficient, will make a formal request to the state government for assistance. If the state responds, a disaster assessment will be made through local, state and federal governments and volunteer organizations to identify need. If the need for additional resources is determined, the state, via the governor, will make a formal request to the federal government. When this happens, the state must commit long-term funding to assist in recovery efforts. The request then goes through the Federal Emergency Management Agency (FEMA) for further evaluation. FEMA makes a recommendation to the President of the United States as to whether or not federal funding should allocated for assistance. The President then either grants or denies the request. The process can take as little as a few days or as long as few months, depending on the severity of the incident (USOHS, 2008).

Because of the demographic and geographic make-up of the State and the frequency of multi-jurisdictional incidents, California was studied. To gain a broad understanding of the emergency management systems, six counties within the three California Regional Emergency Areas and selected encompassing cities and relevant special districts are investigated. The focus is how the regional emergency operation centers, the operational areas, and the local and field operations work together both to prepare for and to respond to an emergency, concentrated among four factors: personal interactions, official communications, legal policies, and leadership.

For the purpose of this study, emergency preparedness is defined using the National Preparedness Goal. In President Bush's December 17, 2003, Homeland Security Presidential Directive/HSPD-8, national preparedness is defined as "the existence of plans, procedures, policies, training, and equipment necessary at the Federal, State, and local level to maximize the ability to prevent, respond to, and recover from major events" (HSPD-8, 2003). The same

definition is used, varying only in language regarding the Federal level, which is not part of this investigation.

Table 2. California Disaster History that had Federal Declarations (FEMA, 2008).

Federal Major Disaster Declarations (1953 to August 2008)

Type	Number
Water-related (caused by severe storms, flooding, landslides, mudslides, levee breaks, and/or dam breaks)	46
Fires (urban fires, wild fires and forest fires)	13
Earthquakes	10
Severe Freezes	3
Other (Impact of El Nino [1994])	1
TOTAL	**73**

Federal Emergency Declarations (1977 to August 2008)

Type	Number
Fires	4
Drought	1
Other (Hurricane Katrina Evacuation [2005])	1
TOTAL	**6**

Federal Fire Management Assistance Declarations (2002 to August 2008)

Year	Number
2008*	10
2007	17
2006	8
2005	7
2004	21
2003	16
2002	12
TOTAL	**91**

(*as of August 19, 2008)

Within six years, two incidents have forced the United States not only to rethink emergency response but also to take significant steps to strengthen appropriate preparedness measures. Those incidents were the September 11, 2001, attacks in New York City and on the

Pentagon and the Katrina Hurricane devastation in the southern United States on August 29, 2005. While the first was man-inflicted and the second was precipitated by a natural disaster, emergency responders operated largely from the same premise that "all emergencies are local." In that regard, the first responders are the most important players to secure a situation and to help serve people's immediate needs. However, all levels of government have important roles to play in response and, for this study, emergency preparedness prior to such catastrophes.

Taking Hurricane Katrina, for example, the notion that "all emergencies are local" may be immediately true, i.e., the most affected by the disaster are the local people. However, the impacts transcend local and even regional boundaries. After that storm hit and the levees broke, governments at all levels responded. The local police, fire and emergency medical services (EMS) were the first on the scene, but many other governmental entities were preparing to coordinate services. Each state lent support--from volunteers who assisted through the Red Cross (Red Cross, 2008) to the 42 states who received federal disaster relief from September 5 to 30, 2005, for assisting regional evacuations (FEMA, 2008). Nonprofit organizations from local church groups to large foundations and nongovernmental organizations (NGOs), such as the Red Cross, lent support.

The international response was also impressive with 145 countries offering assistance. Of those, 126 offers were directly accepted either by the United States government or through the American Red Cross. This assistance consisted of monetary resources, supplies, and emergency response teams. Multinational organizations such as the United Nations, the European Union, the World Health Organization, and the Organization for Petroleum Exporting Countries (OPEC) offered a variety of support. International NGOs such as the International Federation of Red Cross and Red Crescent also provided services. (CREW, 2008)

Beyond these organized responses, many individuals waged their own campaigns to assist those who lost their material possessions. Individuals from other states, who were not impacted by the storm or its aftermath, collected clothing and other supplies through local clubs and organizations and found ways to get help to devastated Mississippi and Louisiana neighborhoods; sometimes by collaborating with local response units that sent support.

These examples illustrate that the notion that "all emergencies are local" has great usefulness but it is far from adequate--except for first responders. While the physical impacts may be in specific, local areas, the immediate and necessary responses transcend local boundaries. Even with a smaller emergency that does not result in such a visible outpouring of support, experience shapes future policies to respond to such situations. These policies result in how governments prepare for emergencies.

Recent news stories report that governments at all levels are taking proactive approaches to address preparedness measures before incidents occur. This is evident in federal efforts to change the nation's emergency response procedures (Lee and Fletcher, 2006), state efforts to reinforce infrastructure projects like the California levy system (Schwarzenegger, 2006), and local efforts to protect city centers like New York's "ring of steel" (Mollenkamp and Haughney, 2006) and ports such as Los Angeles (Gorman and Freedberg, 2005).

In a White House report, *The Federal Response to Hurricane Katrina: Lessons Learned* (2006), four major flaws in federal reaction to the storm and its aftermath were revealed--lack of unified management, command and control structures, "knowledge of preparedness plans, and regional planning and coordinating" (52, 2006). While the report mainly concentrated on the federal level, references to state and local levels continually emerged. These themes stressed the importance of establishing and maintaining intergovernmental relationships and open

communication, and the creation of a clear command structure when a large-scale emergency occurs. Recognizing that these efforts do not occur in a vacuum, this research focuses on one level of government--California counties--and investigates the factors that affect intergovernmental interactions in threat preparedness. A better understanding of these relationships must be realized to understand how this relatively new governmental operational approach combines both structure and flexibility to anticipate future preparedness and response efforts.

1.1. ADMINISTRATIVE SHIFTS

California is a leader in emergency management trends because of its necessity to respond to natural disasters, especially earthquakes, fires, and floods that regularly impact many communities which cross jurisdictional lines. As a result, the degrees of flexibility and rigidity of the response system has greatly varied. Prior to the 1950s, a statewide emergency response system was largely unorganized; instead it relied on independent local preparedness and response. This was consistent with the administrative approach at the time to maximize efficiency in governmental processes and empowering local jurisdictions. The downfall of the approach is the lack of coordinated effort to respond to multi-jurisdictional incidents. In the 1950s, mutual aid agreements began to emerge. However, these agreements were largely independent, occurring in some areas but not others. Subsequently, in the mid-1970s, seeing the positive effects of collaborative action in fighting wildfires, California created the Incident Command System (ICS).

ICS is a highly flexible approach in responding to emergencies. When an incident occurs, ICS has established protocols to identify the person in charge (unity of command) and a consolidated incident action plan when multiple jurisdictions or agencies are involved. Especially in regard to the unity of command, this para-military approach does a number of things. First, because an incident commander is identified early in the field, decisions can be made quickly and a direct response can occur. There is no question about who calls the shots and who is responsible for the collective actions. Second, as a critical component of effective response, decisions can be made that directly relate to the incident, given the environment in which it occurs and the resources immediately available. In order for ICS to work, some departments must be able to yield decision-making authorities and resources to work for the greater collective good.

In the early 1990s, after a number of earthquakes and urban fires, most notably the 1991 Oakland Ridge Fire, California reorganized its emergency management procedures under the California Standardized Emergency Management Systems (SEMS). While originally building off of the successes of ICS, SEMS attempts to create a common language, structure and procedures when responding to an incident. According to the 2006 SEMS Guidelines, the ICS, which it incorporates, has five functions:

1. Command--“direct, order or control of resources”

2. Operations--“coordinated tactical response”

3. Planning/Intelligence--“collection, evaluation, and documentation of information”

4. Logistics--“facilities, services, personnel, equipment, and materials”

5. Finance/Administration--“financial and cost analysis” of the incident (SEMS, 2006, 4-9)

This approach has three features: a modular organization of ICS, Incident Action Plans, and Unified Command. Of these features, the hardest to understand is the unified command structure, as it is different than the unity of command previously practiced in ICS. To clarify the distinction, SEMS must be revisited.

SEMS claims to create flexible and rapidly-responding systems needed to respond to incidents. Yet, it appears that the system is becoming more administratively burdensome and thereby reducing the flexibility of previous systems. Most importantly, this is seen between the concepts of "unity of command" and "unified command." While unity of command has one person clearly identified to make in-the-field decisions throughout the incident, unified command turns response into a group process. As a possible attempt to reduce the silos created in the former ICS organizational structure, particularly among the fire departments and law enforcement, a unified command approach is now used to bring all parties to the table where they may share decision-making authority. Having different stakeholders make shared decisions blurs the line of responsibility for each level of government and/or agency.

As described in the 2006 SEMS Guidelines, "Unified Command is a procedure used at incidents, which allow (sic) all agencies with geographical, legal, or functional responsibilities to establish a common set of incident objectives and strategies, and a single Incident Action Plan" (18). In untested application, this is true. Yet, a growing concern is that this approach may become too administratively cumbersome to have effective application when a large, multi-jurisdictional incident occurs that crosses specialties. For example, when a large fire occurs, as happened in South Lake Tahoe with the Angora Fire in 2007, the focus is clearly on putting out the fire, removing people from danger, and minimizing the incident's impact.

The Angora Fire began on June 24, 2007, and was 100% contained by July 10, 2007. While the official cause is under investigation, it is suspected that day hikers caused the fire. It burned 3,100 acres and destroyed 329 residences, commercial buildings, and other structures. The fire ranked 14th of California's largest wildfires by structures destroyed (CAL FIRE, July 3, 2007).

Kit Bailey, U.S. Forest Service Forest Fire Chief for the Lake Tahoe Basin, was the initial incident commander (Ferchland, 2007). At this time, his actions cannot be analyzed from official reports, but from newspaper accounts, his initial actions seem more consistent with "unity of command" rather than "unified command" by directing resources to where it was needed without a formal group process. This is consistent with the current SEMS guidelines where one commander is initially identified.

According to the California Department of Forestry and Fire Protection (CAL FIRE), the unified command system was utilized with cooperating agencies including: "all fire agencies within the Tahoe Basin, United States Forest Service, CAL FIRE, California Highway Patrol, South Lake Tahoe Police Department, El Dorado County Sheriffs Office, Red Cross, and Civil Air Patrol" (CAL FIRE, July 3, 2007). It is unclear how each of these partners affected the immediate decisions made in the field as a collective body.

Even without knowing the role of each partner, SEMS has many advantages including one set of objectives, a collective approach, improved information flow, common understanding of other agencies priorities and restrictions, a response that is consistent with all agencies' legal restrictions, and a duplication or response efforts is reduced or eliminated. This was evident in the response activities in 2007.

1.2. EARTHQUAKES, FIRES, AND FLOODS

To better understand these administrative and procedural evolutions, the scope of California's natural disasters must be recognized. By contrast with natural disasters, preparation for man-made incidents, as is part of the mission of homeland security efforts, entails threat assessment based on intelligence of terrorist activities. While it is quite plausible that some sort of terrorist incident can occur in California, fortunately, the development of emergency management was not a result of these types of incidents. Instead, California's experience with natural disasters, most notably earthquakes, fires and floods, has shaped how it prepares for and responds to incidents. The threat assessments used to prepare for these incidents are based on the geographic composition and monitoring of the state, weather conditions, housing areas, and history.

1.2.1. Earthquakes

According to the United States Geological Survey, California has experienced at least one hundred thirty (130) earthquakes with a magnitude of 5.8 or larger since 1769 (USGS, 2008). In each instance, California's emergency management system was put into action. Some cases simply resulted in local and county responses with little regional or state assistance because of the location of the tremor or the design of the emergency management system at the time of the incident. Yet, in other cases, like the deadly Loma Prieta earthquake of 1989, a larger response was necessary.

Earthquakes happen on a daily basis. In most cases, the earthquake is small and centered in rural areas. Illustration 1 identifies earthquakes within the State over a one-week period from August 12, 2008 to August 19, 2008. In this one week alone, over 314 earthquakes were reported in California.

More troubling than the frequency of earthquakes, however, are the numerous fault lines within the State and the location of major urban areas in relation to these faults. California has 37 major faults, with the San Andreas Fault perhaps the most recognizable, as it runs the length of the coast from Los Angeles to San Francisco. The largest urban areas within the State--Los Angeles, San Francisco, and San Diego--are in close proximity to major fault lines. These faults are identified in Illustration 2.

Over three decades, 1978-2008, nine major earthquakes hit, most notably the Loma Prieta Earthquake in 1989 and the Northridge Earthquake of 1994. In each of these cases, portions of major cities were devastated. While statewide efforts are made to minimize damage and loss of life, the simple fact still remains that major fault lines are beneath two of the largest cities--Los Angeles and San Francisco--and near San Diego and other major urban areas within the State. Despite preparedness measures, like the reinforcement of all hospitals within the State to withstand major earthquakes, an earthquake could still negatively and directly affect millions of people.

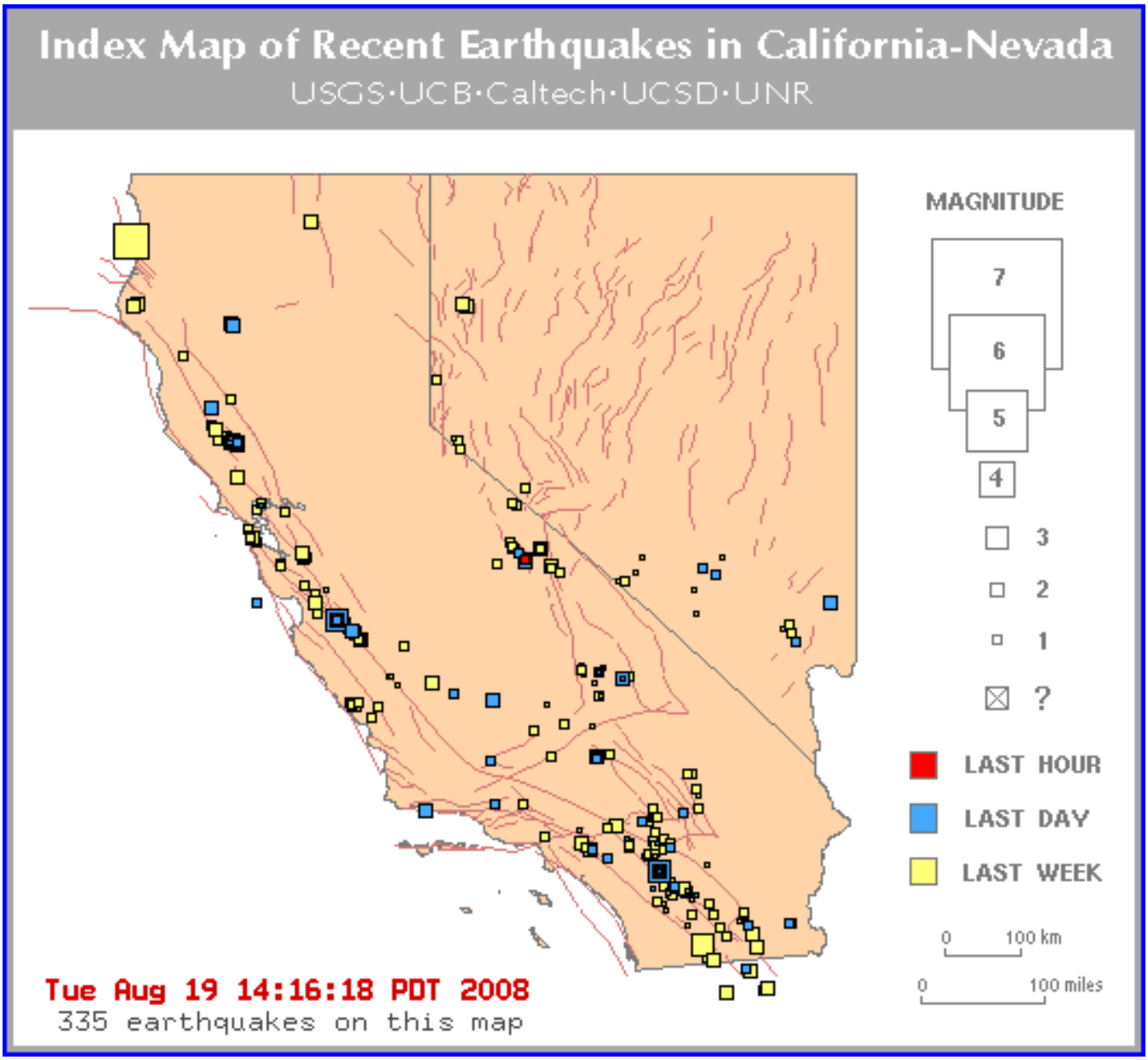

Figure 1. Index Map of Recent Earthquakes in California and Nevada, August 12-19, 2008 (USGS, 2008).

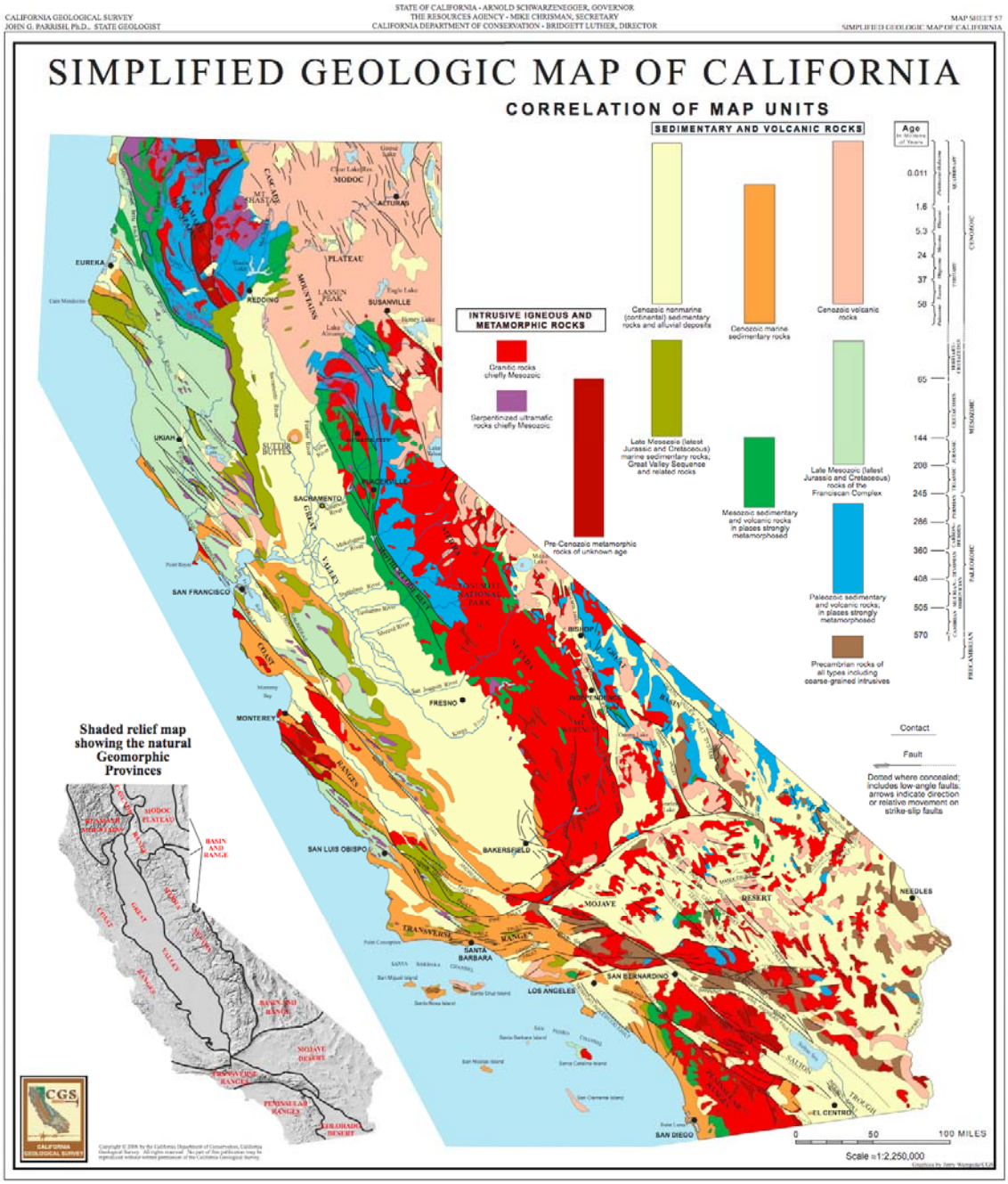

Figure 2. Simplified Geological Map of California (California Department of Conservation, 2006).

1.2.2. Fires

Fires are another major natural threat. Large urban fires, except a few cases like the Oakland Hills Fire in 1991, are uncommon. More prevalent, however, are large-scale wildfires. By August 2008, over 2,000 wildfires, most of which were naturally occurring, scorched California in 2008 alone (Office of the Governor, 2008). Incidents from June 22, 2008 to August 11, 2008 are pictured in Illustration 3.

Wildfires are a major threat to thousands of communities throughout the State, as identified in Illustration 4. With the strong fire season of 2008, many of these communities were evacuated as part of emergency response procedures. The emergency management procedures are now engrained in fire response activities, but it only evolved through continual learning from past experiences and the adaptation of new strategies to combat a reoccurring threat.

The management of wildfires is largely the responsibility of the California Department of Forestry and Fire Protection (Cal Fire). When fires occur in remote areas and are of small scale, Cal Fire eliminates the threat. But, if the fires spread, it undoubtedly affects neighboring jurisdictions, from encroaching into federal lands or crossing political boundaries, to affecting resources that fall into different agencies or departments. When this occurs, the established mutual aid agreements and emergency procedures go into affect. With an increase in the number of wild fires, this happens on a regular basis throughout the year when rain is not present.

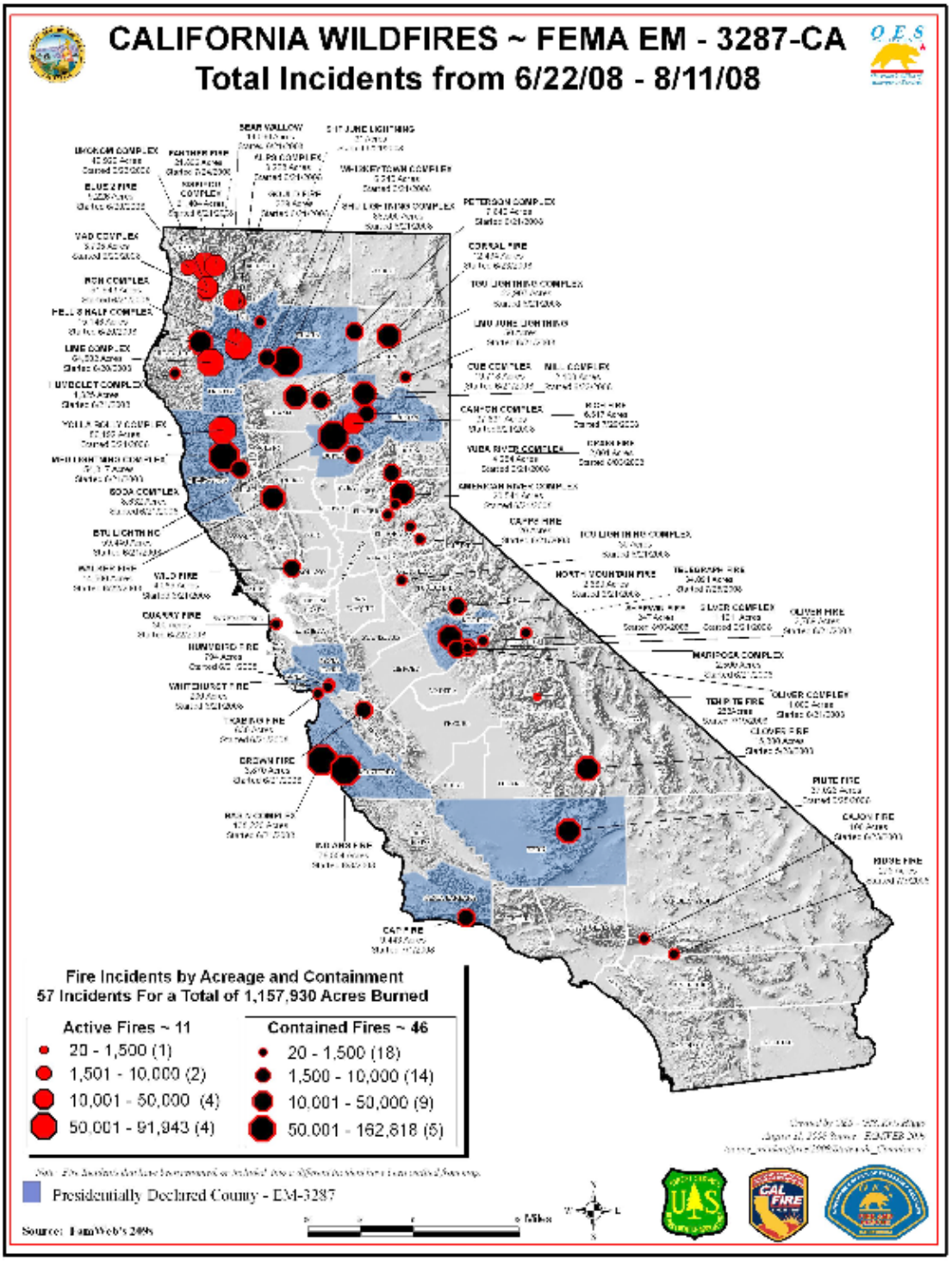

Figure 3. California Wildfires from June 22, 2008 to August 11, 2008.

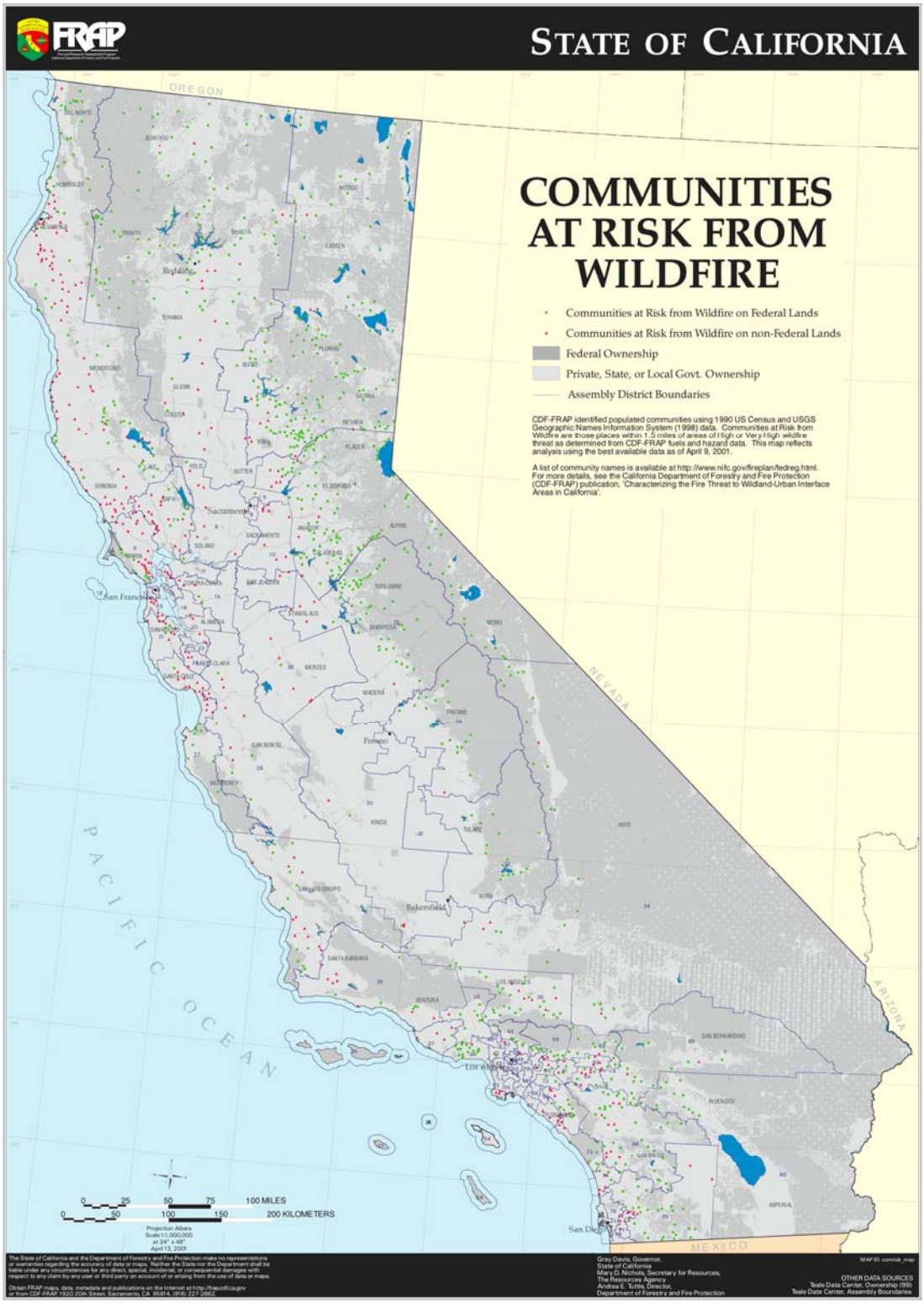

Figure 4. Communities at Risk From Wildfire (Fire and Resource Assessment Program, 2001).

1.2.3. Floods

Earthquakes and fires are not the only natural threat affecting the State. Flooding is also of concern. Flooding can result in a number of ways, including a breach in the 1,600 mile levee system in Northern California or in one of 1273 dams throughout the State, through torrential rains that can additionally cause land slides and mudslides, or through tsunamis caused by earthquakes or landslides (Department of Water Resources, 2008).

Breaches in the levee system, although rare, received much attention after the levee breach in Louisiana after Hurricane Katrina. Since that time, California's statewide efforts, albeit too limited to the populations living closest to the levees, have increased to strengthen the system. Levees not only protect communities along the Sacramento and American rivers in Northern California, but also provide fresh drinking water to communities in Southern California. Therefore, a breach in the system would flood neighboring communities and, because of the aqueduct system, could decrease the amount of fresh water available within both Northern and Southern California.

Flooding caused by more natural means is common. Fifty-eight percent of the federally-declared disasters (11 of 19) over fifteen years, 1978 to 2008, had to do with severe storms which resulted in flooding, landslides, and/or mudslides. The effects of the torrential rains in 1998 were particularly damaging. Flooding was one result, but so too were massive landslides as the overly saturated soil could simply hold no more water. Illustration 5 highlights the landslides from that period.

By far, the two types of flooding of greatest concern are through a breach in a man-made structure (levee or dam) and torrential rains. A flooding threat that has received less attention is from the aftermath of a tsunami. Although largely not known, there have been 38 tsunamis in

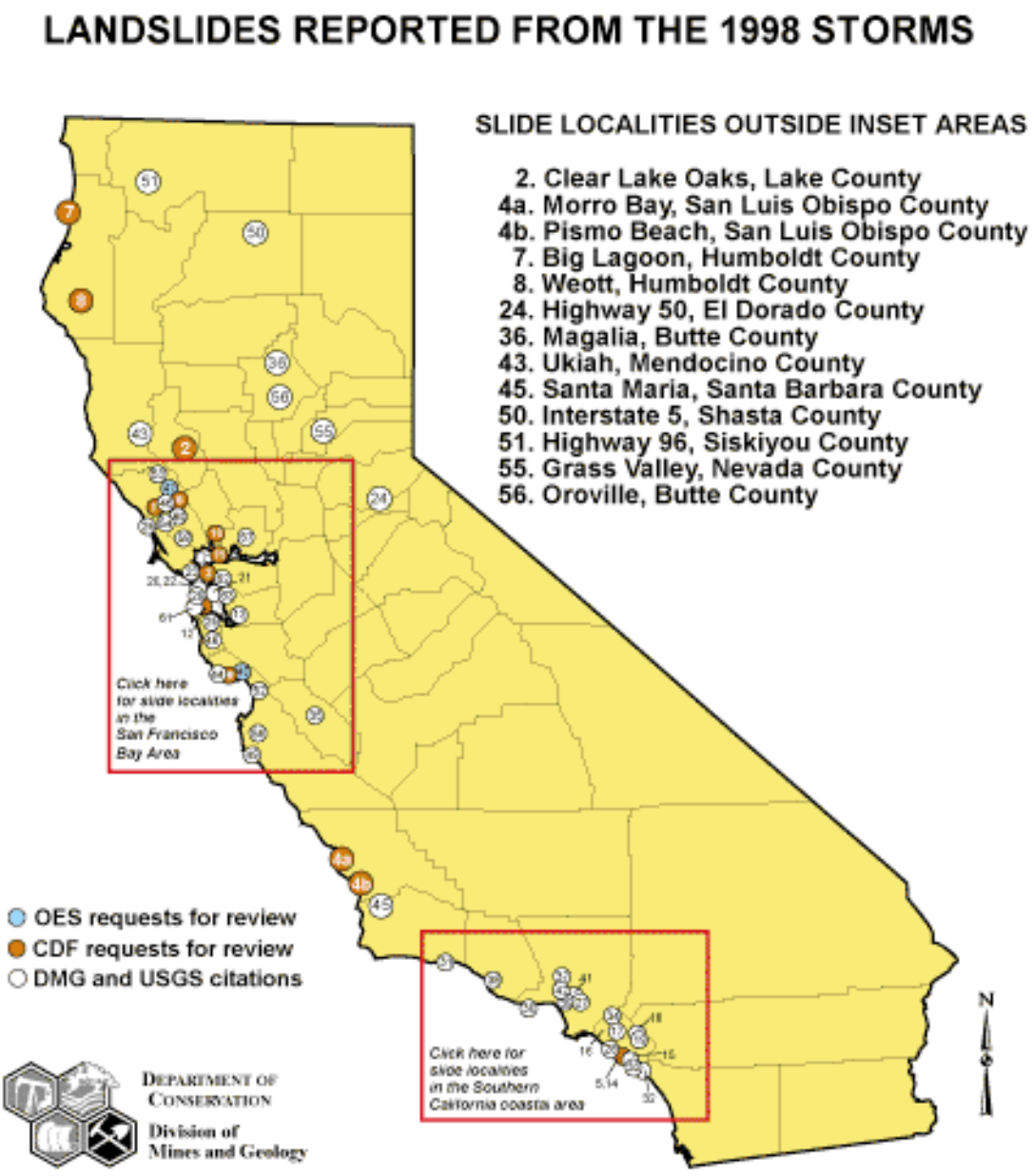

Figure 5. Landslides Reported From the 1998 Storms (California Department of Conservation).

