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THESIS

BUREAUCRACIES, COMMUNITIES AND NETWORKS: INTERAGENCY COOPERATION FOR HOMELAND SECURITY IN MONTEREY COUNTY

by

Gerald R. Scott

June 2003

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The federal government has undertaken a massive reorganization in order to create the Department of Homeland Security, and a parallel debate over how to organize homeland security functions has arisen at the State and Local government levels. In a time of severe budget constraints and rapidly changing threats, governments at all levels recognize the need for multiple government agencies, the private sector and non-governmental organizations to work together in order to provide effective homeland security. The effort to improve cooperation, especially at the "first responder" level, has become a major priority in the homeland security arena. How then can local governments improve interagency cooperation for homeland security?

A recent conference of government officials and homeland security experts concluded that the central coast of California has one of the best emergency preparedness systems in the country. This thesis examines the high level of interagency cooperation that has arisen among public safety agencies in Monterey County, California in order to determine what factors have contributed to their success and how they might be applied in other situations. The author proposes that theories from multiple disciplines can provide insight into the likelihood and ability of organizations to cooperate.

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ABSTRACT

The federal government has undertaken a massive reorganization in order to create the Department of Homeland Security and a parallel debate over how to organize homeland security functions has arisen at the State and Local government levels. In a time of severe budget constraints and rapidly changing threats, governments at all levels recognize the need for multiple government agencies, the private sector and non-governmental organizations to work together in order to provide effective homeland security. The effort to improve cooperation, especially at the “first responder” level, has become a major priority in the homeland security arena. How then can local governments, improve interagency cooperation for homeland security?

A recent conference of government officials and homeland security experts concluded that the central coast of California has one of the best emergency preparedness systems in the country. This thesis examines the high level of interagency cooperation that has arisen among public safety agencies in Monterey County, California in order to determine what factors have contributed to their success and how they might be applied in other situations. The author proposes that theories from multiple disciplines can provide insight into the likelihood and ability of organizations to cooperate. By drawing on bureaucratic politics, epistemic community and network theories the author develops an integrated model of interagency cooperation that describes the impact of organizational structure, institutional learning and information technology on interagency cooperation.

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LIST OF ACRONYMS

ARES ..... Ameteur Radio Emergency Services
CALCOORD..... California Coordination Network
CAO .....County Administrative Officer
CATS..... Consequences Assessment Tool Set
CAWAS ..... California Warning and Alert System
CBRNE.....Chemical Biological Radiological Nuclear Explosive
CDF.....California Department of Fire Protection
CLETS..... California Law Enforcement Teletype System
DHS.....Department of Homeland Security
DoD .....Department Of Defense
EDIS.....Emergency Digital Information System
EMO .....Emergency Management Organization
EMS .....Emergency Medical Services
EMT..... Emergency Medical Technician
EOC .....Emgergency Operations Center
EOD ..... Explosive Ordinance Disposal
ESM ..... Emergency Services Management
ESMS ..... Emergency Services Management System
FEMA .....Federal Emergency Management Agency
GIS .....Geographical Information System
GPS..... Global Positioning System
HazMat..... Hazardous Materials
HSAA .....Homeland Security Approval Authority
ICS .....Incident Command System
INS .....Immigration and Naturalization System
IT .....Information Technology
LAN .....Local Area Network
MCCLEOA ..... Monterey County Chief Law Enforcement Offiicers' Association
MCEMO .....Monterey County Emergency Management Organization
MCFCA ..... Monterey County Fire Chiefs' Association
MOCO .....Monterey County
NAWAS ..... National Warning and Alert System
NGO ..... Non-Governmental Organization
OA .....Operational Area
OACC.....Operational Area Coordinating Council
OASIS ..... Operational Area Satellite Information System
OES.....Office of Emergency Services
PBX .....Private Branch Exchage
RIMS ..... Response Information Management System
SAR..... Search and Rescue
SEMS .....Standardized Emergency Management System
SHSGP.....State Homeland Security Grant Program
TCP .....Tranfer Control Protocol

TMD ..... Theater Missile Defense
Tri-MAC ..... Tri-County Mutual Aide Committee
UPSTF ..... Unified Public Safety Task Force
USAR ..... Urban Search and Rescue
WMD ..... Weapon of Mass Destruction

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This thesis is based in large part on a number of interviews and observation that were conducted within the Monterey County Emergency Management System, without which would have severely limited its value. I am deeply grateful to the staff of the County Administration Office, the Office of Emergency Services, and the Office the Sheriff for their availability, accessibility and guidance. Particularly, Harry Robins, John Sherwin and Paul Ireland of the Office of Emergency Services, Veronica Ferguson of the Administration Office, Sheriff Mike Kanalakis, Chief Deputy John Calzada and Commander Mike Brassfield of the Office of the Sheriff provided tremendous help. Numerous other emergency service professionals also provided substantial input into this thesis, Notably Chief Sidney Reade of the Carmel Fire Protection District, and Monty Reitz of the Search and Rescue Volunteers.

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I. INTRODUCTION

A. BACKGROUND

The federal government has undertaken a massive reorganization in order to create the Department of Homeland Security (DHS) and concurrent with this reorganization, state and local governments are evaluating their ability to respond to homeland security threats. Government agencies, the private sector and non-governmental organizations (NGOs) recognize that they must to work together to provide effective homeland security. While these efforts are largely in response to the attacks of September 11, 2001, the issues being addressed were recognized by many experts prior to the attacks. For example, a 2000 study by the Stimson Center investigated the ability of local governments to respond to a weapons of mass destruction (WMD) attack and the federal government's efforts to help develop these capabilities. The title, "Ataxia,"[1] is the one word summary of the report which depicted the state of confusion that typified the local response and the inability of the federal government to effect coordination between agencies. The report found that federal money was profoundly misallocated on "assistance" in areas that were not needed while little if any money went to the purchase of sorely needed equipment.[2] Since September 11, the debate has focused in large part on the common perception that first responders are unable to communicate with each other and that there is no command and control mechanism for a coordinated local response to a terrorist or WMD attack.

While the debate ensues, local governments and first responders must continue to operate, responding to emergencies and natural disasters in a heightened security environment. Some state and local governments are developing their own departments of Homeland Security while others simply do not have the resources for major reorganization. Many governments have assigned responsibility for homeland security to whichever agency has primary responsibility for responding to other emergency situations.

[1] Lack of order or confusion, an inability to coordinate movement.

[2] Amy E. Smithson and Leslie-Anne Levy, *Ataxia: The Chemical and Biological Terrorism Threat and the Us Response* (Washington: The Henry L. Stimson Center, 2000).

Regardless of the organizational structure established for homeland security, cooperation between various governmental jurisdictions and with NGOs remains a critical and inescapable element of homeland security. Indeed, interagency cooperation in general is viewed as a key to developing good government practices. In an era of substantial budget constraints many governments are looking towards interagency cooperation as a way to save resources by reducing redundancy. More importantly are the detrimental effects that a lack of interagency cooperation can have on the ability of an agency to perform even basic functions. The so-called "intelligence failures" that were blamed for the lack of preparedness prior to the attacks of September 11th, were not so much failures as the inability of (or in some cases prohibition against) various agencies to coordinate their efforts and share information. This need for cooperation has been expressed by government leaders at all levels and is frequently highlighted as a "key element" of homeland security in the National Strategy for Homeland Security and other key policy documents.[3] In the midst of this emphasis on cooperation, there is little agreement regarding the specific actions government leaders and agencies should take to foster cooperation, and little clarity regarding what cooperation entails. How then can local governments, improve interagency cooperation for homeland security?

Like international cooperation, interagency cooperation is somewhat of a rarity. The typical governmental approach to cooperation is to mandate coordination through the creation of interagency committees and councils, or to restructure the lines of authority to place agencies that should cooperate with each other under the same leadership. Attempts to mandate cooperation may sometimes produce tangible results, but are often regarded as ineffective if not counter-productive by those who participate in them as they tend to highlight the

[3] *The National Strategy for Homeland Security*, (Department of Homeland Security, 2002, accessed April 2003); available from http://www.whitehouse.gov/homeland/book/index.html.

areas of disagreement and develop into bargaining sessions in an effort to reach common ground. As Thomas notes, these methods "tend to be seen as symbolic actions or struggles for political control."[4]

Conversely, examples of interagency cooperation that are heralded as successes are generally not driven by mandates or executive fiat, but develop at lower levels on the organizational chart. The actions of executives may be an important aspect of the development of cooperation, but the explicit instruction for agencies to cooperate on a particular task is not. The definition developed by Thomas in his investigation of epistemic communities is useful to describe this type of cooperation: "the unmandated effort by public officials in at least two agencies to coordinate their activities and/or share resources to achieve something they cannot achieve individually."[5] However, cooperative efforts should not be excluded simply because they don't involve public officials, or because the agency could have accomplished the activity on its own. Especially in the area of homeland security, the involvement of the private sector in cooperative efforts should not be discounted. Furthermore, cooperation may be useful to reduce costs or redundancy, not just to accomplish things that could not otherwise be done. Therefore, this thesis is based on the following definition of interagency cooperation: the unmandated coordination of activities and/or sharing of resources between two or more agencies. In light of this definition, this thesis investigates cooperation in Monterey County, California, focusing on the Office of Emergency Services and the agencies and organizations which contribute to the planning and coordination of the county response to homeland security threats.

A recent conference of government officials and homeland security experts concluded that the central coast of California has one of the best

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[4] Craig W. Thomas, "Public Management as Interagency Cooperation: Testing Epistemic Community Theory at the Domestic Level," *Journal of Public Administration Research and Theory* 2 (1997): p. 224.

[5] Ibid.: p. 225.

emergency preparedness systems in the country.[6] This thesis examines the high level of interagency cooperation that has arisen among public safety agencies in Monterey County, California in order to determine what factors have contributed to their success and how they might be applied in other situations. The author proposes that theories from multiple disciplines can provide insight into the likelihood and ability of organizations to cooperate. By drawing on bureaucratic politics, epistemic community and network theories the author develops an integrated model of interagency cooperation that describes the impact of organizational structure, institutional learning and information technology on interagency cooperation.

B. METHODOLOGY

This thesis uses a multi-disciplinary approach to examine the development of cooperation in homeland security. The analysis is based on three theoretical models that can be used to explain the lack or development of cooperation in organizations. These models are based on bureaucratic political theory, epistemic community theory and network theory and have distinct strengths that complement each other. Bureaucratic political theory focuses on the balance of competing interests among government agencies, and identifies goals, motivations and power as independent variables that can be used to identify the potential for cooperation between organizations. Epistemic community theory examines the role of ideas and the ability of like-minded professionals to influence policy in their respective organizations. This model provides an indication of the willingness of multiple organizations to cooperate with each other by examining the presence and strength of such a community. Network theory builds on these models by directly examining the ability of organizations to cooperate. It assumes the opportunity and willingness to cooperate, and then measures their ability to cooperate based on their efficiency in sharing information and resources.

[6] Sylvia Moore, "County Ready for Terrorism," *Monterey County Herald*, March 28 2002.

This multi-disciplinary model of cooperation therefore examines cooperation based on three complementary hypotheses:

- An opportunity for cooperation exists when the goals of the organizations are not attainable independently, the goals are not mutually excusive, and cooperation is not precluded by organizing principles or operational restrictions.
- The willingness of agencies to cooperate is greater if there is an epistemic community that shares information and ideas between organizations and has the ability to influence the policies of the organizations.
- The ability of agencies to cooperate is greater if the control structure and communication architecture allows for the efficient exchange of information and resources at multiple levels between and within agencies.

None of these statements are by any means innovative. Instead, this thesis attempts to apply these hypotheses outside of their typical fields of study and to combine them into a more complete model of cooperation. By doing so, they can be used to describe interagency cooperation in local governments, particularly in the area of homeland security. The first hypothesis provides insight into the impact of organizational structure on cooperation, indicating conditions that are more likely to result in cooperation. The second hypothesis address the role of individuals and groups in interagency cooperation, showing also that ideas concerning good government practices can have a direct impact on the development of cooperation. The last hypothesis examines the effect of information technologies on cooperation, showing that while it is not a panacea; the application of technology can affect both the ability of agencies to cooperate.

C. CASE STUDY

This thesis examines the Emergency Services Management System (ESMS) in Monterey County, California in order to test the applicability and usefulness of this theory to describe interagency cooperation at the local

government level. Emergency response in non-metropolitan areas typically involves agencies from all levels of government, with municipal governments bearing the largest burden. In area like Monterey County, however, the large number of small municipalities, and the large unincorporated areas, increases the importance of county agencies as both responders and coordinators. Therefore, while the response of municipal agencies is critical to the emergency management system of Monterey County, this thesis focuses primarily on the Monterey County Office of Emergency Services (OES) and those agencies that work directly with it to provide emergency management and response.

This case was selected primarily because of high level of cooperation apparent in emergency services in Monterey County and the availability of information and accessibility of government officials in the local area. On March 27, 2002, Congressman Sam Farr (D-CA), whose district includes Monterey County, met with local officials and experts at the Naval Postgraduate School to discuss emergency response capabilities and concluded that the "Central Coast has one of the best coordinated emergency preparedness systems in the country. . ."[7] If factors that contribute to this success can be identified, then they can be used to develop policy recommendations to help foster cooperation in other areas. Several other factors were also considered that make this case both relevant and representative of interagency cooperation in local governments throughout the United States.

First, there is no major metropolitan center in Monterey County. The structure and conduct of metropolitan governments have been more widely studied and are significantly different than that of other local governments. In counties without a large metropolitan government, there is often no single government with the resources needed to respond to emergency situations; these counties must rely on the mutual assistance of city, county, state and federal agencies.