California over the last 100 years. Most of them are small, hitting the coastline with a wave just over one meter, but waves have been as high as twelve meters as was the result of a 1934 incident in Newport Beach (CGS-Tsunamis, 2008). With 840 miles of coastline (second only to Alaska's 5,580 miles of coastline), the chance of another tsunami hitting California is great (*The World Almanac*, 2007, 450).

Tsunamis can happen from two different ways--local or distant points of origin. Tsunamis caused by a local event would occur because of landslides, potentially through over saturation of rainwater, or earthquakes. Distant points of origin could be the result of an oceanic earthquake, or an earthquake originating from the Pacific Rim or Alaska. A lesser threat to cause a tsunami is a meteor. (CGS-Tsunamis, 2008)

When a tsunami hits, lower elevation communities are affected the most. Metropolitan areas that have a significant number of communities at lower elevations include Los Angeles and neighboring cities, and smaller urban areas like Eureka, which are scattered along the coast. Naturally, it would depend on the strength of the tsunami when it hit the coast as to what communities are affected and by how much.

Earthquakes, fires and floods are a real threat to the inhabitants of California. If the incident was not prepared for properly and was on a large scale, it would have a national economic impact. Because of the frequency of incidents, California has created an emergency management system that can reasonably respond to incidents in a way that quickly addresses the threat and take measures to protect its inhabitants.

1.3. EXISTING RESEARCH

Emergency management and homeland security, collectively, are relatively new fields of study, surfacing mostly after the terrorist attacks in 2001. Important research before that time focused on public policy and management around natural disasters--earthquakes, floods, and fires. Since that time, larger academic foci revolve around preparedness, response and mitigation efforts.

Four journals are notable in this concentration: *Journal of Homeland Security and Emergency Management (JHSEM), Homeland Security Affairs (HSA), Journal of Homeland Security (JHS), and Homeland Defense Journal (HDJ).* However, their academic importance varies. As listed, *JHSEM* is the most academically sound in the traditional sense. The latter journals are more relevant to some practitioners. Until recently, the articles in *JHSEM* focused more on managing disasters, threat assessment, the emergency management system, and historical reflections on large-scale events.

Other journals, like *Public Administration Review* and *Public Works Management and Policy*, have published articles on the subject, but they by no means focus on it as an on-going theme. Articles are typically on the federal government's policies or agencies and response efforts during Hurricane Katrina. Except for three notable exceptions, articles tend not to discuss interactions across levels of government.

In 2006, Louise Comfort and Thomas Haase published an article in *Public Works Management and Policy* that studied the communication infrastructure and interaction as a result of Hurricane Katrina. In that study, they found five significant discrepancies. Of those, the most

significant for this study was the gap between organizational design and investment in resources and training (2006).

While California has many resources and is accustomed to responding to cross-jurisdictional emergencies, the allocation of funding is a great concern. This study will illustrate the amount, stability, and application of funding in a later chapter. Additionally, there is a growing concern that, similar to Comfort and Haase's discussion at the end of their report, organizational hierarchical structures are not utilized to their best potential, especially when it comes to interacting on a regional level.

In Kiki Caruson and Susan MacManus' paper on the importance of regionalism in responding to disasters, they stressed the importance of regional support and response, indicating that "municipal and county officials can tailor their efforts to meet the unique needs of their local communities while still harnessing the economies of scale offered by regional organizations" (2007, 20). While in their paper regional connections were seen as critical, in this study, results indicate that the region is the weakest link across all state and governmental levels studied.

Finally, Sharon Caudle, in an initial publication in *Homeland Security Affairs* and then in a follow-up article in *The Public Manager*, argues for the importance of formal regional partnerships. While this is critical, legal frameworks only provide the framework in which an emergency management system can work. Her suggestion that collaborative networks are not needed implies that this system can efficiently and effectively work without the humanness that is essential during difficult times (2006, 2007). That is not the case. Not having the personal connection can slow response time and effectiveness as too much energy can be spent on understanding neighboring partners' strengths and limitations, not to mention their willingness to make tough decisions, which are based on legal intent yet not mandated, to help another

community. And not having the personal connections to mentor and share experiences limits the amount of organizational learning that can take place to better prepare, respond, and mitigate a future event.

While extensive research has been done in emergency management and homeland security, few published studies discuss the interactions of government levels—particularly in addressing the role of personal interactions, legal frameworks, leadership and communication. These factors and the linkages among them create structure AND flexibility in organizational response. This research adds to that emergency management literature stream.

1.4. PURPOSE

The primary purpose of this study is to explore the relationship between structure and flexibility in emergency preparedness and response operations. Specifically, this study focuses on how four factors--personal interactions, legal structures, leadership and communication--impact a state's emergency management system across jurisdictions. Because of its long history of formal mutual aid agreements and standardized response mechanisms, there is a strong comprehension of the formal processes in California. Yet, the humanness factor has not been explored. This research seeks to advance understanding of perceptions of governmental relationships among public levels and how these four factors enhance or hinder emergency management activities.

1.5. ORGANIZATION OF THE DISSERTATION

This study of emergency management in California is divided across nine chapters. *Chapter 1: The Necessities and Experiences of Emergency Management in California* discusses the importance of studying emergency management through California's example because of its large demography, varied geography, and experience with preparing for and responding to multi-jurisdictional incidents. Because it has the largest number of inhabitants in one of the largest land areas, California must deal with major natural threats--earthquakes, fires and floods--on a regular basis. Responding to these incidents is complicated by urban areas and federal and state regulation. Therefore, it has devised a system, over time, to effectively minimize the impacts of natural threats. The resulting system retains the flexibility needed to respond to incidents with uncertain and changing environments while retaining the structure needed to consistently deliver a positive result.

Chapter 2: Theoretical Concepts Underlying Dynamic Emergency Management identifies the three established public administration literature streams on which the research is based--traditional management, network analysis, and organizational learning theories. While these theories are necessary in understanding the current emergency management system, each one, independently, falls short of what is actually occurring within the administration of emergency services. Instead a new theoretical model has emerged--a structured network administration model. This is based on the premise that hierarchical structure, flexible networks, and organizational learning must take place through coordination and intentional integration of the three aforementioned literatures.

To understand this relationship, *Chapter 3: Research Design and Methodology for Exploring California's Approach to Emergency Management* outlines the process used to answer how personal interactions, official communications, legal policies, and leadership affect emergency preparedness and response in California. Data was collected utilizing qualitative and quantitative techniques. Fifteen expert interviews were conducted to study the impact of the four factors across state, county and local levels. Experts were identified based on their reputations and positions within key governmental structures. In addition to the interviews, a survey was conducted among 196 emergency managers with a 75% response rate. The data collected through these two sources were analyzed utilizing qualitative and quantitative methodologies.

Chapter 4: The Role of Personal Interactions in Emergency Management is the first chapter on the research findings. Summed up in one word, personal interactions are "critical" when preparing for and responding to an incident. More frequent interactions lead to the increase of trust, both among emergency managers and across the system, and they assist with the management of stress that is a result of tensions of incidents and of the people whom the incidents impact. Personal interactions evolve over a number of ways, most notably through training and working together. Knowing ones' colleagues is a key components to make the system work. Chapter 4 goes into greater detail of the impact and hindrances to establishing and maintaining the relationships.

In building on Chapter 4, *Chapter 5: The Role of Leadership in Emergency Management* uncovers the characteristics of prominent leaders within the emergency management system. Effective leadership is a combination of knowledge, personal actions, interpersonal relations, management skills, and human characteristics, including core values. Since people are at the heart of the emergency management system and it is people whom the system assists in time of

need, strong leadership is essential to manage chaos and guide to organization to maximize effectiveness. The impact of political leadership is also discussed.

Referring back to Chapter 1 that described the evolution of the legal composition of emergency management, *Chapter 6: The Role of Legal Structures in Emergency Management* illustrates the interaction of managers with policies and procedures both at the State and federal levels. One of the most common themes is the impression of understaffing, particularly at the regional level, to accomplish and prepare for large, multi-jurisdictional incidents. The funding of emergency management is also explored, with increasing concern that the role of emergency managers is shifting to becoming grant writers instead of using expertise to understand and prepare for known and unknown threats.

Chapter 7: The Role of Communication in Emergency Management shifts gears and reveals the necessary parallel between the evolution of information technology systems and the impact on the emergency management system. It stresses the importance of face-to-face human interactions while using technology to make the interaction more productive. Hindrances, as well as advancements, are also revealed.

Chapter 8: Findings for the Roles of Personal Interactions, Communication, Legal Policies and Leadership in Emergency Management highlights key findings from chapters 4 through 7, focusing on major themes and trends. It is a compilation of findings from both the qualitative and quantitative research and addresses the research questions and hypotheses. Recommendations are also made on how to continue the momentum of a structured network administration while continuing opportunities to learn.

Finally, *Chapter 9: Conclusion in Understanding California's Networked Approach in Intergovernmental Interactions* takes the findings one step further to place it in a larger

emergency management context. It reiterates essential findings and answers the question on how personal interactions, communications, legal policies, and leadership affect emergency preparedness and response within California.

2.0 CHAPTER 2: THEORETICAL CONCEPTS UNDERLYING DYNAMIC EMERGENCY MANAGEMENT

The emergency management system, to effectively meet chaotic and uncertain conditions, must be highly structured organizations and retain flexibility to respond to rapidly changing environments, such as those natural incidents identified in Chapter 1. A number of early examples, like response to the Angora Fire, reinforce the necessity for this type of procedural relationship. To contextualize the research, it is grounded in three main theories: traditional management, organizational learning, and network analysis. These three theories frame the research study as it focuses on government processes that require both structure AND flexibility. In California's case this was accomplished through continual advancements, via organizational learning, made to the emergency management system and through the interaction of multiple jurisdictions and agencies across all levels of state, county and local governments.

This study focuses on four main factors that influence emergency preparedness and response--personal interactions, official communications, legal policies and leadership. While each of these characteristics can be identified in the noted theories to a varying degree, they have stronger presences in particular theory bases. For official communications and legal policies, it is traditional management theory because of its need for organizational hierarchy and foundation in policies, procedures, and rule of law; for personal interactions, it is network theory due to the lateral and informal relationships within and across jurisdictions; and for leadership, as it pertains

to recent research, it is organizational learning, as the leader must not only motivate but guide the organization for continued improvements. This literature review, while highlighting the four factors, also provides a historical perspective of how the theories developed and a few of the most significant contributions to the theory.

2.1. TRADITIONAL MANAGEMENT THEORY

Rule of law and official communications through hierarchies are the basis of traditional management theory that attempted to increase efficiency, effectiveness and economy through the mechanics of administration while retaining integrity of the personnel and offices.

Woodrow Wilson (1887) was one of the earliest philosophers who wanted to improve the overall efficiency and effectiveness of government. He advocated breaking away from the spoils system and separating politics from administration. Through this approach, civil servants could become true experts and professionals and not be dependent on political patrons for job security.

Max Weber, although in the German context, built, as Wilson did, on needs for reform of the public sector. Weber took an " ideal-type " approach to reform government and is considered to be the father of bureaucracy. His concept had several structural elements: special jurisdictions, steep hierarchy, employment structures, a bureaucratic structure, and management rules under the law. The result was an independent government structure that did not dramatically change when the politicians changed. It created long-term stability with set rules and procedures where employees could move in and out of the system with known expectations and results.

Gulick and Urwick (1937) recognized a lack of coordination in Weber's view of bureaucracy once the work was divided. To bridge this gap, they identified seven functions of the executive: planning, organizing, staffing, directing, coordinating, reporting and budgeting—affectionately known as POSDCORB. (POSDCORB was the original analysis of the executive; "directing" was later dropped in the 1970s as the theory evolved resulting in the commonly accepted POSCORB.) They stressed the hierarchical relationship between the authorities and subordinates to retain coordination and control.

While this dialogue transpired in the public sector, it also occurred in private industry. Taylor (1911) stressed efficiency to obtain maximum output, rationality to arrange work in the most direct relationship to objectives, and productivity to retain high production levels. He proposed that each employee has a certain task to do and each task has one best way of being done to have maximum efficiency. His work impacted the public sector as the goal of efficiency was key to the Scientific Management of this time period. These theoretical philosophies paralleled each other in the early part of the Twentieth Century.

Traditional management theory had many critics. Simon (1969), for example, advocated a management science based in procedural relationships, rejecting previous suggested verities of substantive rationality, advancing behavioral science to near dominance by the close of the 1950s. Waldo (1952) also critiqued bureaucratic theory by indicating that the "values" of efficiency and economy through centralization and hierarchy were at odds with democratic political theory and needs for effectiveness. In his book, *Democracy and the Public Service*, Frederick C. Mosher focused on the paradox of "bureaucracy and democracy" as a core challenge of public administration.

Throughout the next generation, traditional theory became increasingly criticized for its inflexibility, the typically large size of government, and slow reaction time. It also created a philosophical divide between efficiency and equity. New Public Administration emerged in America at the turn of the 1960s-1970s, in part, to bridge this gap. This movement was motivated by social equality and attempted to remove the impersonal and neutral bureaucracy. It attempted to create equity in the distribution of governmental services, modify the traditional hierarchical structure to focus more on teams or group decision-making processes, institute a boundary-exchange to alter the relationship of the administration to its clients, and create a socio-emotional process that included sensitivity training (Frederickson, 1971). Frederickson argued that social equality should be the focus of public administration. This proposition challenged the then conventional understanding of public administration to create an efficient and economical system to provide public goods and services.

Understanding the field in terms of the New Public Administration movement was short-lived, but it was an important movement as it brought politics back into public administration and the need of better connecting administration with the people whom it serves. New Public Management quickly followed.

According to Christopher Pollitt, New Public Management has four main components: greater use of market-like mechanisms to provide public services, decentralization of management, continual need to improve service quality, and a greater focus placed on meeting the needs of the "customer" (1993). One of the most widely published writings was Ted Gaebler's and David Osborne's *Reinventing Government*.

Reinventing Government, which was on the *New York Times* Best Seller list when it came out in 1992, suggested ten strategies that government administrations should undertake:

1. Steer don't row

2. Empower communities

3. Encourage competition

4. Be mission driven--as opposed to rule driven

5. Be results-oriented by funding outcomes

6. Meet customer needs

7. Concentrate on earning money--not spending

8. Investing in preventing problems

9. Decentralizing authority

10. Solve problems by market forces (1992)

This renewed interest in governmental role and operation was prominent at all levels of government, including in the Clinton/Gore presidential administration with the National Performance Review. New Public Management not only focused on how to improve administrative strategies through decentralization and devolution, but it also influenced the policy debate on how to manage public bureaucracies. Barzelay suggested that New Public Management had two main elements: one which "focuses on the political and organizational processes through which policy change takes place" and the other "is the substantive analysis of public management policy" (2001, 157-158).

Internationally, the New Public Management movement made an impact before being part of the US academic debate, especially in the United Kingdom, New Zealand and Australia (Radin, 2006, 226). While New Zealand was one of the most notable applications, it was also implemented in countries not in the Commonwealth Realm, such as France, as evident in Etienne Minvielle's study of the Regional Hospital Agencies. In that article, Minvielle illustrated the use

of innovation and decentralization to modernize the management of the French hospital system in the allocation, planning and use of resources (2006).

Total Quality Management (TQM) had common links to the New Public Management movement but was relatively short-lived in the public sector. Grounded in W. Edwards Deming's fourteen points that focused on work productivity, image and quality assurance from his studies of Japanese industry in the 1950s, TQM revolved heavily on the *quality* of products and service delivery. In the *TQManager*, Schmidt and Finnigan identified a number of key concepts that can be seen in other management trends, like recognizing organizations as complex systems, meeting customer needs, continuing improving the product or service, using teams and groups, and "developing relationships of openness and trust" (1993, 5), but it falls short of market forces and other corporate cultures that prohibit the effective and realistic application of TQM. Yet, the underlying concepts continually evolve into more open and flexible organizations.

Patrick Dunleavy, Helen Margetts, Simon Bastow and Jane Tinkler proposed that the New Public Management movement has yielded to management practices influenced by reintegration, needs-based holism, and digitization changes in what they term as "digital-era governance." In this movement, "reintegrating functions into the governmental sphere, adopting holistic and needs-oriented structures, and progressing digitalization of administrative processes" are all key in today's governmental structures. (2006) This dramatic shift and understanding of information technology resources was explored in 2001 with Jane Fountain's *Building the Virtual State: Information technology and institutional change.*

In this book, Fountain proposed that technology is not meant to replace the bureaucratic structure, per se, but is to be used as a tool for coordination and communication and as a catalyst for organizational change. She stressed creating and sharing networks of information. Through a

greater understanding of how technology could be used in administrative processes, a new understanding of management relationships has emerged.

Facilitative State concepts of social self-governance, market economies, and facilitative governments grew internationally, coincident with the decline of socialism and the collapse of the Soviet Bloc. This moved away from a dominant 'big government' approach that concentrates heavily on welfare and warfare responsibilities to "social, economic and political self-governance" (Newland, 2007, 33). Newland stresses the need to search for human dignity for individuals and society and to search for reasonableness under a rule of law while trying to manage modern paradoxes that face today's public sector, like democracy and bureaucracy, divisive politics/institutional conflicts and seamlessness of business/government/politics, and an increased access to information but reduced time to reflect upon and use it (Newland, 2007).

Even though the academic trends of more open and flexible organizations that stressed genuine cooperation and coordination evolved from the 1960s, following the 9/11 terrorist attacks on the World Trade Centers and Pentagon, reversion to traditional command and control frameworks occurred. The importance of understanding the law and official communications was illustrated in how the government addressed terrorism and natural threats. Traditional management theory creates the organizational and legal structures in which intergovernmental interactions takes place. This structure is necessary to reduce threats and to respond to incidents when they occur. However, other concepts and practices oriented to networked governance have persisted to create flexibility within the structure.

2.2. ORGANIZATIONAL LEARNING THEORY

Cheryl King and Lisa Zanetti suggested that "the function of public managers…is not only to *satisfy* citizen needs and desires but also to *transform* them in the public interest." In so doing, move away from impersonal, mechanical organizations, as traditional management practices can be perceived, to public organizations with the common values of "commitment, compassion, and passion." (2005) This transition cannot take place without a fundamental shift of infusing the management of public services--getting the job done with leadership principles--having the vision and skills to get there.

A number of recent authors, like Barbara Crosby and John Bryson in *Leadership for the Common Good* (2005), and Montgomery van Wart in *Dynamics of Leadership in Public Service* (2005), explore the essential components of effective leadership like communication, decision-making, negotiation, ethical/value-based leadership, shared-power. Van Wart, in particular, addresses the importance of "advanced learning" as opposed to "basic learning" to cause real leadership growth (2005). While effective leadership requires personal development, it has a significant impact on the daily operation of an organization. When an organization has a strong leadership drive, *learning*, and thereby increased effectiveness, efficiency and economy, has the opportunity and support to take place. Argyris and Schon are leading scholars to this approach in bringing about effective organizational learning and change.

They suggest that organizational learning focuses on the processes, which are demonstrated by *behaviors* based on actionable knowledge, rather than simply actionable knowledge (which is knowing what needs to be done to realize certain goals) (Argyris and Schon,

1996). In explaining this further, Argyris and Schon suggest two different models: Model I (single-loop learning) and Model II (double-loop learning).

Model I behavior creates strategies of action without inquiring as to the values of those actions. In this model, people use their theories-in-use to govern their behavior and they do not question what they are doing or why they are doing it. The principles of Model I include achieving the intended purpose, maximizing winning, suppressing negative feelings, and acting in a rational manner.

Model I behavior has two consequences. First, it is used as a defensive mechanism where the individual is protected from identifying weaknesses. Second, it leads to misunderstanding by responding to a problem the same way that it was created. No new information is gained and the employee does what he or she has always done. There is no growth within the organization.

To create growth, Argyris and Schon suggest Model II behavior, or double loop learning. This approach evolved from a long line of humanistic organizational theorists like McGregor (1957) with his Theory X and Theory Y. It focuses on the individual understanding where problems occur and how to fix them. Double-loop learning is based on three elements: valid information, free and informed choices, and internal commitment. This approach links values with organizational transformation. Model II can be achieved through reflection and a self-recognition of individuals in organizations as agents of that organization.

This last approach is important to organizations that operate in a multi-jurisdictional environment; it encourages continual growth within the organization to meet complex, changing environments. This growth enables the organization and individuals to trust more and to practice effective communication (Argyris 1962, Argyris and Schon 1978, Golembiewski 1972). Organizational learning also enables individuals to think and act on their own. In emergency

management, this is of particular importance as no two events are the same; the type of event, severity, and impact both financially and culturally, always change. Yet, emergency managers must respond. By learning and building upon past experiences, the next response has a greater positive impact because it allows the emergency manager to quickly address familiar challenges while being able to dedicate more energy towards new threats.

In a 2005 paper, Donald Moynihan focused on organizational learning in emergency management. In his case study, he examined an inter-organizational taskforce responding to the contamination of a fatal poultry infection called Exotic Newcastle Disease. He found "six distinct ways in which networks learned: virtual experience, learning from others, learning from information systems, learning forums, [standard operating procedures] and learning from the past" (2005, 17). Such learning, along with Model II behavior, directly relates to how agencies approach emergency preparedness by building on experiences and relying on trust to create future emergency response procedures.

In a recent article, Louise Comfort discussed the important, yet often overlooked, role of cognition in preparing for and responding to incidents. In this context, she defined cognition "as the capacity to recognize the degree of emerging risk to which a community is exposed and to act on that information" (Comfort, 2007). Cognition occurs through learning in the sense that one must have the experience to know the rules, but also be able to recognize the discrepancies between normal performance and a new threat. The individual and organization build upon past experiences and create the structural and cultural environment for inquiry.

Learning as an organizational culture requires long-term support and guidance by the administration to oversee and foster the changes. It is not a quick fix but requires strong leadership to sustain a value driven environment. California, through the evolution of emergency

management as described in the previous chapter, has embraced learning practices to continually refine the effectiveness of its system. The result is having personal interactions, leadership, legal structures, and communication to be the core drivers in making the system work. Each of these factors evolved through organizational and personal learning. This learning approach expands traditional management theory to build upon networks of individuals and, in turn, organizations.

2.3. NETWORK THEORY

Unlike traditional management theory, network theory is less hierarchical and relies more on interpersonal relationships and inter-organizational relationships to enhance performance. In 1967, Warren Bennis asked a poignant question, "Will bureaucratic organizations as we know them disappear because they are unable to adapt to rapidly changing environments?" (Bennis, 1967). This question, along with his identified threats to bureaucracy--rapid change, growth, complexity of technology, and change in management behavior--foreshadowed decades of study in what is now collectively called network theory.

Using Richard Scott's terminology, network theory is an open system that is highly complex and interacts with its environment with a capacity of self-maintenance where boundaries are often blurred (2003). Network theory's roots are in chaos theory and complex adaptive system research.

Herbert Simon and James Thompson were among the first leading researchers to identify the complexities of organizations. Simon focused on complexity issues and illustrated the key role of information in decision-making. Also, as reflected Thompson's work, Simon explained

that certain phenomena are “artificial,” that is, they are contingent on the designer’s goals and purposes. This is distinct from natural phenomena that do not have a human influence. Human decisions impact organizational results, regardless to how complex an organization might seem. He also proposed that complexity takes the form of a hierarchy with many subsystems and subsystems of subsystems. (1969)

Thompson, in his influential book *Organizations in Action*, created a systematic configuration of organizations, their interactions, and administrative processes. He proposed that an organization is dependent on the environment in which it operates. This includes opportunities, constraints, and technology that affect the design and interaction of the organization. (1967)

These two works provided a shift in ideology from a highly structured organization to one that is more interactive within its environment.

During the same decade, Daniel Katz and Richard Kahn focused on the interaction of the environment and organization and suggested that a constant exchange of information is needed for successful performance. They also proposed that integration and coordination must exist--integration of shared norms and values and coordination of priorities and routines. (Katz and Kahn, 1966).

But, even with the information exchange, Ronald Burt, in *Structural Holes*, recognized that gaps occurred when two individuals interacted with complementary resources or information and that a third individual or organization was necessary to fill the gap. Although evolving from a business context, the rationale holds true in governmental entities.

Stanley Wasserman and Katherine Faust solidified network analysis as a theory within the academic community. In *Social Network Analysis* (1994), they created a comprehensive

explanation of the application of network theory in social research with detailed illustrations of data collection, mathematical calculations and modeling techniques.

W. Baker identified four essential characteristics to networks: flexibility, decentralized planning, lateral ties among members, and integration across formal boundaries of discipline (Nohria and Eccles, 1992). Baker, along with such researchers as Robert Axelrod and Michael Cohen, who advanced the complex adaptive systems framework and stressed the importance of interaction (2000); John Holland, whose research focused on an agent's ability to adapt to other adapting agents (1995); Paul Sabatier, who stressed the need to simplify complexity before making policy decisions (1993); and Louise Comfort, who identified elements of CAS as nonlinear relationships, dynamic operations, and unpredictable outcomes (1999), helped to shape what now constitutes network theory.

Two of the most recent network theorists are Albert-Laszlo Barabasi and Duncan Watts. Barabasi (2002) used the concept of the Internet and hubs to explain how communication within networks takes place. When one link goes down, the information is rerouted from another link. By this technique, the network is able to adapt to unforeseen and changing environments. He cautioned, however, that, if too many links are down, it causes the whole system to shut down. These links, or nodes, are not fixed or static; they change during the course of a network's existence.

Watts (2003) researched networks as applied to the social sciences. He stressed the importance of individual interactions, both strong and weak (small-world) relationships. These interactions strengthen the organization through the connectedness of its members as people learn through personal interactions and structure their knowledge accordingly.

Two other theorists worth noting are George Frederickson and Anne-Marie Slaughter. Frederickson, with his *Theory of Conjunction*, focused on the importance of cross-jurisdictional collaboration when it came to local, metropolitan services, like public safety, utilities and transportation. In this way, local governments are able to share expertise and pool resources to advance the entire community as opposed to an independent locale (Frederickson, 1999). On a larger scale, Anne-Marie Slaughter's *Disaggregation of Nation-State Sovereignty* reiterated the need of neighboring communities, in her case nation-states, to facilitate collaboration in specialized fields (Slaughter, 2004).

Network theory facilitates understanding of how the "pieces" fit together in complex environments. Making and retaining relationships (even if done in a small, indirect way) and maintaining flexibility and lateral ties are critical in social and professional networks. These strengths are countered by some weaknesses.

Coser (1975), for example, recognized many negative consequences of networks, including an erosion of democratic principles, promotion of groupthink, a return to "good old boy" type of hiring, and "enabling greedy institutions" (Berry, et.al.). Today, one of the largest criticisms to network theory is deficient accountability.

Unlike traditional management, there are no clear accountability measures because the traditional hierarchical structures are modified and the chain of command is distorted (Nohria and Eccles 1992, and Putnam 2000). Additionally, financial accountability, one of the most easily identifiable types in public administration, has little effect in network theory as too many boundaries are blurred. As a possible solution, Behn (2001) suggested a "compact of mutual, collective responsibility" which would be a general understanding among all participants who are

committed to a single purpose. This approach is little more than a "hand-shake" and does not effectively solve the accountability dilemma on a large scale.

Muhittin Acar and Peter Robertson researched the accountability issue at length in educational partnerships. They found eight major categories of challenges to partnership accountability. Most significant were difficulties in gaining access to information (Acar and Robertson, 2004).

Focusing particularly on emergency management, the need for informational access and open communication practices is well documented. Louise Comfort and Thomas Haase, for example, studied the network linkages of organizations involved with the Hurricane Katrina response efforts. They found that the limited capacity to exchange information resulted in the "collapse of coordination in disaster operations" (Comfort and Haase, 2006, 328). This conclusion reinforces the need for open communication when operating in a network scenario to increase accountability measures.

The connotation of accountability, however, is changing. Ronald Moe and Robert Gilmore suggested that today's accountability, to their disapproval, is focused on politically responsive performance at the expense of responsible policy implementation as defined by the rule of law. In regard to contracting out to the private sector, they suggested that "almost by design, widespread practices of [contracting out] frustrate any serious attempt to hold government officials accountable for the implementation of fundamental government policy" (1995, 141). They advocate that public administration must return to its roots in public law instead of gravitating towards what they consider laissez faire entrepreneurial practices. This perspective is supported by Laurence Lynn, Carolyn Heinrich, and Carolyn Hill through their definition of public sector governance as "regimes of laws, rules, judicial decisions, and administrative

practices that constrain, prescribe, and enable the provision of publicly supported goods and services" (2001, 7).

The governance movement not only embraces rule of law, but recognizes a fundamental shift in the way governments operate. While a hierarchy is still visibly present, the bureaucratic nature of the organizational structure is reduced. This movement reflects a morphing of network and traditional management theories.

Network theory, in its purest sense, with extensive flexibility and a flat organizational structure, does not necessarily increase governmental effectiveness or economy. Modern research indicates that a blend of both network theory and traditional management theory is becoming commonplace to provide public goods and enhance service delivery.

Keith Provan and Brint Milward stressed the importance of retaining some management theory principles in the application of network theory. In their study of four community mental health systems, they drew four conclusions: 1. "network effectiveness will be enhanced when the network is integrated, but only when integration is achieved through centralization of the network", 2. "network effectiveness will be highest when mechanisms for external control are direct and not fragmented", 3. "network effectiveness will be enhanced under conditions of general system stability", and 4. network effectiveness ranges from low to high under a resource rich environment, as compared to low to moderate under a resource scarce environment (Provan and Milward, 1995). These four conclusions illustrate the need to have a central authority within a network. This is not to suggest that a steep hierarchy is necessary, but simply that the system cannot be void of this type of structure.

Two more recent publications also illustrate the hierarchical change in governance. Carolyn Hill and Laurence Lynn wrote an article in 2004 on the decline of hierarchical

governance. After reviewing over eight hundred individual research studies, they suggested that "shifts away from hierarchical government toward horizontal governing reflect…a gradual addition of new administrative forms that facilitates governance within a system of constitutional authority" (2004, 173). Maybe more significant than this article, however, is Stephen Goldsmith and William Eggars' *Governing by Network*.

In this book, Goldsmith and Eggars spend considerable time not only explaining frameworks of contemporary governments, but how to manage networks. They recognize the accountability dilemma and suggest that there has to be an alignment of values and trust among all of the partners within the network. This approach counters traditional management theory that relied on process standardization (2004).

The full implementation of pure network theory is not practical in contemporary government environments. Instead, a combination of concepts and practices of network theory and of traditional management is undertaken. Gregory Dees, Jed Emerson, and Peter Economy elaborate on three such exchanges: coordination, cooperation and collaboration. Each concept varies in definition, characteristics and resources. The most ideal stage is a collaboration network where information is exchanged, resources are shared, and capacity is enhanced for mutual benefit, all to achieve a common purpose. This requires a full sharing of "resources, risks, rewards and responsibilities" (2002).

David La Piana and Michaela Hays identify three levels of collaboration: collaboration focused on achieving organizational goals, collaboration focused on responding to programmatic needs of clients, and collaboration focused on resolving complex community problems (2005). In each case, collaboration takes commitment to share resources, to operate from a common

understanding of core values and shared goals, to learn from each other, and perhaps most importantly, to create an environment of trust.

Robert Agranoff suggests ten lessons of collaborative networks in the public sector:

1. The network is not the only vehicle of collaborative management.
2. Managers continue to do the bulk of their work within the hierarchy.
3. Network involvement brings several advantages that keep busy administrators involved.
4. Networks are different from organizations but not completely different.
5. Not all networks make the types of policy and program adjustments ascribed to them in the literature.
6. Collaborative decisions or agreements are the products of a particular type of mutual learning and adjustment.
7. The most distinctive collaborative activity of all of the networks proved to be their work in public sector knowledge management.
8. Despite the cooperative spirit and aura of accommodation in collaborative efforts, networks are not without conflicts and power issues.
9. Networks have their collaborative costs as well as their benefits.
10. Networks alter the boundaries of the state only in the most marginal ways; they do not appear to be replacing public bureaucracies in any way (2006).

Agranoff's insights illustrate the need for networks while retaining fundamental components of traditional management approaches. Of the ten noted above, three lessons need further refinement for the emergency management context as studied through this research. In his Lesson 4, Agranoff proposed that "networks are different from organizations" because it is non-hierarchical, that is, "players at the table begin largely equal as organizational representatives,

most actions are discussed and decided by consensus, resources are multi-sourced, and there are relatively few sanctions for withdrawal" (2006, 58). In application, this may not be entirely accurate, at least with informal networks. Take for example this scenario: Local Emergency Manager 1 has a professional relationship with Local Emergency Manager 2 in a different state, brought about by training together. While they may have equal titles, if an incident occurs in City 1, Local Emergency Manager 2 is limited in what she can offer in supporting Local Emergency Manager 1 because of mutual aid agreements and other laws, not to mention the political and cultural environment in which each city operates, regardless of the resources which she has available to her or the collective agreements which they have made. In his analysis, Agranoff accurately describes collaborative partnerships where the players have the authority, both legally and administratively, to make decisions on behalf of their respective agencies, yet not all networks have that level of formality.

In Lesson 6, Agranoff correctly suggested that "collaborative decisions or agreements are the products of a particular type of mutual learning and adjustments" (2006, 59). In the emergency management field, this is a result of experiencing events, learning from them, and preparing for future, similar events. Mutual aid agreements, for example, are the result of cross jurisdictional disasters where, upon reflection, it is better to work together than to wait for the incident to affect a neighboring community. Even the identification of an incident commander, a person who is in charge at the event site, is a pre-identified collective decision. This concept is reflective of a facilitative state where social self-governance efforts collectively work to benefit a specific region.

Lesson 7, in relation to the importance of knowledge management, is of particular interest to emergency management because of the number of emergency managers and the complex

environments in which they work. It would be impossible for each emergency manager to be proficient in, for example, fire, police, medical, and public works response. Instead, they are reliant on network knowledge so that, when an incident occurs, it can be responded to in an appropriate and effective manner. Emergency managers must know the legal systems, technological resources, and personal capabilities in which they operate while also understanding the availability of outside resources and how to access them. This is done through training, both individual and group.

Understanding the design and role of networks within the public sector has evolved greatly since the 1960s, largely through organizational experiences and learning. California's experience with the emergency management system could not be possible without the networks created across and with the different levels of government. These interactions create the flexibility within the system that cannot be captured through traditional management theories. While there is still an underlying need for a hierarchical structure with commonly accepted organizational processes, networks foster the humanness to provide public services.

2.4. THEORY SUMMARY

There is no doubt that traditional management theory is necessary in today's governmental structures. After all, it provides a logical framework in which to create legal structures, organize personnel, and implement policy and command structures. Yet, this type of system lacks flexibility to respond to rapidly changing and uncertain conditions. While the military, probably the most successful organization to model this theory, is largely successful in adapting these

principles, it also has incentives and disincentives not present in other governmental entities. In that regard, another system must be in place to facilitate successful organizational development.

Organizational learning, while being a systemic way to learn from past experiences to shape how the organization responds to new conditions, is often too slow to utilize in the rapidly changing world of emergency response and relies heavily on effective leadership principles. Because emergencies can happen in a moment without notice, double loop learning in a specific new situation is too time consuming to implement in such instances. While the strategy is helpful in learning from experiences over time and in such exercises as California's statewide Golden Guardian emergency response simulation for preparedness, such reflection is too late unless it occurs prior to an actual threat or a series of threats. This is where network theory comes into practice.

Network theory provides the flexibility necessary to respond to changing and/or uncertain conditions through relying on personal interactions. It relies on a host of experts who may or may not have direct organizational links with the other respondents. For the purpose of this study, network theory is used to facilitate understanding of interagency collaboration in threat preparedness. This research assumes that the governmental approach to emergency preparedness and response, while grounded in traditional management theory that has a comprehensive organizational structure and is governed by rule of law, has learned that it must also be flexible. This flexibility, with people and systems in place ready to react, is necessary to appropriately respond to rapid, uncertain, and changing situations. This study is designed to facilitate a better understanding of what these approaches mean in intergovernmental/interagency collaborative efforts both to prevent and to respond to large-scale emergencies.

2.5. NEW THEORETICAL MODEL

The theoretical model for this study is one of structured network administration. By the very nature of the terminology, the model appears to be flawed, for how can networks that thrive on flexibility and interpersonal relationships be tied to a structured system where value is placed on efficiency, effectiveness and economy with little regard to humanness? But, indeed, this is the case. Since emergency management is of societal concern and therefore part of government responsibilities, it is inherently important to contain the structure and procedures necessary to maintain public accountability. Yet, it must retain the flexibility driven by human decisions that can overcome complexities resulting from chaotic environments. It is this necessity that makes traditional management theory at odds with emergency management.

A structured network administration combines the best components of traditional management and network analysis theories, but only through the discovery and reform process of organizational learning. Organizational learning, with information being open to all parties involved, can create a structure where lateral ties and integration form relationships across disciplines and levels of government while retaining the rule of law and hierarchy needed for effective governance. This is accomplished through true collaborative efforts where the motivating factor is to make the entire system better with an appreciative understanding that all positions, levels of government and agencies, and departments are equally important to the success of emergency preparedness and response, and without regard to personal egos that could shift the approach of these efforts.

3.0 CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY FOR EXPLORING CALIFORNIA'S APPROACH TO EMERGENCY MANAGEMENT

Building upon the traditional management, organizational learning, and network theories, this research is designed to enhance understanding of the factors that impact emergency preparedness and response within the State of California.

3.1. RESEARCH QUESTIONS

The primary question is:

QUESTION: **How can an organizational design retain both structure and flexibility to operate effectively, efficiently and economically?**

To answer this question knowledgeably, these sub-questions are addressed:

Sub-question 1: How do personal interactions, official communications, legal policies, and leadership affect emergency preparedness and response within the California jurisdictions studied?

Sub-question 2: How does the frequency of interaction impact effectiveness?

Sub-question 3: How do these factors facilitate or inhibit threat preparedness and response?

3.2. SAMPLE DESIGN

To answer the research questions, data were collected through three sources--expert interviews, surveys and professional reports. This approach was undertaken because, while each approach has strengths, all these have weaknesses that can be balanced from the other approaches. Expert interviews are excellent at collecting data that brings personal perspectives to each of the factors studied and can uncover trends that cannot be captured by the survey. Yet, the interview process is time consuming, for both the researcher and informants, and therefore, is limited in the number of experts that can be reached. Surveys can reach a broad audience of experts but is limited to structured questions that are excellent for studying broad themes but are difficult to extrapolate the subtle data that can only be reached through shifting the interview questions or following up with different research methodologies. Finally, the professional report analysis captures concrete data that bring a historical and organizational perspective in understanding the evolution of the factors studied.

Experts were identified through one of two ways: 1. their position within the organization, or 2. their reputation with in the emergency management system. Since this study looked at the entire emergency management within the State of California, experts were identified at all levels of government from the local level through the State. Figure 6 presents a basic organization chart of typical interaction across the emergency management system.

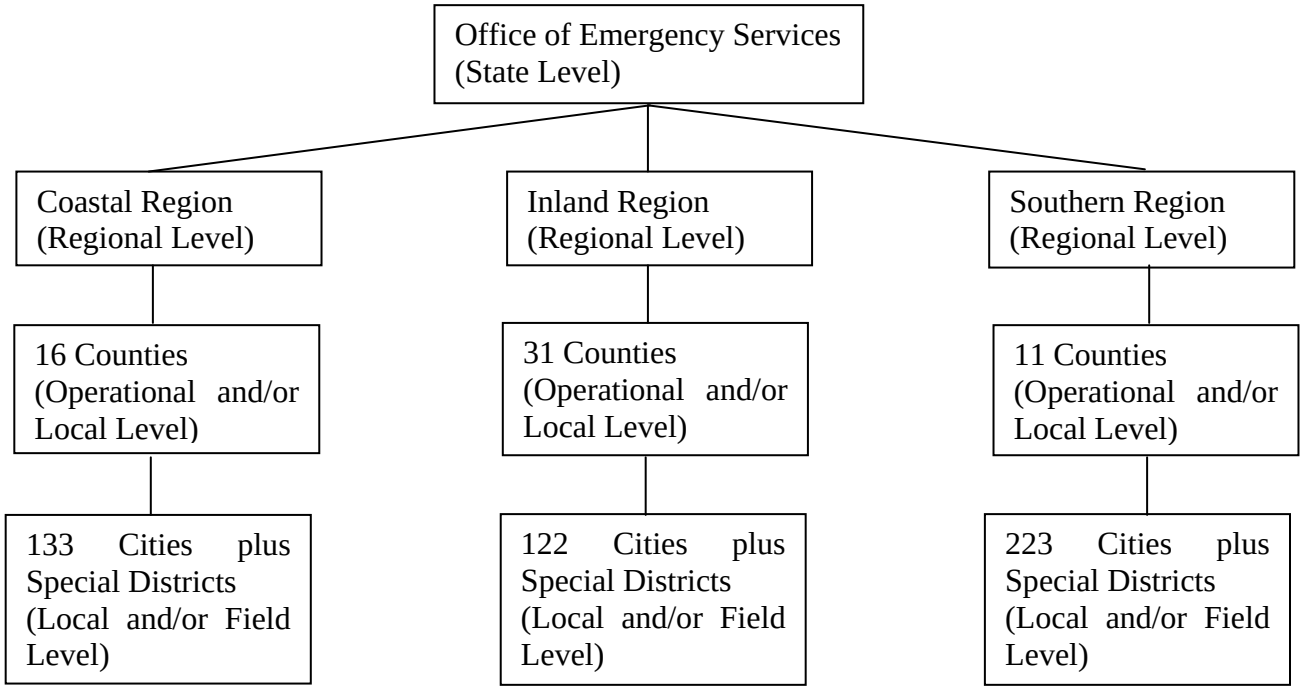

Figure 6. Basic organization chart of California's emergency management system.

(The regions were identified through the California Office of Emergency Services, and the counties and cities were identified through the California State Association of Counties.)

The State-level experts were selected based on their positions within the emergency management system. This was done not only because of their current responsibilities, but more importantly, their career-long involvement with emergency management. Therefore the Director of the Office of Emergency Services, the Director of the Homeland Security Directorate, the Director of Technological Services, and the three regional administrators were selected. (California has three emergency management regions--Inland, Coastal and Southern.) To identify county and local experts, the second approach was used.

Since there is a greater volume of county and local emergency managers, the experts were identified based upon their reputation in the larger emergency management system. To obtain a balanced view, key senior emergency managers at the State-level identified informants within each of the three emergency management regions.

For the surveys, the experts were identified by their participation in the Golden Guardian 2006 training exercises. These emergency managers participated in the planning sessions by invitation only. Therefore, the planners and consultants of Golden Guardian identified their importance to the overarching preparedness and response activities.

3.3. DATA COLLECTION/SOURCE OF INFORMATION

This research focuses on how four factors--personal relationships, official communications, legal structures, and leadership--impact California's emergency preparedness and response. To that end, qualitative and quantitative methods are employed to understand its effectiveness. Structured interviews and surveys were tested on a focus group in Sacramento prior to being used. Members of the focus group include those with professional and/or academic backgrounds in emergency response and preparedness.

Members who reviewed and tested one or both instruments included:

Dr. Louise Comfort, Professor, University of Pittsburgh

Dr. Phyllis Coontz, Professor, University of Pittsburgh

Dr. Aaron Swoboda, Assistant Professor, University of Pittsburgh

Dr. Chester Newland, Professor, University of Southern California

Dr. Ross Clayton, Dean Emeritus, University of Southern California

Dr. Dan Haverty, Chief Assistant Deputy Director, California Office of Homeland Security

Battalion Chief Jim Woodward (Ret.), California Office of Homeland Security

Sgt. Major B.J. Bjornson (Ret.), California Office of Homeland Security

Captain Dan Bout, California Office of Homeland Security

Once the final instruments were created, expert interviews were conducted with the following representatives between February and June 2007:

a. Six county disaster coordinators, representing each Regional Emergency Operation Center (REOC) district. The counties interviewed were:

    1. Placer County (Inland Region)--Rui Cunha, Emergency Services Coordinator
    2. Sacramento County (Inland Region)--Rick Martinez, Emergency Operations Coordinator
    3. Yolo County (Inland Region)--Bill Martin, Emergency Services Manager
    4. San Francisco County (Coastal Region)--Michael McKinley, Senior Emergency Planner, City and County of San Francisco, Office of Emergency Services and Homeland Security
    5. Alameda County (Coastal Region)--Jan McClellan, Emergency Services Coordinator
    6. San Diego County (Southern Region)--Karen Parker, Emergency Services Coordinator

b. Three regional administrators

    1. Inland Regional Branch--Charlie Wynne, Regional Administrator
    2. Coastal Regional Branch--Rich Eisner (retired), former Regional Administrator
    3. Southern Regional Branch--Steve Sellers, Regional Administrator

c. Three local disaster coordinators (one per region)

    1. Southern Region--Ellis Stanley, General Manager, City of Los Angeles Emergency Preparedness Department
    2. Coastal Region--Tracy Hein, Emergency Services Manager, City of Novato
    3. Inland Region--Rainer Streib, Emergency Services Coordinator, Emergency Preparedness Office Administrative Services Division, City of Fresno

d. One senior representative from each of the following State organizations:

    1. CA Homeland Security Exercise and Evaluation Program

       General Jack Hagan, Director, Homeland Security Directorate, former Deputy Director of Homeland Security Exercise and Evaluation Team

    2. CA Governor's Office of Emergency Services

       Henry Renteria, Director

    3. CA Department of Technology Services

       P.K. Agarwal, Director

While the interviewees are identified above, because of the sensitivity of the responses, an undisclosed random number is assigned to the participants to protect their identity, if directly quoted in this report. The researcher interviewed each of the aforementioned in person. The interviews were digitally recorded (audio only) and transcribed.

All attempts were made to avoid the common failings which Meuser and Nagel identified: an "expert" proving not to be an actual expert on the subject matter, an expert discusses internal matters instead of interview topic, an expert changes between role of expert and private person, or an expert providing a "lecture" instead of answering the question (Uwe, 2002, p.89). The major approach is to interview the "right" person. In consultation with CA Department of Homeland Security senior officials, the identified people were interviewed because of their positive reputation within the California emergency preparedness and response communities and their proven expertise within the field.

Surveys were conducted at final planning conferences for the 2006 Golden Guardian emergency preparedness exercise. Golden Guardian is a statewide exercise in California to test and strengthen emergency response capabilities at the local, regional, and state levels. It comprises at least three different components--seminars, tabletop exercises, and a two-day, statewide exercise. The exercises are sponsored by the California Homeland Security Exercise and Evaluation Program, California Governor's Office of Emergency Services, and the U.S. Department of Homeland Security, Office for Domestic Preparedness.

The survey was disseminated to attendees at three final planning conferences: Southern Region in San Bernardino (September 27, 2006), Coastal Region in Oakland (October 25, 2006), and the state in Sacramento (October 5, 2006). The researcher directly administered the survey at two of the conferences while a senior CA OHS administered the survey to one of the regions.

Originally, four final planning conferences were expected to participate in the survey. The fourth meeting was held in Fresno with less than ten emergency managers or coordinators attending. The researcher decided that, because of distance and time necessary to obtain the information with such a small turn out, it was not practical to survey these members.

Of the first three conferences, senior state, county and local disaster coordinators attending those meetings were surveyed, with 147 participants responding (response rate of 75% [147 responses from 196 surveyed]). The stakeholders were from these disciplines:

- Fire Service
- Law Enforcement
- Emergency Management
- Emergency Medical Services
- Public Work
- Hazmat
- Health Care
- Public Safety Communications
- Government Administration

The research instruments were created to maximize response rate and participant openness through designing and testing the instruments with academicians and governmental officials who engage in emergency management activities. In about a one-year time frame, the data were collected.

3.4. PROCESSING OF INFORMATION AND METHODS OF ANALYSIS

Data for the study was collected through semi-structured interviews and a survey.

Interviews

The interviews took place during a five-month period. In total, fifteen people were interviewed across each level of government to gain an understanding of how factors affect emergency preparedness within the State of California. Notes were taken during the structured interviews, and all of the interviews were digitally recorded for analysis purposes. The interviews were conducted in person by the researcher and lasted from approximately 45 minutes to 90 minutes. The interviews were transcribed and coded before analysis. The survey quantifies the study.

The interviews were coded using a thematic technique because group comparisons are made in relation to specific issues. The groups that were studied and the levels of government were derived from the research question on emergency management in California. The data were collected through semi-structured interviews where the same base questions were asked to each informant. This allows comparability to take place among the defined topics. This approach meets the criteria as outlined by Uwe Flick in *An Introduction to Qualitative Research* (2002).

Other coding strategies were considered but were determined not appropriate for this study. Theoretical coding, with open coding, axial coding, and selective coding, was not appropriate. Since four distinct themes were explored, no one interview would have contained enough data to warrant this approach. Had the research only focused on one area of study, then synthesizing the data through this approach could lead to a grounded theory about one particular aspect. Qualitative content analysis was not a viable option either as the categories were created based on the content of the text as opposed to the researcher identifying them before hand and then fitting the remarks into the categories.

Survey

The survey was designed and tested to take each respondent about ten to twelve minutes to fill out. The majority of the questions ranked a response on a numeric scale from zero to five to gain a better understanding of frequency and effectiveness of the interactions at different levels of state and local government. On the ranking, one (1) was "not at all" frequent or effective and five (5) was "very" frequent or effective; a zero (0) indicated that the question does not apply. The end of the survey contained six (6) demographic questions. Not all of those surveyed answered each question.

For the demographic questions, in five cases, respondents marked two responses for which sector they worked--"county" and "city/local." When entering the data, the research included those five respondents (numbers 57, 100, 128, 134 and 141 from San Francisco), as "city/local" entries. This was done for several reasons. First, these representatives came from governmental organizations that had a city/county designation, meaning the responsibilities and obligations of these two distinctions are merged into one jurisdiction as both a municipal corporation and a state administrative division. Second, the mean of their collective responses

tended to be more common with the other "city/local" respondents as opposed to the "county" respondents.

The mean, median and mode was calculated, and correlations were conducted.

There were 147 respondents to the survey out of 196 experts surveyed. The survey had a 75% response rate. Of those respondents, 28.6% were from the State level, 26.5% were from the county level, and 12.9% were from the local level. A complete list is described in Table 3.

Table 3. Frequency of Response by Sector.

SECTOR

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Response	16	10.9	10.9	10.9
	City	19	12.9	12.9	23.8
	County	39	26.5	26.5	50.3
	Federal	9	6.1	6.1	56.5
	Nonprofit	8	5.4	5.4	61.9
	Private Company	6	4.1	4.1	66.0
	Special District	8	5.4	5.4	71.4
	State	42	28.6	28.6	100.0
	Total	147	100.0	100.0	

Since emergency management is still largely a male-dominated field (although this is fortunately changing), the researcher did not seek out female-specific informants, but instead relied on the Golden Guardian planning session selection process. Approximately twenty percent of the respondents are female.

Table 4. Frequency of Response by Gender.

GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No Response	17	11.6	11.6	11.6
	Female	29	19.7	19.7	31.3
	Male	101	68.7	68.7	100.0
	Total	147	100.0	100.0	

Even though all of the respondents are involved with the emergency management system, the researcher inquired as to the field of occupation to obtain a better understanding of their backgrounds. The largest numbers of informants are involved with law enforcement (18.4%), emergency management (15.6%) and fire service (14.3%). This was expected since the focus of the Golden Guardian exercise is on-the-ground simulations that require first responders and the activation of the emergency management system.

Table 5. Frequency of Response by Field of Occupation.

Field of Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Emergency Management	23	15.6	15.6	15.6
	Emergency Medical Services	6	4.1	4.1	19.7
	Fire Service	21	14.3	14.3	34.0
	Government Agency	5	3.4	3.4	37.4
	Health Care	10	6.8	6.8	44.2
	Law Enforcement	27	18.4	18.4	62.6
	Military	10	6.8	6.8	69.4
	No Response	20	13.6	13.6	83.0
	Other	13	8.8	8.8	91.8
	Public Transportation	7	4.8	4.8	96.6
	Public Works	5	3.4	3.4	100.0
	Total	147	100.0	100.0	

The respondents were the correct group to survey as it was comprised of emergency managers from throughout the State, but it concentrated on State, county and local respondents who belong to the fields most closely associated with preparedness and response activities, namely field operations (law enforcement and fire) and emergency management.

3.5. SIGNIFICANCE

The significance of this duel approach is multifold. First, it adds to the literature on organizational theory and emergency management by investigating intergovernmental relationships that are present within a state office through concentrating on the state system from field operations to the California Office of Emergency Services. Second, this study is timely and is intended to help shape how government officials are approaching emergency preparedness. Finally, this study is intended to identify and suggest ways of overcoming barriers that thwart effective emergency preparedness and assist in organizational learning.

The number of experts who contributed data to the study was 162 (147 surveyed and 15 interviewed). Gender differences are noticeable in the field of emergency management, with just under 20% of the surveyed informants and 20% of the interviewed experts (3 female emergency mangers of 15 experts interviewed). The survey was conducted prior to the interviews that exemplified and expounded upon the critical quantitative findings. This approach, and the strong sample size, enabled specific conclusions to be drawn.

To place the study in a larger context, five hypotheses were created. The null hypotheses suggest that no relationship exists between frequency of the identified factor and effectiveness.

H_0→ There is no effect between frequency and effectiveness.

The four other hypotheses propose an interaction between frequency and effectiveness across each of the four factors studied.

H_1→ More frequent personal interactions results in increased effectiveness for emergency preparedness and response.

H_2→ More frequent official communications results in increased effectiveness for emergency preparedness and response.

H_3→ More frequent interaction with legal policies results in increased effectiveness for emergency preparedness and response.

H_4→ More frequent interaction with organizational leadership results in increased effectiveness for emergency preparedness and response.

When t-tests were done, effectiveness was the dependent variable and frequency was the independent variable as it is proposed that frequency has a direct affect on effectiveness. Correlations were calculated to determine the strength of the relationship between frequency and effectiveness of the factors studied.

This study has many limitations. First, the experts for the survey were limited to participants in the 2006 Golden Guardian statewide training exercise. For this year, it was limited to three counties and a state response. The emergency planners attended the session through invitation only, and the researcher had no influence on who participated in it. Second, interviews were conducted with experts in the field who were identified either because of their positions within their organizations or their professional expertise. Third, all of the responses are subjective and are not based on one incident. Therefore, the responses could be biased based on interpretation and a particular experience that the expert had. Given the state-wide approach, this could not have been controlled. Finally, the sample size is large in the aggregate, but smaller across levels of government. Therefore, general conclusions could be drawn from the survey results, but, when focused on a particular level of government, weaker conclusions were drawn because of the smaller sample size.

Given these limitations, a comprehensive study was still possible. The primary question could be effectively answered and new understandings of the emergency management system were concluded. The first of these understandings was about personal interactions.

4.0 CHAPTER 4: THE ROLE OF PERSONAL INTERACTIONS IN EMERGENCY MANAGEMENT

4.1. INTRODUCTION

From the very first interviews, the need for personal interactions became evidently clear. While some governmental agencies can be perceived to be "bureaucratic" and impersonal, the field of emergency management is quite different. It carries with it the need to humanize policies that directly impact communities during times of need. Therefore, personal interactions are created over time and are solidified to understand the personal strengths and abilities of counterparts in other communities and other levels of government. This is done to create a system in which resources can be mobilized effectively during times of stress.

4.2. DESCRIBING PERSONAL INTERACTIONS

When asked to describe personal interactions in emergency preparedness and response, the reaction was nearly always the same--critical. As Interviewee 1 responded, "personal interactions are probably one of the most critical aspects to responding to emergencies." Their business focuses on people, and because of that, relationships must be created before an event happens. Informant 6 said that, during trainings in which she participated, this theme was

continually reiterated--“you don’t want to exchange business cards at the scene of an event.” The operating rationale is that the system has to function collaboratively through the interactions of the different responders and officials and the initial interaction should not be at the time of the incident.

“When you’re preparing communities or organizations for disaster preparedness, response and recovery, it’s not about the plans and the documents and the tools that you have to do this, it’s about the relationships and about what you establish beforehand in communication skills and interaction with them and the personal one-on-one interactions you have with the appropriate people,” explained Informant 13.

The personal interactions allow a transfer of personal knowledge that assists in the preparedness, response, recovery, and mitigation of incidents. There has to be an understanding of how different colleagues respond to stressful environments and when they can contribute to the ultimate goals of minimizing casualties and property loss. This interaction builds trust, which is essential for effective networks to transpire, and it facilitates communication.

4.3. ON TRUST

Trust was a reoccurring theme, both through the interviews and in the literature review. Trust in the system, which is the procedures and processes found in traditional public management, was inherent. Therefore, most of the experts’ focus was on trust among colleagues to make the system work. After all, Informant 7 proposes that personal interactions are the “grease on which all business is done.” This type of trust is more consistent with relationships that are more lateral in nature. Informant 5, a local emergency planner, reflected:

> By virtue of the intensity and the focus of the police and fire department…, they're a bit less trusting of somebody that's dictating emergency management procedures [from outside the departments]. So, consequently, the interaction with individuals and the proof of trust and all the things that go along with that, the understanding of where you fit in the scheme of emergency management with police and fire departments is very important. So, that individual intercommunications and building trust with that is incredibly important…I think if that trust is built up, there's just more of an effort to [have reasonable interactions].

In developing this trust, Informant 11 said:

> I think it's a long-term process. I think part of it has to do with honesty and developing credibility with people. You tell them you're going to do something as an official that you follow through with that or have an explanation to why it can't happen. I think you have to be realistic when you're calling your promises and your assessments. You don't want to set up an expectation that can't be rightfully filled or fulfilled. I think it's just developing the ability to talk with people and to communicate on a baseline with them. Having the ability to relate to their circumstance has a lot to do with it. Coming in, in the old adage of, "Hi, I'm from the government and I'm here to help," you know, and I'm sure you've heard that before, that only goes so far and then people want you to, whether they recognize it or realize it or not, they don't want you to necessarily feel their pain, but they want you to at least understand that they're in turmoil or in trauma and act accordingly. There has to be a certain amount of sensitivity in this job. You have to understand that people are in crisis. How do you contend with that? How do you deal with that? How do you provide support for that? You can't treat people like so much cattle, you know, there's human conditions here that we have to be cognized of and aware of. They're not just statistics, you know, and that the issue of unmasking numbers on death and destruction and casualties, that's a statistical gain that's necessary operationally in situation, we need that data, but behind that we have to understand there's real human

> suffering or in a broader context, there's suffering within the environment.

This suffering causes a stressful environment in which to work. Emergency managers act quickly but they are not immune to hardships that an incident inflicts. The question then becomes, how does one operate under these conditions while still keeping focused on their responsibilities and working collectively? Informants again commented on the need for frequent interactions to create better working environments and to know who the players are before an incident occurs. Not having a working knowledge of the respondents creates unnecessary delays in an incident where literally every second counts. Informant 1 gave this example:

> [W]e just had a major fire this past September…the fire started on Bureau of Land Management land…and it transitioned from there to U.S. Forest Service land, and for a period of time, threatened State-responsibility area. So there were three fire entities potentially. BLM principally, while they have fire entities, they're not as much into the business of fighting the fire as they are managing the forests and managing the property. All of those three entities, BLM, U.S. Forest Service, and then also CAL FIRE, formerly CDF, basically had to work together very early on in that fire. It takes a little bit of time if you haven't worked with each other to figure out what capabilities and limitations you have and what the primary jurisdiction is going to allow you to do as it relates to fighting the fire. And that time naturally impacts the employment of resources because clearly from a local perspective, we were prepared with local agencies to get in and assist in putting out the fire as soon as we could, but the reality is a lot of the ground that was where the fire was burning was actually Forest Service ground. And Forest Service had, from their perspective, pretty good control on the fire and they were shaping in a certain direction. So it takes some time to get those things sorted out from not just an operational perspective, but just also a personal perspective of the firefighter who is in charge from the Forest Service communicating with

> the firefighter who is in charge from CAL FIRE communicating with any of the other local entities who were participating in the fire. Instances where we have agencies that have worked together routinely, they're usually able to get past that real quick and very, very quickly decide that, yes, I know this fire chief right here is an absolute competent incident commander and everybody knows that, all of the local jurisdictions around them know that. And so whatever he says, we're going to do and we give up that command of control very, very quickly potentially.

Informant 2 commented that more interaction leads to a better working relationship. This interaction, in turn, reduces stress when an incident occurs because the people already know each other. Stress is certainly present, but remarks from Informant 14 suggested that it may not be negative, simply part of the job. He explained that if he did not enjoy what he was doing, he would not be there, and that multiple years of training and experience allow him to react in a positive way to plan for and respond to incidents.

4.4. ON STRESS

So the larger question becomes, if the emergency management operates under a potentially stressful environment, how do the people in the field successfully operate? As Informant 7 commented, the world is a chaotic place, sometimes more chaotic than others. And in order to have the best outcome, one must *manage* the chaos and *not control* it. His approach is to

> [surround] yourself with good people, [train] as a team, [listen] to your people and [understand] early on what you really have control over and what you don't. You've got to learn what you can really control and what you can't control and what is important and what is not important, and the

> biggest part is really putting together a good team, surrounding yourself by smart people, and listening to them.

This type of interaction emerges in a variety of ways. The most evident are trainings and conferences, but certainly relationships also emerge when responding to an incident. Emergency managers also provide opportunities to build relationships outside of formal events.

Informants talked about the importance of learning from other emergency managers and training exercises. Multiple informants shared the importance of mentoring each other in both applying policies and responding to incidents. This was true with more experienced managers mentoring less experienced, but it also existed among managers who had similar years of experience. The significance of training together was also mentioned multiple times.

Responding to an incident together is another way to strengthen relationships. While the interactions that transpire during non-response times are critical in initiating and maintaining the relationships, responding to an incident reveals human characteristics that cannot be simulated during training exercises because of the intense, emotional connection to the response. As Informant 13 remarked, "Obviously when you see them under pressure and under a stressful situation, it reveals a lot about their ability to handle stress and deal with it, and you learn a lot about people by going through an event."

4.5. ON LEARNING

Learning takes place beyond responding to emergencies. Certainly there is a need to learn from each other for personal and professional development, but the organization must also learn. Learning takes place through having valid and open information, the opportunity to make

free, yet informed, decisions, and a commitment within the organizational structure to make the necessary adaptations to improve outcomes. California exemplifies these criteria and continually learns from past experiences to strengthen it's emergency response procedures. A clear example is how the system has changed over time. Prior to the 1950s, the emergency response activities took a local-only approach. In the 1950s, that began to change as the benefits of working together and sharing resources became evidently clear. That led to mutual aid agreements among neighboring jurisdictions. In the 1970s, the incident command system (ICS) identified the on-the-ground commander to facilitate incident response. By the 1990s, the Standardized Emergency Response System merged the successes of ICS with standardized equipment and operating language so that emergency managers and responders state-wide utilized the same techniques and strategies. SEMS then led the National Incident Management System to create a national strategic plan.

Organizational learning takes place through critically analyzing the response to incidents, whether through training exercises or responding to an incident itself. As a demonstration of how organizational learning takes place during training exercises, consider this example from Informant 1:

> For our mass-casualty incident exercise in 2006, that specific phase that we hosted up in the Tahoe Basin, that exercise, believe it or not, it was conducted on May 3rd and 4th of 2006, this past year, and on May 21st, we had a substantial accident on I-80. The focus of the exercise that we did up in the Tahoe Basin was on a mass-casualty incident and that specific incident we had - the scenario was such that we had a bus accident and a lot of individuals were hurt. There was a truck carrying explosives that fundamentally was highjacked and created the accident. And then the highjackers went into a building, held themselves up, had explosives and all of those types of things, so we got everybody all playing now. Don't worry about the scenario, you don't ever have to worry about that. You

just have everyone playing and you've got them doing the stuff that they need to do.

Well, on May 21st, we had three buses coming down the hill; one put on its brakes, hit a car, another one plowed in behind it, and a third one plowed in behind it. And in an instant, we had 90 casualties as a result of three buses. That same team that had played in that exercise three weeks before that fundamentally got together and managed the evacuation of 32 of those 90 casualties from that scene. The remaining 60 were not injured in any significant way and we were able to evacuate them to a shelter until further transportation could be made available by the bus company to get them back on the road and on the way. The tracking of those 30 patients, many of them were family members to the individuals who were fine and so tracking those patients was a pretty significant issue. And so we had to track all of that and make sure that we had information available. We had exercised some of that in the exercise just three weeks earlier, so it was clearly an instance where one - the same team that did the exercise managed the real incident. It was probably one of the largest mass casualty incidents that Placer County has ever participated in, and it couldn't have gone better. And clearly, the relationships that were established in that incident made a very, very big difference.

There were actually about five accidents in about a 30-minute timeframe on that stretch of I-80, the bus accident, of course, being the most significant of those. So the conditions were different and the points that came out in the after-action review following the real incident were a little bit different than the ones we experienced after the exercise.

I will tell you some of the command and control issues that we experienced during the exercise we did not experience during the real incident and there's a couple of reasons for that. One, it's very, very difficult to command and control an exercise incident on the real communications capabilities because fundamentally it's disruptive to what's going on for real out there. So there are always some observations in exercises that you always - that you write down, you take

> note of, but you're never absolutely sure that in fact if it was real that it would in fact be a problem because you're not using the real system all the time. So in that specific instance, there was enough difference in the observations that we saw in early May versus the observation that we saw on the 21st that I didn't draw a direct correlation between the two. And again, the environmental conditions were quite different as well. So, I'm going to tell you, we had not gotten to the process of fixing issues that we observed in early May so that those issues were fixed by the 21st. So there was the potential, certainly, for some of those observations that we had seen on the 3rd and the 4th to crop up again on the 21st. But the reality is we didn't see similar issues. The issues were very different. And, to be honest, the issues that we saw on the 21st were more weather related than anything else. It was a really bad rainstorm, I can just tell you that right now. And it was pretty - some of the observations were pretty simple things, simple such as making sure that you're not taking notes on normal paper in the rain because if you're tracking individual patients and where they're going on regular paper when it's raining, the ink bleeds if it gets wet.