[7] Ibid.

Second, as in local governments across the country, the Monterey County OES has been given the additional responsibility of planning and coordinating the local response to terrorism, with little or no increase in resources. Because of this local government officials are looking for ways to enhance interagency cooperation.

Third, the terrain and environment of Monterey County make emergency management and response relatively difficult. The county's large coastal mountain range limits movement by road from one part of the county to another and makes radio communication difficult. Response crews have to drive for up to two hours to reach the more remote areas. There are large wilderness areas that have frequent fires, and both the coastal and inland areas are subject to flooding.

Finally, there are a large number of government jurisdictions in the county making interagency cooperation both more difficult and more important. There are over twenty separate government agencies with jurisdiction in Monterey County, including twelve city governments, and large areas of state and federally controlled land.

Hence, interagency cooperation that successfully overcomes these obstacles could hold valuable lessons for other localities that face similar challenges.

1. Sources and Conventions

Monterey County government offices and officials provided most of the case study specific information in this thesis. In addition to information these offices provide to the public via official documents and web pages, information was collected from interviews with individuals and groups representing local government and non-governmental agencies. Because of the sensitive political nature of some of the issues discussed in these interviews, a policy of non-attribution was sometimes followed. These interviews are referenced only by year and type of agency for which the subject works. Some offices, notably

OES, allowed the author to observe training exercises, daily operations and coordination meetings. Information gathered from these events are referenced only by date and event. The author also served for over a year on the Sheriff's Department Search and Rescue team where he was able to observe and participate in interagency field operations. Information gathered during these operations is provided only as general commentary and is not referenced.

Throughout this thesis, reference is made to networks of various types including associations of people, technical equipment and protocols used to facilitate data transfer between computers, groups of similar communication devices used for a particular purpose, in addition to other meanings. No attempt is made here to develop or follow a single coherent definition of a network, the word is simply used in its various contemporary meanings.

2. Monterey County Government

Monterey is recognized as a "general law" county under the California constitution, meaning that county government structure and offices are defined by state law as opposed to a county charter or constitution. The county has limited jurisdiction and authority, as allowed by state law, to make and enforce statutes, provided for the public good and to raise and spend money. County jurisdiction does not extend into incorporated cities or state or federal property located within the county except by agreement with the jurisdictional authority. General Law counties in California are governed by a Board of Supervisors which has functions of both the legislative and executive branches of government. The Superior Court exercises judicial authori ty and several offices including the Sheriff, Clerk and Treasurer are separately elected officials. Cities within the county are not subject to the county government but are directly chartered by the State.[8]

[8] *About California Counties*, (California State Association of Counties, 2003, accessed April 2003); available from http://www.csac.counties.org.

3. The Office of Emergency Services

The State of California has established a basic structure for Emergency Management throughout the state referred to as the Standardized Emergency Management System (SEMS). This system establishes the basic jurisdictional boundaries for emergency management, the Operational Area (OA), and establishes certain organizational guidelines for Emergency Services Management (ESM) in an OA. The Monterey OA, as do many other, non-metropolitan OAs throughout the state, corresponds to the Monterey County boundaries, and in accordance with SEMS the management of the Monterey OA has been delegated to Monterey County.

The Monterey County Office of Emergency Services has been organized following the SEMS guidelines which allow for a flexible structure that can be augmented as needed during an emergency. A minimal staff of four full-time employees conducts the command, planning, logistics, administrative and financial aspects of emergency preparedness during normal conditions. During a crisis each of these functions would be designated as a section and staffed as needed by employees of other county offices and representatives of a wide variety of government and non-governmental agencies.

However, emergency response within the incorporated cities is the direct responsibility of the city government, not the county. The various city governments in the county must approve mutual aid agreements between the various agencies; and even during a crisis situation retain primary control for the response within their jurisdiction.

D. ORGANIZATION

This thesis is organized according to the theories used, including in each chapter a brief review of the literature, a description of the methodology used, case study information relevant to the application of the theory, and an analysis of the implications of the theory in regards to the development of cooperation.

While each chapter examines a distinct aspect of cooperation, they also build on the hypotheses developed in the preceding chapters.

Chapter II is an examination of ESM in Monterey County in light of organizational and bureaucratic political theory. The model of decision-making proposed by bureaucratic political theory, proposed initially by Graham Allison, is primarily concerned with the development of foreign policy as a result of tensions and competing goals of agencies, but these same factors impact the development and execution of domestic policy as well. In addition to Allison's work, this chapter draws from works by Henry Kissinger,[9] David Kozak[10] and Perry Smith[11] among others.

The Emergency Services Management System (ESMS) in Monterey County is comprised of agencies whose primary purpose may have little to do with emergency response but whose assistance is nevertheless required for a county-wide response. The Office of Emergency Services was established to coordinate the response of these various agencies and to balance their often competing concerns and motivations. Bureaucratic political theory recognizes that policy decisions and governmental actions are a result of interactions between these agencies. Furthermore, it indicates that actions by individual players can have a significant impact on outcomes and provides normative guidance for players to follow when trying to influence the decisions of their governments.[12] Organizational theory complements the "where you stand depends on where you sit" aspect of the bureaucratic political theory by directly examining the structure of complex organizations. As Snook concludes in his analysis of the 1994 UH-60 fratricide case in Northern Iraq, the structure of an organization itself can have a critical impact on policy and action, resulting, in the

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[9] Henry Kissinger, *Nuclear Weapons and Foreign Policy* (New York: Harper, 1957).

[10] David C. Kozak and James M. Keagle, *Bureaucratic Politics and National Security : Theory and Practice* (Boulder, Colo.: L. Rienner Publishers, 1988).

[11] Perry Smith, *Assignment--Pentagon: How to Excel in a Bureaucracy* (Washington: Brossey's, 2002).

[12] Graham T. Allison and Morton H. Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications," *World Politics* 24, no. Supplement: Theory and Policy in International Relations (1972).

worst case, in the tragic failure to communicate vital information.[13] Chapter II describes the structure of this system and identify the competing interests of the major agencies involved. In doing so I will attempt to identify the major obstacles to cooperation within the Monterey County ESMS and to propose policies that can be implemented in a bureaucratic system to mitigate these obstacles and foster, instead of mandate, cooperation.

Chapter III is an exploration of the role of ideas in ESMS, particularly the application of epistemic community theory to the development of interagency cooperation. Epistemic community theory proposes that the development of coherent policies across agencies and governments is more likely if there is a community of like-minded professionals among the agencies that share ideas across bureaucratic boundaries.[14] Epistemic community theory reflects the broader notion that ideas themselves play a significant role in the development and application of policy in government – that good ideas span differences in organizational motivations and that leaders can and do adopt these ideas as policy. Although much of the work concerning the role of ideas in the development of policy has been focused at the international level, Craig Thomas and others have proposed that they are applicable at the domestic level as well.[15] In addition to his article, works by Peter Hass,[16] Emanuel Adler,[17] Ernst Haas,[18] and Daniel Drezner[19] are also considered. Within the Monterey County ESMS there is a small group of individuals from various agencies that seems to be responsible for a majority of the cooperative efforts. In this chapter I will

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[13] Scott A. Snook, *Friendly Fire: The Accidental Shootdown of U.S. Blackhawks over Northern Iraq* (Princeton, NJ: Princeton University Press, 2000).

[14] Peter M. Haas, "Introduction: Epistemic Communities and International Policy Coordination," *International Organization* 46, no. 1 (1992).

[15] Thomas.

[16] Haas.

[17] Emanuel Adler, "The Emergence of Cooperation: National Epistemic Communities and the International Evolution of the Idea of Nuclear Arms Control," *International Organization* 46, no. 1 (1992).

[18] Ernst B. Haas, *When Knowledge Is Power: Three Models of Change in International Organizations* (Berkeley: University of California Press, 1990).

[19] Daniel W. Drezner, "Ideas, Bureaucratic Politics, and the Crafting of Foreign Policy," *American Journal of Political Science* 44, no. 4 (2000).

examine the various ESM cooperative efforts in Monterey County, analysis the involvement of this core group and evaluate the applicability to epistemic community theory to this situation. Furthermore I will explore the possibility and utility of fostering the development of such a community and the exchange of ideas within and between homeland security agencies.

Chapter IV will focus on the technical aspects of cooperation. Modern network theory argues that information technology can have a direct impact on cooperation as the increased ability to access and share information overcomes the inherent inefficiencies associated with non-hierarchical organizations.[20] John Arquilla and David Ronfeldt have co-authored several pieces on this topic.[21] Eugene Bardach,[22] Dorothy Denning,[23] Gregory Rattray[24] and Bill Owens[25] have made important contributions to this emerging field as well. Some network theorists propose that the application of IT can foster cooperation by allowing organizations to overcome bureaucratic obstacles as agencies with similar but separate goals and motivations share information and resources in a peer-to-peer network rather than through traditional chains of authority.[26] This chapter examines the control systems and information architecture in the Monterey County ESM and its impact on interagency cooperation. Additionally, this chapter contains an overview of existing technologies that might be applicable to

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[20] John Arquilla and others, *In Athena's Camp : Preparing for Conflict in the Information Age* (Santa Monica, CA: Rand, 1997), p.5.

[21] John Arquilla and David F. Ronfeldt, *Networks and Netwars : The Future of Terror, Crime, and Militancy* (Santa Monica, CA: Rand, 2001).

[22] Eugene Bardach, "Can Network Theory Illuminate Interagency Collaboration," in *Workshop on Network analysis and Innovations in Public Programs* (University of Wisconsin-Madison: 1994).

[23] Dorothy Elizabeth Robling Denning, *Information Warfare and Security* (New York Reading, Ma.: ACM Press ; Addison-Wesley, 1999).

[24] Gregory J. Rattray, *Strategic Warfare in Cyberspace* (Cambridge: MIT Press, 2001).

[25] William A. Owens and Edward Offley, *Lifting the Fog of War*, 1st ed. (New York: Farrar Straus and Giroux, 2000).

[26] Robert W. Button Walter Perry, Jerome Bracken, Thomas Sullivan, and Jonathan Mitchell, *Measures of Effectiveness for the Information-Age Navy: The Effects of Network-Centric Operations on Combat Outcomes* (Rand, 2002).

the fields of homeland security and emergency management and how these technologies might be incorporated into the Monterey County ESMS.

The final chapter returns to the political and budgetary situation of the Monterey County ESMS and considers the practical implications of the proposals developed in the other chapters. In the development of policy proposals, particular attention will be given to those proposals that can be implemented at the OES level with little or no impact on the budget, and to those policy implications that may apply outside of the Monterey County System to other local and regional governmental agencies involved in homeland security. In order to develop these proposals it will be necessary to make comparisons across the theories as discussed in Chapters II, III and IV, returning to the questions of applicability, scope and value of the various theories. Are there areas outside the scope of one theory that are addressed by another? Do the theories indicate similar problems and solutions to questions of cooperation? This thesis proposes that that these theories are complementary and can be used together to describe cooperation at the local level, and to develop policies to foster inter-agency and extra-governmental cooperation. Finally, several general policy recommendations are made that if adopted by local governments would help to foster interagency cooperation, particularly for emergency response and homeland security. Many of these recommendations could be adopted as effective management practices within agencies regardless of the actions of government as a whole, while others indicate how capital expenditures and infrastructure improvements should be prioritized.

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II. BUREAUCRATIC POLITICAL THEORY

A. INTRODUCTION

This chapter examines the political/bureaucratic structure of the Monterey County Emergency Services Management System (ESMS), and the impact this structure has on the development of interagency cooperation. Structural approaches in general argue that the organization of a system and the rules which govern how the system works provide explanatory and predictive insight into outcomes. Bureaucratic political theory specifically attributes the decisions and actions of a government to the political bargaining of key players whose positions on issues are largely determined by their position in the bureaucracy. This chapter examines the applicability of this model to the Monterey County ESMS, highlighting the differences between national and local government structure, and showing that these structural differences allow for a wider set of potential outcomes than is typically suggested by bureaucratic politics theory. Recent budget and policy decisions regarding homeland security are examined to judge the applicability of the theoretical model, and major bureaucratic obstacles to the development of cooperation in a local government setting are identified. Finally, policy options that may help overcome these obstacles are proposed.

Graham Allison's work, Essence of Decision, opens up the black box of governmental decision-making in national security. Instead of the unitary national actor, operating to maximize power in its relationships with other states, Allison recognized that governments are made up of sub-state actors who may have goals and motivations that contrast and are in competition with those of other sub-state actors.[27] In the bureaucratic political theory literature, these actors are most often referred to as players, which lends itself to viewing policy making as a game and national security policy as the outcome of the game. Bureaucratic political theory has grown out of the Allison's model and provides a

[27] Graham T. Allison, *Essence of Decision; Explaining the Cuban Missile Crisis* (Boston: Little, Brown and Co., 1971).

powerful tool for answering three fundamental questions of international relations. First, “why did a state take a particular action?” Second, “what action is a state likely to take in a particular situation?” Third, “how can a sub-state actor influence the actions of a state?”[28] While these questions are particularly pertinent in international relations, if the bureaucratic political model is valid, then might it also be useful for examining questions of domestic policy?

At first look, examining domestic policy using a bureaucratic political model seems redundant. After all, the unitary state actor that bureaucratic political theory breaks apart is not assumed in domestic policy theory, especially as it relates to policy in a democratic/federal system like the United States. Nevertheless the domestic policy game is very similar to the development of a state’s international policy. Domestic policy at the federal as well as the state and local levels can be described as the result of the competing interests of the various players. This model may be particularly suited for examining homeland security policy as it is at the intersection of domestic and national security policy. It is also interesting to note that homeland security policy shares a connotation of importance with national security policy that Allison notes makes a unitary actor model preferred. Allison recognizes that “to accuse someone of ‘playing politics’ with national security is a most serious charge.”[29] This holds for homeland security policy as well. Like national security policy, homeland security policy is not determined by a unitary actor, but by bargaining – by the game of domestic politics.

Understandably, crisis decision-making is at the core of many of the case studies that have been used to develop bureaucratic political theory. Analysis of crisis decision-making not only provides a clear measure of policy outcomes (that is, publicly announced decisions and government action), but also analyzes that area of national security policy where “playing politics” is least acceptable. However, the vast majority of national security policy cannot be labeled as crisis

[28] Allison and Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications."

[29] Ibid.: pp. 42-44.

decision-making, and with very few exceptions the same is true for homeland security policy. Several works, including those by Jayne, Rockman and Seidman, clearly show that the bureaucratic political model is just as applicable in the mundane day-to-day development of policy and budget as it is in crisis decision-making.[30]

A traditional bureaucratic politics model would indicate that a process of bargaining and struggle for expanded resources and importance would be the result of a significant event such as September 11th. This model provides an accurate description of the decisions and actions taken by the federal government as it responded with the development of DHS. While there was agreement that changes must be made, there was significant disagreement and debate concerning how the issues should be addressed and how DHS should be organized. The final result represented a bargaining solution where strong, independent agencies such as the Coast Guard retained significant autonomy, while other agencies with less bargaining power, such as the Immigration and Naturalization Service (INS) have been virtually dissolved. These agreements were reached with significant bargaining and the decision of the President as the final significant arbiter of the proposal that was adopted by Congress. However, if a bureaucratic politics model is to be applicable in these situations, it should also be able to account for more cooperative responses by governments as well. In the case of Monterey County, the events of September 11th seem to have resulted in more, not less, cooperation.

B. METHODOLOGY

Allison and Halperin provide a simple, useful model of bureaucratic politics based on three independent variables: who plays; what determines a player's position; and how these positions are aggregated into an outcome.[31] Although this model does not rule out cooperation and agreement, it does assume that

[30] Kozak and Keagle.

[31] Allison and Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications," pp. 46-47.

cooperation is not the natural state of affairs. At the time the article was first published this notion of "security policy as 'political' result"[32] was contrary to conventional wisdom which held that the national interest took precedence, resulting in agreement and cooperation in national security matters. Allison and Halperin describe a non-cooperative bargaining process in which "organizations rarely take stands that require elaborate coordination with other players."[33] While these situations are indeed rare, there are certain elements of the game, particularly the structure of the organization and the environment in which the game is played that seem to have a direct impact on cooperation and are useful in describing the situations where cooperation may develop:

- The central executive, as described in the Allison-Halperin model, may limit the opportunity for cooperation as it is defined here. The absence of a central executive reduces the chance that an agency will be forced to coordinate, making non-mandated cooperative efforts more likely.
- Self-interested motivations may increase the opportunity for cooperation, when players take stands that are mutually beneficial or promote a related interest.
- The opportunity for cooperation is greater if the players have complimentary goals but lack the resources to accomplish those goals alone.

1. The Central Executive

The Allison-Halperin model places large emphasis on the role of the president or other central executives in arbitrating disagreement among the other senior players and making the ultimate decisions, as well as heavily influencing action games in which he is a less active player. The result of this arbitration process often resembles (and is even often called) cooperation as communication between agencies increases and resources are transferred or reallocated. In some cases the objective of cooperation, that is, the ability for an agency to achieve objectives that it would otherwise not be able so achieve, may even be reached. This would be the ideal outcome of a bureaucratic system as

[32] Ibid.: p. 43.

[33] Ibid.: p. 49.

envisioned by Weber, but as Allison describes, is seldom the situation in reality. In most cases the directive to share resources and increase communication is carried out grudgingly at best, and is often sabotaged by players as they continue to maneuver for the self-interests of their agency. Removing the central executive from the game, as would be the case in many local government situations, would have a significant impact on the bureaucratic political model. Without the pressure of the mandated coordination, agencies would have more flexibility to communicate and share resources as they see fit. While the over-all incidence of these activities would likely decrease, those that continue would clearly be classified as "non-mandated efforts," (i. e. cooperation).

Additionally the lack of a senior executive would have a significant impact on a player's position on any given issue. Without the potential for an authoritative decision in any one player's favor, each player must select a position that is potentially acceptable to other players.[34] Finally, as Allison and Halperin note, in cases where there is little potential for the individual players to become the senior executive, personal political gain from a game is less important.

Removing the senior executive from the game affects how decisions are made. Without a senior executive, there are two potential ways to determine the outcome of a game: either each player decides or acts in accordance with his position and resources (in which case a game doesn't really exist), or else the decision is made by some type of vote or consensus with the players agreeing to abide by the outcome.[35] An alternative arrangement might also exist where there is a senior executive, but he remains aloof and only makes a decision if the senior players fail to reach an agreement. In this case, involvement of the central

[34] This assumes that in the particular game the participation of at least some other players is essential to any acceptable outcome. If a situation exists where a single player has the resources and authority to carry out an acceptable outcome, then the involvement of other players is likely to be seen as a burden and no "game" will develop at all.

[35] This vote might be held by a committee made up of the senior players, or by a large, more inclusive group. However in the case where the vote is held by a committee of non- or marginal players, the committee would be serving, in effect, as the senior executive and the game would more closely resemble Allison's.

executive may be perceived as a failure of the senior players and the game might proceed as if there were no central executive. Except in the case of autonomous action described above, bargaining, as Allison and Halperin argue, remains a key component of the process.

They also note that the bargaining process may entail significant compromise as players try to gain adherents to their preferred solution. In the situation where the decision is made by a formal voting process, this bargaining process is likely to proceed much as Allison and Halperin describe, with the result determined by each player's advantages, their "skill and will" in bargaining, and other players' perceptions.[36] Consensus decision-making may resemble this bargaining process as players trade position for consensus; however the result of the process can be substantially different, ending not in a pile of bargaining chips that reflects the priorities of each player but in a more coherent solution that expresses the collective views of the group.

2. Motivations to Cooperate

The Allison-Halperin model argues that the stand a player takes is largely determined by the institutional goals and biases that the player represents, as well as by his personal goals; in short, "where you stand depends on where you sit." This model is very helpful in understanding why players might take a position that is clearly not in the national interest, or how a debate might arise concerning the proper response to a crisis. These organizational motivations are typically presented as drawing the players' positions further apart as the players seek to increase their personal or organizational position, power and resources. However, there can also be organizational motivations that either move the positions closer together, or make cooperation more valuable in general. As Allison and Halperin note, a player is likely to be most protective of what he sees as his organization's primary role. The case may arise where it is in the organization's interest to side with a customary opponent in order to shed

[36] Allison and Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications," p. 50.

secondary roles and reallocate resources to the primary, or to bank goodwill with another player than can be used to support his position in a future, more important exchange.

Blame avoidance might also motivate a player to take a position that is more cooperative. While a particular stand may not meet the organization goals of a player directly, it might serve to deflect the loss of resources and reputation that would result from being blamed for a governmental failure. Conversely, in situations where blame for failure may not be an issue, the potential gain in resources and reputation that would result from being "part of the solution" may be enough for some players to adopt a more cooperative position. As Allison and Halperin surmise, organizational and personal interests usually have the most impact on determining the stand that players take. However, cooperation is more likely to develop when those interests are convergent with the interests of other players.

3. Overlapping Goals and Resources

A common bureaucratic politics game begins with a struggle for resources between two agencies that have similar roles but neither enough resources nor enough power to fully carry out those roles. The game typically ends with one agency being stripped of its role and its resources being allocated to the other, or with a tense agreement that balances roles and resources and dictates "cooperation." These types of outcomes are common in the Department of Defense (DoD) and would generally be categorized in the Allison-Halperin model as a postponement of the decision. In these cases, not only is there no clear winner, but because the issue is never resolved, no real cooperation between the agencies develops. Instead, a struggle for resources and dominance develops

which may continue indefinitely.[37] This situation also presents the opportunity for log-rolling, that is, the players providing mutual support in order to increase the overall pool of resources.

However a third outcome is possible when the agencies involved cut across jurisdictional boundaries and there is little potential for final arbitration, reallocation (either permanent or cyclic) of resources, or an increase in overall resources (such as the current budget crises in Monterey County). In this case there are two potential outcomes. First, the players might pursue their roles with their own resources – in effect there is no game. In this situation there are likely to be significant redundancies and/or gaps depending on the resources available. The second possible outcome is for the players to engage in a cooperative game, working together to allocate scarce resources with a minimum of redundancy and gaps. This is admittedly an unlikely outcome unless there are other factors that would also motivate the players to cooperate.

In summary, while the bureaucratic political models typically explains the conditions that lead to a non-cooperative game where players struggle for roles, resources and power, there are conditions that might indidicate a cooperative game. These conditions in themselves do not ensure a cooperative effort between the players, but do establish the basic conditions required for cooperation to develop. First, when there is no central executive, other players might be more willing to make concessions and develop consensus. Second, cooperation is more likely to develop if there are self-interested motivations. Finally, when there can be no clear "winner" and no player has the resources needed for its goals, cooperation would be the optimal solution.

C. CASE STUDY

As described by the Allison-Halperin model, a bureaucratic politics game may be started either when external events demand a government decision or

[37] Take, for example, the struggle for resources that has developed around Theater Missile Defense. While the Ballistic Missile Defense Organization has been established as a "cooperative" effort by the joint community, its main role is to serve as a referee between the services as they each develop their pet projects and fight for dominance and resources.

action, or when a player wants to generate a decision or action. They also note that there are often multiple sub-games that may be taking place at the same time, and that these games often proceed based on established patterns of decision-making or action channels.[38] In Monterey County the "official" action channel is through the Board of Supervisors, but in reality decision-making resides primarily with the various department heads, who have significant autonomy in their respective areas.

The central game in the emergency management arena in Monterey County is the same game being played out around the country. Triggered by the events of September 11, 2001, governments at all levels are investigating, reorganizing and re-funding all aspects of emergency response and homeland defense. Related sub-games in Monterey include requests for federal funding being channeled through DHS, and a California-wide budget crisis caused primarily by the collapse of the dot-com bubble.

As in most bureaucratic politics games, the primary concern for most players is the retention or increase of roles, resources and power. However, these games seem to exhibit a higher level of cooperation than many other games and therefore should exhibit the characteristics discussed above. In order to examine these games more closely, this section provides an overview of the players, positions and motivations of the senior players, then examines how the games have progressed so far and to what extent they exhibit the characteristics of a cooperative game.

1. The Monterey Emergency Management Bureaucracy

a. Board of Supervisors

The County Board of Supervisors is a group of five elected officials representing geographic districts.[39] By California State Law this board has both legislative and executive authority for the county, but its members have no authority to act individually – all official decisions and actions must be made by

[38] Allison and Halperin, "Bureaucratic Politics: A Paradigm and Some Policy Implications."

[39] *About California Counties*, (accessed).

the board as a whole. Furthermore, executive powers are limited as the board does not have the authority to change duty descriptions established by State Law, or, except in limited circumstances, to supervise other elected officials in the county such as the Sheriff or Clerk.[40]

Individual members of this board have several potential motivations, including the desire to be re-elected or to be elected to other positions in government. This is likely not a strong motivator as Supervisors are elected for five year terms, in generally unopposed races. Election to other posts would likely require party support so Supervisors are unlikely to take positions that are fundamentally opposed to their party; beyond this, party affiliation is insignificant in local politics and none of the Supervisors make a point of carrying a party label.

As the individual Supervisors have no authority outside of the board, the motivations of the board as a group are perhaps most important. The current Board has adopted a set of "Guiding Principles" that reflect their primary concerns. These principles, along with a set of "Goals and Objectives" encourage among other things, "risk taking," "coordinated planning," "cost-saving ideas" and "collaboration."[41] While these phrases largely reflect the buzz words that can be found in many modern organizational documents, they provide an official backing to collaborative efforts. The ideas were further reinforced by the Board of Supervisors during the selection of the County Administrative Office (CAO) in 1999 when they publicly sought a candidate that would "improve the relationships between the county and other governmental agencies."[42] These actions by the board drop barriers to cooperation that are found in many government situations where cooperation is prohibited by the restriction of authority or punished (often inadvertently) by the reduction of roles and resources.

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[40] Ibid.(accessed).

[41] *New Employee Orientation Manual* (Monterey County, 2002).

[42] *Interview, Veronica Ferguson, Monterey County Office of Administration, May 12*, (Salinas, CA: 2003).

Other motivations of the Board likely center around the drive to be a competent, involved and effective governmental body, and to be recognized as such by the other players. In short they want to do a good job as a board, and be recognized. Since terrorism and homeland security have been high on the public agenda across the nation the Board of Supervisors was likely to add to the discussion as well as to respond publicly to situations as they arose. They are unlikely to publicly cut budgets and activities related to homeland defense.

b. County Administrative Officer

The County Administrative Officer (CAO) is appointed by the Board of Supervisors, has primary responsibility for the daily operations of most non-elected County Offices, and has some control over the Board of Supervisors agenda. The COA also serves as the ex-officio head of many departments, including the Office of Emergency Services. The current CAO, Sally Reed, has delegated many of these ex-officio duties to the Assistant CAO, which creates another level of bureaucracy between these departments and the Board of Supervisors. The CAO is not the final arbiter of disputes between agencies, but does attempt to resolve issues before they are presented to the Board. One of the primary responsibilities of the CAO is to manage the county budget process, including the development of many department budgets and the presentation of the overall budget proposal to the Board of Supervisors. When the Emergency Operations Center (EOC) is activated the CAO must either assume her duties as the ex-officio Director of the EOC or appoint an alternate.[43]

As an unelected official, the CAO is less concerned with public opinion than is the Board of Supervisors. She may even view publicity as an obstacle in performing her duties, not wanting to generate public debate on controversial decisions that have to be made by her, her staff and the board. As the chief administrator and financial officer, her primary motivation is the efficient operation of the county government – public opinion is less important than expert

[43] *County of Monterey*, (Monterey County, 2003, accessed Apr 2003); available from http://www.co.monterey.ca.us.

opinion. The overall success of the county government is more important than the individual success or growth of any one department. In addition, if resources can be gained in any department through state or federal funding, this reduces the allocation problems for the county as a whole. Finally, responsibilities should be kept out of the county jurisdiction when practical as increased responsibilities would not likely be supported by increased resources.