In this instance, the training was about to identify misalignment among the senior emergency managers and responders to minimize command and control issues that existed within their relationships. Even though the actual incident occurred a few weeks later, they were able to learn from the exercise and make the administrative shifts necessary to respond quickly and effectively to a similar mass-causality scenario. The response to the actual incident would not have been as successful had the players in the training exercise not learned how to collectively improve their response efforts.

4.6. ON KNOWING ONE'S COLLEAGUES

A recurrent theme in the interviews was the need to know one's colleagues. This goes beyond generic relationships. Instead, it is a deeper knowledge of how others operate, whom they represent, and what skill sets the individuals are best capable of handling. Informant 9 suggested:

> The key, I think one of the keys in the personal interactions is knowing who is the best person to do certain things. I am not always that person, the Mayor may not always be that person all of the time, the Fire Chief may not be that person, but it may be a community leader, it may be a school teacher or a school principal that would be the person.

Clearly, thinking in those terms is incredibly powerful as it relinquishes some control to who is best at completing the mission at hand. Consider this illustration from Informant 2:

> The thing that comes to mind is there was an explosion in [City X] a couple of years ago, a pipeline explosion where [a utility district] was drilling - was putting in - there was some new pipeline being put in or fitted or something and they hit a gas main and it caused this huge explosion that killed three people I believe it was, and this is a scene versus EOC, but there were every fire and law agency showed up on the scene just because they wanted to be there to help, and a couple of comments related to that was that the people from the lead fire agency there showed up and said - man, it was nice knowing the people when we got there - and they were speaking of law enforcement and other people that they had worked with and met through this whole recent process of working together in the Homeland Security grants and trainings that we had all been doing together, so that was a comment they had made. They also, in that particular case, fire - they sent in a confined-space team to take the bodies out and the person that was the lead of that team was from a different fire agency than the two people that went in. That is

> unheard of. I was told that is unheard of. That would have never been done years ago.

In this case, it was through training exercises that relationships were formed that resulted in a different team leader to undertake the gruesome task of recovery. Because of the pre-established relationships, a collective response could be undertaken.

Informant 12 remarked:

> If we don't get the background of the people, the flavor of the situation, know what it is they represent, who they represent, why they represent them, we sometimes miss the point they're trying to make, so that personal interactions, knowing their background, knowing the fact that you're working for Company Y or Community X or city Z, and a little bit about what your perspectives are help you interact, but it also helps you define what the issue is and how it affects them so therefore how it affects them will affect you in the end result.

The more that one knows about what other colleagues offer plus the more ways in which they can interact leads to a more successful approach to an incident. In getting to know each other better, cultural differences among departments become known. Arguably the most visible are the cultural norms between law enforcement and the fire department personnel. Both are tasked with protecting the public, but commonly in different roles. Consequently, they are trained differently and have different internal cultures.

Understanding and melding these divergent approaches is not easy. It requires commitment and a willingness from senior officials to make it possible. Informant 5 suggested that there is a cultural shift taking place within departments for the requirements of staff positions. He used the example of the Fire Captain's examination.

In order to be Captain, one must complete an examination to test technical knowledge and situational judgment. The evaluation also comprises questions on emergency management.

This component is not inherent in lower rank hiring or promotion. However, the critical importance of these skill sets is beginning to change the training of these responders. Informant 5 said:

> If you take the Captain's test for the fire department, unfortunately that test is knowing the emergency management plan of the city and operations of the fire branch of Emergency Operations Center, and right now, that's all very, very foreign to 90 percent of the fire officers and police officers in the street. It's not part of their duties, but the way the world's changing, that's [changing for fire departments and law enforcement, and for] [the Department of Public Works], folks in construction engineering, Care and Shelter branches, people within those disciplines, the same thing. They have to put their emergency managers hats on and understand the collaboration and the inner operability and the human connections that have to go on to make it work.

More generally, Informant 2 illustrated a growing trend to value interpersonal relationships by suggesting that "people are starting to realize there really is a benefit to knowing who you are talking to when you go out on that scene or you are in an EOC environment." Without this interaction, Informant 6 indicated that "if you have people that are reluctant to speak to other people or they don't want to evaluate their opinion, that could definitely get in the way of doing good."

Yet, working well together goes beyond just knowing one's abilities. The importance of each of the team players must be recognized. Part of this is putting aside egos and emotional barriers that can get in the way of having a collaborative response. Informant 2 shared this story from a training exercise in which he participated:

> I had the good fortune to go through a training where they used this training tape, but then it just so happens that the pilot was the keynote speaker the next day at this conference that I was attending, and one of the things he said, and that they talk about was that not one command

> was giving during that whole episode where they were up in the air. They all worked together as a team. They put down the barriers, they put down the - I am God's gift to the world attitudes - if, you know, somebody has those, and you really need to do that in emergency management. You have to recognize that we are all an important part of the response and we all have important roles and nobody's role is more important than anybody else's. You just have to work together. I am a firm believer that if something hits that we can't - like a Katrina, that you can't possibly predict, that it is going to be team work and common sense that get you through a lot of what that is and team work is going to be critical.

Knowing colleagues is critical in establishing personal interactions that strengthen emergency response. Yet, the benefits of interactions are not without hindrances.

4.7. ON HINDRANCES

Personal interactions, as important as they are to create collective and collaborative responses, can have a negative impact when those in authority do not take into consideration the expertise in the field, the chain of command is not adhered to, certain agencies are given preference because of the relationships between people within those organizations, or emergency managers are not given the authority that they actually carry. While the informants were vague in their responses, it was evidently clear that, one, they had opinions of how personal interactions can hinder response efforts, and, two, that they experienced impacts first hand.

Informant 1 identified occasions when individuals with authority, because of their ranking within the emergency response system, can be disruptive to response efforts when they think that their approach is best without regard to other individual expertise.

> There are occasions where an individual or individuals are disruptive because of their method of communication potentially with other members of a team. The reality is there are certainly occasions where an individual has the authority and the jurisdiction to establish process or procedures as it relates to a response and, as a result, has all of the authority in the world to be in command but is doing that to the detriment of the full team, as an example. It can occur. If someone's real, real hard-headed about how something's going to get done and they are authority and they're being in charge and not taking input from any of the other technical experts that are around them, then there is potential for certain aspects to not get done and not get done right.

This description was clearly based on this manager's previous experiences. Yet, through the constant evolution of the emergency response system, the incident command system, SEMS and NIMS, as discussed in other chapters, attempts to limit this experience by creating open systems where a unified command approach can diminish some of the "hard-headedness" as suggested above.

Informant 3 took a different angle. Instead of an authoritative approach, the humanness of the system could yield preference to assisting another agency or organization with whom one has a closer relationship. They said:

> Sure, the high road would be no, we'd all do what we have to, and I think for the most part we would. We know what's got to be done. If I don't like you, I'm still going to do the best I can to assist. I think that's just being an adult when you're working. It may also make you lean towards helping another agency over one if you have a better relationship. You know, with one you're saying they need this, but as much as those relationships are there, you really have to look at what's the priority. Does this group really need it more than this group, whether I like you a lot, but this is the one that's actually got the higher priority? That's what we're trained to try and do. Being people, you can always be fallible, but that's really what you're trying to do is you're trying to prioritize what

> your resources are and not let that friendship take resources that should be going somewhere else.

Informant 5 gave a different example on the same theme. Instead of it being one agency providing assistance to another agency because of the personal connection, this example was a matter of jumping chain of command because of a perceived faster response.

> I think sometimes people take that personal interactions step a little bit too far, and rather than going on set protocols - we have a duty officer position, and our duty officer is supposed to speak to Hazmat duty officer or the emergency medical services duty officer, the City of San Diego duty officer, but a lot of times, people that have worked here for a long time, rather than going duty officer to duty officer, they'll just call their friend in O.E.S. I think that communication can be hindered that way.

Both of these examples are unfortunate because the system can only be efficient when it runs on processes that are mutually agreed upon, be it through the allocation of resources or how the work gets done. Again, attempts are made to address priorities in a fair manner through the systematic approach of SEMS and NIMS. Some examples, however, provided scenarios where, even when a structure is in place, the personal interactions can have a preferential outcome.

Informant 8, for example, provided a scenario where human resources were allocated to assist with response efforts in a training exercise, yet, because they were not direct members of the different level of government, the staff members were not utilized to their best potential.

> We have it in an exercise where typically my staff is working out of the county and I have to intervene because they don't see them as the right player. It happens pretty much in certain counties. They are not sure of the State role and responsibility even though we have trained them over the years. They end up getting our person in there and putting them in front of the computer and have them doing data entry and I have to call the Director of Emergency Operations Center and say that is not proper

> and we need to get him in the right role there and agency representative there basically.

In this case, there may simply not be a structural approach to overcome the different perceptions that may exist when emergency managers or staff members from different levels of government within the system are deployed. Informant 11 gave the most general response when they identified that:

> There is always somebody who you rub the wrong way or you stepped on their toes some place and you didn't even know it or you knew it and you stepped on their toes. There's always going to be somebody that you don't 100 percent get along with. The point is that you put that aside and work with them.

In this case, there is very little training or few policy directives that can simply overcome the human factors in the system where two people do not typically get along, but who can put aside their differences to get the job done. This is suggestive of the values inherit in the system where having a positive resolution to an incident supersedes the human factors that may cause two people to disagree.

Personal interactions can hinder preparedness and response efforts, but the system tries to minimize those occurrences, and where it cannot be mandated, the values inherent in the system overcome the pettiness that may exist.

4.8. QUANTITATIVE RESULTS

The importance of personal interactions was evident in the survey responses of 147 emergency managers. When asked to rate the frequency of interactions and their effectiveness, the results across all levels of government had the same trend. The effectiveness of personal

interactions was congruent with the frequency of interactions. Quite simply, the more frequent the interactions, the more effective they were perceived to be. This trend is true for both preparedness and response as reflected in the frequency and valid percent Tables 6 (Preparedness) and 7 (Response) and as visually displayed by box plots in Figures 7 (Preparedness) and 8 (Response).

To help make sense of the chart, the dark black horizontal line was the median response; the gold boxes on top of and/or below the median response is one standard deviation away from the mean and the vertical lines are two standard deviations away from the mean. The dots are outliers.

These charts visually demonstrate how closely related the frequency and effectiveness responses were for each level of government. To confirm the strong relationships among the variables, the Pearson Correlation was calculated. Within each level of government, a significant relationship was found at the 0.01 level for a 2-tailed test. Greater detail can be found in Tables 9 and 10.

Table 6. The number and valid percent at each level of government for personal interactions in preparing for an incident.

KEY: The original questions asked:

1A: "In preparing for an emergency, how frequent are your personal interactions with:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

1B: "In preparing for an emergency, how effective are your personal interactions with:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Personal Interactions--Preparedness															
Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	34	23.4	15	10.3	29	20.0	35	24.1	28	19.3	4	2.8	2	147	100.0
	Effectiveness	29	20.3	16	11.2	48	33.6	15	10.5	12	8.4	23	16.1	4	147	100.0
SOC	Frequency	5	3.5	10	7.1	13	9.2	45	31.9	61	43.3	7	5.0	6	147	100.0
	Effectiveness	11	7.9	9	6.4	36	25.7	17	12.1	24	17.1	43	30.7	7	147	100.0
REOC	Frequency	11	7.7	8	5.6	17	12.0	59	41.5	41	28.9	6	4.2	5	147	100.0
	Effectiveness	15	10.7	19	13.6	39	27.9	21	15.0	18	12.9	28	20.0	7	147	100.0
EOC	Frequency	34	24.3	28	20.0	31	22.1	26	18.6	15	10.7	6	4.3	7	147	100.0
	Effectiveness	39	28.5	22	16.1	40	29.2	10	7.3	8	5.8	18	13.1	10	147	100.0
FOPS	Frequency	43	29.9	21	14.6	20	13.9	33	22.9	17	11.8	10	6.9	3	147	100.0
	Effectiveness	46	32.4	26	18.3	32	22.5	10	7.0	5	3.5	23	16.2	5	147	100.0
UTIL	Frequency	14	9.9	10	7.0	20	14.1	39	27.5	38	26.8	21	14.8	5	147	100.0
	Effectiveness	16	11.3	19	13.4	33	23.2	17	12.0	17	12.0	40	28.2	5	147	100.0
NON	Frequency	14	9.7	8	5.5	23	15.9	41	28.3	38	26.2	21	14.5	2	147	100.0
	Effectiveness	22	15.3	18	12.5	36	25.0	11	7.6	20	13.9	37	25.7	3	147	100.0

Table 7. The number and valid percent at each level of government for personal interactions in responding to an incident.

KEY: The original question asked:

6A: "In responding to an emergency, how frequent are your personal interactions with:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

6B: "In responding to an emergency, how effective are your personal interactions with:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Personal Interactions--Response Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	27	20.5	16	12.1	20	15.2	24	18.2	28	21.2	17	12.9	15	147	100.0
	Effectiveness	26	19.7	15	11.4	29	22.0	17	12.9	18	13.6	27	20.5	15	147	100.0
SOC	Frequency	15	11.7	14	10.9	19	14.8	20	15.6	41	32.0	19	14.8	19	147	100.0
	Effectiveness	16	12.4	13	10.1	24	18.6	14	10.9	23	17.8	39	30.2	18	147	100.0
REOC	Frequency	19	14.5	18	13.7	16	12.2	29	22.1	34	26.0	15	11.5	16	147	100.0
	Effectiveness	24	18.3	16	12.2	29	22.1	13	9.9	20	15.3	29	22.1	16	147	100.0
EOC	Frequency	33	25.0	19	14.4	27	20.5	20	15.2	18	13.6	15	11.4	15	147	100.0
	Effectiveness	33	25.4	24	18.5	34	26.2	10	7.7	12	9.2	17	13.1	17	147	100.0
FOPS	Frequency	46	35.9	22	17.2	18	14.1	16	12.5	15	11.7	11	8.6	19	147	100.0
	Effectiveness	45	35.2	24	18.8	27	21.1	5	3.9	11	8.6	16	12.5	19	147	100.0
UTIL	Frequency	14	10.9	15	11.6	20	15.5	24	18.6	34	26.4	22	17.1	18	147	100.0
	Effectiveness	18	14.0	14	10.9	34	26.4	7	5.4	21	16.3	35	27.1	18	147	100.0
NON	Frequency	12	9.2	8	6.2	24	18.5	27	20.8	33	25.4	26	20.0	17	147	100.0
	Effectiveness	17	13.0	13	9.9	28	21.4	14	10.7	22	16.8	37	28.2	16	147	100.0

KEY: The original question asked:

1A: "In preparing for an emergency, how frequent are your personal interactions with:"
OES-California Office of Emergency Services (State)
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EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

1B: "In preparing for an emergency, how effective are your personal interactions with:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

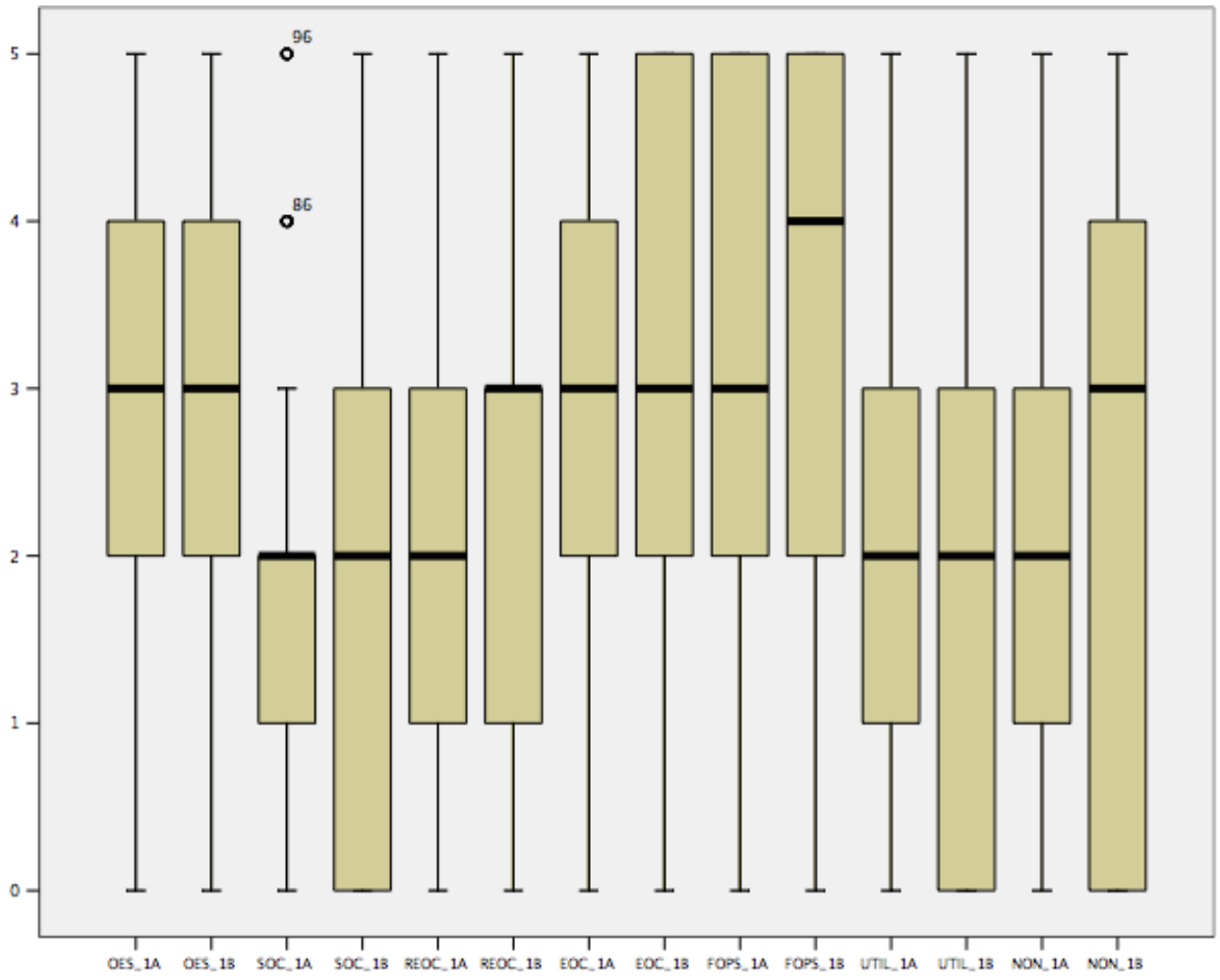

Figure 7. Personal interactions Box Plot--Preparedness.

KEY: The original question asked:

6A: “In responding to an emergency, how frequent are your personal interactions with:”
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

6B: “In responding to an emergency, how effective are your personal interactions with:”
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

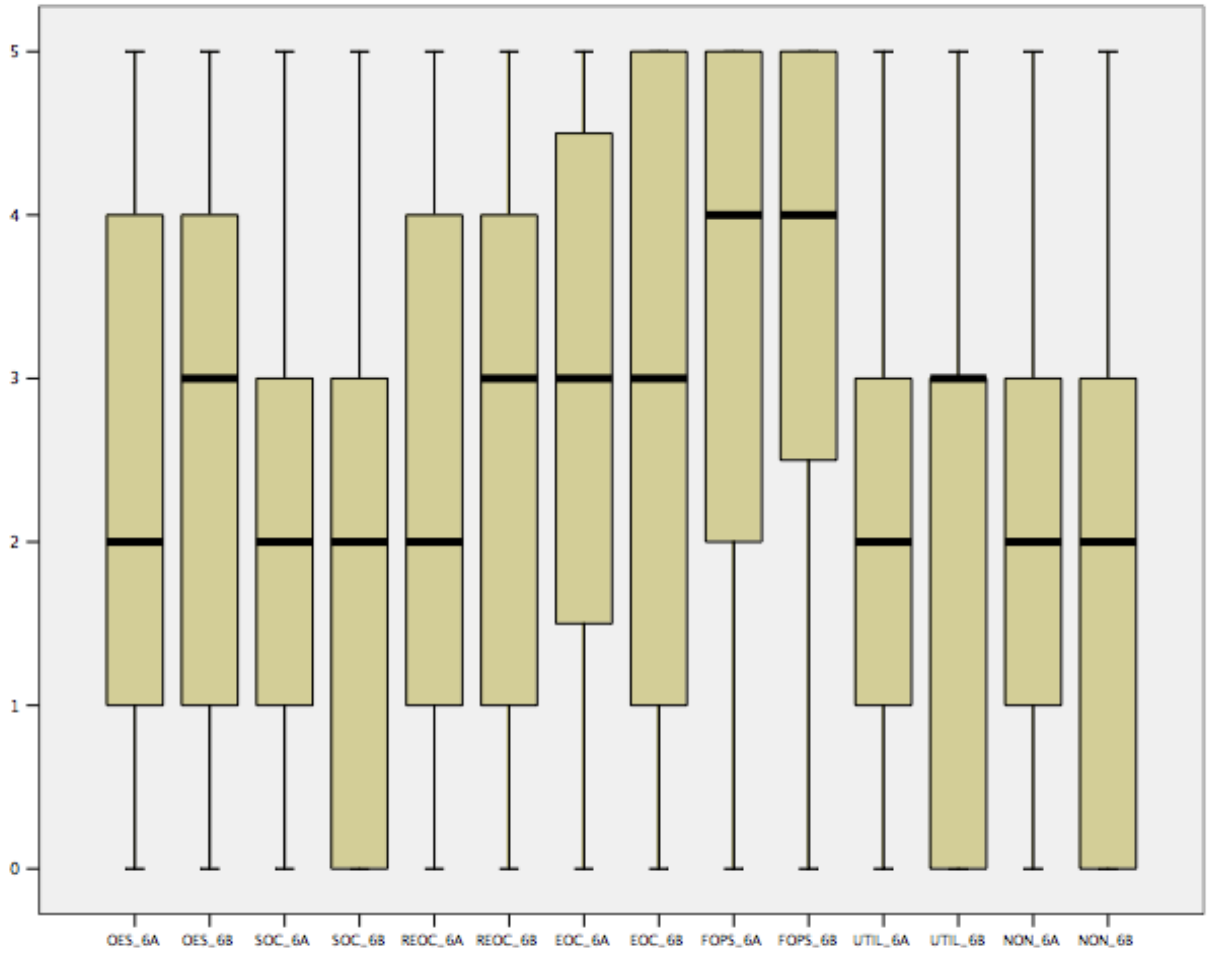

Figure 8. Personal interactions Box Plot--Response.

To look more deeply at the data, t-tests were conducted between state and county respondents. These were the only two levels of respondents studied deeper through this method as they were the largest of population sizes. From this test, eight significant differences emerged as identified in Table 8.

Table 8. Difference of means between state and county responses.

Factor	Governmental Level	Frequency or Effectiveness	Sig. (2-tailed) (equal variances assumed)
Personal interactions-Preparedness	State Operation Center	Frequency	.000
	Regional Emergency Operation Center	Frequency	.023
	Emergency Operation Center	Frequency	.000
	Utilities	Frequency	.008
Personal interactions--Response	State Operation Center	Frequency	.006
	Utilities	Frequency	.000
	Utilities	Effectiveness	.036
	Nonprofits	Frequency	.004

It is not surprising that the frequency across different levels of government is significantly different for state and county respondents. Interestingly, this difference of frequency was not found for interactions with the California Office of Emergency Services, Field Operations, and Nonprofit Organizations for preparing for emergencies. When responding to an incident, state and county emergency managers have similar frequency and perceived effectiveness across all levels of government except at the State Operation Center, where the state emergency managers have a direct role with utility companies and nonprofit organizations, where the county emergency managers would have a greater interest.

Table 9. Correlations for frequency of personal interaction and effectiveness across levels of government or sector for preparedness activities.

For PREPAREDNESS Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.680**	.000
State Operation Center (State-level)	.666**	.000
Regional Level	.694**	.000
Operational Level	.747**	.000
Field Level	.680**	.000
Utility Companies	.826**	.000
Nonprofit Organizations	.756**	.000

**Correlation is significant at the 0.01 level (2-tailed)

Table 10. Correlations for frequency of personal interaction and effectiveness across levels of government or sector for response activities.

For RESPONSE Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.883**	.000
State Operation Center (State-level)	.862**	.000
Regional Level	.794**	.000
Operational Level	.801**	.000
Field Level	.848**	.000
Utility Companies	.814**	.000
Nonprofit Organizations	.815**	.000

**Correlation is significant at the 0.01 level (2-tailed)

In analyzing the correlations, it is important to note that each level of government or sector has significant relationships. This is true with the other factors as well--leadership, legal structures and communication. In part, this can be explained through similar training activities that the emergency managers undergo and the self-selection of the group studied. But, more importantly, it illustrates the continual need for frequent interaction to receive effective results.

From comparing Tables 9 and 10 above, it is interesting to point out, that while there is significance, the relationship is stronger during response activities. This suggests that relationships are even more important when responding to incidents than during preparedness

phases. Yet, it is during preparedness activities that the relationships begin to emerge and develop.

4.9. CONCLUSION

Out of the four factors studied, personal interactions was the most discussed. How it affects preparedness and response efforts is simple--it is critical. Constructive interactions that evolve over time foster environments of trust and support that are needed when working under stressful conditions. The fundamental component of organizational learning starts at this level and strengthens as people becomes more confident in working with their colleagues. To help create this collegiality, strong leadership is needed.

Personal interactions directly affect preparedness and response efforts. The largest contribution is the creation of trust. Trust is essential in the structural procedures, including training exercises, laws, established procedures and policies, as well as in the competency of emergency managers across all levels of government. This is created through learning from past experiences and creating opportunities for emergency managers to work together. By having trust within the organization, stress of the incident can be managed through support among colleagues. This requires open relationships where all individuals understand their roles within the system, allowing the system to work as designed. As discussed in the next chapter, leadership plays an important part in this awareness.

5.0 CHAPTER 5: THE ROLE OF LEADERSHIP IN EMERGENCY MANAGEMENT

5.1. INTRODUCTION

Leadership, as with all organizations, is an important component to the success or failure of an organization's objectives or mission. Leaders create change. Informant 1 said to try "to turn a condition of chaos into a condition of normality."

5.2. ON QUALITIES

When asked to identify qualities that leaders must have, the informants gave similar responses, which were not unexpected; these stressed vision, setting goals, listening, integrity, taking charge, authority, confidence, decisiveness, and empowerment. There were also a few notable exceptions, like to "stay out of the way."

In this case, Informant 13 suggested that the system has to be allowed to work. This is not a matter of just hoping that everything will come together, but to do the necessary planning and training so that, when an incident occurs, the system can not only respond but also have the resources to do so effectively. This is not an easy task as the decision makers may have alternative ideas on what should be given priority. Informant 9 said that "it is just important that

we never settle." By this, they meant that it is important to keep moving forward and to keep fighting to improve the system.

A suggested common impression of emergency managers is a group of individuals who go charging into a response scenario as saviors who, through barking commands, will return the community to the way that it was before the incident occurred. This is very misleading. The media tends to illustrate relief efforts in this way, as in the Katrina example, where the military-lead efforts came in to save the day. Yet, California's approach is different. Their approach is one of collaborative efforts instead of seemingly authoritarian control. So for this case, the leadership in preparing for incidents is more important than the response.

Leadership qualities in preparedness activities are negotiation, facilitation, and consensus building. All of these activities must strengthen the system to let it work in an almost automated fashion when the incident occurs. This includes the training of personnel not only to know how to be responders, but also how the different agencies and levels of government work collectively and how to navigate through the system. It also includes securing enough resources, either directly or through mutual aid agreements, to be able to respond appropriately.

Informant 13 said:

> defining emergency management is also what you do before the event happens to prepare your plans, your procedures, the exercises and training that you do beforehand so that the appropriate people are trained with the skills they need to respond to. Our role is coordinating the resources that the locals need to respond to the event and also coordinating the state resources that are going to be there to respond.

A number of examples can illustrate this need, from saving a whale that became disoriented in the Sacramento River to the wildfire devastation in Southern California in the fall

of 2007. Each case demonstrates how the partnerships created in the preparedness windows between incidents strengthen response efforts.

In looking at leadership qualities more broadly, five general themes emerge that comprise a good leader--knowledge, human characteristics, personal actions, interpersonal relations, and management skill sets. Informant 11 put it this way:

> From my perspective, I think it's someone who's going to be mission driven but people oriented, that is one component of it. I think it's having a holistic point of seeing the issues, being able to grasp the issues quickly, and to act decisively, to bring forth a set of skills on decision making. You've got to be able to understand what the issues are, develop a course of action, and then see that through. I think it's having the ability to work well with others and to understand their needs and try to at least consider their needs in your decision making, that's important. And then again, that's going to be circumstantially based. Commander on the battlefield doesn't necessarily have the luxury of considering how that's going to impact above Private. You got to charge the beach. You got to charge the beach, that's the mission. Leadership's not an easy job.

Each of the informants illustrated components of each of these pillars either by directly mentioning a trait or talking about it indirectly when responding to another question. These qualities are important to create a fully formed leader. One way to visualize it, is to think of a pie where each of these broad categories is a piece as illustrated in Figure 9. Without one slice, the leader would not be complete.

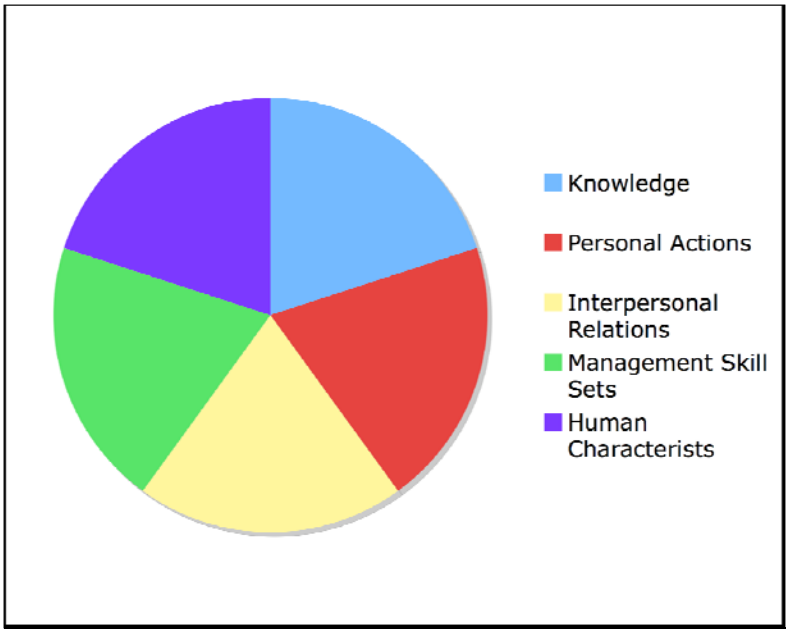

Figure 9. Interaction of Leadership Qualities.

To get a better understanding of what these broader categories include, consider Table 11.

Table 11. Leadership Qualities in Emergency Management.

Theme	Traits
Knowledge	having tactical expertise having technical expertise understanding different issue areas working knowledge of community, people, issues, and threats experiencing and participating in past incident responses knowing available resources and how to utilize them
Personal Actions	admitting when being wrong stepping up/take charge or stepping aside (whichever is the most appropriate) taking responsibility being self aware of limitations leading by example showing good judgment being decisive after considering options having a vision
Interpersonal Relations	influencing behavior for a positive result being people-oriented working well with others communicating coordinating mediating facilitating
Management Skills	knowing how to use resources seeing big picture preparing and planning evaluating showing authority clarifying objectives setting goals/agenda building from past responses/lessons working with different agencies, levels of government and sectors
Human Characteristics	being true to their core values being honest and having integrity being open being flexible and adaptive understanding having the ability to listen having the ability to learn

All of these distinguishing qualities are critical to having successful leadership abilities. Some of them, like those found in the knowledge category, are learned behaviors from being in the field. Others, like the human characteristics, are core values that tie directly to who the emergency manager is. To be a good leader, one must possess learned skills and have the inherent characteristics that allow others to trust and follow their direction. Through this combination of qualities, leaders are able to create open environments where learning from others, learning from systems, and learning from the past can take place.

5.3. ON PEOPLE

Emergency management is a human experience. People are at the foundation of the emergency management system. Leaders in the field must have a positive and trusting relationship within all levels of the organization or it will become ineffective.

Informant 11 shared:

> I think one of the main criteria of emergency management and response is people. The whole context of what we do and why we do it is predicated on how we protect the baseline population public safety issues dealing with care and safety and protection. So, I think it boils down to people and without the interaction amongst agencies and individuals that falls down. That can be a very severe missing link. It also becomes a component from the point of view of leadership and how one has the ability to perform effectively in a leadership capacity if they don't have effective interpersonal relationships with others as their counterparts, from their coworkers or even those that they're there to protect, it falls down. It's an issue of trust and continuity. So, all these are components, I think, that play a very big role in it. If you don't have effective interpersonal relationships or you can't work on that and develop the trust aspect, then

> people in leadership are going to fail in whatever they're trying to do. People won't follow them. They won't abide by what they're being asked to do.

Leaders' actions may sometime seem difficult to understand, yet, the subordinates must trust in the leaders' abilities to make appropriate decisions. There has to be a level of respect between the staff and senior administration so that the difficult decisions can be acted upon, as Informant 10 suggested.