Finally, the CAO was hired specifically as an integrator with a charge from the Board of Supervisors to improve relationships. The CAO therefore would likely encourage cooperative efforts, and in light of the significant budget constraints support efforts by OES and other agencies to apply for grants being offered by DHS – as long as these grants don't require that the County take on new responsibilities. She would also be unlikely to propose the reallocation of resources from other agencies into OES, Health, or other response agencies in response to an increased public awareness of the threat.

c. Emergency Services Manager

The Emergency Services Manager is appointed by the CAO/Board of Supervisors, and, although he holds the title of Deputy Director of the Office of Emergency Services (OES), has the autonomy to run the office as the Director except during a crisis. The Emergency Services Manager is responsible for planning and managing the county government response to natural disasters and other emergency situations including terrorist attacks, and for coordinating the county government response with other government jurisdictions and non-governmental organizations. A primary responsibility of the Emergency Services Manager is maintaining the Emergency Operations Center and training the EOC staff. There are three other full-time positions in the Office of Emergency Services, but all other EOC staff positions are filled by representatives of other departments and agencies.[44]

[44] Monterey County Emergency Management Services, "Monterey Operational Area Emergency Operations Plan," (Salinas, California: County of Monterey, 1999).

A basic motivation for cooperation discussed above, that is, the lack of resources to accomplish goals that overlap with other agencies, particularly applies to the Emergency Services Manager. In effect, he is implicitly charged with developing cooperative efforts as he does not control the resources that would be used in a crisis situation. The principal task of OES is to plan, coordinate and control the county response to an emergency situation – there is no expectation that this agency has the internal resources needed to respond to an emergency situation independently. Because of this the manager is likely to have a higher awareness of, and be more responsive to, the threats posed by natural disasters and terrorism and will argue for increased resources for OES as well as contributing agencies regardless of the funding source.

d. County Sheriff

The County Sheriff is legally an elected official of the State Government, and as such has significant autonomy within the county. Although the sheriff is nominally supervised by the Board of Supervisors, their authority does not extend into the Sheriff's role as an officer of the State or the courts and they have no authority to remove or censure the Sheriff. The Sheriff's Departments is one of the largest departments in the county with a staff of over 450, including law enforcement, corrections and Search and Rescue duties. The department is funded primarily through the county general fund resulting in public protection as the largest line item (consistently over 30%) in the $500 million county budget.[45]

The current Sheriff, Mike Kanalakis, has stated that an improved response to the threat of terrorism and the application of technology are two of his top priorities.[46] As an elected official, these priorities reflect his perception of the concerns of the community. His emphasis on terrorism and technology is

[45] Monterey County, *County of Monterey*(2003, accessed Apr 2003); available from http://www.co.monterey.ca.us.

[46] Sheriff Kanalakis' priorities (listed in his order) are: "Employee Recruitment and Retention; Drug Related Crimes; Gang Enforcement; School Violence; Jail Overcrowding; The Threat of Terrorism; Rural and Hate Crimes; Environmental Crimes; Applying New Technology." From http://www.co.monterey.ca.us/sheriff/mcso/index2.htm; Accessed April 2003

likely to be coordinated with his other priorities, resulting in increased emphasis and allocation of resources to those activities that can have a positive effect on several priorities. There is the potential for blame avoidance as an additional motivator, the Sheriff wanting to ensure that in any circumstance it will not appear that his department has been negligent or unprepared. This motivation is potentially heightened by the negative press that the department, and the previous Sheriff, received regarding accidental shootings and other complaints.[47]

e. Civil Grand Jury

The Civil Grand Jury system in California has been established by U. S. and California Law to serve as a government "watchdog" agency as well as to bring formal criminal charges against public officials when needed. The members of the Grand Jury in Monterey are private citizens appointed by the Superior Court for a period of one year. The Grand Jury is specifically authorized to inspect and audit the books and records of county and city governments and to ensure that public officials are carrying out their duties.[48]

The Civil Grand Jury's motivation as a group is likely to make a positive impact on their community. The Civil Grand Jury is made up of 19 jurors, selected by the Superior Court from a pool of voluntary applicants. Remuneration is negligible and the time commitment is substantial (usually less than $2000 a year for up to 30 hours a month of duty) and a juror cannot serve consecutively, so there is little financial motivation to serve as a juror. Assuming this "do-gooder" motivation of the members, the jury is likely to take positions that generally reflect public opinions and priorities. As they have substantial leeway in what they examine in their general investigations, the areas selected to study would also likely reflect their perceptions of community priorities. Thus they

[47] See for example, "Sheriff's Actions Taint Department," *Monterey County Herald*, September 27 2002.

[48] The Superior and Municipal Courts of the State of California in and for the County of Monterey, *Grand Jury Report 2002*(2002, accessed April 2003); available from http://www.co.monterey.ca.us/court/grand_jury_report_2002/index.html.

would be likely to call for increased funding and emphasis in counter-terrorism and homeland security, and also retain homeland security as an issue in order to prevent fraud and ensure that additional funds are not wasted.

f. Emergency Communications Manager

The Emergency Communications Manager directs the county-wide 911 and emergency dispatch center and is responsible for coordinating emergency response with other local dispatch centers and first responders. The Emergency Communications Department is a separate department within the County Government, with the CAO serving as the ex-officio director.[49]

The Emergency Communications Manager is likely motivated primarily by the need for his staff to operate continually in a stressful, emergency management environment. Long-term measures and preparation for crisis situations are likely somewhat less important to him than resources that can be immediately applied to improve emergency response. The Emergency Communications Managers responsibility to provide for a quick, appropriate response during emergencies has significant overlap with the goals of responding agencies and provides substantial incentives for cooperation as he does not control the resources to ensure this goal is met.

g. California Emergency Services Director

The California Emergency Services Director is responsible for coordinating the state-wide response to terrorist and other emergency situations. Although he does not have authority over how local resources are allocated, the California Office of Emergency Services (OES) does serve as a primary source of State and Federal funding available to augment local resources. These funds are generally targeted to achieve particular capabilities such as enhancing inter-connectivity or ensuring a distribution of capabilities throughout the state. Similarly, the State OES does not directly manage the organization and operation

[49] *County of Monterey*, (accessed).

of the County OES, but does have substantial informal influence thought the publication of “Local Planning Guides” and information databases.[50]

The State Director’s motivations are likely similar to the Monterey County Emergency Manager’s. The State director is probably more concerned with budget allocation issues, attempting to ensure that local governments receive appropriate additional funding, while avoiding the blame situation that would be caused by a significant incident for which the State OES was unprepared or unable to respond. The Sates director’s priorities however, are understandably focused on the major metropolitan areas in the state.

h. Pacific Gas & Electric

Although not a government agency, as the primary utility company in the area, Pacific Gas and Electric (PG&E) is a senior player in emergency policy and response. In an emergency situation PG&E crews are expected to coordinate their response with other first and field response units. They have been allocated space within the County EOC and participate in policy discussions and training exercises.[51]

As a publicly traded corporation, PG&E’s primary motivation is to maximize shareholder value. How this motivation translates into the area of emergency preparedness may be tied to public perception and blame avoidance. From a purely business perspective the utility wants to spend as little money as possible preparing for low-frequency events, while ensuring that when service is interrupted they are able to return power quickly. However public opinion also has an impact on the regulatory environment that PG&E must operate in, and, as evidenced by the commercials currently airing in California that depict crews responding to storm outages, PG&E considers this an important factor. In addition, the worst public-relations situation for PG&E is an extended outage that they seem unwilling or unable to repair. This possibility likely helps generate a

[50] *Governor's Office of Emergency Services*, (State of California, 2003, accessed April 2003); available from http://www.oes.ca.gov/Operational/OESHome.nsf.

[51] "Monterey Operational Area Emergency Operations Plan," (Salinas, California: County of Monterey, 1999).

robust and cooperative attitude from PG&E in policy planning as well as in emergency response. They would likely oppose policies that would have significant financial impact, but would be more willing to develop infrastructure and capabilities with a dual use or a potential for low-cost public relations gains.

i. County Director of Health

The Monterey County Director of Health is responsible for managing the County Department of Health, coordinating emergency medical and health services throughout the county. The Director certifies emergency medical providers, issues health alerts and guidance on public health issues, and tracks outbreaks of communicable diseases. During an emergency situation the department coordinates efforts to prevent the outbreak of disease resulting from poor sanitation and to manage emergency medical resources. The department would likely be the local agency that would recognize and manage the response to a biological or chemical attack.[52] There are few structural motivations for the Director of Health to develop cooperative efforts other than to avoid being characterized as an impediment to progress.

2. Decisions and Actions

Game outcomes are somewhat ambiguous in the absence of a natural disaster or terrorist event in which real responses and abilities can be measured. However there are several indicators that are not only indicative of the players' motivations and positions, but also indicate that in Monterey County counter-terrorism and emergency preparedness is in fact a bureaucratic political game structured in a way that makes cooperation possible. As noted above, for practical purposes this game can be said to have started on September 11, 2001. Besides the national events of that date, a meeting of the Board of Supervisors, where they were discussing the events in New York and Washington, D. C., was cut short by a bomb threat. This event reinforced the need for the County to take action, not only in support of the nation, but to ensure

[52] *County of Monterey*, (accessed).

that Monterey County was itself prepared for a terrorist attack. The lack of a central executive precluded thee immediate reallocation of resources or the official assignment of an executive agency specifically to coordinate this response, as happened in the federal government. However, even without the impetus of an executive, the response, coordinated in large part by OES was generally coherent and appropriate.

Since 9/11, the Board of Supervisors has taken several actions and policy measures related to emergency services. They have allocated funds to build a new, combined EOC and 911 Center, allowing these agencies to move out of the Courthouse basement to a modern facility closer to the County Information Technology (IT), communication, and engineering centers.[53] They have also repeatedly provided additional funding to the 911 center to upgrade equipment, and significantly, recognized incoming federal and state grants to both the Emergency Communications Center and the Emergency Management Center as extra-budgetary income and appropriations which helped to prevent the reallocation of resources away from the programs the grants were intended to help. The process of developing these grant proposals provides further examples of how interagency cooperation is developing in Monterey and is examined in detail in Chapter II.

Both the Civil Grand Jury, in its 2002 report, and the Board of Supervisors in various documents recognize that the threat to Monterey County from terrorism is comparatively low and that the County would receive substantial assistance from the State and Federal Government in the event of a direct attack.[54] More likely and therefore more important is the ability of the county to respond to the fringes of a crisis that spills over into the county. In such a scenario, there would likely be little if any external support. In keeping with these observations there has been no move by any senior player to reorganize

[53] *New 911/Emergency Operations Center*, (2003, accessed May 28 2003); available from http://www.co.monterey.ca.us/capitalprojects/911oes.html.

[54] *County of Monterey*, (accessed).

the County government to create a local counterpart to DHS, instead the emphasis has been to augment services that are already in place.

The Civil Grand Jury, as would be expected, did put homeland security on their 2002 agenda, choosing to investigate the OES:

> This was motivated in part by a post-September 11, 2001, perceived need to assure that the County is organized to meet the demands which would be imposed on its resources should a disaster or a terrorist-like assault occur.[55]

This investigation found that the County was "reasonably well-prepared" but would benefit from an increase in funding and staffing, a streamlining of the bureaucracy that has developed between OES, the CAO and the Board, as well as better participation from other agencies and NGOs in exercises. The Board of Supervisors' response to the Grand Jury report is more a reflection of the CAO's position than that of the board, agreeing with the call for more active participation, but disagreeing with and not implementing the other suggestions. According the response, the situation of the OES "is not unique given the County's current fiscal position." Furthermore the recommendation for additional staff would "not be implemented because the County has many competing needs for staff resources.[56] It is noteworthy that because of the significant budgetary issues throughout of the Civil Grand Jury report, and the steep cuts expected in the upcoming budget, the responses to the CGJ report were drafted by the CAO budget office.[57] These responses were approved without discussion by the Board.[58]

This disagreement between the CAO and the Grand Jury highlights the ability of the CAO to influence the decision-making process through procedural control. Had there been more public debate on the issue, or if it had been picked

[55] County of Monterey, (accessed).

[56] *Response to Civil Grand Jury Report* (Salinas: Monterey County Board of Supervisors, 2003).

[57] *Interview, Veronica Ferguson, Monterey County Office of Administration, May 12*.

[58] *Minutes Board of Supervisors, Tuesday March 18, 2003*, (2003, accessed April 2003); available from http://www.co.monterey.ca.us/suagenda/past/2003/03-18-03M.htm.

up on by the press, the outcome might well have been different. While an increase in the OES staff would be beneficial, from the overall perspective of the CAO it is untenable givien the severe budget situation. Her proposed budget for FY 2004 will reflect a 25% reduction in operating expenses and staff, and while she likely does not view the OES staff as protected from these cutbacks, the Board of Supervisors unofficially directed the CAO to explore "other options" to balance the budget than cutting public safety staff.[59] The final budget proposal that was submitted to the Board of Supervisors protected key services and although public safety agencies are still facing cuts, they are generally less severe than in the rest of the government.[60]

The acceptance by the CAO of the Civil Grand Jury's recommendation to increase staff participation in OES training indicates a potential for improved interagency cooperation. Even without an increase in staffing the OES may be able to further improve planning and training activities through increased participation. Like the Board of Supervisors statement of principles this gives more weight to requests by the Emergency Services Manager for support from other agencies.

D. CONCLUSION

The minor structural and environmental differences noted in this case cannot by themselves account for the high level of cooperation in the Monterey County Emergency Management System, but they do indicate that a massive reorganization is not required in order to overcome the limitations to cooperation that are described by traditional bureaucratic theory. Indeed a massive reorganization, such as the Goldwater-Nichols reformation of DoD and the current development of DHS, would likely do little to reduce barriers to cooperation. The successes of these reorganization are more clearly evident in economies of scale and a streamlined bureaucratic process.

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[59] *Interview, Monterey County Official, Name Withheld*, (2003).

[60] Joe Livernois, "County Faces Budget Cuts, Layoffs," *Monterey County Herald*, June 4, 2003.

1. Theoretical Application

The response of the County Government in Monterey to the increased awareness of the threat of terrorism seems to demonstrate less bargaining and struggle between agencies than a traditional bureaucratic politics model, or the experience of the federal government, would indicate. As the debate over staffing shows, the bureaucratic political process is still in place and agencies still act in consideration of their own interests. However, the structure and process of the bureaucratic political game at in Monterey County have reduced the barriers to cooperation as indicated by the increased emphasis that homeland security issues have taken in various agencies, and the willingness of agencies to develop collaborative programs shows. These differences, including the lack of a strong central executive, the presence of additional motivations to cooperate, and the significant overlap of goals and resources, do not by themselves account for the significant level of cooperation that has developed, but instead indicate a structure that allows for increased cooperation unlike many government structures that tend to stifle it. This allows other factors that contribute to cooperation to have more influence on the willingness and ability of players to cooperate.

2. Practical Application

Basic structural factors, such as the presence or lack of a central executive may be out of the control of the government in the short-term, but the effect of some environmental factors, like the severe budget crises faced by Monterey County, can be controlled. In this case the limitations of the budget were addressed with a mix of typical bureaucratic bargaining and cooperative efforts to increase resource sharing as indicated by the Board of Supervisors directive to examine alternatives to staff cuts. More importantly there are environmental factors that are fully within the control of the government and may have the largest effect on the development of cooperation. In Monterey County, the adoption of guiding principles by the Board of Supervisors established

parameters that afforded other officials some protection if they chose to adopt cooperative strategies, offsetting institutional barriers to cooperation.

This case supports several recommendations for local governments developing homeland security policy or wishing to improve interagency cooperation:

- Establish a decision-making process that involves less arbitration by an executive agent and more peer-to-peer negotiation
- Decrease institutional barriers to cooperation by protecting the resources saved through cooperation
- Don't impose regimes of communication and collaboration that stifle real cooperation

Policies such as these cannot guarantee cooperation by any means but can help to set the conditions in which it can flourish in response to other influences.

3. Summary

Bureaucratic politics theory, which typically used to describe the internal bargaining process by which national governments determine foreign policy is also useful for describing the structure of local governments. In some cases, as in Monterey County, local governments have a significantly different structure when compared to the federal government. These differences, including the lack of central executive arbitration in the bargaining process, different institutional motivations, a larger overlap of goals, and a decreased collective pool or resources may indicate conditions where cooperation is more likely to develop. In Monterey County, these conditions seem to have had such an impact, as evidenced by decisions by the county to protect homeland security grant money, and provide funding to build a consolidated emergency services center.

III. EPISTEMIC COMMUNITY THEORY

A. INTRODUCTION

This chapter examines the role of epistemic communities in the development of interagency cooperation in Monterey County emergency management. Over the last decade, epistemic community theory has gained cachet for its ability to explain the development of international consensus and cooperation, particularly in the areas of arms control and environmental protection. In general, epistemic community theory argues that networks of like-minded professionals can influence decision-making across organizational boundaries. The identification and analysis of these networks indicates where cooperation is more likely, and may also provide insight regarding how cooperation can be improved. This chapter examines the applicability of epistemic community in a domestic, emergency management situation, by identifying and describing the group within the emergency management system of Monterey County that is responsible for the majority of cooperative efforts, and proposes ways to strengthen other such groups in ways that would improve cooperation. During the course of this analysis it is shown that while it cannot be determined if this group fits the accepted definition of an epistemic community, it nevertheless behaves as an epistemic-like group and warrants further study for its role in the development of interagency cooperation.

B. METHODOLOGY

The term epistemic community has been interpreted and defined in a number of ways, but the definition proposed by Peter Haas has been widely accepted. According to Haas, “an epistemic community is a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area.”[61] This is an expansion of earlier discussions of epistemic communities which considered only scientists or groups that followed the

[61] Haas, "Introduction: Epistemic Communities and International Policy Coordination," p. 3.

scientific method. Haas expanded on the definition by identifying characteristics of epistemic communities that differentiate them from professions, interest coalitions or advocacy groups:

> Although an epistemic community may consist of professionals from a variety of disciplines and backgrounds, they have (1) a shared set of normative and principled beliefs, which provide a value-based rationale for the social action of community members; (2) shared causal beliefs, which are derived from their analysis of practices leading or contributing to a central set of problems in their domain and which then serve as the basis for elucidating the multiple linkages between possible policy actions and desired outcomes; (3) shared notions of validity-that is, intersubjective, internally defined criteria for weighing and validating knowledge in the domain of their expertise; and (4) a common policy enterprise - that is, a set of common practices associated with a set of problems to which their professional competence is directed, presumably out of the conviction that human welfare will be enhanced as a consequence.[62]

These four characteristics--shared normative beliefs, shared causal beliefs, shared notions of validity, and a common policy enterprise--provide the basis for differentiating epistemic communities from other types of groups. As Thomas notes, these other types of groups often reach very different conclusions from the same set of data, or hold similar positions on issues for a variety of reasons. Members of an epistemic community, however, given a ambiguous set of data, would reach the same conclusions and for the same reasons.[63] Because an epistemic community has a claim to authoritative knowledge in a policy area, the members of a community often hold significant sway in policy decisions, and as Haas and others demonstrate, the commonalities among community members can be critical factors in the development of cooperation between organizations and government agencies.

The presence and influence of an epistemic community can serve as a measurement of the willingness of a group of agencies, organizations or governments to cooperate with each other. This chapter attempts to identify

[62] Ibid.

[63] Thomas: p. 223.

such a community within Monterey County ESM and to show how this community has improved cooperation. The impact of an epistemic community should be seen in the decisions and actions that these organizations take. Recent actions by county agencies in response to the various homeland security grant programs provide a unique opportunity to investigate this impact. For example, the State Homeland Security Grant Program (SHSGP) will provide over $150 million to first responders in California, but the request for proposals came with significant restrictions and a very short timeline. These restrictions and time constraints made formulating a cooperative grant proposal extremely difficult. The development of such a cooperative proposal, then, would be an indicator of a significant level of interagency cooperation within the county, and if an epistemic community was a component of this cooperation, it would likely play a significant role in the development of the proposal.

In order to identify and examine this community, this chapter investigates the development and conduct of interagency organizations and processes, particularly as they apply to the State Homeland Security Grant Program. It is shown that:

- The grant proposal produced by Monterey County represents a significantly cooperative effort of the agencies involved.
- This proposal was developed and approved because of the direct involvement of a small group of individuals who work together routinely.
- The dynamics of the group responsible for this and other cooperative efforts, although it does not fit the strict definition of an epistemic community as described by Haas, nevertheless provides insight into the role of ideas in the development of cooperation.

To verify these claims, a series of interviews were conducted with individuals identified as central figures in the development of emergency management policy and interagency cooperative efforts. These interviews were compared with official records and observations of cooperative efforts and planning sessions.

C. CASE STUDY

There are several groups within the Monterey County Emergency Management System that share ideas at a professional level and influence policy decisions made by the OES or supporting agencies. Among them are the Operational Area Coordinating Council (OACC), the Unified Public Safety Task Force, (UPSTF) the Monterey County Fire Chiefs' Association, and the Monterey County Chief Law Enforcement Officers' Association. In addition to these groups there are a large number of professional organizations at the state and national level, which may have some impact on local policy, primarily through the development of "best practice" standards, but are often more concerned with representing the interests of their constituents to Congress and state legislatures. The local groups hold the most potential for finding a viable epistemic community. The OACC is particularly interesting in that, while nominally mandated by the Standardized Emergency Management System (SEMS), its organization and functions are determined by the participants, and decisions reached by the council are not binding on the county government or the participating agencies.[64] The OACC was also the de facto forum for coordination of the SHSGP, and its members were intimately involved in several other interagency programs

1. The State Homeland Security Grant Program

The State Homeland Security Grant Program of 2003 was announced by Secretary Ridge on March 07, 2003 as a means of providing funding to first responders throughout the Country. Although a similar grant program was provided in 2002, this program gave State agencies little time to respond with grant proposals, and mandated specific allocations of funds for equipment, planning, training and exercises. The SHSGP is divided into two parts, part I providing approximately $45 million in first responder funding to California, and

[64] *Standardized Emergency Management System Guidelines*, (California Office of Emergency Services, 1994, accessed May 2003); available from http://www.oes.ca.gov/oeshomep.nsf/all/SEMSGUIDE_pdfs.

part II over $103 million.[65] The states were given some latitude in how the funds are to be distributed, and of these funds, the Monterey Operational Area (OA) is expected to receive about $1.5 million, provided the grants are approved.[66]

The guidelines established by California mandated that each OA establish an approval authority for the grant proposal. This board is comprised of five voting members, representing the County Health Department, County Fire Authority, the Sheriff, a municipal Fire Chief and a municipal Police Chief. This board must approve the grant proposal before the State Office of Homeland Security will accept it. It is also important that Emergency Services Mangers were not included on this board, nor was the board empowered to manage the grant program after the proposal is submitted.

Additionally, California mandated that fire, police and EMS agencies each receive a minimum of 20% of the funds. This allocation could be overridden by agreement of four of the five voting members, but was established in order to balance the competing interests and unequal influence that these agencies typically have in the Operational Area structures throughout the state. The program and guidelines were officially announced by the California Office of Homeland Security on April 14, 2003, and gave the County agencies only thirty days to form the approval authority and develop a joint proposal.[67]

Anecdotal evidence suggests that many OA's struggled to develop the approval authorities, much less develop an acceptable proposal. However in the Monterey OA, before the program had been officially announced by the State OES, the board had been formed and had agreed to a general framework for a proposal that would request funding for a multi-jurisdictional/multi-agency Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) capability and would require a redistribution of funds only possible with a 4/5th majority.[68]

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[65] *Department of Homeland Security Announces Funding for First Responders*, [Press Release] (Department of Homeland Security, 2003, accessed May 2003); available from http://www.dhs.gov/dhspublic/display?content=500.

[66] Kevin Howe, "County Hopes for Security Grants," *Monterey County Herald*, May 3, 2003.

[67] *Governor's Office of Emergency Services*, (accessed).

[68] *Minutes, Operational Area Coordination Council, April 11, 2003* (2003).

The proposal builds on existing hazardous materials capabilities in the Seaside and Salinas Fire Departments, and gives the vast majority of the funds to those departments. What is most significant is that the representatives of the law enforcement and health agencies gave up a legitimate claim to 20% of the funds, and that the ultimate recipients of the grant had no direct representation on the Approval Authority.[69] The ease with which this proposal was developed and approved indicates a higher level of cooperation in the Monterey OA than in other OA's in California.

2. The Monterey County Approval Authority

By the April 11, 2003 meeting of the OACC, the requirements for the SHSGP, although not officially released by the State OES, were known and the Approval Authority had already been established and met twice. They reported to the OACC that meetings had been very productive and that "the money will be spent to benefit the entire county, [by developing] a multi-discipline combined response to [CBRNE threats]."[70] The membership of the Approval Authority had been finalized at the first meeting.

Two members of the five member board were required by the California guidelines to be chosen from among the local fire and police chiefs to represent the municipal interests. While no method of selecting the members was specified, in Monterey the decision logically fell to the Chiefs' Associations. They selected Salinas Police Chief Daniel Ortega and Carmel Fire Protection District Chief Sidney Reade as their representatives. Additionally, as there is no county fire department in Monterey, the chair of the Fire Chiefs' Association, Pacific Grove Fire Chief Andrew Miller was designated to represent the county interests.

The other two members of the board, as mandated by the State guidelines, were Sheriff Mike Kanalakis and Director of Health, Len Foster.

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[69] *Minutes, Homeland Security Approval Authority Meeting, May 7 2003* (Salinas, CA, 2003).

[70] *Minutes, Operational Area Coordination Council, April 11, 2003*. Note that the term CBRNE was adopted later in this meeting to incorporate components of hazardous materials response, explosive ordnance disposal and environmental health.