The greatest thing that a leader must do during an incident, according to Informant 7, is to manage chaos. He suggested that the way to accomplish that is by

> [s]urrounding yourself with good people, training as a team, listening to your people and understanding early on what you really have control over and what you don't. You've got to learn what you can really control and what you can't control and what is important and what is not important, and the biggest part is really putting together a good team, surrounding yourself by smart people, and listening to them. Managing chaos is no different than establishing a great corporation and running a major corporation. It's no different than putting out a super bowl team. You can look at emergency management like a football team. You've got to do individual training, collective training, you have specialty teams, you have huge egos, you have unity of command there, you've got one coach that is in charge, he makes all the decisions or he has delegated a certain decision-making processes down to his assistant coaches.

The team approach is critical. However, it is not a matter of just putting people in positions, the team members have to be given responsibilities that they can accomplish. A person on the team who would be better suited in another position can weaken the overall effectiveness of the collective effort. This is not the individual's fault, but rather the leader who could not identify the best role for that person. Informant 13's approach to putting together

teams is “to have a group of people that surrounds me that understand and are subject matter experts in what they do.” In that way, they can facilitate a response based on individual strengths instead of trying to provide all of the answers themselves.

Managing chaos does not necessarily come naturally. Instead, leaders must emerge. The findings from this study suggest that it happens through three ways.

5.4. ON LEADERSHIP EMERGENCE

The emergence of leaders was explained through three main paths: 1. through hierarchy, 2. through individual characteristics, or 3. through circumstance.

5.4.1. Hierarchy

When thinking about leaders emerging within an organization, particularly within civil service, a natural progression is through promotion. This has many advantages, including knowing the system within which one works. In California, promotion into leadership roles is typically a combination of seniority and ability. The unionization of civil service attempts to promote the most senior qualified person into leadership roles as long as he/she is currently in the system and has the seniority for advancement.

Other approaches to create leaders within public organizations are through training opportunities, both formal, like encouraging staff to obtain higher education degrees, and informal, like offering staff training programs. For the purpose of this study, the number or types of trainings were not investigated.

Another informal type of creating leaders is through mentorship. This approach was seemingly the most common, yet was very loosely defined. In most cases, examples were given where one, more senior (not necessarily in years, but in experiences) emergency manager would mentor a less senior manager. This sometimes occurred within the same agency or department, but also occurred across departments and even geographical areas. All of these attempts appear to be encouraged within the emergency management system and, more importantly, are actively practiced.

Informant 1 shared these thoughts on mentorship:

> I think leaders have to be grown in the organization. I think leaders certainly benefit from training, but I think they benefit just as much from mentorship. Ultimately, I think that you have to invest in growing leaders. It's a pretty deliberate effort to get leaders into a position where they can actually lead. And realistically, not everybody can lead. Not everyone has the interpersonal skills that fundamentally it takes to lead. You might be able to get them there tactically so that they can tactically do the mission. You might be able to get them there technically so they've got the technical competence, but the conceptual skills that are needed necessarily to lead, i.e., to be able to work in the immediate problem, but then also to be able to look into tomorrow and into the next day, sometimes those conceptual skills are difficult to grow in a person without giving them experiences and through those experiences allowing them to create a model, if you will, in their minds for this type of a problem. Because sometimes when we think, we think about models, and so I know if I did this in this incident last time, step one was this, step two was this, step three was this, that might work this time, so let's try that. So sometimes those conceptual skills can be there. But interpersonal skills are tough to develop, as you know. But I think in general you can mentor individuals to grow into leadership-type positions. But I'll be honest, it isn't something that can be done in a day and it takes a career. It takes a career to groom someone to be a leader,

> in my mind. It's something that's got to be a deliberate effort on the part of an organization.

Either through direct hierarchical channels or through a mentorship scenario, a common approach for leaders to emerge within an organization is through organizational structures. This research also identifies two other approaches--personal charisma and circumstance.

5.4.2. Personal Characteristics

Leaders emerging through personal charisma fall in line with the mentality that some leaders are simply "born." In this case, some people are seen to have the natural talent of leading without the need to be taught how to lead. Instead, it relies on the individual to have a strong work ethic, to make sound decisions, and the ability to see what needs to be done and to do it.

In thinking about this separation from the typically hierarchical approach, Informant 4 said:

> I think there's a difference between leadership and hierarchal authority. Hierarchical authority is appointed and is elevated based on - I'm not - by political clout. So, we have a director who's - who should have credibility because he came from local government, who virtually has - he has legal authority, but he has no moral or professional authority left in the agency because he's been jerking people around. We have a Chief Deputy Director, who was appointed by the Governor, who knows nothing about emergency management, who's a political operative, who has no moral or professional authority or leadership, but he has the authority to order us all around. So, that's - that's occurring…. I think leadership has evolved from professionalism, it's evolved from people doing their job, it's evolved from people protecting their staff from unreasonable demands, it's setting - by setting an example of both stepping up and anticipating what needs to be done and doing it and supporting your staff. And it's sort of like you build a relationship with -

> down the hierarchy and then you're able to, in fact, lead that - those people in the hierarchy forward. You can't do it by authority.

Although there seems to be some individual dynamics that create great leaders, this research is limited in studying them, other than identifying that the perception exists.

5.4.3. Circumstance

Besides leaders emerging through traditional hierarchical structures, circumstances also influence who is perceived as a leader. Many of the informants noted the importance of actually being part of a large incident. Many subtleties cannot be simulated, most notably the stress of responding to a large-scale incident when it affects the very community, and quite possibly, the home in which one lives. Being part of an incident response creates pre-established credibility, according to Informant 10, as the individual needs to navigate the response system when balancing the humanness of the event.

Perhaps more fundamental, though, are remarks expressed by Informant 8 who suggested that one must actually go through an incident to truly understand what needs to be done and how to do it. Concern lies in the fact that many current emergency managers have not gone through a large, multi-jurisdictional incident so their response capabilities would be limited to what they were trained to do and they are reliant on the relationships that they have created.

One final note on circumstance, some leaders emerge when an incident occurs, even if they would not have previously been seen as leaders within the organization. As Informant 11 said:

> I've seen leaders that one would not normally consider being a leader rise to the occasion. I think we have multiple evidences of that in regards to disasters themselves. We see people rise to the occasion.

Based on limitations of this study, leaders were perceived to emerge through three different ways: organizational structure, personal characteristics, and circumstance. Of these, the organizational structure and circumstance tend to create the largest number of leaders as they are both trained and tested to respond to incidents.

5.5. ON POLITICAL LEADERSHIP

From the physical reactions of the informants when asked about political leadership, it appears to be a very sensitive topic with a lot of opinions. Most of the informants talked about it in general terms, if at all, but a few informants gave good examples not to criticize political leadership, but to illustrate examples and stress the importance of understanding timing when responding to an incident and the need to let the system work without trying to tweak it during an event.

Informant 13 provided an example where political leadership insisted on taking a “photo op” relatively soon after a portion of a freeway collapsed. Two days after the incident, a prominent politician wanted to be visible at the site while rescue efforts were still underway. For security reasons, the efforts had to stop. The impression at the time was that there could not be more survivors because so much time had lapsed since the incident occurred. But, in actuality, there was a survivor who was found on the fourth day. Had the rescue efforts not stopped for the previous day, Informant 13 felt that the person could have been found one day sooner.

Another example was from Informant 4, who expressed frustration over a governor who requested a large amount of information that was not easily attainable while response activities were taking place. In this scenario, a large flood had impacted multiple communities. While the

emergency response procedures were activated, the governor requested a list of all the mayors with contact information so that he could personally connect with them and offer support. The request seemed innocent enough, but there were a few drawbacks.

First, the information was not easily accessible. At the time, needed information had not been previously collected, so that large amounts of staff time about who should have been involved with recovery efforts were required to fulfill the governor's request. This obviously caused resentment because another informant at a different level of government also commented upon the request.

Second, in some cases, the mayor was not the best person to contact. Because local government administration structures vary, like a *Weak-Mayor Plan, Strong-Mayor Plan, Commission Plan, or Council-Manager Plan,* contacting the mayor of each city to offer support may not have been the best approach to assess need or promise resources. In some cases, contacting the city manager, for example, would have been more appropriate when the mayor is simply a figurehead.

Finally, when the governor made the calls, he promised resources that were not originally intended to be allocated to the specific communities. In this instance, it is a matter of having limited resources and allocating them based on need. By the governor having side conversations outside of the collective emergency response, resources were committed, which could have had a larger impact somewhere else.

The balance between political leadership and the emergency manager leadership is delicate as both sides need each other. Yet, especially in times of response and recovery, the emergency management system must be left to work as intended. That way baseline order is brought to an already chaotic environment.

5.6. QUANTITATIVE RESULTS

Similar to personal interactions, the frequency of leadership and its effectiveness go hand in hand. As reported in Tables 12 and 13 and illustrated in Figures 10 and 11, the frequency of interacting with OES's leadership in preparedness is essentially the same type of reaction as to its effectiveness. In this case, the mean is "effective." The mean shifts, however, when looking at the frequency and effectiveness of working with the State Operation Center or regions. While the mean of frequency is "less frequent," the mean of effectiveness is "effective." Part of the difference in reaction could be attributed to how the State becomes operational.

The State Operation Center is activated when a large, multijurisdictional incident occurs. Therefore, most emergency managers have little interaction with the Center until it is activated. That could explain why although there was little frequency of interaction, it was effective.

Table 12. The number and valid percent at each level of government for leadership in preparing for an incident.

KEY: The original question asked:

4A: "In preparing for an emergency, how frequent are your organization's direct interactions with leadership at:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

4B: "In preparing for an emergency, how effective are your organization's direct interaction with leadership at:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Leadership--Preparedness																
Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	18	13.0	20	14.5	35	25.4	27	19.6	26	18.8	12	8.7	9	147	100.0
	Effectiveness	21	15.2	20	14.5	46	33.3	14	10.1	21	15.2	16	11.6	9	147	100.0
SOC	Frequency	9	6.7	8	6.0	26	19.4	27	20.1	40	29.9	24	17.9	13	147	100.0
	Effectiveness	11	8.2	10	7.5	37	27.6	13	9.7	27	20.1	36	26.9	13	147	100.0
REOC	Frequency	11	8.1	14	10.3	30	22.1	37	27.2	28	20.6	16	11.8	11	147	100.0
	Effectiveness	18	13.2	13	9.6	46	33.8	13	9.6	20	14.7	26	19.1	11	147	100.0
EOC	Frequency	35	25.9	22	16.3	25	18.5	20	14.8	16	11.9	17	12.6	12	147	100.0
	Effectiveness	33	24.6	23	17.2	42	31.3	7	5.2	9	6.7	20	14.9	13	147	100.0
FOPS	Frequency	38	28.4	21	15.7	24	17.9	22	16.4	16	11.9	13	9.7	13	147	100.0
	Effectiveness	33	24.8	22	16.5	40	30.1	9	6.8	11	8.3	18	13.5	14	147	100.0
UTIL	Frequency	8	5.9	12	8.9	17	12.6	36	26.7	35	25.9	27	20.0	12	147	100.0
	Effectiveness	11	8.3	12	9.0	32	24.1	14	10.5	25	18.8	39	29.3	14	147	100.0
NON	Frequency	10	7.4	14	10.3	23	16.9	25	18.4	35	25.7	29	21.3	11	147	100.0
	Effectiveness	14	10.4	14	10.4	28	20.9	16	11.9	22	16.4	40	29.9	13	147	100.0

Table 13. The number and valid percent at each level of government for leadership in responding to an incident.

KEY: The original question asked:

9A: "In responding to an emergency, how frequent are your organization's direct interaction with leadership at:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

9B: "In responding to an emergency, how effective are your organization's direct interaction with leadership at:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Leadership--Response																
Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	25	19.5	14	10.9	29	22.7	27	21.1	21	16.4	12	9.4	19	147	100.0
	Effectiveness	27	21.3	16	12.6	29	22.8	14	11.0	24	18.9	17	13.4	20	147	100.0
SOC	Frequency	12	9.8	12	9.8	26	21.1	25	20.3	33	26.8	15	12.2	24	147	100.0
	Effectiveness	18	14.6	13	10.6	28	22.8	10	8.1	26	21.1	28	22.8	24	147	100.0
REOC	Frequency	17	13.7	14	11.3	25	20.2	26	21.0	31	25.0	11	8.9	23	147	100.0
	Effectiveness	19	15.2	19	15.2	33	26.4	7	5.6	24	19.2	23	18.4	22	147	100.0
EOC	Frequency	33	26.0	23	18.1	26	20.5	18	14.2	15	11.8	12	9.4	20	147	100.0
	Effectiveness	33	26.2	23	18.3	36	28.6	7	5.6	11	8.7	16	12.7	21	147	100.0
FOPS	Frequency	37	29.4	24	19.0	26	20.6	12	9.5	15	11.9	12	9.5	21	147	100.0
	Effectiveness	35	27.8	25	19.8	32	25.4	7	5.6	12	9.5	15	11.9	21	147	100.0
UTIL	Frequency	10	8.1	13	10.5	20	16.1	23	18.5	34	27.4	24	19.4	23	147	100.0
	Effectiveness	14	11.3	9	7.3	33	26.6	8	6.5	26	21.0	34	27.4	23	147	100.0
NON	Frequency	10	8.0	14	11.2	17	13.6	23	18.4	33	26.4	28	22.4	22	147	100.0
	Effectiveness	12	9.6	11	8.8	29	23.2	12	9.6	23	18.4	38	30.4	22	147	100.0

KEY: The original question asked:

4A: "In preparing for an emergency, how frequent are your organization's direct interactions with leadership at:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

4B: "In preparing for an emergency, how effective are your organization's direct interaction with leadership at:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

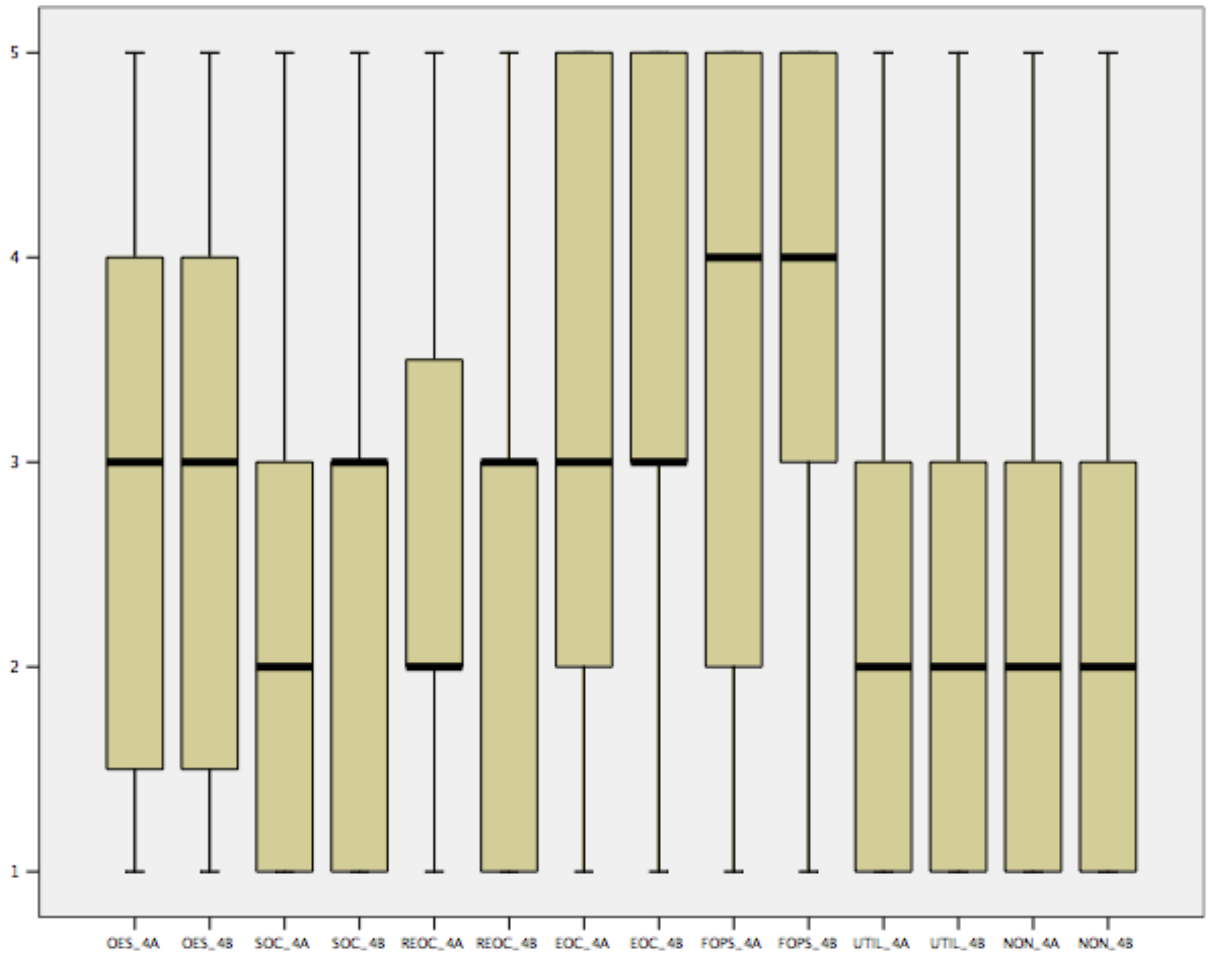

Figure 10. Leadership Box Plot--Preparedness.

KEY: The original question asked:

9A: “In responding to an emergency, how frequent are your organization’s direct interaction with leadership at:”
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

9B: “In responding to an emergency, how effective are your organization’s direct interaction with leadership at:”
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

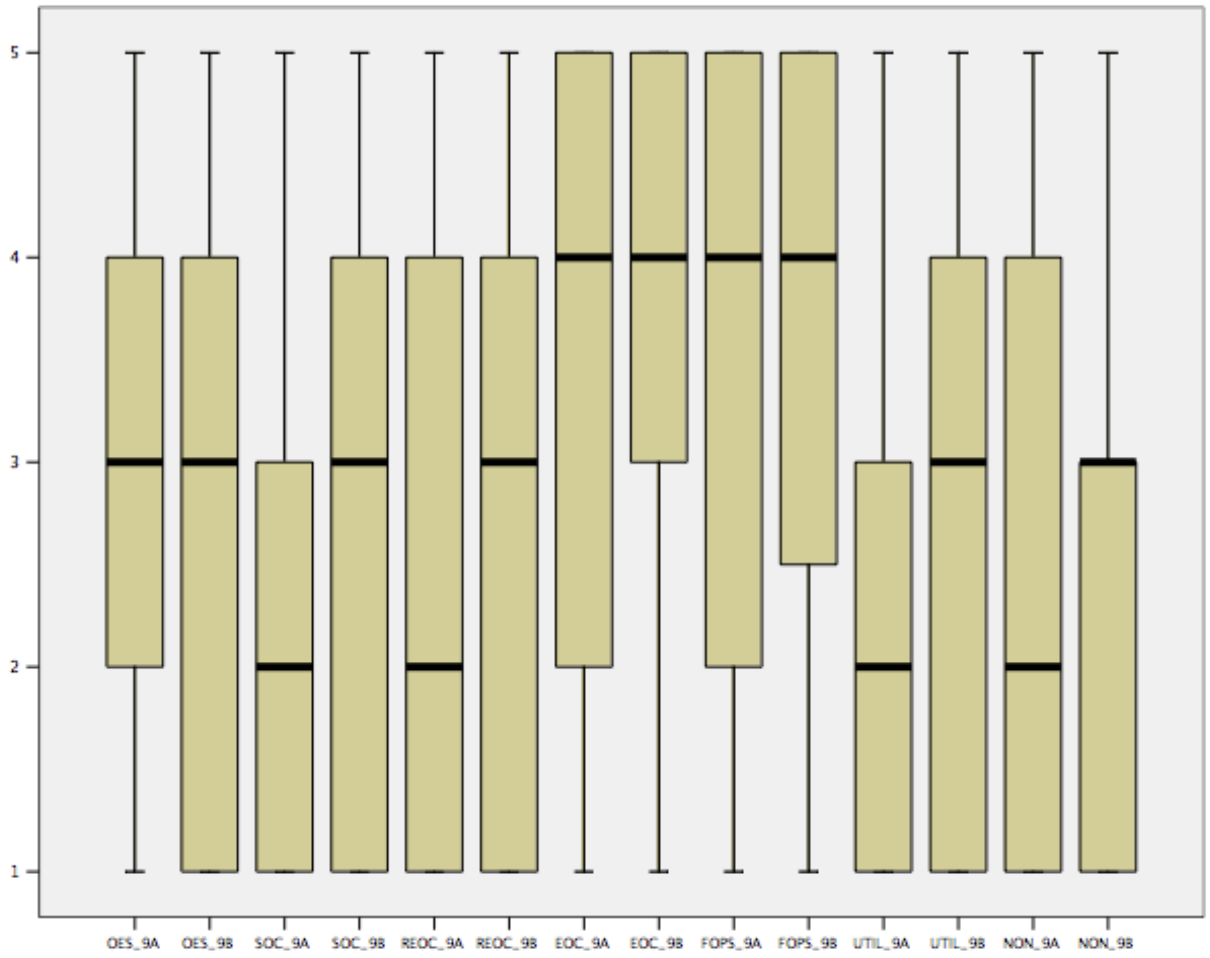

Figure 11. Leadership Box Plot--Response.

Similar to the correlation results for personal interactions, the correlations between frequency of interaction and effectiveness are significant across all levels of government and sectors. In these cases, the strength of the relationship is similar during both preparedness and response activities, suggesting that there is equal need for strong leadership practices at all times, regardless if it is during the preparedness or response stages. The correlations for each level of government and sector are identified in Tables 14 and 15.

Table 14. Correlations for frequency interacting with leadership and effectiveness across levels of government or sector for preparedness activities.

For PREPAREDNESS Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.782**	.000
State Operation Center (State-level)	.818**	.000
Regional Level	.798**	.000
Operational Level	.811**	.000
Field Level	.819**	.000
Utility Companies	.806**	.000
Nonprofit Organizations	.807**	.000

**Correlation is significant at the 0.01 level (2-tailed)

Table 15. Correlations for frequency interacting with leadership and effectiveness across levels of government or sector for response activities.

For RESPONSE Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.755**	.000
State Operation Center (State-level)	.738**	.000
Regional Level	.818**	.000
Operational Level	.839**	.000
Field Level	.854**	.000
Utility Companies	.898**	.000
Nonprofit Organizations	.896**	.000

**Correlation is significant at the 0.01 level (2-tailed)

5.7. CONCLUSION

When inquiring as to how leaders emerge within the organization, similar themes to the personal interactions were illustrated, like experience, relationship building, training exercises, and demonstrated professionalism. This leads to the importance of developing leaders from within the emergency management field who know the intricacies of the system instead of bringing in people from outside the organization to lead it.

Strong leadership practices create strong preparedness and response activities. The opposite is also true. Without strong practices, the emergency management system would simply not work. By having leaders that have the knowledge of how to prepare for and respond to incidents, the personal actions of setting the example and taking responsibility, the interpersonal relationships to communicate well and influence behavior for positive results, the management skills to work within the confines of the system, and the human characteristic traits of core values, the system has the human direction to retain the flexibility to meet chaotic conditions. Leadership has a direct effect on whether or not the emergency management system works when it is needed most, and that effect, while seen when an incident is taking place, is more important during the preparation and anticipation of an incident.

6.0 CHAPTER 6: THE ROLE OF LEGAL STRUCTURES IN EMERGENCY MANAGEMENT

Legal structures create the framework in which emergency management can take place. As discussed in the Contextual Framework, California's emergency preparedness and response procedures are a direct result of the large-scale incidents that impact multiple jurisdictions and communities each year. Through organizational "Model II" learning, California was able to adapt its preparedness and response because of the valid information, free and informed choices, and internal commitment that is inherent in the emergency management system. Part of this evolution is how SEMS and NIMS are applied in its current approach, but mutual aid agreements are an integral part of this system.

Mutual aid agreements are easily seen across fire departments and law enforcement departments in neighboring jurisdictions. The California Master Mutual Aid Agreement clearly specifies how resources can be utilized, and how the agreements are to be funded. These agreements are flexible, and they require trust and relationships to be successful--trust to know that they assure support, and relationships to understand what resources and abilities are available when an incident occurs. This is consistent with Behn's approach to collective responsibility (2001).

Legal structures go beyond policies that define operational procedures. Legal structures also affect funding. Because they are a societal responsibility, emergency management

operations are publicly funded. At the local level, this is generally through city allocations; at the state level, state funds, etcetera. Consequently, there is a political component on what type of funding is provided, the consistency of that funding, and when it occurs. As demonstrated after 9/11 and Hurricane Katrina, a lot of funding is allocated to emergency management after an event occurs. Yet, the restrictions and types of funding are less than ideal. Current federal grant monies heavily focus on purchasing equipment and training exercises dedicated to terrorism. In a state that is constantly faced with natural disasters, allocating funding in this way is misappropriated because it does not realistically address the imminent threats.

Some people say that how one prepares for a terrorist threat relies on the same systems as preparing for a natural incident. In part, this is true. But the type of equipment, its mobilization, and other resources needed to successfully address the incident, not to mention the intelligence requirement, varies greatly. Allocating funds to purchase specialized equipment despite sufficient resources regionally is unwise when funds could be used to create sustainable programs with the necessary staff additions. Yet, grants tend to focus on tangibles rather than personnel. This may be appropriate for other states, but in California, the need is not as much on equipment but rather on the staff to make the system work. While there are some grants that permit investments in enlarged staff, the general impression is that it has to be used towards equipment or the training of existing staff.

During the interview process, while the initial line of questioning did not specifically inquire about staff shortages, half of the informants brought it up. They believe that, at all levels, staff shortages are having a negative impact on the emergency management system. Part of this impact is the focus of staff to be grant writers and managers instead of being able to make the human connection with other counterparts and levels of government that make a collaborative

response possible. Additionally, emergency management still takes a reactive approach to incidents. Instead of being proactive in assessing and mitigating threats before they occur, staff shortages result in skeletal operations. This has led to increased daily stress among current managers and, at least at the regional level, has resulted in more experienced personnel leaving their positions.

In small-scale emergencies, the staff shortage may not be a big deal. But, if a large incident occurs, this could drastically affect the response and recovery efforts. In the current system, when a large fire occurs, personnel and resources are deployed from throughout the state and sometimes beyond. This approach works because all of the California fire personnel utilize the same type of equipment with very specialized jobs. In emergency management, this cookie-cutter approach cannot work. Since emergency management is most effective through personal connections and interactions, planning to bring in emergency managers from unfamiliar areas may cause delays in response activities. Actions, therefore, must fit the local context. A common set of laws and procedures helps in creating this match of emergency services and the local context.

6.1. DEFINED

When asked to define legal structures in emergency management, many of the informants identified key structures, like the mutual aid agreements, Standardized Emergency Management System, or the National Incident Management System. The legal structures in California have evolved over time and have been well tested.

One of the earliest collective efforts was the Emergency Services Act that began in the 1920s and continues today. The most recent Act, adopted in 2006, required jurisdictions to 1. provide state assistance, 2. recognize the state Office of Emergency Services, 3. assign functions of state agencies during an emergency, 4. provide for the rendering of mutual aid, and 5. create the necessary organizational structures to carry out the provisions of the Act (California Emergency Services Act, 2006).

The legal environment has evolved from each community responding to incidents independently at the turn of the 20th Century to a greater collective response through mutual aid agreements and standardized procedures. Informant 4 explained:

> Well, in California, we have a very mature legal structure going back to the 30s and 40s and probably peaked in the 50s. The Emergency Services Act gives the Governor the authority to declare a state in a State of Emergency. It gives local jurisdictions the authority to declare local states of emergency. It creates a - it gives power, extraordinary powers, beyond - if a local or the State declares an emergency, the Governor can do virtually anything he wants to do, as can a local government administrator. They can waive contracting laws. They can waive things like setting up shelters in buildings that aren't ADA accessible. They can waive [California Environmental Quality Act (CEQA)] requirements for environmental review. If we have to move a million tons of debris and we needed to dump it someplace, the Governor can say, we're in a state of state of emergency, you have the authority to do that without a CEQA review of the impact. So, all those things are directly related back to the Emergency Services Act, which is probably, short of Florida, the most mature statement of emergency management and responsibilities in the whole thing. And the other elements of that, which go back to the 50s, a master mutual aid agreement which is - was signed by Governor Earl Warren, going back to I think 1953 or 54, and all the cities and counties in the State, and it was an agreement that the Governor has the authority, with some limitations, to reallocate

> government resources across the state if there's a state of emergency. And there a lot of - certainly Louisiana and Mississippi didn't have that authority. A lot of states don't have a master mutual aid agreement…but California does and has for 50-plus years, and it's exercised daily. Fire mutual aid across jurisdiction boundaries and the key to it is has been always, if there's a critical need, you'll get the resources without the expectation of reimbursement. I need it, you got it. We will loan it to you, you give it back to us. We won't reimburse you. If it's an extended situation, a fire siege, just for example, there are provisions that say after 12 hours, the State will reimburse the costs.

During the interviews, the conversation went from identifying types of legal structures to the identification of their importance and the realization that the frameworks were necessary for emergency managers to be able do their jobs. Informant 12 simply stated, "legal structures assist and allow people to do their jobs."

Informant 14 took it a little further by clarifying authority and how policies become routine over time. He said,

> laws provide us with the general authority and when you're out there trying to respond and recover effectively, those degrees of ambiguity over the years, because they defined the legislation, everybody has a pretty clear authority. Then the authority is further given, as in the instance of the California Emergency Services Act, it empowers the Governor to respond in certain ways, as well as local government. It tells the Governor and provides him with the authority to waive regulations, to redirect budget, already budgeted funds for the emergency, it provides authority for OES to task State agencies to respond. Those are so ingrained; people don't even look at them as authorities any more. It's just routine. The policy has become routine which is where you want to be because that means that you're making decisions based on authorities and based on relationships and getting it done.

There was also a commentary about the need for legal structures to create an environment of accountability. Informant 9 remarked,

> I never thought I would say this, you have to have some structure in place so that you have a way of accountability, so that you have a way that, after the fact, you can get what is due you in a reasonable fashion.

In California's emergency management system, the legal structures provide the common language and procedures that are used across all communities while maintaining the necessary flexibility to adapt response activities to meet the challenges posed in each individual incident. This point is critical. While the legal structures must be in place, it cannot become so restrictive that the organization no longer has the elasticity to apply legal intent to a broad range of similar incidents, given the variety of environments in which the laws have to be enforced.

Even when asked if there were too many laws which could limit the response, the overwhelming response was "no." One informant suggested that there might even be need for additional legal frameworks if it resulted in further standardization of policies and procedures across all communities. In the thematic coding, four more response trends emerged: national response plan, local implementation, understaffing, and funding.

6.2. ON NATIONAL RESPONSE PLAN

Informants often commented upon the national response plan, specifically the National Incident Management System (NIMS). Informants from the counties spoke about it the most, often saying how important it is to standardize policies and procedures. They saw it as a copy of California's Standardized Emergency Management System (SEMS). Yet NIMS was critiqued for a number of reasons.

There is an underlying opinion that NIMS focuses too heavily on field response and not enough energy is spent on overarching emergency management procedures. Informant 1 indicated that NIMS was useful but went further to say that "emergency management is not the same as field operations." Informant 8 from the regions suggested that NIMS is too specific at the local level. And, there was concern from another informant that NIMS may become too restrictive by not taking into consideration the varying environments in which an incident may take place. This includes the type of incident, who it affects, and what resources are available to respond.

The larger question, however, is the role of staffing. There was a concern between two county informants that not enough time is devoted for the effective training of staff to meet the federal requirements. It is unknown if this is a more general problem or just isolated occurrences.

6.3. ON UNDERSTAFFING

When talking about legal structures, the need for more staff became increasingly apparent particularly in the counties and regions. There was an appreciation of mutual aid systems and emergency managers responding to incidents even if it was outside of their normal jurisdictions because of such agreements. But, if a large-scale incident occurred outside of a fire scenario, there was increasing concern that the system may not be able to handle it effectively.

Under the current structure, when an incident occurs and more personnel are needed, the mutual aid systems go into effect. Responders from one area are deployed to where the incident is occurring. This type of response is most often seen with wild fires.

As recent as late October 2007 when 23 fires plagued Southern California, a large-scale, state-wide effort was put into effect to quickly contain the destruction. Fire fighters from throughout the State were deployed through the CALFIRE system. California fights fires really well. The concern arises on how to mobilize similar efforts when the incident is non-fire related like a massive earthquake or health pandemic where different resources and skill sets are needed.

The informants remarked consistently that they felt that they were understaffed. Some of the critique came from how the counties and regions were staffed prior to major financial cut backs in the late 1990s and early 2000s. In some situations, this reduced staff by as much as 62% with the number of emergency manager and staff positions being cut from 26 to 10 in five years according to Informant 4. This dramatic cut limits the number of personal relationships that can be developed and fostered, a critical component to emergency management as discussed in Chapter 4.

Informant 8 commented that "it is really hard for us to do an effective job in working with [non governmental organizations] the way we should be doing given the staff capabilities that we have." This not only affects working with NGOs, but other departments and levels of governments as well. To compound the issue, there is a feeling that the current staff are bogged down with administrative requirements that keep them from expanding the role of the county and region because personnel are confined to processing paperwork--especially in regard to applying for grant funding.

6.4. ON GRANTS/FUNDS/FINANCING

Funding is always a concern as it directly affects what type of vision an organization can implement. The emergency management system in California is no different. Dramatic budget cuts at the State level have had a trickle-down effect into what can be accomplished at the regional, county and local levels. Yet, the system still seems to work. This may be a façade, and time will tell its true impact.