Although the state guidelines deliberately left the Emergency Services Manager off of the board, the Monterey County Board decided to include Manager Harry Robins as a non-voting member and proxy voter if needed. They also agreed that their recommendation would be subject to the approval of the entire OACC.[71] The County Board of Supervisors also directed the OACC staff to manage the grant process.[72]

The board met four times between its formation and the submission of the grant proposal, and between meetings coordinated with the individual agencies to prioritize the requirements for building a multi-agency CBRNE response. The concept was to build on and combine the outdated hazardous material containment capabilities of the Seaside and Salinas Fire Departments. Two teams would be created that would be mutually supportive and responsible for responding to CBRNE incidents throughout the county. This required the agreement of all of the fire districts in order to develop the mutual aid agreements needed to make the concept work. Additionally, in order to build even marginally effective teams, virtually all of the currently available money would be funneled to these two departments. The requirements were prioritized to buy the most expensive equipment first, then to enhance the teams with additional equipment and training with additional grant money as it became available, either through subsequent SHSGP phases, or other, related grant programs.[73]

While this proposal might be expected to generate opposition from the smaller fire districts, and from the health and law discipline representatives, this did not occur. According to the members of Approval Authority, they supported the proposal for a number of reasons. First, the Fire Chiefs of the smaller districts knew that they were not capable of maintaining an independent CBRNE response; in some cases this would more than double the current size of their departments. If they were to have any CBRNE capability it would have to be under a mutual aid plan of some type. Second, the health and law

[71] *Interview, Carmel Fire Chief Sidney Reade, May 12, 2003*, (Carmel: 2003).

[72] *Minutes, Homeland Security Approval Authority Meeting, May 7 2003*.

[73] *Minutes, State Homeland Security Grant Program Approval Authority.* (Salinas, 2003).

representatives understood the importance of developing a CBRNE capability and were willing to forgo their claim to the grant funds. As other grant programs specifically targeted to their areas were also being announced, they chose to focus their grant efforts in these areas. Finally, the members of the Approval Authority had worked together for many years, and developed a high level of trust with each other. They were known to each other to be committed to developing cooperative programs and had a track record of supporting each other's programs. Most importantly, they shared an understanding of the limited resources available for the various program and that a multi-agency approach would be more effective.[74] The conduct of this board and the long-term working relationships that have developed between many of its members highlight many of the characteristics of an epistemic community as proposed by Haas.

3. The Monterey Emergency Management Community

As Haas indicates it might, the epistemic community at work in Monterey County Emergency Management represents various professions, including law enforcement, fire, emergency medical services, health services and emergency management professionals. Members of these professions generally have different, if not conflicting mindsets, yet this particular group holds similar values and beliefs. First, they value interagency cooperation as a means of achieving the 21st-century ideal of "doing more with less." Second, they have a dedication to community service that outweighs institutional motivations. Third, they value effectiveness more importantly than tradition, so they have a greater acceptance of innovation. Finally, there is a progressive viewpoint that fuels a desire for improvement, and looks for ways to apply new technology and ideas. This community seems to have about twenty to thirty members in Monterey County; however, within this community is a core group of "interagency-ists" that are consistently found to be at the heart of interagency cooperative efforts.

[74] *Interview, Carmel Fire Chief Sidney Reade, May 12, 2003.*, *Interview, Monterey County Director of Health, Len Foster, May 20*, (2003).

a. Law Enforcement

The typical law enforcement mindset is one of self-sufficiency, probably arising from the standard practice of sending police officers on patrol alone or with a single partner. Law enforcement agencies are also relatively well-funded and seldom need to rely on other agencies to perform their core duties. While they are often better prepared to take command of a scene or incident and make quick, tough decisions than their Fire Department counterparts, they are generally not as well trained to use the Incident Command System (ICS) and SEMS. They are also less inclined to request mutual aid support from other agencies and disciplines, and are less likely to make specific requests when they do.[75]

In some contrast to this mindset, Sheriff Mike Kanalakis, Commander Mike Brassfield, Chief Deputy John Calzada and Carmel Police Chief George Rawson have gained a reputation for approaching problems from an interagency perspective. Throughout the county, public safety professionals and government officials mention their work on interagency efforts and their support of other departments' programs.[76] This approach is evident in their concept for the CBRNE capability being developed. According to Commander Brassfield, while from an institutional perspective police would generally like to remain on the periphery of any hazardous materials area, they realize that now these areas are likely to be crime scenes and they will need to be prepared to operate in "hot" and "warm" zones for extended periods. This is offset by the understanding that the Fire Departments will have a primary role in the response and have more immediate equipment needs than the police forces do. The proposal calls for a balanced improvement of capability throughout the police, fire and health disciplines, with Fire Departments getting the bulk of the initial funds.[77]

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[75] *Interview, Commander Mike Brassfield, Monterey County Office of the Sheriff, May 16*, (Salinas, CA: 2003). This impression is supported by observations and conversations with a number of public safety professionals.

[76] *Interview, Carmel Fire Chief Sidney Reade, May 12, 2003*.

[77] *Interview, Commander Mike Brassfield, Monterey County Office of the Sheriff, May 16*.

Each of these professionals has been in law enforcement for over thirty years, almost exclusively with their current agencies. Instead of developing stronger and stronger institutional views, as seems to be the case with many other senior public safety officials who have remained with the same agency, they have developed a strong interagency agenda. At least for the members of the Sheriff's Department, this approach developed in part over "years of eating lunch together" as they rose through the ranks, discussing the way things ought to be, then finding themselves in positions to make changes. They attribute the current interagency successes in large part to like-minded people in other agencies who have also been promoted to positions of leadership and now have the "commitment, authority and vision" to make interagency cooperative efforts work.[78]

b. Fire

Unlike law enforcement agencies, fire fighters and departments are much more likely to work in teams, and to plan for mutual support among stations. The nature of fire emergencies is one of infrequent response requiring substantial resources. Although more prone to working together, the fire mindset is not one of innovation; sacred cows abound in the fire communities, such as the separation between paramedics and firemen.

Chief Sidney Reade, on the other hand, is a known (and sometimes vilified) innovator. Even before being named the Carmel Valley Fire District Chief, she was instrumental in consolidating emergency services in the area to form the district. She was a founding member of the Uniform Public Safety Task Force (UPSTF) and the Tri-County Mutual Aid Committee (Tri-MAC), chairs the Monterey County Fire Chiefs' Association, and is the lone fire representative on the Monterey County Chief Law Enforcement Officers' Association (MCCLEOA).

[78] Ibid.

c. Health and Medical Services

Director of Health, Len Foster, is another thirty-year veteran in his field, having been the Directory of Emergency Medical Services (EMS) in Orange County prior to arriving in Monterey in 2001. As the Director of Health, Foster is responsible for all "pre-hospital" emergency medical care, coordinating and certifying the paramedic and ambulance response as well as certifying hospital emergency rooms to receive emergency medical patients. In Monterey County emergency medical care is provided through a contract with American Medical Response. Bringing a third viewpoint to the scene of an incident, emergency medical teams are more focused on, and better prepared to provide medical care to, the victims. Because many firefighters are trained as Emergency Medical Technicians (EMT) and may be able to respond faster, emergency medical crews often take over or direct the care of a patient. However, they are the least trained in the ICS and, because they are not public safety officials, would not be assigned as the Incident Commander. These factors have put emergency medical services and fire crews at odds in the past, and according to Foster, cooperation between emergency medical crews and other responders was less than ideal.[79]

Cooperation between EMS, fire and law enforcement in Monterey has improved significantly since Foster's arrival, largely because of his efforts. Shortly after his arrival he established the emergency medical services council with representatives of all of the stakeholders. Participation in this group led to better personal relationships, and eventually to improved cooperation. The white powder" events[80] throughout the county in the fall of 2001 further increased cooperation and helped to highlight the need for a cooperative HazMat response

[79] *Interview, Monterey County Director of Health, Len Foster, May 20*.

[80] In the aftermath of the anthrax mail incidents on the East Coast, there were several reports of "suspicious white powder" received at the Monterey 911 center. Each of these reports had to be considered a potential biological attack and required the response of emergency medical and hazardous materials teams. The actual sources of the white powder were varied, including chalk used to mark race routes, flour spilt during delivery, and packaging powder used to collate mail inserts. While no anthrax was found during any of the local events, the expense incurred through overtime, depletion of supplies and increase equipment maintenance was considerable. *Interview, Monterey County Offices of Emergency Services Manager, Harry Robbins, February 27*, (2003).

capability. It not only challenged the ability of the various agencies to work together, but depleted resources of the responding agencies and uncovered a need to replace outdated equipment.

4. Community Activities

In addition to their work on the SHSGP proposal, this same core group has been involved in developing cooperative efforts among public safety agencies for several years. Among the efforts in which this community has been involved are the integration of fire and emergency medical services in the Carmel area, the development of a county-wide CBRNE capability, the Unified Public Safety Task Force (UPSTF), and the Tri-county Mutual Assistance Committee. On the surface it seems redundant to have essentially the same group of people meeting in several different venues to discuss interagency cooperation. However, despite this seeming lack of efficiency, members of the core group claim that the various meetings allow them to focus on priorities as needed, and gain critical buy-in from their respective agencies that might otherwise be lacking.

a. CBRNE Capability Development

The current SHSGP proposals are really only part of the interagency CBRNE capability development project that has grown over the past several years. Beginning in 1999, representatives of the interested agencies, including all six of the core group, began to consider what the requirements for a WMD response would be, and submitted their first funding proposal just before the September 11th attacks.

The post-9/11 environment significantly changed the funding environment for CBRNE-related activities, and what was a long-term, second-tier project got moved to the forefront throughout the nation. The initial approach developed by the WMD group was to increase training and planning, and then to purchase equipment as more significant funds became available. The primary

focus of the various federal grant programs, however, has been to front-load equipment purchases, while providing relatively less funding for planning and training.

Beginning with the first Federal grant program, the WMD group, which had been meeting on an informal basis, began to meet more often and on a more formal basis as a working group of the OACC. They reprioritized funding requirements to fit into the grant programs while continuing to push for training and planning capabilities. The announcement of the 2003 SHSGP requirements for a local approval authority was somewhat of a non-event for the county as the mandated and representative membership had already been meeting for over two years discussing the same topics.

b. Unified Public Safety Task Force

In the wake of the Columbine High School shootings in 1999, several studies were conducted investigating the emergency services response to the incident. It was generally concluded that fire, police and ambulance crews responded to and managed the incident as three separate events. Although the Incident Command System had been gaining acceptance prior to this tragedy, these reports, followed by several other incidences of school violence and compounded by the attacks of September 11th, gave renewed impetus to its implementation nationwide. In Monterey, the fire and police chiefs' associations decided to form the Unified Public Safety Task Force (UPSTF) to coordinate interagency planning and response. UPSTF was formed as a working group under the OACC in 2001 and included representatives from the health department and emergency medical discipline as well as fire and law. Sidney Reade, Mike Brassfield, Harry Robins and Len Foster were instrumental in getting UPSTF started and are current members.[81]

[81] *Interview, Chief Deputy John Calzada, Monterey County Office of the Sheriff, May 16*, (2003).

c. Tri-County Mutual Aide Committee

The Tri-County Mutual Aide Committee (Tri-MAC) was originally proposed as the Tri-County Counter-Terrorism Task Force. The name change itself, made at the insistence of Santa Cruz County representatives, indicates some of the challenges of developing cooperative efforts across operational areas. While Monterey County is one of the wealthier and more conservative counties in California, San Benito is one of the poorest,[82] and Santa Cruz County is one of the most liberal areas in the United States. Nevertheless, the emergency scenarios, from earthquakes and flooding to terrorist attacks, indicate that these three counties will be affected in similar ways; furthermore, these areas are likely to be somewhat ignored as state and federal resources flow into the larger metropolitan areas to the north. The common view among members of the community is that coordinated effort will be critical to the successful mitigation of any significant event.[83]

The Tri-MAC grew out of mutual aid commitments for firefighting resources that had been in place for many years, and took on new pertinence when representatives from the respective Sheriffs' Departments, including Brassfield from Monterey, began to compare notes on the development of Explosive Ordinance Disposal (EOD) teams. Prior to closing of Ft. Ord in 1991, the U. S. handled all of the EOD requirements in the county. After this, the Sheriff Kanalakis, then a Commander recognized the cap in capabilities and began exploring potential solutions. Realizing that much of the equipment used by EOD teams would be expensive and seldom used, the Sheriffs' Departments agreed to coordinate purchases in order to maximize the total capability in the Tri-county region. Because of the frequent contact between members of the core group they quickly realized that the cooperative efforts between the counties could be consolidated in much the same way as they had been internally.[84]

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[82] By average income of employed workers, Monterey ranks 15 out of 59 counties, while San Benito is 59th, other comparisons are similar. California State Association of Counties, *About California Counties*(2003, accessed April 2003); available from http://www.csac.counties.org.

[83] *Interview, Commander Mike Brassfield, Monterey County Office of the Sheriff, May 16*.

[84] Ibid.

The core group, along with their counter-parts in Santa Cruz and San Benito counties, began to develop a more comprehensive group of mutual aid plans and to present the concept to their respective agencies and Boards of Supervisors. The concept of a tri-county response was underwritten by the participants of a "Homeland Security Summit" held at the Naval Postgraduate School in March of 2002. As discussed in Chapter I, this meeting generally praised preparedness along the central coast, but also indicated that a regional approach would further enhance the capabilities.[85] Currently, the Monterey County Board of Supervisors is considering a Memorandum of Agreement that would formally establish the Tri-MAC as a policy advisory panel to advise the county governments "on means to enhance mutual cooperation and coordination of mutual aid efforts and operations."[86]

D. CONCLUSION

The impact that the core group of "interagency-ists" have had on cooperation for homeland security preparedness in Monterey County is clearly evident. Experts in all levels of government have concluded that ESM in Monterey is one of the best in the nation, and they have a clear workable plan for improving capabilities in many areas, including as shown here, CBRNE response. This group has been involved in the development of these programs for several years, and was able to maximize the financial benefits provided by the SHSGP, fitting it directly into their plan rather than buying capabilities piece-meal as many governments are doing.