The allocation of financial resources has always been a political challenge as different initiatives take different priorities in any one-year for a limited amount of public funding. This is true at all levels of government. As Informant 5, a local emergency manager said,

> The budget is politically driven, if there are other needs that have to be taken care of by the budget, then Emergency Services may not get what we need. Yes, the political influence is very, very powerful in the city. I think we saw a lot of that with the President of our Board of Supervisors, very focused on emergency preparedness.

The consequence of decreased State funding is the reliance on federal grants to provide equipment, training resources, and occasionally staff resources. One of the downsides to this approach is that it does not allow learning to take place within the organization. Instead of allocating resources that would better strengthen the system over the long term, financial resources are used to "buy toys" as commonly remarked. Emergency managers tend to suggest that there is a priority to purchase equipment, whether needed or not, because that is where the funding is. In California's system, there tends to be less need for physical equipment because of the mutual aid systems in place. Instead, the money could be used to develop staff connections that would allow a more flexible system.

To receive funding, it is almost as if emergency managers must play a game to label training exercises and equipment purchases to assist preparedness and response against terrorism even though natural disasters pose a more imminent and realistic threat. In some cases, this re-labeling of how the funds will be used may cause the organization to lose focus on the original intent and purpose of the funds. Additionally, so much time is spent on grant applications, that it leaves little time for emergency managers to actually be emergency managers. Instead, they are forced to spend exorbitant amounts of time completing administrative roles instead of spending time building relationships or creating long-term strategies. As Informant 14 responded:

> Yes, the money is directed toward terrorism and away from everything else. And you basically have an attempt right now to say all hazards. And here's what happens. We're going to do an all-hazards exercise, 75 percent of the issues are terrorist related and 25 percent are earthquake related, but we've addressed all hazards. So it's a semantic game. We're going to address all hazards. Funding with everything is - there hasn't been a terrorist incident in a while. You should check to see how much money is being devoted to terrorism…Well, it becomes very difficult to ask the local governments to do things when the amount of time and effort that's taken to apply for a grant exceeds the amount of money you're going to be getting. I don't know whether you've heard that from locals, but I heard it all the time that we are spending an enormous amount of time being grant managers, for which we get very little money to do the grant management part.

In expressing their frustration about how the funds are applied for and allocated, Informant 11 said:

> It's the focus of how the monies are being applied and the schism up at the federal level as to what isn't important, where are we trying to pull this all together, is what I'm saying. They have separate funding streams and the problem is that nobody's collecting that and saying okay, that's fine, it's a separate funding mechanism, but the direction of what you're

> doing has to come out of the same arena. We all have to talk the same language here and by the time that filters down to the state grantees, before it comes to the sub-grantees on the funding elements, the grants - because it's very convoluted and you have people trying to interpret grant requirements and assurances and then trying to interpret that and send it down to the lowest possible of the operational area and they're saying okay, well, this is how I'm supposed to do this, that's where the problem lies. So we're all busy building programs. We're all busy trying to get as many bucks as possible to sustain a program, but in the process we're losing sight of what we're here for. We become entirely too administratively involved here…One thing there is pushing the program. We're pushing the program. We're trying to insure it has vitality and it has something that looks good and it's sexy and it plays well in the media and looks good for the politicians and we can all pat ourselves on the back at the end of the day and say, "Boy, didn't we do good today. Look how much better off we were then if we hadn't had these funds." Well, there's some truth in that, but the problem is we're spending an inordinate amount of time managing these fund loans, in amount of this time trying to meet grant assurances or requirements and following something that someone unknown person in that cubicle up at DHS in Washington has decided yeah, I think it needs to be done this way with absolutely no feedback from us.

Funding mechanisms were definitely of concern as they affect how the agencies are staffed. There was a reoccurring suggestion that the number of emergency managers is less than the number that is perceived to be ideal at each level of government, particularly at the regional level. When going back to laws and policies outside of funding mechanisms, there was a perspective of laws that work against each other.

6.5. ON HINDRANCE/LAWS THAT WORK AGAINST EACH OTHER

When the informants were asked if any laws worked against each other in either responding to or preparing for an incident, most suggested that none came to mind. However, they said that the current legal structures, namely SEMS, helps to standardize procedures and policies across all California communities so that all efforts work from the same legal structures. Additionally, some potentially restrictive laws, especially those that are intended to protect the environment, can be temporarily overridden to let the emergency response efforts to take place. This is most notably done through a declared State of Emergency.

Other potential laws that could hinder response efforts were, at the time, proposed state legislation. One example was to require coastal cities to have identified emergency evacuation routes identified in case of a tsunami. This type of approach is common within urban areas that have large amounts of snowfall. In that instance, certain roads that are identified as evacuation routes are plowed first. For the tsunami evacuation route, the intent was to have a similar approach were certain roads would be given priority to clear first. The problem is that, unlike snowfall, which affects the entire city, a tsunami could impact different parts of the city at different levels. Therefore, identifying roads to be given mandatory priority to be made operational could potentially limit response efforts by legally requiring certain actions that may not be the best uses of limited resources during response efforts.

There was also an expressed concern when local jurisdictions were mandated to take certain actions, like creating scenario plans, even if the probability of a community experiencing such a threat is remote. Informant 2 commented:

> Some things are very specific and do not pertain to all of the jurisdictions. After Katrina we were told that we had to do an evacuation

> plan in a very short period of time for our entire jurisdiction. Well, I was working with Contra Costa at that time, but any jurisdiction, including the state, was supposed to develop an evacuation plan for their jurisdiction. Well, number one, in California, we don't have the type of disasters that would cause the need to evacuate a whole jurisdiction and so it is unrealistic, it is not common sense that we should have to do that. I mean, you can do it scenario based, but to say that you need to develop a plan - well, in the Bay Area we can't evacuate anything because on a normal day of traffic, we can't - and so you try to do an evacuation you are crazy. But there may be circumstances to do that, but I think as these guidelines and regulations come down they are, as you said, too specific in that it is not one size fits all. The locals need to have the ability to do it - what is most appropriate for their jurisdiction, what is most fitting. It is also these requirements that are put down, always quick turnaround times, and they may change, based on the next disaster that happens and so there is just a lot of things that very shortly after a major event happens all of these new requirements come down. Sometimes they are fitting and sometimes they are not, and it is more than emergency management personnel can do and that kind of stuff gets in the way.

While it is possible that laws could work against each other, few concrete examples were provided. The largest concern is that some laws may be applied too generally instead of taking into consideration the immediate threats of a region, its geography, or pre-established procedures. In these cases, applying a certain law broadly, while well intentioned, may simply not make sense for neighboring communities.

6.6. QUANTITATIVE RESULTS

As reflected in Tables 16 and 17 and illustrated in Figures 12 and 13, the perception of frequency for legal structures tends to be less effective except at the county and local levels.

This suggests that the state efforts, both at the larger state level and regional level, may not be as effective as they could be. This is not to propose that more legal structures are needed. Rather, the current structures need to be assessed for their effectiveness and contribution to county and local preparedness and response efforts. This research did not investigate what those changes could be. To answer those questions requires additional study.

Table 16. The number and valid percent at each level of government for legal policies in preparing for an incident.

KEY: The original question asked:

3A: "In preparing for an emergency, how frequent are your organization's direct interaction with legal policies:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

3B: "In preparing for an emergency, how effective are your organization's direct interaction with legal policies:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Legal Policies--Preparedness																
Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	27	20.1	17	12.7	17	12.7	31	23.1	28	20.9	14	10.4	13	147	100.0
	Effectiveness	22	16.7	15	11.4	38	28.8	17	12.9	17	12.9	23	17.4	15	147	100.0
SOC	Frequency	10	7.6	8	6.1	17	13.0	29	22.1	40	30.5	27	20.6	16	147	100.0
	Effectiveness	10	7.8	6	4.7	31	24.2	17	13.3	25	19.5	39	30.5	19	147	100.0
REOC	Frequency	10	7.6	10	7.6	18	13.7	32	24.4	37	28.2	24	18.3	16	147	100.0
	Effectiveness	11	8.5	7	5.4	33	25.6	19	14.7	23	17.8	36	27.9	18	147	100.0
EOC	Frequency	24	17.9	20	14.9	22	16.4	28	20.9	22	16.4	18	13.4	13	147	100.0
	Effectiveness	24	18.3	20	15.3	37	28.2	11	8.4	15	11.5	24	18.3	16	147	100.0
FOPS	Frequency	28	21.1	20	15.0	16	12.0	26	19.5	24	18.0	19	14.3	14	147	100.0
	Effectiveness	26	19.8	20	15.3	35	26.7	9	6.9	15	11.5	26	19.8	16	147	100.0
UTIL	Frequency	6	4.5	11	8.3	16	12.0	31	23.3	38	28.6	31	23.3	14	147	100.0
	Effectiveness	10	7.8	10	7.8	28	21.7	13	10.1	27	20.9	41	31.8	18	147	100.0
NON	Frequency	6	4.5	8	6.0	18	13.5	35	26.3	35	26.3	31	23.3	14	147	100.0
	Effectiveness	9	6.9	8	6.2	28	21.5	20	15.4	22	16.9	43	33.1	17	147	100.0

Table 17. The number and valid percent at each level of government for personal interactions in responding to an incident.

KEY: The original question asked:

8A: "In responding to an emergency, how frequent are your organization's direct interaction with legal policies:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

8B: "In responding to an emergency, how effective are your organization's direct interaction with legal policies:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Legal Policies--Response Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	18	14.3	12	9.5	21	16.7	29	23.0	23	18.3	23	18.3	21	147	100.0
	Effectiveness	20	16.0	11	8.8	28	22.4	20	16.0	17	13.6	29	23.2	22	147	100.0
SOC	Frequency	6	4.9	12	9.8	16	13.0	27	22.0	35	28.5	27	22.0	24	147	100.0
	Effectiveness	10	8.3	6	5.0	29	24.2	14	11.7	22	18.3	39	32.5	27	147	100.0
REOC	Frequency	13	10.4	8	6.4	17	13.6	30	24.0	31	24.8	26	20.8	22	147	100.0
	Effectiveness	11	9.1	11	9.1	28	23.1	15	12.4	18	14.9	38	31.4	26	147	100.0
EOC	Frequency	18	14.3	21	16.7	19	15.1	29	23.0	19	15.1	20	15.9	21	147	100.0
	Effectiveness	19	15.2	20	16.0	29	23.2	16	12.8	10	8.0	31	24.8	22	147	100.0
FOPS	Frequency	27	21.8	22	17.7	20	16.1	18	14.5	19	15.3	18	14.5	23	147	100.0
	Effectiveness	27	22.1	21	17.2	29	23.8	10	8.2	11	9.0	24	19.7	25	147	100.0
UTIL	Frequency	5	4.0	13	10.5	15	12.1	29	23.4	31	25.0	31	25.0	23	147	100.0
	Effectiveness	8	6.6	9	7.4	37	30.3	10	8.2	17	13.9	41	33.6	25	147	100.0
NON	Frequency	5	4.0	9	7.2	18	14.4	27	21.6	33	26.4	33	26.4	22	147	100.0
	Effectiveness	7	5.7	9	7.3	32	26.0	13	10.6	19	15.4	43	35.0	24	147	100.0

KEY: The original question asked:

3A: "In preparing for an emergency, how frequent are your organization's direct interaction with legal policies:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

3B: "In preparing for an emergency, how effective are your organization's direct interaction with legal policies:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

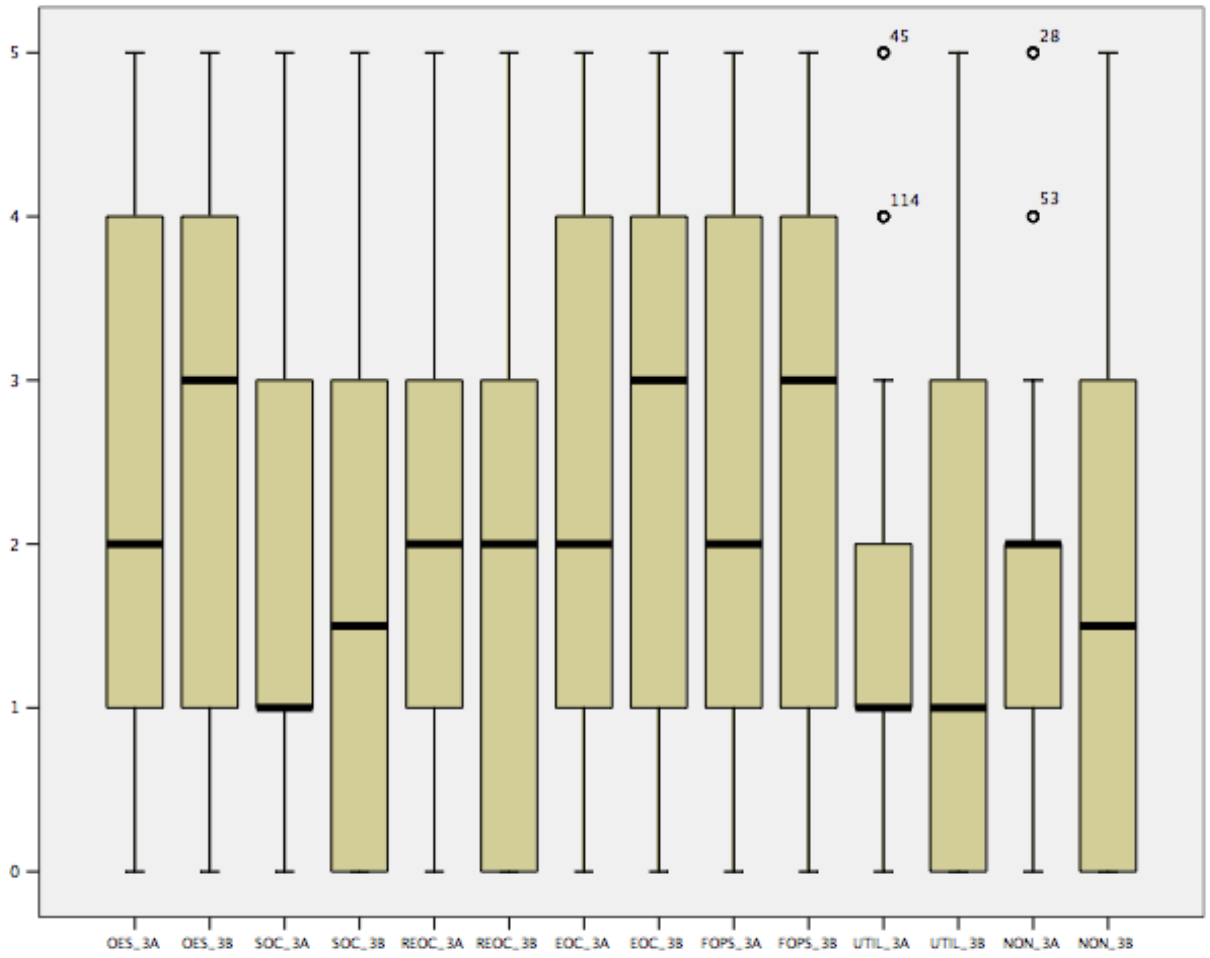

Figure 12. Legal Policies Box Plot--Preparedness.

KEY: The original question asked:

8A: “In responding to an emergency, how frequent are your organization’s direct interaction with legal policies:”
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

8B: “In responding to an emergency, how effective are your organization’s direct interaction with legal policies:”
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

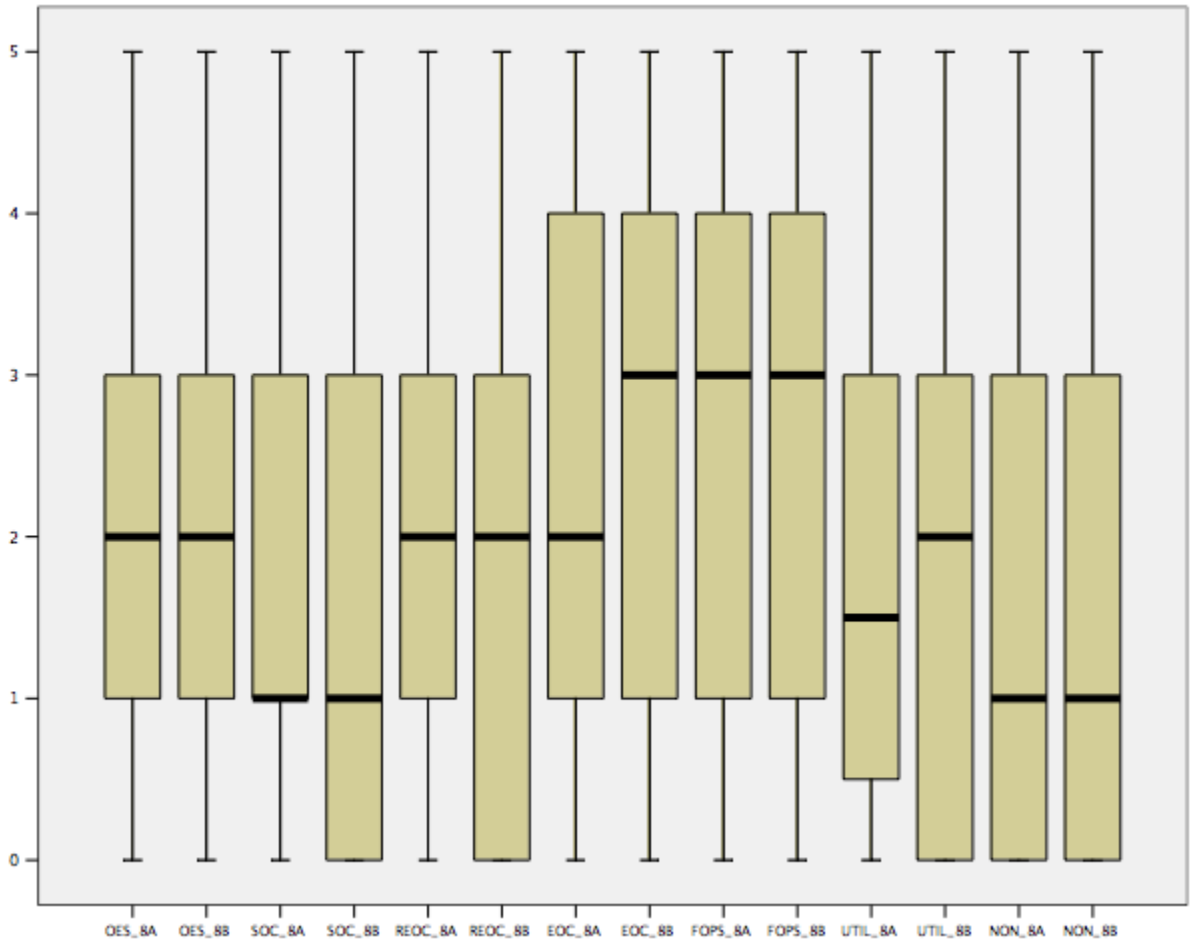

Figure 13. Legal Policies Box Plot--Response.

Figures 6 and 7 illustrate that there are less frequent and thereby less effective uses of legal structures. Since a strong correlation is found between frequency and effectiveness, as outlined in Tables 18 and 19, it would stand to reason that the system could be stronger if there were more interaction with legal structures. Training is one way to accomplish this, but based on the concerns raised in the earlier part of the chapter regarding understaffing, it may be a matter of not enough staff to daily administer emergency preparedness and response efforts AND to have an intimate interaction with the structure that makes the system work outside of individuals' own responsibilities. For this be corrected, more staff need to be added at the levels of government that are currently struggling the most, namely the state and regional levels, so that the system can be improved.

Table 18. Correlations for frequency interacting with legal structures and effectiveness across levels of government or sector for preparedness activities.

For PREPAREDNESS Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.804**	.000
State Operation Center (State-level)	.762**	.000
Regional Level	.805**	.000
Operational Level	.827**	.000
Field Level	.839**	.000
Utility Companies	.862**	.000
Nonprofit Organizations	.828**	.000

**Correlation is significant at the 0.01 level (2-tailed)

Table 19. Correlations for frequency interacting with legal structures and effectiveness across levels of government or sector for response activities.

For RESPONSE Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.815**	.000
State Operation Center (State-level)	.812**	.000
Regional Level	.780**	.000
Operational Level	.813**	.000
Field Level	.847**	.000
Utility Companies	.813**	.000
Nonprofit Organizations	.792**	.000

**Correlation is significant at the 0.01 level (2-tailed)

6.7. CONCLUSION

Legal structures are essential in creating the framework in which emergency managers operate. The mutual aid agreements, SEMS, and NIMS permit the flexibility of the organization while creating accountability and procedural mechanisms. While the system is a foundation in which emergency preparedness and response activities operate, there is a strong concern that staffing is insufficient. This is evident in the responses of frequency of interaction with legal structures and the effectiveness of those structures. Because there are insufficient staff members, the current emergency managers must assume more administrative responsibilities that hamper their focus on the continual betterment of the system. This is not a healthy practice, but it is a reality given the large dependence of grants as sources of funding. Emergency managers must have the opportunities to evaluate the operations of the system and make changes. This cannot be done when the highest priority is maintaining bureaucratic processes.

When the system has more resources, it is not stagnant and is allowed to continue to change as new insights are uncovered. This has evolved into a very practical and fair set of policies and procedures that make sense, given California's threats. Legal structures are critical to preparedness and response efforts, but they require the financial resources to permit emergency managers to look at the system as a whole and to make continual improvements to make it better. California's past has demonstrated that this is possible, but past models also included a larger state effort to staff state and regional offices.

7.0 CHAPTER 7: THE ROLE OF COMMUNICATIONS IN EMERGENCY MANAGEMENT

Effective communications techniques and resources are needed to both prepare for and respond to an incident. For the purpose of this study, communication responses tended to fall into three categories: information technology, hindrances of IT, and face-to-face interactions.

7.1. INFORMATION TECHNOLOGY

As discussed in an earlier chapter, the evolution of California's emergency management system was a continual growth based upon experiences and resources. Emergency management at the first of the Twentieth Century was largely unorganized until the adoption if the Emergency Services Act in 1920, and more significantly, the shift towards mutual aid agreements in the 1950s. During this time period, efficiency and effectiveness of the system were stressed. The 1970s brought a different change, one towards increased communication effectiveness through the Incident Command System. The mid-1990s focused these efforts to improve response through common systems and procedures while emphasizing collective, collaborative approaches through the implementation of SEMS. Now, at the beginning of the Twenty-First Century, prominence is placed on collaboration. From Informant 15, the evolution of information technology followed a similar path with a slightly different timeline.

According to this expert, four different phases emerge. The 1960s to 1980s was a time focused on making the system more efficient by automating processes, as in processing forms, timecards, etc. Information technology in the 1980s became a communication tool with the extensive acceptance of using e-mails instead of reliance on other, more formal approaches like letter-writing or memorandums, all in an attempt to create greater efficiency. In the late 1990s, IT added to public value by having information literally at one's finger tips with the use of the internet. The fourth stage, in which communications currently operate, is based on collaboration. With sites like MySpace, and LinkedIn, among others, technology has let people connect in numerous ways. Additionally, through wikis, information continues to expand at an increasingly quicker rate as more people add to society's collective knowledge.

This evolution, and by chance coinciding with the evolution of emergency management, creates opportunities for the tools created through technology to strengthen preparedness and response efforts. On a national scale, Intellipedia, provides a restricted database of intelligence collected and utilized by those monitoring terrorist activity. Yet, other, more localized examples can be given. Informant 15 provided this example.

When the Poomacha fire erupted near San Diego, a public awareness campaign began on the <SignOnSanDiego.com> blog spot hosted by the San Diego Union Tribune. From October 21 to November 7, 2007, 564 blog entries were entered from local responders, citizens and the press corps to report on ground conditions, such as neighborhoods with mandatory evacuations and road closures, and governmental response efforts (San Diego County Wildfires, 2007). This case highlighted citizen engagement while effectively notifying residents of the fire's advance and emergency response in real time.

Collaborative efforts were also undertaken through the sharing of maps between the California Department of Forestry and the water districts. By sharing information and working together, they were able to identify threats and resources in the areas that were affected. In so doing, they were better able to make decisions in real time, given the changing field conditions.

In Informant 15's words, he shares the remarkable story as an example for on-the-ground use of technology to communicate about the changing conditions of the incident. Again, from the San Diego fires, in his words:

> Actually, one of the most effective sources was one fireman twittering and a lot of people logged on to his micro-blog and he was saying this is what I see and does anybody see anything different and people on the other side of the fire started to say well, I'm seeing this and, pretty soon, that was back to social collaboration. That was the best fire map they created out of the process and it's a very, very well documented story on that. But it's not structured, it's not planes taking pictures and that, but literally, they got down to saying, what's the fire perimeter for a fairly expansive geography.

When asked what brought about the collaborative, technological change, Informant 15 said:

> It's a combination of things, but if you talk about this collaboration type change, I would say there's three principal drivers. The first one is obviously the fact that there's economic imperative that you're going to create new value at this point, clearly collaboration's becoming the new way. Second is that obviously there are tools there now. See, before the email was not a collaboration tool. The email is really the how do you place a letter with an email. Same old, same old. SharePoint is a collaboration tool, or Wiki is a collaboration tool. So, secondly, the tools are there now. And the third part to this argument would be that the new generation of workers we are hiring, the Gen-Y business and all that, kind of more (inaudible) book and all that, but they are much more open

> to collaborations. It's stating to kind of bring that issue in the forefront. Those are probably some of the drivers that are forcing the issue.

So the use of technology improves not only relevant information to assist decision makers in how best to proceed, but it also provides opportunities for informal approaches, such as blogs, to provide up-to-the-minute updates about field conditions.

7.2. HINDRANCES OF IT

During the interviews, technological advances were always mentioned, like e-mail and cell phones. But, there is a strong realization that these technologies could be a hindrance to building relationships. As Informant 8 remarked,

> [P]eople getting glued to their computers is a real big problem with the emergency operations centers because they are not interacting…[E]-mails are very different than phone calls…Picking up the telephone and talking to somebody is very different than sending an e-mail and waiting for a response. I think a lot of it ends up with people kind of hiding behind e-mails a little bit so they don't have to have personal relationships. It is just electronic information. Passive-aggressive types, it is a perfect environment for them.

Informant 8 went further to say that "most of your problems get worked out when you are talking to people face-to-face. They are not getting solved on a computer."

In most of the interviews, the informants talked about how e-mails, while a good record keeping system and a convenient way to share documents or other information, can become too overwhelming to effectively respond. Informant 12 proposed that

> technology has created a false sense of vetting of information... And the email that we get every day can exceed our capacity to evaluate it all

> reasonably. The fact that people no longer have to type a letter, put in an envelope, lick it, and put a stamp on it and go down to the post office has really changed their willingness to - and the fact that they don't have to make 100 copies of a 500-page document. They do it electronically and it's encouraged them to just do this data dump, this fax, the email out that I've given you a copy, I gave you two weeks to look at it. Well, gees, two weeks from now, it's buried so deep in my email, I may not find it. So I think that's one of the downsides with the last decade that we have become overly reliant on technology.

Informant 12's sentiment must not be overlooked, since society has become incredibly reliant on technology. It is common to feel "connected," yet even this term is dramatically changing. While most people use it in the sense that they are connected because they can be reached on their cell phones or blackberries, according to Informant 15, this term is going to be redefined very shortly as more and more simple actions become automated and other advancements change our quality of life.

The examples listed above must be put into a larger context. First, the informants who expressed their frustrations about technology could be classified as "digital immigrants" (the terminology draws on Margaret Mead's analysis that older generations have immigrated into changed societies that may be better known by children born into them). That is, unlike people who are commonly classified as Gen-Xers and following generations, the digital immigrants did not grow up submerged with now common technological advancements like computers or cell phones. Instead, they were forced to adapt to changing environments instead of having the benefit of growing up with it. Because of this, their acceptance and use of the technology varies from how subsequent generations use and understand it.

Second, Informant 15 suggested that there are three types of information that IT can create: structured information, operational information, and unstructured information. Structured

information relates to standard record keeping; driver license information is an example. Operational information assists in daily activities, such as maps. The final type of information is unstructured, which includes policies, procedures, reports, and websites. This type of information is "not intended for a transactional purpose, it's more for knowledge work." Information has a direct impact on influencing preparedness and response activities by providing information that is utilized to aid response efforts while placing the actions in a larger legal, operational and historical context.

So, when Informant 12 expresses frustration about the amount of e-mail, the reaction is towards the unstructured information. That concern was shared by other informants as well and is a real problem. However, unlike more manageable types of information, unstructured information is difficult to manage because of type of information that it creates and the volume in which it is generated. No good solution was discovered through the interviews on how best to manage the information.

The greatest hindrance of information technology may not be our perceptions of it today, but what the future holds. Since it is advancing so quickly and changing our society so rampantly, the future impact cannot even be comprehended. Because of that, our processes in managing the information lags behind the modern paradox of having access to large amounts of information but having limited time to study, analyze and use it.

7.3. FACE-TO-FACE INTERACTIONS

By far, the most important type of communication expressed was one-on-one interactions in person or by a telephone. Even though physical, visible presence is not present in each

instance, these types of interactions can also be considered "face-to-face," as a direct human connection exists with the other person involved in communicating.

"[F]ace-to-face communication…is absolutely the best. It's the best," reflected Informant 5. He explained that this type of interaction can quickly clear any misconceptions, and it makes the other person know that you are genuinely concerned about what he/she is doing or going through. It is a way to show direct, personable support. Another important component of this type of interaction is to understand individual approaches to the same problem.

Informant 7 reflected on this example from his military experiences.

> I had three captains who were company commanders and when you were out in the field moving through the woods, there were certain checkpoints that were put on the map, and they were usually terrain features like the top of the hill, the intersection of a road, something easily definable, so one of the things was that when you reached a checkpoint you were to call in and say that you had reached the checkpoint. And it would be just the radio operator saying you know Company A, checkpoint 4, Company C, checkpoint 5. I knew that all three of those captains did it differently. One of them, [Captain 1], said he was at Checkpoint 4, that meant [Captain 1] was physically standing in the middle of that intersection. He did not report in until he physically - he personally was standing there. [Captain 2], if his lead guy was there, he called it in. He personally could have been 300 or 400 yards or more from there, and the last guy, when he called it in I was never sure if he was even within 1,000 yards of it or if he ever found it. That is when I would then turn to the artillery guy and have him call through the artillery spotter net down to the artillery forward observer that was standing next to this captain and have the question asked, where are you? Because I did not trust this guy, that he could read a map, that he knew where he was. So, by having personal relationships with these people, knowing them and working with them, I had three different answers to the same question.

The experiences shared regarding communication tended to fall back into the importance of personal relationships. Communication appears to be more effective when two individuals are speaking directly with each other as opposed to other, less personal forms of communicating like e-mails.

7.4. QUANTITATIVE RESULTS

As represented in the frequency Tables 20 and 21 and Figures 14 and 15, unlike the other factors studied, the mean of frequency and effectiveness changes for the better within some levels of government. For preparedness and response, effectiveness was greater than the frequency when interacting with regions, counties, utilities and nonprofits. Part of this relationship can be explained through the use of new technologies to bridge communication divides. Because of the rampant advancement in technologies, emergency managers cannot get trained fast enough on the implementation of new equipment to accomplish their missions. Therefore, even though the frequency of interaction may be less than the effectiveness of that interaction, the technological enhancements improve the personal interactions as described in previous chapters.

When looking at the strength of the relationships, as presented in Tables 22 and 23, the correlations are stronger in response activities, which is to be expected. While the technologies are used in preparedness activities, it is seen on a large scale during response efforts. This is when the emergency managers would have more interaction with newer technologies to assist them in making strategic decisions to minimize and eliminate the incident's destruction.

Table 20. The number and valid percent at each level of government for official communications in preparing for an incident.

KEY: The original question asked:

2A: "In preparing for an emergency, how frequent are your official communications with:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

2B: "In preparing for an emergency, how effective are your official communications with:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Official Communication--Preparedness																
Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	23	16.1	22	15.4	27	18.9	38	26.6	26	18.2	7	4.9	4	147	100.0
	Effectiveness	21	15.1	19	13.7	45	32.4	17	12.2	13	9.4	24	17.3	8	147	100.0
SOC	Frequency	6	4.3	15	10.7	11	7.9	42	30.0	52	37.1	14	10.0	7	147	100.0
	Effectiveness	11	8.1	9	6.6	32	23.5	20	14.7	24	17.6	40	29.4	11	147	100.0
REOC	Frequency	10	7.1	13	9.3	15	10.7	45	32.1	44	31.4	13	9.3	7	147	100.0
	Effectiveness	16	11.7	15	10.9	36	26.3	18	13.1	20	14.6	32	23.4	10	147	100.0
EOC	Frequency	33	23.6	25	17.9	25	17.9	29	20.7	19	13.6	9	6.4	7	147	100.0
	Effectiveness	32	23.5	27	19.9	34	25.0	16	11.8	8	5.9	19	14.0	11	147	100.0
FOPS	Frequency	38	26.8	22	15.5	20	14.1	26	18.3	24	16.9	12	8.5	5	147	100.0
	Effectiveness	36	25.9	30	21.6	27	19.4	12	8.6	11	7.9	23	16.5	8	147	100.0
UTIL	Frequency	9	6.3	16	11.3	12	8.5	40	28.2	41	28.9	24	16.9	5	147	100.0
	Effectiveness	14	10.1	13	9.4	37	26.8	15	10.9	20	14.5	39	28.3	9	147	100.0
NON	Frequency	14	9.9	14	9.9	13	9.2	32	22.7	44	31.2	24	17.0	6	147	100.0
	Effectiveness	12	8.6	18	12.9	27	19.4	16	11.5	24	17.3	42	30.2	8	147	100.0

Table 21. The number and valid percent at each level of government for official communications in responding to an incident.

KEY: The original question asked:

7A: "In responding to an emergency, how frequent are your organization's direct interaction with legal policies:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

7B: "In responding to an emergency, how effective are your organization's direct interaction with legal policies:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable; N=the number of responses; %=the valid percent; Missing=the number of respondents who did not answer the question; Total=the total number and valid percent of responses.

Official Communication--Response Scale		5		4		3		2		1		0		Missing	Total	
		N	%	N	%	N	%	N	%	N	%	N	%	N	N	%
OES	Frequency	24	18.2	16	12.1	25	18.9	22	16.7	31	23.5	14	10.6	15	147	100.0
	Effectiveness	27	20.6	11	8.4	37	28.2	11	8.4	22	16.8	23	17.6	16	147	100.0
SOC	Frequency	14	10.9	12	9.4	21	16.4	22	17.2	43	33.6	16	12.5	19	147	100.0
	Effectiveness	18	14.1	8	6.3	31	24.2	11	8.6	26	20.3	34	26.6	19	147	100.0
REOC	Frequency	21	16.0	12	9.2	23	17.6	27	20.6	35	26.7	13	9.9	16	147	100.0
	Effectiveness	23	17.6	16	12.2	31	23.7	12	9.2	20	15.3	29	22.1	16	147	100.0
EOC	Frequency	31	23.7	22	16.8	26	19.8	24	18.3	16	12.2	12	9.2	16	147	100.0
	Effectiveness	30	23.1	25	19.2	35	26.9	9	6.9	12	9.2	19	14.6	17	147	100.0
FOPS	Frequency	45	35.2	26	20.3	22	17.2	10	7.8	15	11.7	10	7.8	19	147	100.0
	Effectiveness	37	28.5	28	21.5	31	23.8	4	3.1	14	10.8	16	12.3	17	147	100.0
UTIL	Frequency	10	7.8	16	12.5	21	16.4	29	22.7	29	22.7	23	18.0	19	147	100.0
	Effectiveness	17	13.1	12	9.2	37	28.5	9	6.9	20	15.4	35	26.9	17	147	100.0
NON	Frequency	10	7.7	12	9.2	18	13.8	29	22.3	34	26.2	27	20.8	17	147	100.0
	Effectiveness	16	12.2	11	8.4	34	26.0	8	6.1	23	17.6	39	29.8	16	147	100.0

KEY: The original question asked:

2A: “In preparing for an emergency, how frequent are your official communications with:”
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

2B: “In preparing for an emergency, how effective are your official communications with:”
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

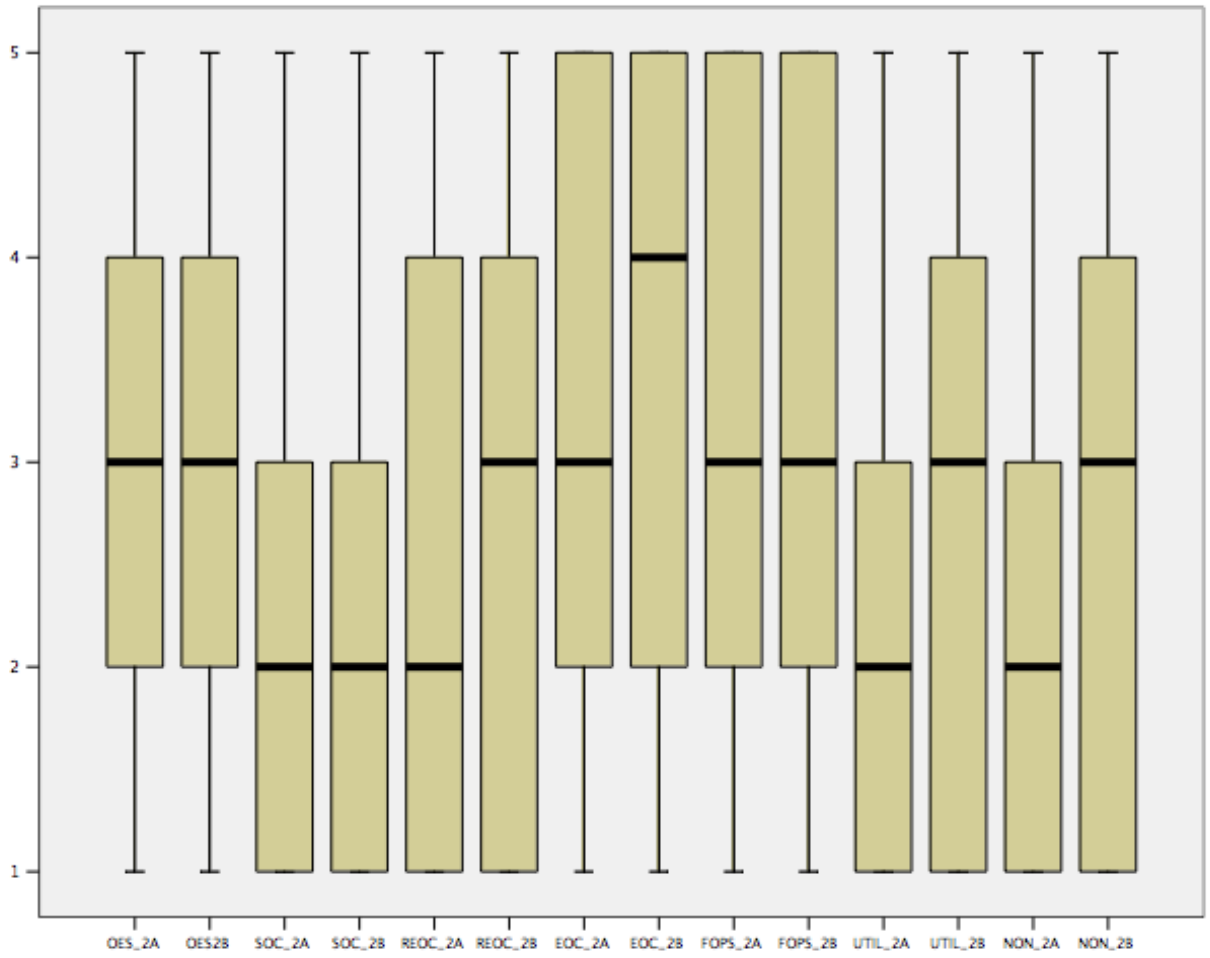

Figure 14. Communication Box Plot--Preparedness.

KEY: The original question asked:

7A: "In responding to an emergency, how frequent are your organization's direct interaction with legal policies:"
OES-California Office of Emergency Services (State)
SOC-State Operation Center (State)
REOC-Regional Emergency Operation Center (Region)
EOC-Emergency Operation Center (County)
FOPS-Field Operations (Local)
UTIL-Utility Companies
NON-Nonprofit Organizations

7B: "In responding to an emergency, how effective are your organization's direct interaction with legal policies:"
The levels of government or sector are the same as the previous question.

The scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

See Appendix 6: Survey Instrument for the original survey listing.

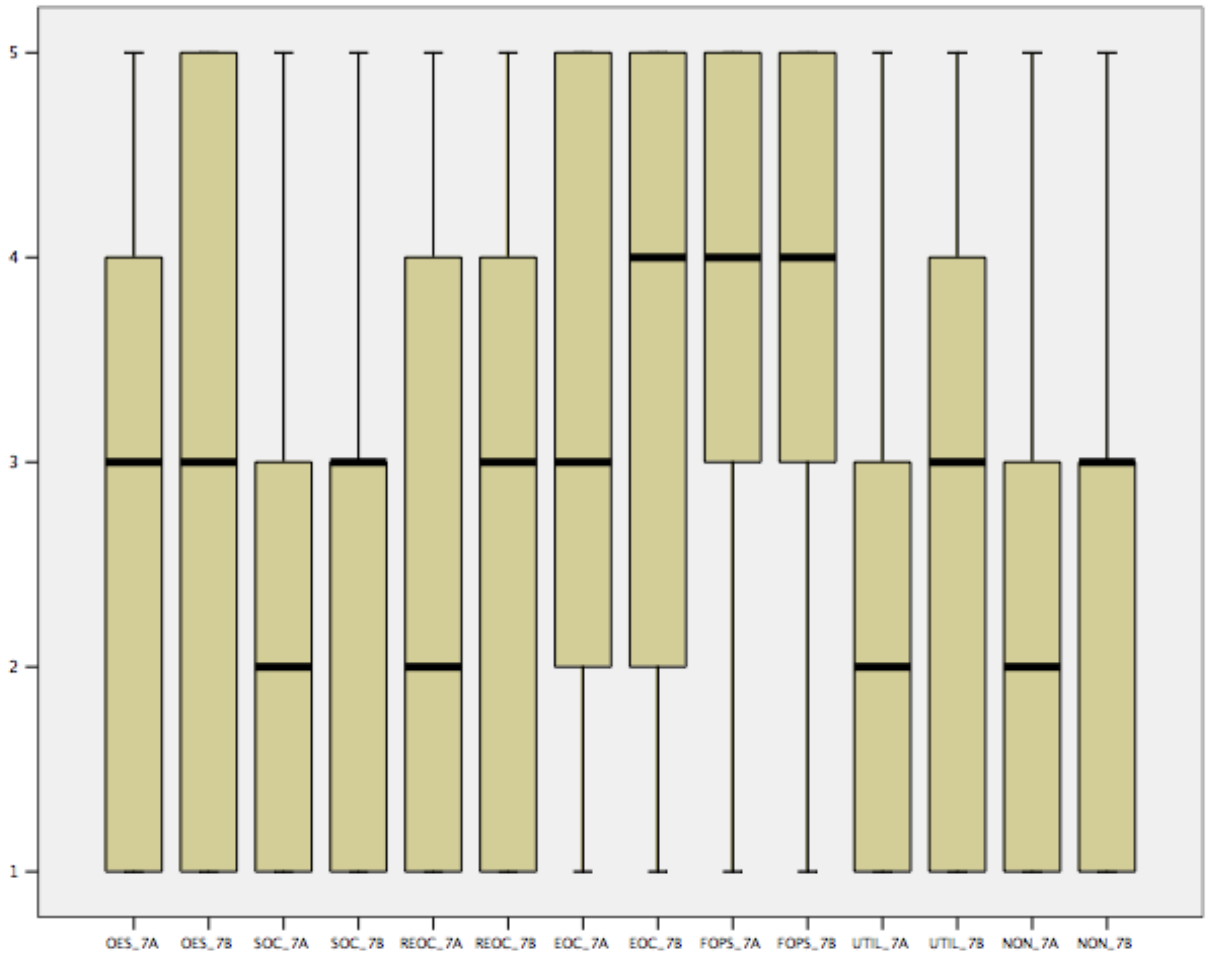

Figure 15. Communication Box Plot--Response.

Table 22. Correlations for frequency of communication and effectiveness across levels of government for preparedness activities.

For PREPAREDNESS Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.709**	.000
State Operation Center (State-level)	.706**	.000
Regional Level	.711**	.000
Operational Level	.765**	.000
Field Level	.755**	.000
Utility Companies	.763**	.000
Nonprofit Organizations	.802**	.000

**Correlation is significant at the 0.01 level (2-tailed)

Table 23. Correlations for frequency of communication and effectiveness across levels of government for response activities.

For RESPONSE Activities		
Level of Government or Sector	*Pearson Correlation*	*Significance*
Office of Emergency Services (State-level)	.854**	.000
State Operation Center (State-level)	.860**	.000
Regional Level	.851**	.000
Operational Level	.852**	.000
Field Level	.868**	.000
Utility Companies	.835**	.000
Nonprofit Organizations	.852**	.000

**Correlation is significant at the 0.01 level (2-tailed)

7.5. CONCLUSION

Advancements in information technology have been widely embraced in California's emergency management system. The technology that has become standard in society, like cell phones, are an integral part, but increasingly, so too are the use of blogs and wikis to provide real-time information. The largest hindrances of IT are the amount of available information and

the challenge to use it productively and effectively. Also, technological advancements do not replace the importance placed on face-to-face interactions.

Technology has proved critical for response activities as it allows field operations not only communicate with each other, but it also creates linkages across the different levels of government and sectors. This allows the emergency management system to work in unison to overcome threats. Preparedness is an essential requirement for making this system work. By becoming familiar with the strengths and weaknesses of the technology in a controlled setting, emergency managers are able to use the equipment more effectively when incidents occur. Communication and information exchange crosses jurisdictional lines and therefore creates opportunities for leaders at all levels within the system to emerge. Technology, because of the rapid growth and use of new equipment, will continue to shape the preparedness and response activities to increase effectiveness. Emergency management without these advancements would foster a stagnant system that would become ineffective.

8.0 CHAPTER 8: FINDINGS FOR THE ROLES OF PERSONAL INTERACTIONS, COMMUNICATION, LEGAL POLICIES AND LEADERSHIP IN EMERGENCY MANAGEMENT

The original research question was to uncover how personal interactions, communication, legal policies, and leadership affect emergency preparedness and response. Findings of this research support the importance of these four factors for effective results. From the quantitative study, the clearest discovery is of a direct relationship between the frequency of interactions and their effectiveness in emergency services. The null hypothesis suggesting that there is no effect between frequency and effectiveness can be rejected. Frequency has a direct positive impact on effectiveness. This is true with personal interactions, leadership, communication and legal structures. The strong relationship among the two factors was surprising because this relationship held true across all levels of government, from the local level through the state. The more frequent the interaction, the more effective the factor is.

This finding is critical. It reveals that, for each of the components studied, the more time spent fostering the interaction, the more effective the result. This is not to say that each factor needs to be developed across all levels of government at the same effort. It would simply be impractical to do so. For example, an emergency manager at the local level does not necessarily need to have frequent personal interactions with emergency managers at the state level as there

are more important relationships across the local levels for mutual aid and mentorship arrangements and at the county level for support. Having the local emergency managers assume this role not only bypasses the organizational structure and processes, but it is simply a waste of time that can be allocated to other activities. Then, when an incident occurs, the system can work in the way that it was designed.

The null hypothesis, which stated that there is no effect between frequency and effectiveness, therefore, is rejected. There is a relationship, and hypotheses one through four are accepted, as the frequency of personal interactions, leadership, communication, and leadership has a direct impact on effectiveness.

8.1. PERSONAL INTERACTIONS

Important findings were also found through the expert interviews. For personal interactions, a number of key themes were identified: description, trust, stress, learning, knowing one's colleagues, and hindrances. When describing personal interactions in the field of emergency management, one word continually surfaced--*critical*. The importance of the human factor cannot be understated for it is necessary both in response efforts and for preparedness activities. Personal interactions are the key component that makes the established policies and processes work.

Those interactions have to be established well before an incident occurs, and emergency managers across levels of jurisdiction must take extra efforts to create these bonds. While legal structures create a framework for mutual aid success, the managers have to choose for

themselves to invest time and energy in fostering the personal interactions that are important. When the bond is created, increased trust develops.

"Trust" was a word heard multiple times in the interviews. There simply has to be a mutual commitment and assured reliance on the ability and character of the other emergency managers. This foundation, which is formed over many years, creates an environment in which the emergency management system can effectively operate. This relationship is critically important when dealing with the stress of the position.

As if the inherent stress of an incident were not enough, when it is large-scale and multi-jurisdictional, it often affects many of the people who are required to respond. This includes physical damage, like loss of property, but could it also easily include the safety of loved ones being compromised. Therefore, the personal bonds that are created prior to an incident become even more important as these relationships get called on not only to do their job but to deal with the personal hardships that they are undergoing.

These relationships also manage the stressful environments by knowing to whom to talk or to go when an incident occurs. This first-hand knowledge prevents delays. Timing is essential and allows for a quicker response. In this chaotic environment, it is not a matter of controlling it so much as managing it, and understanding that the personal connections are an important part of response.

Emergency managers know each other through a variety of ways. The most common scenarios are through training exercises and when responding to incidents. Emergency managers are a tight-knit community of men and women who have committed themselves for the public good. Many managers, although they may switch jobs, do not tend to move out of the field. Shifts in positions are common, particularly now because moving from the regional level of

operations to local levels seem to be a reoccurring trend. Throughout these transitions and through the training exercises and response actions, the emergency managers become familiar with not only who others are, but also how they tend to act when in a certain scenario.

This understanding has many benefits, including knowing who is the best person for what role. The emergency managers interviewed tend to have the fundamental understanding that they may not be the best person to complete a certain task. This is a humbling finding for it results in a strong awareness of what they are capable of and when they need assistance or to relocate a certain task. Sometimes, the best person to do a certain job is not from their agency or department. At times, the best person comes from an outside agency or department. Utilizing this skill set promotes a collaborative response where the focus in on a successful mission instead of promoting certain egos. This is an important shift to highlight. In the past, because of the lack of coordinated efforts, emergency response was fractured by individual approaches to address the needs. While some rogue responses still occur where egos get in the way of a collective response, those incidents are seemingly few in today's emergency management system. There is a strong understanding that working with each other, even when across departments, agencies or disciplines, maximizes a quick and successful outcome.

Ego is the largest hindrance to effective personal interactions. This has many forms including one agency or person thinking that they know better than another agency or person, and jumping the chain of command because they perceive that they know what the best course of action is. Another hindrance is the allocation of resources based on friendships rather than a systematic equiTable 6pproach. Fortunately, for California, these types of examples are the exception rather than the rule. And, it seems to be an issue with a small number of emergency managers who approach preparedness and response activities with stronger emphasis on who

they are rather than the task at hand. The most important finding in this category was that the negatives were largely left out suggesting that the system works because of personal interactions but is not significantly hampered by individuals who act inconsistently with the rest of the collaborative approaches. This understanding shapes the role of structure within the organization from forcing interactions in a hierarchical structure, a better approach is to foster environments where unstructured and lateral relationship are encouraged to emerge.

8.2. LEADERSHIP

The effectiveness of the emergency management system could be a result of leadership. The most important trait outside of commonly identified leadership skills and values was simply "staying out of the way." While many of the descriptive words are consistent with leadership characteristics and skill sets in other sectors, like having a vision, setting goals, integrity, authority, confidence, the suggestive nature of simply letting the system work is incredibly powerful. It is not to say that there is a lack of attention in designing an emergency management system, but when an incident occurs, enough trust has to be placed both in the human and mechanical components of the system.

Leadership is not just about vision and setting the direction. Instead, it is a combination of five components: knowledge, action, relations, management skills, and character. Leaders must have the tactical and technical experience with the knowledge to predict when and how the conditions affect response efforts. They must have the conceptual knowledge of past experiences and understand what resources are available and how to utilize them.

Personal actions are another key component. Besides the obvious notion of taking charge, leaders must admit when they are wrong and take the necessary actions to rectify the situation. They lead by example, understand personal limitations, and create a vision for the organization.

The third component is interpersonal relations. Leaders must be able to communicate, coordinate, mediate and facilitate. Influencing behavior for a positive result is essential.

Often overlooked, the fourth component of strong leadership is management skills. In the literature about leadership, a dichotomy is made between leadership and management. But, from the findings of this study, the two meet. Leaders must have a working understanding and practice of management skills. This includes not only knowing the policies and procedures but also being able to see the big picture and move the organization towards that goal. Having a vision is not enough. The leader must be able to understand the organizational structure well enough to allocate and mobilize resources and to set the goals and objectives. This does not begin when an incident occurs. Instead, it is through careful planning and preparation that the system is empowered to operate effectively when it is necessary to do so.

Finally, the last component is human character. A leader must share the core values of the organization and must have integrity, honesty, openness and flexibility, and the ability to listen effectively and learn.

Since emergency management is a human experience, leaders must also remember that assisting people in their times of need is paramount. They must be able to manage, not control, the chaos that an incident creates. To do so, coordinated efforts have to be undertaken through strong leadership.

Leadership within emergency management occurs in one of three ways: hierarchy, character, or circumstance. Hierarchy is commonly understood. This is promotion through the ranks. Character is important and the least understood. It is placing individuals in leadership roles simply based on who they are. Sometimes, this approach works well where a dynamic person is placed in a role to advance the organization. But, the downfall is to appoint a person because he or she talks a good game but is unable to deliver. The third type of leadership emergence is by circumstance. In this instance, an individual excels during an incident, not through the system, because he or she did the right thing at the right time.

Finally, on political leadership, this topic carried with it the most emotion from the participants, but it was the least talked about, especially in specifics. Yet, there is an important finding. Political leaders must have the restraint to let the system work. And, when their involvement is necessary to reassure the public that appropriate actions are undertaken, these leaders must do so in ways that do not hamper recovery efforts.

8.3. LEGAL STRUCTURES

Legal structures provide the framework in which emergency management operates. It is not surprising, then, that when questioned about legal structures, respondents discussed the evolution of the current system from being largely unorganized in the early 1900s to the introduction of the Emergency Services Act in the 1920s to the mutual aid agreements of the 1950s to the Incident Command System of 1970s to the Standardized Emergency Management System of the 1990s to the implementation of the National Incident Management System of today.

The important finding, however, was not that the policies advanced but of how California's networked system evolved. Transformational transitions were made to continually improve the preparedness and response processes through organizational learning. From the very beginning of emergency management within the State, the system was open. Emergency managers were able to respond to an incident, reflect upon it, and then make adjustments collectively to strengthen the system. This willingness and commitment to make the system better for the entire good has allowed California's system to be a leader in how other states approach incidents.

The largest critique of this current trend has to do with funding and staffing. While there is enough staff to currently operate, the informants tended to agree that there should be more staff both to be ready for incidents and to continue the momentum for continual growth within the field. This is particularly true at the regional levels where emergency managers are becoming inundated with paperwork instead of being allowed to strengthen personal relationships and to explore better ways of implementing its mission. In some cases, the personnel has been cut by up to 62% but the responsibilities of the offices continue to expand.

Since operational dollars, in some respects, are tied to grants, one of the main focuses of managers is to apply for funding. But, it is not just a matter of seeking additional monies, since the grants are outcome specific, emergency managers must redefine their missions based on how the money is allowed to be used for the execution of the grant as opposed to what may be best for the community. This is of particular concern when grant money is tied directly to fighting terrorist activities. While some emergency managers indicate that preparing for all emergencies is basically the same, that is answering how people and resources are dispersed to meet the

specific incident environment, in California the likelihood of natural disasters occurring far outweighs that of a manmade incident.

To help remedy both concerns, the political outcome to be prepared for terrorism and the imminent threat of natural disasters, grant funding should have flexibility to allow some discretion of the recipient to use the funding in ways that make the most sense for the calculated risks in that region.

8.4. COMMUNICATION

Advancements made in information technology assist in the way emergency managers communicate. It is not just a matter of 24-7 access with cell phones and blackberries, but also the use of the other technologies, such as wikis and blogs, that enhance the preparedness and response efforts.

The evolution of IT parallels that of the field of emergency management with today's focus on collaborative efforts. IT, through blogs and wikis, support that focus. In examples given in putting out the San Diego fires in 2007, emergency responders used this real time information to assist them in strategizing to eliminate the incident and tracking the fire's movements. This type of communication would not have been possible even a few years ago.

As the "digital immigrants" move closer to retirement, the younger generations are quickly incorporating IT into the daily work environment. Having access to greater information is important, but so is using the resources to its greatest potential. Since technologies are advancing so quickly, there is no prediction on how IT will affect preparedness and response

efforts other than, based on recent incidents, that it will only continue to strengthen networks of responders to meet the response demands.

There is a downside. Advancements in IT provide an influx of information, and emergency managers are just beginning to understand how to manage it. Assuming that there are three types of information--structured, operational, and unstructured--the structured and operational are the easiest to incorporate into the current system as it focuses on current tools in a new format. The unstructured information, however, is becoming a challenge to manage.

Since information is constantly generated, the rate of new information is growing at a faster rate than anytime in the past. This information is largely unstructured as it includes policies, procedures, reports, websites and e-mails that were not previously available. Because the information is created digitally, it can also be readily available for multiple people to see it and act upon it. Therefore, it provides a false sense of availability that, while it is viewable, it does not necessarily mean that it can be acted upon instantly.

The most important finding with communication is that face-to-face interaction is still crucial. Technology can assist in providing background information to foster a more productive meeting, but the human component must not be overlooked.

8.5. RECOMMENDATIONS

From the findings, twelve recommendations were identified to continue to strengthen emergency management practices in California. State, county and local governments must:

1. Foster environments where personal interactions, both formal and informal, can thrive.

2. Dedicate funding sources that allow local, county and state organizations to implement long-term goals.

3. Get out of the trap of being reactionary and take a proactive approach to eliminate or minimize known threats.

4. Continue to have legal structures that provide frameworks but that are flexible to adapt to local or regional environments.

5. Continue to encourage mutual aid agreements where neighbors benefit neighbors.

6. Encourage leadership principles instead of administrative processes.

7. Continue to provide realistic training exercises that test the emergency management system without creating a false sense of security.

8. Build from past experiences to redefine the role and capacity of emergency management.

9. Search for humanness in the positions and appreciate the people who make the system work.

10. Have enough staffing to allow relationships to occur.

11. Let the emergency management system work, including creating a sensitive balance to "politician visibility" when an incident occurs, and in terms of allocating resources and responding to an incident.

12. Work with local planners to reduce threats, like not letting people build unnecessarily in flood plains.

These recommendations are drawn out of the key findings of this research. As part of the organizational learning that is inherent in California's emergency management system, these twelve points should be remembered to allow the continual growth and effectiveness of an already strong system. Emergency managers must have the resources that they need to prepare

effectively for AND to respond to incidents. This systems blends leadership and management, but one is not more important than the other. Both must work systematically towards the goal of protecting California's inhabitants. This goal requires funding the right number of staff members to meet the administrative demands and to allow larger questions to be addressed; encourage support networks, both formal, like mutual aid agreements, and informal, like human interactions; and take a proactive approach to effectively preparing for known and reoccurring threats. Earthquakes, fires and floods are not going away. The system should continue to learn from these incidents while preparing for threats that are less common.

In greater reflection for the need of continued and expanded collaboration opportunities, the importance of personal interactions cannot be understated. While theorists such as Frederickson and Slaughter focused on this critical relationship in their governmental foci at the metropolitan and international levels respectively, collaboration towards a specific goal, either identified through rule of law or a leader's unifying vision, was essential in the successful operation of emergency management. This association was demonstrated through the strong quantitative correlations between frequency of interaction and effectiveness, and was further supported by expert interviews, which reiterated the humanness of the governmental system and the role of coordinated-collaborative efforts in minimizing the negative impacts of incidents while strengthening communities.

9.0 CHAPTER 9: CONCLUSION IN UNDERSTANDING CALIFORNIA'S NETWORKED APPROACH IN INTERGOVERNMENTAL INTERACTIONS

This research set out to understand how organizations could have both structure and flexibility through personal interactions, official communications, legal policies and leadership affect emergency preparedness and response within California. Because California has arguably the most efficient and effective emergency response system in the United States, it is important to understand what makes the approach work. By understanding the impact of the aforementioned factors, a larger and more applied emergency response plan can be adapted to other states and countries.

California has a long history of responding to emergencies. While most of the response efforts are in relation to natural disasters, the general strategic planning behind it remains largely the same. That is to say, responding to a wildfire that is in a collision course with a residential neighborhood initiates some of the same efforts as responding to a potential terrorist act, like informing/evacuating residents, putting hospitals on alert, deploying first responders, activating mutual aid agreements, information gathering and exchange, and all other necessary procedures already established. The biggest differences between the two responses are the specialized personnel needed, intelligence gathering, and type of equipment used. So when thinking about responding to emergencies, the planning has to include anticipated incidents, those that are likely to occur based on history, and unanticipated incidents that are typically man-made. Emergency

managers, therefore, have a huge task--prepare for, respond to, and mitigate both known and unknown threats.

By responding to multi-jurisdictional incidents annually, California's emergency response system was allowed to grow because of the commitment and openness of emergency managers to continually better the system. This included both the incorporation of new technologies and, perhaps more importantly, the adaptation of procedures and personnel to meet varying environmental challenges. Historical perspectives led to this innovation.

The earthquake of 1906 in San Francisco was a turning point in how Californian's responded to emergencies. In contrast to what was largely an independent local approach to both prepare for and respond to incidents, the aftermath of the earthquake was a wake up call for the importance of city planning and smart growth practices while preparing for the impact of future incidents. By the mid-1950s, the benefits of mutual aid practices first surfaced and the concept was embraced by a collective state mutual aid agreement.

The 1970s built upon this approach by creating the Incident Command System. This approach retains flexibility to respond to different and complex environments by creating a set of commonly agreed upon policies and procedures. The success of ICS relied on the buy in from all of the responding stakeholders to place trust in one commander and the established procedures.

This tactic worked well but was further enhanced in the 1990s. Plagued with a number of earthquakes, urban fires, deep frosts and other natural disasters within a short time period, California created the Standardized Emergency Management System. SEMS incorporated the procedures of ICS but created a statewide common understanding and practice of procedures and equipment so that it could be applied across all jurisdictions when an incident occurred. It

identified five main functions--command, operations, planning/intelligence, logistics and finance--and common practices that could be easily practiced by all emergency managers in changing and uncertain environments. SEMS has three main features--modular organization of ICS, Incident Action Plans, and Unified Command.

In the early 2000s another adaptation emerged. After the 2001 terrorist attacks in New York, Washington, DC and Pennsylvania, the federal government initiated a comprehensive effort to reform and strengthen national homeland security. While the nation's attention was distracted to invest in preparedness procedures and infrastructure to thwart and respond to terrorist acts, the devastation that could be a result of natural disasters was understated. This changed in 2005 with the destruction of major communities by levee breaches. After Hurricane Katrina struck, the New Orleans community breathed a sigh of relief--but only for a few seconds. While the winds and torrential rains left the region soaked with expected damage, the breach of poorly maintained levee systems flooded the area. This devastation was followed by chaos as communities looked for leadership but found none. No effective local plans and resources were available. No effective state plans or resources existed. Even the national response through Federal Emergency Management Agency was largely ineffective. Fortunately, the Coast Guard and National Guard were able to restore order and provide the necessary transition to help stranded people find assistance and begin the transformation form a land of ruin to normalcy.

Because of these national challenges, a National Incident Management System is implemented. Arguably based on California's success of SEMS, NIMS has many of the same components but instead of Unified Command structures, a Unity of Command system emerged where a collaborative effort of vested governmental stakeholders make collective decisions on

how best to respond to incidents. This approach is undertaken to ensure that all of the varying laws are adhered to and the mobilization of collective resources is used most effectively.

The impressive nature of California's emergency response system allows it to continually evolve based on circumstance because while the stakeholders may not always agree, there is a common value to protect the inhabitants that California encompasses. Through the flow of disclosed information, including after action reports, collective strategy sessions, and open communication across all levels of governments within the emergency management community, California has created a highly adaptive and flexible system that can effectively approach both natural and man-made incidents.

This study set out to uncover how organizations can be designed to retain both structure and flexibility by understanding the role of personal interactions, legal structures, communication and leadership in affecting preparedness and response activities. To accomplish that, a two-prong approach was used. First, after the research instruments were tested, 196 emergency managers were surveyed, with a response rate of 75%. Those people involved with the planning of Golden Guardian 2006 selected the personnel. It was comprised of all levels of California government--state, county and local. The instrument was designed to assess the frequency and effectiveness of working across governmental sectors in both preparedness and response activities. The finding was surprising.

In each case, when calculated in the aggregate, there was a statistically significant relationship between the two factors--frequency and effectiveness--across all levels of government. The findings suggest that the more frequent the interaction, the more effective the results. The survey was then controlled for level of governments by conducting t-tests between state and county personnel responses. Only these two levels of government were compared

because they had the largest response rate. In these cases, eight significant differences emerged when looking at personal interactions. It was not surprising that there was a difference, as state and county employees interact with the State Operation Center and local utilities in different ways. Some of the interaction from the county level is limited because of the organizational structure of the emergency system. What was not anticipated was that the responses of state and county respondents were similar for the other factors studied. This suggests that the types of interaction with legal structures, leadership, and communication tend to have similar effectiveness.

The greatest findings came through the interviews. When talking about personal interactions, it was reiterated numerous times that the human connection is critical in preparing for and responding to incidents. Technological advancements were seen as a way to enhance this interaction but were not, and cannot, be a replacement for it. Personal interactions build trust, which can make stressful situations manageable. By understanding the strengths and limitations of colleagues, emergency managers are able to deploy resources and strategies to maximize impact. This relationship dynamic evolves over time through training together, responding together, and working together. Organizational learning also takes place through personal interactions.

A number of respondents provided examples of how the organization learns, that is, a continual evolution to better the organization's outcomes. The example highlighted in this work was a training exercise with mass casualties who needed to be transported to receive medical treatment. After the training exercise, as with all trainings and responses, an after-action report was created. Through the exploratory process, a number of recommendations was made to better the response efforts. Because of the flexibility of the organization, the response teams could

quickly adapt the recommendations. Not more than three weeks passed before a mass casualty incident occurred. Because of the open working environment where individuals were able to share their experiences and recommendations in a safe environment and organization that was able to incorporate the recommendations quickly, the incident that occurred after the training exercise was able to be executed with extreme precision with great results.