1. Theoretical Application

What is not clearly evident, however, is that this group fits Haas's strict definition of an epistemic community. While they certainly share a belief system

[85] Moore.

[86] Although initially scheduled for a vote on May 27, 2003, approval of the memorandum as been delayed while the respective agencies sort out issued related to California's Open Meeting Act. A formal agreement forming the Tri-MAC might create an additional state-level government agency and could impede cooperation through bureaucratic overhead.

and a policy agenda, it is unclear whether this is derived from, as Haas describes, “their analysis of practices leading or contributed to a central set of problems in their domain”[87], or if it is simply the result of their continued efforts to cooperate. This distinction is often made in the literature to separate an epistemic community from a policy clique or coalition that comes together for a more limited purpose. For the most part, the core group described here seems to have developed collectively, and may be lese coherent if there was more exchange and interaction with other groups that, on the surface, seem to hold similar views. Conversely, ease and speed with which the Director of Health became a vital member of the group indicates that the group is more than a “policy clique” that has developed within the local government.

In his 1990 book, When Knowledge is Power, Ernst Haas allowed for more flexibility in his definition of epistemic communities, than did Peter Haas in 1992, saying not only that the accepted definitions “must be augmented, however to suit specific circumstances. . .” but also that to him, an epistemic community was “composed of professionals (usually recruited from several disciplines) who share a commitment to a common causal model and a common set of political values.”[88] The group described here fits this definition better, regardless of the origin of their shared values. It is difficult however to show that this group shares a common causal model. Various members of the group did express similar views concerning the public safety threats faced by Monterey County. After natural disasters, they are most concerned about the secondary and tertiary effects of a terrorist attack on the San Francisco metropolitan area to the north rather than a direct attack against a local target. They also share views concerning the effectiveness of potential responses by various agencies to emergency situations as well as the appropriate roles for various levels of governments in emergency management. However, as with their policy agenda, it is not clear when and how these view developed.

[87] Haas, "Introduction: Epistemic Communities and International Policy Coordination," p.3.

[88] Haas, *When Knowledge Is Power: Three Models of Change in International Organizations*.

It is perhaps important to note that the members of the group, to a large extent, view themselves as public safety officials, not just a member of their particular profession second. This distinction is not prevalent among police officers and firefighters, who while they take pride in contributing to the public's safety, draw their identity primarily from their uniform. Members of this core group, were much more likely to use terms such as "public safety official," "unified response," "we" and "team" than were other police officers and fight fighters consulted for this thesis who, regardless of rank or longevity, more often used terms like "police and fire," or gave "us and them" contrasts. Even more important than determining if one can classify this group as an epistemic community however is to note the influence of a small group on institutional learning in a larger organization. Without a doubt this group has had a long-term impact on homeland security policy along the Central Coast. They have done this by producing incident response plans that require continual consultation and mutual aid; agreeing to organize capital expenditure to support the plans rather than along agency lines; and by developing standards, agreements and forums for interagency cooperation.

In When Knowledge is Power, Ernst Haas included epistemic communities in a larger description of institutional learning he termed "managed interdependence" which he contrasted with "incremental growth" and "turbulent non-growth" as models of institutional change. Haas claims that "managed interdependence" is preferable (although less likely) to the other models of change, especially in polarized and volatile environments. In his model of managed interdependence, epistemic communities are the favored means by which experts influence policy. Although focused on the design of International Organizations, this framework provides useful insight into governmental change at the local level as well. For example his model of managed interdependence, although developed to describe international organizations, shows that these

organizations tend to recruit and promote primarily on merit, have greater levels of interaction with NGOs, and exhibit other characteristics that would be described as "good government."[89]

When combined with the organizational analysis in Chapter 1, this examination of the impact of a community of interagency-ists provides a more thorough understanding of how interagency cooperation can develop. While the structure of a government may provide opportunities for cooperation to develop, it may not do so in the absence of a group within the various governmental agencies that is both committed to similar policy objectives, and has the influence needed to get such policies adopted. Even with such a group there are real, often technical limitations to how effective cooperative efforts can be – these are addressed in Chapter IV.

2. Practical Application

While is it outside the scope of this thesis to test for the presence of other features of managed interdependence in Monterey County, the presence of an effective community of public safety experts (whether or not it meets a strict definition of an epistemic community) is an example of good government that should be recognized and encouraged. Throughout the interviews, members of the core group stressed the need for continual work to enhance and maintain the level of cooperation that has developed. This study indicates three policy recommendations for local governments wishing to foster interagency cooperation: first, the members of an existing community must continue to develop cooperative efforts; second, they must individually work to get these efforts adopted by their respective agencies; finally, they need to work to expand the community, if only to develop their eventual replacements.

a. Foster Cooperation within the Community

In this case, continued development of cooperation within the community is the least of the concerns. All the members interviewed indicated a strong personal relationship with the other members and exhibited a significant

[89] Ibid.

level of trust that they shared similar views and goals. Several mentioned the various meetings at which the members attended and indicated that these meetings serve to reinforce their shared values and strengthen the community as a whole. In particular, planning meetings such as the ones held prior to the announcement of the SHSGP give them the ability to discuss concepts and priorities and to develop long-range master plans. There is little that needs to be or can be done at this time to foster this type of cooperation, but there are ways to hinder it that should be avoided. As discussed in Chapter II, the structure of Emergency Management in Monterey County is conducive to cooperation within the group. The heads of the various emergency response agencies have a large amount of flexibility to coordinate with their counterparts to develop cooperative plans and training. An alternative environment that encouraged stovepipes of information and a "chain-of-command" approach to coordination would hinder cooperation within the community.

b. Adopt Cooperation as Policy

Encouraging real cooperation between their respective agencies is one of the primary objectives of the core group. A common sentiment expressed in the interviews was the continuing "need to change a lot of minds" within their own professions concerning the need and benefits of cooperation. Changing minds in Monterey County is being accomplished by both policy and placement.

Because members of the core group are now largely in senior positions, they often have the ability to adopt, or at least recommend, policy. They are able to establish policies that encourage cooperation. For example, largely as a money-saving measure, the Sheriff is considering closing two substations in the Carmel area that are used by deputies for administrative support. The cooperative solution to this loss of resources is to co-locate of the substations with one of the local fire stations, allowing them to share resources. The added benefit is that more firefighters and deputies are exposed to the daily operations of the other agency. During a trial of the idea, a simple but poignant

example of cooperation arose, when without a second thought a deputy answered a ringing phone, "Carmel Valley Fire Department, Deputy [Jones] speaking."[90]

Another key to getting cooperative efforts adopted was expressed in a number of interviews as "putting the right person in the right job." There is widespread agreement that cooperation is to a large degree dependent on personality, and that having the wrong person in a job will significantly hinder cooperative efforts.

c. Foster Growth of the Community

Growing the community itself is an issue related to but separate from fostering cooperation. Growing the community goes beyond getting agencies to accept interagency cooperation as a necessary way of doing business; it is the development of interagency-ists who look and work for opportunities to cooperate. Three methods of growing the community -- conversion, grooming and training -- should be continued and where possible expanded.

Several members of the core group mentioned the process of getting others "on board" with the cooperative mindset. One of members of core group was referred to as a "tough case," who, after considerable effort, adopted the viewpoint of group and since has been instrumental in a number of agreements. These type of comments indicate not only that the members of the core group view themselves as a community, but also are actively seeking to expand the group. Furthermore, while many of them developed their shared value system over a period of time, they are also willing to accept "converts" as vital members of the community. Other members of the group indicated that they are "grooming" younger members of their organizations to be interagency-ists by repeatedly assigning them duties that require extensive coordination with other agencies. They feel that such experiences help to develop a greater appreciation for the capabilities and resources available from other agencies.

[90] *Interview, Carmel Fire Chief Sidney Reade, May 12, 2003*.

The continual influx of new members, and their exposure to new situations, also helps to curb the development of “groupthink” by encouraging the exchange and development of new ideas.

3. Summary

Epistemic community theory describes the development of cooperation as the result of a distinct group of professionals that share common values, beliefs and policy goals. Typically it is used to describe the development of cooperative efforts between national governments or between widely divided agencies within a government. This chapter examined the usefulness of theory to describe the development of cooperation in the Monterey County Emergency Management System and found that while the group described here does not fit a strict definition of an epistemic community, it does function similarly as those described in other cases. Furthermore this epistemic community-like group of “interagency-ists” has played a very important role in the development of interagency cooperation in Monterey County, playing an integral role the development of a unified CBRNE capability and maximizing the benefit of the State Homeland Security Grant Program funded by the Department of Homeland Security.

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IV. NETWORK THEORY

A. INTRODUCTION

In their book Networks and Netwars, Arquilla & Ronfeldt delineated several recurring themes in the discussions and debates of the information age. Among them is the notion that the information revolution is as much about organization as about technology. Their view is that information technology "favors and strengthens network organizations" over hierarchical organizations.[91] This view is promoted by those favoring military transformation in anticipation of new modes of conflict that increasingly focus on cyber and information dominance. Despite the influence of network theorists such as Arquilla the massive reorganization undertaken in the creation of the Department of Homeland Security shows that a hierarchical bureaucracy model still dominates within the federal government.

However, at the local level, such a clear hierarchical order does not exist. First, local governments often have overlapping jurisdictions in a crisis situation. Second, as discussed in Chapter II, local governments often do not have a dominant executive branch; in Monterey County, for example, executive power is divided between the Board of Supervisors and the County Administrative Officer. Finally, a large portion of public safety and emergency response activities are carried out by government agencies external to county authority, the private sector, or non-governmental organizations. To what extent, then, might a network model be used to describe the interagency process of the emergency management system at the local level? Does such a model indicate ways to improve cooperation? In answering such questions, others must be addressed as well, in order to more clearly define a network model of local interagency coordination. What are the comparative advantages of networks and hierarchies? Does this translate into a real advantage for networks over hierarchies?

[91] Arquilla and Ronfeldt, *Networks and Netwars : The Future of Terror, Crime, and Militancy*, p. 5.

This chapter explores these questions in the context of an examination of the roles and potential roles for information technology in the Monterey County response to homeland security crisis situations such as a terrorist attack or natural disaster. This chapter will consist of four parts: The development of a network model for interagency cooperation for organizations in a homeland security environment; a description the Monterey County Emergency Management System (ESMS); a description of the information architecture of the ESMS; and an evaluation of current technologies that could be used or adapted to improve cooperation.

B. METHODOLOGY

Arquilla and Ronfeldt's discussion of network organizations builds on the organizational models of Evans who described the ways in which information is exchanged between independent organizations. In Evans' models, network nodes have autonomy of decision, but are interdependent – the decisions of one node affect the decision-making process and utility of the others. The network organizations that Arquilla and Ronfeldt describe retain this non-hierarchical aspect in that no node has decision-making authority over another. However, Arquilla and Ronfeldt's description of networks includes the possibility that an individual node in a network may represent an organization that is itself hierarchical. Therefore, in order to examine the relative strengths of hierarchies and networks and to further examine the impact of information technologies, it is useful to establish ideal-types of network and hierarchical organizations.[92]

Arquilla, Ronfeldt and other authors describe various types of network models. Hub-and-spoke networks most closely resemble government hierarchies in that communication links are focused on hub nodes that then direct information to other nodes that have fewer links. Chains are another common model, in which any single node can only communicate with a relatively few other nodes and information must relayed over several nodes to get to its intended recipient.

[92] Ibid., pp. 7-8.

This type of network often develops in military and intelligence settings, where communication stovepipes are enforced, creating a chain of nodes prior to information reaching a hub. An interesting recent development in network theory is the scale-free model, where there are no (or few) limits to the number of links a single node can have, and links develop naturally between the most efficient nodes. This tends to clump channels of communication together, while leaving some nodes completely disconnected – another accurate depiction of what occasionally happens in government. Throughout the "netwar" literature, however, is the all-channel network where all nodes have decision-making autonomy and are able to communicate to all other nodes in the network. This is clearly the ideal-type.[93]

The antithesis of this network, the ideal-type hierarchy, is the organization where both communication and decision-making are channeled so that a single node only communicates with the node directly above and those nodes directly below, and decision-making autonomy is centralized at a node common to those nodes affected by the decision. A basketball team is representative of an ideal-type network organization, whereas strict military-style chain-of-command is the classical example of an ideal-type hierarchy.

By establishing these ideal-types, the relative strengths of the organizational type become more apparent. Lawrence and Lorsch reference work by Leavitt in the relative ability of groups to solve problems when organized similarly to these ideal-types. While the hierarchy was much better at efficiently solving recurring, similar problems, the network was better at adapting to new situations and generated a higher level of loyalty and morale.[94] Arquilla and Ronfeldt make similar observations, noting that the ideal-type network organization has "high potential for collaborative undertakings."[95] Conversely,

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[93] Ibid.

[94] Paul R. Lawrence and Jay W. Lorsch, *Organization and Environment: Managing Differentiation and Integration* (Homewood, IL: Richard D. Irwin, Inc., 1969).

[95] Arquilla and Ronfeldt, *Networks and Netwars : The Future of Terror, Crime, and Militancy*, p. 9.

the hierarchy benefits by reducing duplication of effort and the potential for decisions that are counterproductive to the organization as a whole. The essential tradeoff, then, is efficiency for adaptability.