Personal interactions can also hinder response efforts. In generic descriptions, respondents indicated that there could be times when people in authority allocate resources based on who receives them or which communities are assisted. These points were taken under consideration but the more important hindrances were backed up with examples. In some cases it was politicians who insisted on being in location and on camera as soon as an incident occurred. Although there is a need for this type of visibility, it must be done in ways that do not hinder response efforts. Other examples were of people in authority who thought that they knew the best course of action, but did not. Instead, greater reliance and trust should have been placed in subordinates to help guide the supervisor to make the right decision. The third example was of individuals who jump the chain of command because they think that faster results will occur. While the intentions might be good, the result only slows the process as those in decision making positions must now sort through more information that is coming to them from varying angles. The final example was how personnel's skill sets could be underutilized when deployed to help another region, county, or city, as the mind set of the hosting agency could be that they can do it themselves or that they are the best ones to make decisions.

This is where leadership comes into play. Leaders must be able to manage chaos, be able to create a shared vision and have the skill sets to accomplish a particular goal. Leadership is not just about having a good idea; it is about mobilizing others to unite around core values and to

have a particular outcome. In emergency management, it is about keeping the state's inhabitants safe through planning and response.

Leadership, as described through the interviews, has five components: Knowledge, Personal Action, Interpersonal Relations, Management Skill Sets, and Human Characteristics. Effective leadership takes advanced learning. This learning is gained certainly through academic ranks, but also through life experiences, like training and response. Personal actions include understanding and knowing individual limitations, admitting when wrong, being self aware, and setting the example. Interpersonal relations are being able to work well with others. This includes mediation, negotiation, facilitation, communication, and coordination skills. Management skill sets understand how the system operates and how to use these policies and procedures to the advantage of the larger goal. The final component is human characteristics, that is, the values so important to individuals (and hopefully to society) that they would do anything in their power to protect them. This includes having integrity, being able to listen and take counsel, being open, and being flexible and adaptive.

Leadership in emergency management emerges in three different ways. The easiest to recognize and explain is through the hierarchical process. In this case, individuals advance through the ranks to assume more responsibility because they have demonstrated their abilities at lower positions. The second way is through personal characteristics. Many informants spoke about the *je ne sais quoi* of a leader, that is, the special quality or attribute that sets one apart from the others, but that cannot be easily identified. In some cases, this is confused through appointments by giving authority to individuals who should not be in the positions. The final way leaders emerge is through circumstance. Just by the very nature of stepping up in times of need can set individuals apart to be seen as leaders.

The final main topic that surfaced during the leadership conversation was that of political influence. Besides political appointments, politicians, in particular, need to be aware of the impact that they have on emergency management. From budget to response efforts, they impact what can be done. Politicians must understand the importance of letting the system work the way that it was designed. Emergency management procedures are not set in stone. It is a working set of protocols and policies that adapt over time based on experiences in the field, either through an actual incident or training exercise. Politicians who make shoot-from-the-hip decisions without taking into consideration how the current policies emerged can cause more harm than good to response efforts. Sending emergency managers on wild goose hunts to collect information is not good use of their time when their efforts should be concentrated on containing the immediate effects of incidents.

Both personal interactions and leadership are shaped through legal structures. Legal structures provide the framework in which emergency managers operate. Throughout California's evolution of preparedness and response efforts, legal structures solidified effective, yet disorganized, procedures into common practices. One of the first ways that this was accomplished was through the mutual aid system. By understanding the true importance of collaborative efforts, mutual aid agreements provided opportunities to share resources, both personnel and equipment, in times of need. Acting in the common good rose above perceived local gains. This created an atmosphere of sharing resources and expertise, all within reason. The gains far out measured the hurt egos along the way.

Through organizational learning, the emergency management system continued to evolve through the Incident Command System to the Standardized Emergency Management System to today's National Incident Management System. When trying to understand if there are too many

or too few legal structures, the overwhelming response was that there is just enough. California's emergency services networking structure is able to respond to incidents effectively while having the flexibility to meet uncertain environments. This finding is somewhat unexpected, as some existing legal structures are simultaneously thought to reduce the flexibility that response efforts need to meet changing environmental conditions and type of each incident.

Instead of legal structures being the problem, it is the funding source, which affects staffing. In recent years, there is a perception that the numbers of emergency managers is decreasing to a critical level, especially at the regional level. There is an exodus of state, regional, and county personnel opting for the local levels because of the increase in pay, but perhaps more importantly, the type of work that they undertake. Many of the emergency managers' roles have changed to focus more on administrative responsibilities than actually preparing for and responding to incidents. While this is still a major component, staff is spending increasing time responding to grants in order to raise the critically needed funding to support training exercises and to purchase equipment.

While the dollars are appreciated, in most cases, funds cannot be used to build a human resources infrastructure, like hiring additional personnel. This then further limits the current staff on how much interaction they can have with different stakeholders and colleagues to be able to focus on the larger picture of emergency management, other than the microenvironments that earmarked funding sources create. This is seen as a limitation as it does not allow emergency managers to effectively plan and create the human infrastructure necessary to allow the system to grow as fast as it could had these resources been in place.

Use of technology has helped to minimize the impact of decreased staff, but it does not replace the emphasis placed on human, face-to-face interactions. Technology has helped

emergency managers stay more connected through the use of cell phones, black berries, and the like. The emergency response system has embraced technology, and it is now used in a variety of ways. The most evident is through the technologies just identified, but there is an on-the-ground advantage as well.

Experiences from recent fires demonstrated how blogs can be used to track conditions on the ground through personal observation. This information is then used to mobilize resources to where the fire is likely to go next. Previously, this information was gathered at a slower pace either through ground or air observation. But now, anyone who has internet access can add to the volume of information that may assist senior personnel to make the best informed strategic decision.

Another advancement, wikis, adds to shared references, particularly for information gathering in regard to terrorist activities. At the federal level, for example, a terrorist database is shared within the law enforcement community. This type of open and accessible information assists in the continued growth of the organization to best protect society.

The major drawback to technology as it currently exists is the volume of information that it creates. While some of the information is invaluable, it is mixed between both valid and invalid information that may or may not be credible to the incident at hand. To wade through this information, emergency managers use a number of techniques, like having staff presort it. While they are trying to manage it, the information provides a false sense of availability. Just because the information is made public does not mean that time is sufficient to utilize it in ways that are helpful in reducing a threat. This is part of the modern paradox of having access of more information but less time to actually use it in a constructive manner.

While the most discussed factor studied was personal interactions, California's networked system is impressive because of the human component, the frameworks created by legal structures, strong leadership practices, and advancements in technology that enhance communication practices. The combination of these factors creates a flexible network system to meet the chaotic and changing conditions that emerge from a vast array of incidents.

To further the growth of the emergency management system in California, conscious decisions must continue to be made to maintain the flexibility necessary to respond to incidents. Additionally, the emergency managers must be able to work beyond administrative responsibilities to think strategically about preparing for and responding to future incidents. This strategic process should not be limited to the identified organizational leaders, but throughout the entire system. With this is the need of dedicated funding to reestablish a healthy number of emergency managers at all levels of government, particularly at the regional and county levels, so that they can help to continue to foster mutual aid agreements and procedures that are of regional benefit. This approach takes leadership that is from a larger area beyond localized efforts. Finally, the organization must continue to learn from past experiences and build upon those efforts to increase effectiveness, efficiency and economy.

California has a long history of developing networked systems for the greater shared good. This practice must be continued.

APPENDIX A
Pearson Correlations Across Levels of Government for Personal interactions

KEY: OES-California Office of Emergency Services (State); SOC-State Operation Center (State); REOC-Regional Emergency Operation Center (Region); EOC-Emergency Operation Center (County); FOPS-Field Operations (Local); UTIL-Utility Companies; NON-Nonprofit Organizations; 1A or 6A-Frequency; 1B or 6B-Effectiveness; Scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

Correlations

		OES_1A	OES_1B	OES_6A	OES_6B
OES_1A	Pearson Correlation	1	.680(**)	.739(**)	.658(**)
	Sig. (2-tailed)		.000	.000	.000
	N	141	119	113	103
OES_1B	Pearson Correlation	.680(**)	1	.662(**)	.739(**)
	Sig. (2-tailed)	.000		.000	.000
	N	119	120	102	97
OES_6A	Pearson Correlation	.739(**)	.662(**)	1	.883(**)
	Sig. (2-tailed)	.000	.000		.000
	N	113	102	115	105
OES_6B	Pearson Correlation	.658(**)	.739(**)	.883(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	103	97	105	105

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		SOC_1A	SOC_1B	SOC_6A	SOC_6B
SOC_1A	Pearson Correlation	1	.666(**)	.678(**)	.612(**)
	Sig. (2-tailed)		.000	.000	.000
	N	134	95	104	86
SOC_1B	Pearson Correlation	.666(**)	1	.697(**)	.768(**)
	Sig. (2-tailed)	.000		.000	.000
	N	95	97	83	77
SOC_6A	Pearson Correlation	.678(**)	.697(**)	1	.862(**)
	Sig. (2-tailed)	.000	.000		.000
	N	104	83	109	90
SOC_6B	Pearson Correlation	.612(**)	.768(**)	.862(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	86	77	90	90

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		REOC_1A	REOC_1B	REOC_6A	REOC_6B
REOC_1A	Pearson Correlation	1	.694(**)	.652(**)	.516(**)
	Sig. (2-tailed)		.000	.000	.000
	N	136	109	108	94
REOC_1B	Pearson Correlation	.694(**)	1	.661(**)	.694(**)
	Sig. (2-tailed)	.000		.000	.000
	N	109	112	95	87
REOC_6A	Pearson Correlation	.652(**)	.661(**)	1	.794(**)
	Sig. (2-tailed)	.000	.000		.000
	N	108	95	116	101
REOC_6B	Pearson Correlation	.516(**)	.694(**)	.794(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	94	87	101	102

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		EOC_1A	EOC_1B	EOC_6A	EOC_6B
EOC_1A	Pearson Correlation	1	.747(**)	.665(**)	.638(**)
	Sig. (2-tailed)		.000	.000	.000
	N	134	116	110	102
EOC_1B	Pearson Correlation	.747(**)	1	.682(**)	.752(**)
	Sig. (2-tailed)	.000		.000	.000
	N	116	119	100	95
EOC_6A	Pearson Correlation	.665(**)	.682(**)	1	.801(**)
	Sig. (2-tailed)	.000	.000		.000
	N	110	100	117	108
EOC_6B	Pearson Correlation	.638(**)	.752(**)	.801(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	102	95	108	109

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		FOPS_1A	FOPS_1B	FOPS_6A	FOPS_6B
FOPS_1A	Pearson Correlation	1	.680(**)	.641(**)	.577(**)
	Sig. (2-tailed)		.000	.000	.000
	N	134	119	113	108
FOPS_1B	Pearson Correlation	.680(**)	1	.540(**)	.653(**)
	Sig. (2-tailed)	.000		.000	.000
	N	119	119	103	99
FOPS_6A	Pearson Correlation	.641(**)	.540(**)	1	.848(**)
	Sig. (2-tailed)	.000	.000		.000
	N	113	103	117	110
FOPS_6B	Pearson Correlation	.577(**)	.653(**)	.848(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	108	99	110	112

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		UTIL_1A	UTIL_1B	UTIL_6A	UTIL_6B
UTIL_1A	Pearson Correlation	1	.826(**)	.807(**)	.679(**)
	Sig. (2-tailed)		.000	.000	.000
	N	121	98	99	86
UTIL_1B	Pearson Correlation	.826(**)	1	.735(**)	.762(**)
	Sig. (2-tailed)	.000		.000	.000
	N	98	102	86	80
UTIL_6A	Pearson Correlation	.807(**)	.735(**)	1	.814(**)
	Sig. (2-tailed)	.000	.000		.000
	N	99	86	107	93
UTIL_6B	Pearson Correlation	.679(**)	.762(**)	.814(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	86	80	93	94

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		NON_1A	NON_1B	NON_6A	NON_6B
NON_1A	Pearson Correlation	1	.756(**)	.690(**)	.658(**)
	Sig. (2-tailed)		.000	.000	.000
	N	124	105	97	88
NON_1B	Pearson Correlation	.756(**)	1	.738(**)	.759(**)
	Sig. (2-tailed)	.000		.000	.000
	N	105	107	85	79
NON_6A	Pearson Correlation	.690(**)	.738(**)	1	.815(**)
	Sig. (2-tailed)	.000	.000		.000
	N	97	85	104	93
NON_6B	Pearson Correlation	.658(**)	.759(**)	.815(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	88	79	93	94

** Correlation is significant at the 0.01 level (2-tailed).

APPENDIX B
Pearson Correlations Across Levels of Government for Leadership

KEY: OES-California Office of Emergency Services (State); SOC-State Operation Center (State); REOC-Regional Emergency Operation Center (Region); EOC-Emergency Operation Center (County); FOPS-Field Operations (Local); UTIL-Utility Companies; NON-Nonprofit Organizations; 4A or 9A-Frequency; 4B or 9B-Effectiveness; Scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

Correlations

		OES_4A	OES_4B	OES_9A	OES_9B
OES_4A	Pearson Correlation	1	.768(**)	.642(**)	.598(**)
	Sig. (2-tailed)		.000	.000	.000
	N	126	120	111	106
OES_4B	Pearson Correlation	.768(**)	1	.635(**)	.769(**)
	Sig. (2-tailed)	.000		.000	.000
	N	120	122	109	105
OES_9A	Pearson Correlation	.642(**)	.635(**)	1	.755(**)
	Sig. (2-tailed)	.000	.000		.000
	N	111	109	116	110
OES_9B	Pearson Correlation	.598(**)	.769(**)	.755(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	106	105	110	110

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		SOC_4A	SOC_4B	SOC_9A	SOC_9B
SOC_4A	Pearson Correlation	1	.818(**)	.691(**)	.605(**)
	Sig. (2-tailed)		.000	.000	.000
	N	110	94	98	88
SOC_4B	Pearson Correlation	.818(**)	1	.701(**)	.798(**)
	Sig. (2-tailed)	.000		.000	.000
	N	94	98	87	83
SOC_9A	Pearson Correlation	.691(**)	.701(**)	1	.738(**)
	Sig. (2-tailed)	.000	.000		.000
	N	98	87	108	95
SOC_9B	Pearson Correlation	.605(**)	.798(**)	.738(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	88	83	95	95

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		REOC_4A	REOC_4B	REOC_9A	REOC_9B
REOC_4A	Pearson Correlation	1	.798(**)	.732(**)	.573(**)
	Sig. (2-tailed)		.000	.000	.000
	N	120	107	103	94
REOC_4B	Pearson Correlation	.798(**)	1	.761(**)	.831(**)
	Sig. (2-tailed)	.000		.000	.000
	N	107	110	94	89
REOC_9A	Pearson Correlation	.732(**)	.761(**)	1	.818(**)
	Sig. (2-tailed)	.000	.000		.000
	N	103	94	113	101
REOC_9B	Pearson Correlation	.573(**)	.831(**)	.818(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	94	89	101	102

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		EOC_4A	EOC_4B	EOC_9A	EOC_9B
EOC_4A	Pearson Correlation	1	.811(**)	.821(**)	.680(**)
	Sig. (2-tailed)		.000	.000	.000
	N	118	111	104	100
EOC_4B	Pearson Correlation	.811(**)	1	.717(**)	.745(**)
	Sig. (2-tailed)	.000		.000	.000
	N	111	114	101	100
EOC_9A	Pearson Correlation	.821(**)	.717(**)	1	.839(**)
	Sig. (2-tailed)	.000	.000		.000
	N	104	101	115	110
EOC_9B	Pearson Correlation	.680(**)	.745(**)	.839(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	100	100	110	110

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		FOPS_4A	FOPS_4B	FOPS_9A	FOPS_9B
FOPS_4A	Pearson Correlation	1	.819(**)	.761(**)	.686(**)
	Sig. (2-tailed)		.000	.000	.000
	N	121	111	107	105
FOPS_4B	Pearson Correlation	.819(**)	1	.736(**)	.792(**)
	Sig. (2-tailed)	.000		.000	.000
	N	111	115	104	103
FOPS_9A	Pearson Correlation	.761(**)	.736(**)	1	.854(**)
	Sig. (2-tailed)	.000	.000		.000
	N	107	104	114	111
FOPS_9B	Pearson Correlation	.686(**)	.792(**)	.854(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	105	103	111	111

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		UTIL_4A	UTIL_4B	UTIL_9A	UTIL_9B
UTIL_4A	Pearson Correlation	1	.806(**)	.745(**)	.654(**)
	Sig. (2-tailed)		.000	.000	.000
	N	108	93	92	82
UTIL_4B	Pearson Correlation	.806(**)	1	.701(**)	.789(**)
	Sig. (2-tailed)	.000		.000	.000
	N	93	94	81	77
UTIL_9A	Pearson Correlation	.745(**)	.701(**)	1	.898(**)
	Sig. (2-tailed)	.000	.000		.000
	N	92	81	100	89
UTIL_9B	Pearson Correlation	.654(**)	.789(**)	.898(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	82	77	89	90

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		NON_4A	NON_4B	NON_9A	NON_9B
NON_4A	Pearson Correlation	1	.807(**)	.832(**)	.765(**)
	Sig. (2-tailed)		.000	.000	.000
	N	107	93	90	81
NON_4B	Pearson Correlation	.807(**)	1	.781(**)	.804(**)
	Sig. (2-tailed)	.000		.000	.000
	N	93	94	80	78
NON_9A	Pearson Correlation	.832(**)	.781(**)	1	.896(**)
	Sig. (2-tailed)	.000	.000		.000
	N	90	80	97	87
NON_9B	Pearson Correlation	.765(**)	.804(**)	.896(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	81	78	87	87

** Correlation is significant at the 0.01 level (2-tailed).

APPENDIX C
Pearson Correlations Across Levels of Government for Legal Structures

KEY: OES-California Office of Emergency Services (State); SOC-State Operation Center (State); REOC-Regional Emergency Operation Center (Region); EOC-Emergency Operation Center (County); FOPS-Field Operations (Local); UTIL-Utility Companies; NON-Nonprofit Organizations; 3A or 8A-Frequency; 3B or 8B-Effectiveness; Scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

Correlations

		OES_3A	OES_3B	OES_8A	OES_8B
OES_3A	Pearson Correlation	1	.804(**)	.708(**)	.701(**)
	Sig. (2-tailed)		.000	.000	.000
	N	120	108	99	92
OES_3B	Pearson Correlation	.804(**)	1	.664(**)	.819(**)
	Sig. (2-tailed)	.000		.000	.000
	N	108	109	95	89
OES_8A	Pearson Correlation	.708(**)	.664(**)	1	.815(**)
	Sig. (2-tailed)	.000	.000		.000
	N	99	95	103	96
OES_8B	Pearson Correlation	.701(**)	.819(**)	.815(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	92	89	96	96

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		SOC_3A	SOC_3B	SOC_8A	SOC_8B
SOC_3A	Pearson Correlation	1	.762(**)	.686(**)	.668(**)
	Sig. (2-tailed)		.000	.000	.000
	N	104	89	85	74
SOC_3B	Pearson Correlation	.762(**)	1	.684(**)	.820(**)
	Sig. (2-tailed)	.000		.000	.000
	N	89	89	79	72
SOC_8A	Pearson Correlation	.686(**)	.684(**)	1	.812(**)
	Sig. (2-tailed)	.000	.000		.000
	N	85	79	96	81
SOC_8B	Pearson Correlation	.668(**)	.820(**)	.812(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	74	72	81	81

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		REOC_3A	REOC_3B	REOC_8A	REOC_8B
REOC_3A	Pearson Correlation	1	.805(**)	.642(**)	.604(**)
	Sig. (2-tailed)		.000	.000	.000
	N	107	92	86	73
REOC_3B	Pearson Correlation	.805(**)	1	.644(**)	.748(**)
	Sig. (2-tailed)	.000		.000	.000
	N	92	93	80	72
REOC_8A	Pearson Correlation	.642(**)	.644(**)	1	.780(**)
	Sig. (2-tailed)	.000	.000		.000
	N	86	80	99	83
REOC_8B	Pearson Correlation	.604(**)	.748(**)	.780(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	73	72	83	83

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		EOC_3A	EOC_3B	EOC_8A	EOC_8B
EOC_3A	Pearson Correlation	1	.827(**)	.727(**)	.655(**)
	Sig. (2-tailed)		.000	.000	.000
	N	116	106	93	84
EOC_3B	Pearson Correlation	.827(**)	1	.647(**)	.813(**)
	Sig. (2-tailed)	.000		.000	.000
	N	106	107	89	83
EOC_8A	Pearson Correlation	.727(**)	.647(**)	1	.813(**)
	Sig. (2-tailed)	.000	.000		.000
	N	93	89	106	94
EOC_8B	Pearson Correlation	.655(**)	.813(**)	.813(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	84	83	94	94

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		FOPS_3A	FOPS_3B	FOPS_8A	FOPS_8B
FOPS_3A	Pearson Correlation	1	.839(**)	.727(**)	.627(**)
	Sig. (2-tailed)		.000	.000	.000
	N	114	104	93	85
FOPS_3B	Pearson Correlation	.839(**)	1	.780(**)	.776(**)
	Sig. (2-tailed)	.000		.000	.000
	N	104	105	88	84
FOPS_8A	Pearson Correlation	.727(**)	.780(**)	1	.847(**)
	Sig. (2-tailed)	.000	.000		.000
	N	93	88	106	98
FOPS_8B	Pearson Correlation	.627(**)	.776(**)	.847(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	85	84	98	98

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		UTIL_3A	UTIL_3B	UTIL_8A	UTIL_8B
UTIL_3A	Pearson Correlation	1	.862(**)	.785(**)	.658(**)
	Sig. (2-tailed)		.000	.000	.000
	N	102	88	80	70
UTIL_3B	Pearson Correlation	.862(**)	1	.749(**)	.718(**)
	Sig. (2-tailed)	.000		.000	.000
	N	88	88	70	66
UTIL_8A	Pearson Correlation	.785(**)	.749(**)	1	.813(**)
	Sig. (2-tailed)	.000	.000		.000
	N	80	70	93	80
UTIL_8B	Pearson Correlation	.658(**)	.718(**)	.813(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	70	66	80	81

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		NON_3A	NON_3B	NON_8A	NON_8B
NON_3A	Pearson Correlation	1	.828(**)	.731(**)	.599(**)
	Sig. (2-tailed)		.000	.000	.000
	N	102	87	79	70
NON_3B	Pearson Correlation	.828(**)	1	.687(**)	.734(**)
	Sig. (2-tailed)	.000		.000	.000
	N	87	87	68	65
NON_8A	Pearson Correlation	.731(**)	.687(**)	1	.792(**)
	Sig. (2-tailed)	.000	.000		.000
	N	79	68	92	78
NON_8B	Pearson Correlation	.599(**)	.734(**)	.792(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	70	65	78	80

** Correlation is significant at the 0.01 level (2-tailed).

APPENDIX D
Pearson Correlations Across Levels of Government for Communication

KEY: OES-California Office of Emergency Services (State); SOC-State Operation Center (State); REOC-Regional Emergency Operation Center (Region); EOC-Emergency Operation Center (County); FOPS-Field Operations (Local); UTIL-Utility Companies; NON-Nonprofit Organizations; 2A or 7A-Frequency; 2B or 7B-Effectiveness; Scale: 5-Most Frequent or Effective to 1-Not at All Frequent or Effective; 0-Not Applicable

Correlations

		OES_2A	OES2B	OES_7A	OES_7B
OES_2A	Pearson Correlation	1	.709(**)	.687(**)	.673(**)
	Sig. (2-tailed)		.000	.000	.000
	N	136	115	116	107
OES2B	Pearson Correlation	.709(**)	1	.652(**)	.777(**)
	Sig. (2-tailed)	.000		.000	.000
	N	115	115	103	98
OES_7A	Pearson Correlation	.687(**)	.652(**)	1	.854(**)
	Sig. (2-tailed)	.000	.000		.000
	N	116	103	118	108
OES_7B	Pearson Correlation	.673(**)	.777(**)	.854(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	107	98	108	108

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		SOC_2A	SOC_2B	SOC_7A	SOC_7B
SOC_2A	Pearson Correlation	1	.706(**)	.674(**)	.670(**)
	Sig. (2-tailed)		.000	.000	.000
	N	126	96	106	90
SOC_2B	Pearson Correlation	.706(**)	1	.652(**)	.743(**)
	Sig. (2-tailed)	.000		.000	.000
	N	96	96	88	82
SOC_7A	Pearson Correlation	.674(**)	.652(**)	1	.860(**)
	Sig. (2-tailed)	.000	.000		.000
	N	106	88	112	94
SOC_7B	Pearson Correlation	.670(**)	.743(**)	.860(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	90	82	94	94

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		REOC_2A	REOC_2B	REOC_7A	REOC_7B
REOC_2A	Pearson Correlation	1	.711(**)	.626(**)	.561(**)
	Sig. (2-tailed)		.000	.000	.000
	N	127	105	107	94
REOC_2B	Pearson Correlation	.711(**)	1	.617(**)	.782(**)
	Sig. (2-tailed)	.000		.000	.000
	N	105	105	93	86
REOC_7A	Pearson Correlation	.626(**)	.617(**)	1	.851(**)
	Sig. (2-tailed)	.000	.000		.000
	N	107	93	118	102
REOC_7B	Pearson Correlation	.561(**)	.782(**)	.851(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	94	86	102	102

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		EOC_2A	EOC_2B	EOC_7A	EOC_7B
EOC_2A	Pearson Correlation	1	.765(**)	.697(**)	.648(**)
	Sig. (2-tailed)		.000	.000	.000
	N	131	116	112	106
EOC_2B	Pearson Correlation	.765(**)	1	.685(**)	.778(**)
	Sig. (2-tailed)	.000		.000	.000
	N	116	117	100	97
EOC_7A	Pearson Correlation	.697(**)	.685(**)	1	.852(**)
	Sig. (2-tailed)	.000	.000		.000
	N	112	100	119	111
EOC_7B	Pearson Correlation	.648(**)	.778(**)	.852(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	106	97	111	111

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		FOPS_2A	FOPS_2B	FOPS_7A	FOPS_7B
FOPS_2A	Pearson Correlation	1	.755(**)	.676(**)	.664(**)
	Sig. (2-tailed)		.000	.000	.000
	N	130	116	113	109
FOPS_2B	Pearson Correlation	.755(**)	1	.612(**)	.739(**)
	Sig. (2-tailed)	.000		.000	.000
	N	116	116	103	102
FOPS_7A	Pearson Correlation	.676(**)	.612(**)	1	.868(**)
	Sig. (2-tailed)	.000	.000		.000
	N	113	103	118	112
FOPS_7B	Pearson Correlation	.664(**)	.739(**)	.868(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	109	102	112	114

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		UTIL_2A	UTIL_2B	UTIL_7A	UTIL_7B
UTIL_2A	Pearson Correlation	1	.763(**)	.759(**)	.655(**)
	Sig. (2-tailed)		.000	.000	.000
	N	118	97	99	90
UTIL_2B	Pearson Correlation	.763(**)	1	.733(**)	.809(**)
	Sig. (2-tailed)	.000		.000	.000
	N	97	99	86	84
UTIL_7A	Pearson Correlation	.759(**)	.733(**)	1	.835(**)
	Sig. (2-tailed)	.000	.000		.000
	N	99	86	105	94
UTIL_7B	Pearson Correlation	.655(**)	.809(**)	.835(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	90	84	94	95

** Correlation is significant at the 0.01 level (2-tailed).

Correlations

		NON_2A	NON_2B	NON_7A	NON_7B
NON_2A	Pearson Correlation	1	.820(**)	.775(**)	.671(**)
	Sig. (2-tailed)		.000	.000	.000
	N	117	97	97	88
NON_2B	Pearson Correlation	.820(**)	1	.667(**)	.723(**)
	Sig. (2-tailed)	.000		.000	.000
	N	97	97	82	79
NON_7A	Pearson Correlation	.775(**)	.667(**)	1	.852(**)
	Sig. (2-tailed)	.000	.000		.000
	N	97	82	103	92
NON_7B	Pearson Correlation	.671(**)	.723(**)	.852(**)	1
	Sig. (2-tailed)	.000	.000	.000	
	N	88	79	92	92

** Correlation is significant at the 0.01 level (2-tailed).

APPENDIX E
Survey Instrument

Dear Participant, September/October 2006

This survey is designed to gain a better understanding of how personal interactions, communication, legal policies, and leadership affect intergovernmental interactions in preparing for and responding to large-scale emergencies.

The survey is for scientific purposes only and professional standards of confidentiality will be maintained.

The survey is being conducted as part of my doctoral research at the University of Pittsburgh on intergovernmental collaboration in emergency preparedness and response. If you have any questions or comments, I can be reached in Sacramento at the University of Southern California State Capital Center at (916) 442-6911 x.29 or <danczyk@usc.edu>.

Thank you for your time!

Sincerely,
Paul Danczyk

Key:	OES	California Governor's Office of Emergency Services
	SOC	State Operations Center
	REOC	Regional Emergency Operations Center
	EOC	Operational Area Emergency Operations Center
	Field Ops	Field Operations
	Utilities	Electrical, water, gas, and sewage treatment companies
	Nonprofit	Nonprofit humanitarian support organizations

Emergency Preparedness

The following five questions are intended to help people better understand intergovernmental/interorganizational interactions when **PREPARING** for a large-scale emergency that affects more than one community, directly or indirectly. This includes exercises, seminars, and other structured training opportunities.

PREPARING--PERSONAL INTERACTIONS

1. In preparing for an emergency,

A. how ***frequent*** are your ***personal interactions*** with:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your ***personal interactions*** with:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

PREPARING--COMMUNICATION

2. In preparing for an emergency,

A. how ***frequent*** are your ***official communications*** with:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your ***official communications*** with:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

PREPARING--LEGAL POLICIES

3. In preparing for an emergency,

A. how ***frequent*** are your organization's direct interactions with ***legal policies*** (mutual aid systems, mandates, laws, etc.):

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your organization's direct interactions with ***legal policies*** (mutual aid systems, mandates, laws, etc.):

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

PREPARING--LEADERSHIP

4. In preparing for an emergency,

A. how ***frequent*** are your organization's direct interactions with ***leadership*** at:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your organization's direct interactions with ***leadership*** at:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

PREPARING--JURISDICTIONS

5. In preparing for an emergency,

A. how ***frequent*** are your organization's direct interactions among ***jurisdictions*** at:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your organization's direct interactions among ***jurisdictions*** at:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

Emergency Response

The following five questions are intended to help people better understand intergovernmental/interorganizational interactions when **RESPONDING** to a large-scale emergency that affects more than one community, directly or indirectly.

RESPONDING--PERSONAL INTERACTIONS

6. In responding to an emergency,

A. how ***frequent*** are your ***personal interactions*** with:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your ***personal interactions*** with:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

RESPONDING--COMMUNICATION

7. In responding to an emergency,

A. how ***frequent*** are your ***official communications*** with:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your ***official communications*** with:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

RESPONDING--LEGAL POLICIES

8. In responding to an emergency,

A. how ***frequent*** are your organization's direct interactions with ***legal policies*** (mutual aid systems, mandates, laws, etc.):

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your organization's direct interactions with ***legal policies*** (mutual aid systems, mandates, laws, etc.):

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

RESPONDING--LEADERSHIP

9. In responding to an emergency,

A. how ***frequent*** are your organization's direct interactions with ***leadership*** at:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your organization's direct interactions with ***leadership*** at:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

RESPONDING--JURISDICTIONS

10. In responding to an emergency,

A. how ***frequent*** are your organization's direct interactions among ***jurisdictions*** at:

	Very Frequent	More Frequent	Frequent	Less Frequent	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

B. how ***effective*** are your organization's direct interactions among ***jurisdictions*** at:

	Very Effective	More Effective	Effective	Less Effective	Not at All	Not Applicable
OES	5	4	3	2	1	0
SOC	5	4	3	2	1	0
REOC	5	4	3	2	1	0
EOC	5	4	3	2	1	0
Field Ops	5	4	3	2	1	0
Utilities	5	4	3	2	1	0
Nonprofit	5	4	3	2	1	0

APPENDIX F
Semi-Structured Interview Questions

Questions on Personal interactions

Describe how personal interactions can enhance emergency preparedness and response.

Are there times when personal interactions might hinder emergency preparedness and response?

When?

How has this changed since the 1990s?

EMAG Emergency aid mutual response agreement (Renteria)

Questions on Legal Structures

How do legal structures aid in emergency preparedness? emergency response?

How do legal limitations affect preparedness and response? Which legal limitations?

Are there too many/too little legal frameworks? Explain.

Are there laws that work against each other, like silt build-up in the Sacramento river and environmental protection not allowing it to be dredged

Referring to NIMS, local governments are held with increasing responsibility; to what extent does this become a worrisome process?

Questions on Leadership

How do you define leadership in disaster management?

In your perspective, what are the most important leadership skills?

How does this carry over into emergency management?

In what ways do you encourage leadership within your organization?

How do successful leaders emerge in your organization?

How does the political environment affect emergency services?

To what extent have you received political support for preparedness and response?

To what extent has the support changed over the last ten years, if it has changed?

Question on Official communications

What communications are most beneficial?

How do you distinguish validity of information?

How would you measure its effectiveness?

What are the alternatives to official communications practices?

To what extent are official communications timely in current emergency incidents? recent earth quakes/tsumani warning in the Bay Area (Coastal), wild fires (Southern), flood protection (Inland and Coastal)

Questions on Jurisdictions

What are the most critical relationships for you when responding to an interjurisdictional emergency?

With which jurisdictions do you interact on a regular basis? What is the nature of that interaction?

How do jurisdictional relationships emerge?

What is done to foster interjurisdictional relationships?

How do jurisdictions help emergency preparedness/response?

How do jurisdictions hinder emergency preparedness/response?

What is the responsibility of each jurisdiction in emergency management?

Questions on Background

Why are you in the position that you are?

How/why did you choose the field?

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