How then does the use of information technologies affect the ideal-type organization? The transforming ability of information technology is to provide more information to more people, faster. While information technology can provide the centralized decision-makers in a hierarchical organization with better information to make better decisions, it also creates the potential for information overload. Furthermore, additional information does little to increase the flexibility and adaptability of a hierarchy. The benefits that a network organization receives from information technology are more apparent and direct. A network can increase its efficiency through the use of IT because decentralized decision-makers can be better informed about other decisions that affect them and how their decisions might affect others. This reflects a central argument of network-centric proponents -- that advances in information technology allow networks to overcome the inefficiencies of duplication and incoherence associated with the organizational model. Conversely, while hierarchies benefit from increased efficiency through information technology, it does nothing to make them more adaptable. Technology affects primarily the <u>ability</u> of an organization to cooperate; it does not provide an indication of an organization's motivation or acceptance of cooperation. Arquilla recognizes this limitation of network theory, noting that the effectiveness of a network organization is predicated by "the existence of shared principles, interests, and goals."[96]

This network theory of cooperation therefore consists of three fundamental hypotheses:

- A network organization is inherently less efficient but more adaptable than a hierarchical organization.
- The network architecture of an organization is indicative of the ability of an organization to cooperate

[96] Ibid.

- Improvements to the network architecture, including possible improvements that are achievable in the near-term, foster cooperation by allowing policy makers to consider cooperative alternatives to issues concerning the division of labor and resources.

A theory of network cooperation, however, should be useful for an evaluation of real-world organizations, not just ideal-types. Real-world organizations are a mix of networks and hierarchy, and the impact of information technologies is not as clear as it might be with ideal types. An analysis of the decision-making structure of an organization, as well as the uses of information technologies, provides a means for application of the theory. Furthermore, in an area such as homeland security, the "organization" that must be evaluated encompasses more than just the responsible government agency, but must also include those other agencies and non-governmental organizations that contribute to the process. The process of information exchange between these diverse elements of the organizations must be evaluated as a single architecture, including both high- and low-tech solutions. Overlaying this information architecture on the organizational structure provides an indication of which parts of the organization are either more networked or more hierarchical.

C. CASE STUDY

1. The Monterey Emergency Management Network

Most organizations, including the Monterey County Emergency Services Management System (ESMS), are depicted as hierarchies, even when in reality the lines of authority and communication bear little resemblance to the organizational chart. The ESM organization chart published in the County Emergency Operations plan depicts a typical hierarchical government organization with the various sub-units (fire, law, engineering, etc) reporting through the EOC to the CAO. However, the real hierarchy of the ESMS exists only between the County Board of Supervisors, the CAO, the Emergency

Services Manager and the heads of the operations, planning, logistics and administration sections. The remainder of the chart reflects those government organizations that must function during an emergency and some standard lines of coordination within the ESMS.[97]

For most county agencies depicted on the chart, the lines of authority continue through their own departments to the Board of Supervisors. In some cases, such as portions of the Law Enforcement and Search and Rescue units, command authority runs through the Sheriff's Department to the Sheriff – an elected position in Monterey County and only partially subject to the authority of the Board of Supervisors. Additionally, a significant part of the county-wide response to a crisis are not part of county government at all, such as the California Highway Patrol, military, federal, state and city agencies, and NGOs like the Red Cross or Pacific Gas & Electric.[98]

The basis of the organizational chart, then, is not the lines of authority, but the lines of coordination and cooperation that have developed over time. Furthermore, the chart reflects only that portion of the Emergency Management System that makes up the Emergency Operations Center (EOC). The 911 / dispatch system and the field responders are two other major components of the ESMS that must also be considered. An overview of the functions of each component during a crisis provides a better understanding of the organization than a simple wire diagram.

911 is typically the first organization that coordinates the county response to a crisis situation. They are responsible for dispatching the majority of field response units, for alerting and transferring calls to other dispatch centers, and for notifying the EOC staff when needed. 911 directs the initial allocation of resources based on predetermined criteria and facilitates communication

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[97] *Monterey County Operational Area Emergency Operations Plan*, (Monterey County Offices of Emergency Services, 2000).

[98] *Interview, Monterey County Offices of Emergency Services Manager, Harry Robbins, February 27*.

between field response units. In Monterey County there are two separate 911 call centers; the primary in Salinas, and a smaller center in Monterey. Additionally, 911 calls may be routed to dispatch centers for the California Department of Fire Protection or other dispatching agencies depending on the nature of the call.[99]

The Emergency Operation Center, located next door to the main 911 center, is not fully staffed at all times but becomes operational based on the size and scope of the emergency situation. The organizational chart described above reflects most of the positions that can be activated in the EOC and how these positions are organized. The primary purpose of the EOC is to coordinate the county-wide response to a crisis by allocating resources and de-conflicting the activities of the various agencies and NGOs involved.

When activated the EOC is typically staffed with representatives, but not directors, of the various county agencies, other governments and NGOs. The "Commander" of the EOC (either the County Administrative Officer, or the Emergency Services Manager) controls the operations within the EOC itself, but often does not have the authority to direct the response provided by an agency represented in the EOC. In addition to coordinating the contribution of the various agencies and NGOs to the county response and providing direction and de-confliction for field response teams, the EOC serves as a focal point for cooperation between the county and non-county government agencies that might be affected by the crisis, including cities within the county, federal facilities located within the county, neighboring county EOCs and the California State EOC.[100]

At the field response level, actions of the various agencies are coordinated by an Incident Commander, and who becomes the Incident Commander is determined based on the type of incident and what units are available to respond

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[99] *Interview, Carmel Fire Chief Sidney Reade, May 12, 2003*.

[100] Ibid.

first. The Incident Commander has authority for the activities at the scene but does not control the allocation of resources to the incident, and primarily serves to de-conflict the activities of the various responders once they arrive. Except when controlling those units from his own agency, the Incident Commander typically has the authority to request or forbid other responding units from conducting a particular activity, but he is not the commander in a traditional, military sense. In practice, however, incident response in the field is usually coordinated by consensus with the Incident Commander, usually a law enforcement officer or a member of the Fire Department serving as the primary link between field response teams and the Emergency Operations Center.

The Monterey County ESMS therefore can be described as more closely resembling the ideal-type network organization than the ideal-type hierarchy. Each major component of the county response--the 911/dispatch system, the EOC, and the field response team--is a node in the ESM network, and is also a separate network organization itself. Following the network model of cooperation developed earlier, an analysis of the ability to share information between and within these components provides a measure of the ESMS's ability to cooperate.

2. The Information Architecture of ESM

The information architecture of ESM consists of multiple, integrated systems for communication, coordination and information exchange. This system is fairly robust, relying on redundant equipment, generators and multiple links to maintain communication during a crisis in a variety of environments. Some of the systems do have single points of failure, such as the reliance on remote antennas for radio links. This system, like the vast majority information systems in use throughout the world, has developed in fits and starts over time and cannot be described as following any clearly defined master design or plan. Rattray proposes a taxonomy that identifies four basic components of an information infrastructure: 1) its physical components, 2) the software and standards that are used to manipulate information, 3) the information itself, and 4) the people responsible for creating and maintaining the systems and training

the users.[101] Using Rattray's taxonomy as a guide it is possible to describe the information architecture of the ESMS – for clarity here they are grouped by major component (911/dispatch, EOC and field response) and primary use. Of primary concern in this examination is the identification of those aspects of the information infrastructure that have the most direct impact on cooperation, either through facilitating or hindering communication.

a. The Emergency Operations Center

THE EOC itself has been developed as a type of information network - each person working in the EOC is a separate node that communicates the capabilities, requirements and status of the agency that they represent to the other representatives in the room. Internal to the EOC there are wall maps, status boards and a computer-based mapping tool that the staff uses to coordinate their information. However, because the EOC staff only represents the agencies, they seldom have either decision authority or the ability to carry out decisions. For any real cooperative effort to develop out of the EOC, these staff members must be able to communicate effectively with the agencies that they represent. The primary means of communication established for this is a telephone installed at each station within the EOC, supported by a Private Branch Exchange (PBX) telephone system with 75 external lines and four fax machines. Additionally there are five shared computers with internet access, with an email account established for each position and about 10 available Local Area Network (LAN) connections for EOC staff members to use with laptops from their agencies when the EOC becomes operational. There are no unique software or protocols that are needed to support these systems, nor any personnel requirements above the County IT specialist that maintains all of the computers in the building.[102]

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[101] Rattray, p. 31.

[102] "February 16 Intervew - Monterey County Office of Emgergency Services, 2003," Interview Notes.

The PBX telephone system also serves as the primary means of voice communication between emergency management systems throughout the state. A secondary system is the Operational Satellite Information System (OASIS) which consists of single voice/data-capable dedicated satellite radio in the EOC. For voice communication between local EOCs, a separate radio, operating in the 150mhz range, is also available. This radio net has approximately 50 nodes including all municipal EOCs, EOCs in neighboring counties, and several local response centers. These systems require no specific protocols or support. A backup to these systems is the radio network maintained by the Amateur Radio Emergency Services (ARES). This network consists of shortwave radio sets installed in EOCs and other response centers. The ARES network is capable of both voice and text communication and is maintained by a volunteer group.[103]

Inter-EOC communication is also supported by the state-sponsored Response Information Management System (RIMS) and Emergency Digital Information System (EDIS). In the EOC the RIMS system uses the five EOC computers and an additional three used by the permanent OES staff. These computers require either an internet connection or a connection through the OASIS radio system to a central RIMS server. A local RIMS server is also hosted on the OES web server. RIMS supports the Standardized Emergency Management System message format and requires a local license of Lotus Notes™ for use. While significant amount of training is required for effective use; such training is available on-line from the California OES website. This system ensures a standardized format for emergency messages throughout the state, however, the information is primarily text-based, which many users see as a drawback. Most users would prefer a graphical, and when possible, map-based presentation of data in order to quickly apply new information to the situation.[104] The EDIS system is an internet-based messaging system, using restricted-

[103] Ibid.

[104] *Interview, Monterey County Offices of Emergency Services Planner, John Sherwin, April 17*, (2003).

access inputs from multiple state and local sources. The output messages are programmable by the receivers, can be tailored to provide information based on location and priority, and can be broadcast via email or text messaging over cell-phone or pager. The end user requires internet access for entering messages and for programming the service in addition to a receiving device. The training is insignificant for the end user and the system is maintained by the State OES at no cost to the County.[105]

The OES maintains a server separate from the primary servers for the county government. Two computers are dedicated as servers, allowing for continuous availability. The servers are connected to the main county IT center via county-owned data lines. The EOC does not maintain a modem pool or have a secondary connection to the internet backbone. The server hosts a local domain controller, a RIMS server that manages the connection of RIMS users to the California state server, and a web server for the publication of Emergency Bulletins during a crisis. The email server for the EOC is located in the main IT center and is not maintained by the EOC staff. The EOC server is maintained by building IT staff and permanent OES staff members have been trained to publish Emergency Bulletins to the web server.[106]

Between the EOC and field response units, communication is maintained by cell phone and radio. In addition to the cell phones maintained by most field response units, the EOC maintains a pool of 25 phones that can be activated and distributed as need. However, while electricity will be maintained in the EOC by generators, the availability of cell-phone systems during a crisis is uncertain; therefore the primary means of communication is expected to be radio.

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[105] *Emergency Digital Information System*, (California Office of Emergency Services, 2003, accessed 3/19/03 2003).

[106] *Interview, Monterey County Offices of Emergency Services Planner, Paul Ireland, April 17*, (2003).

Remote radio transceivers located in the EOC are available for voice communication on the Law and Fire Radio nets used by 911/dispatch as well as for an 800 Mhz radio net that links medical centers. [107]

b. 911/Dispatach

The main 911 center, located next door to the EOC, consists of eleven multi-purpose call center terminals that can be used to field 911 calls and coordinate with other 911 and dispatch centers or direct field units. The alternate center in Monterey has an additional six terminals. Each terminal consists of a computer terminal and a console that controls the radio and telephone connections. The telephone system is a configurable multi-line system that will automatically route calls to the alternate center and then queue the calls once capacity is reached. The main 911 center is the primary location for all 911 calls, but calls may be routed to separate dispatch facilities operated by military fire stations, the California Department of Forestry and Fire Protection (CDF), or the American Medical Response Paramedic Service. The California Warning and Alert System and National Warning and Alert System (CAWAS/NAWAS) provide natural disaster and crisis information to the 911 call center over a dedicated telephone line system.[108]

The computer terminals are linked to a central database of phone listings and map data that ties an incoming call to an address and location on the section map. The call center operator enters additional information into the computer log concerning the nature of the call and the units responding as the incident progresses. This database log is accessible via internet protocols from remote monitoring terminals in the 911 center, as well as police, fire and ambulance stations. The log information is also transmitted over the California Law Enforcement Teletype System (CLETS) directly to responding units either at

[107] Ibid.

[108] *Governor's Office of Emergency Services*, (accessed).

the station, or vehicles equipped with a mobile CLETS terminal. The 911 call centers require significant training and maintenance, which is a major function of the 911 staff.[109]

The primary means of communication with field response units is 150 Mhz radio. Remotely mounted antennas on Mt. Toro provide line-of-sight coverage to all the population centers in Monterey County and the majority of the wilderness areas as well. The dispatch radio system consists of three primary fire/rescue frequencies, one primary law enforcement frequency and a point-to-point addressable radio system for law enforcement use. In addition, 911 dispatchers can monitor the OASIS and CALCOORD radio networks.[110]

c. First and Field Response Units

The information architecture to support cooperation among the field response teams is by far the least robust. Links between field response teams to the EOC and 911/dispatch system have been discussed above and there is virtually no additional hardware that is used exclusively for intra-team coordination. In some cases field response teams have Global Positioning System (GPS) receivers that are used to coordinate locations, but GPS is not used as an integrated system and map data and reference protocols have not been established. The primary means of communication is via cell phone or portable radio, over a dedicated frequency in the 150 Mhz band referred to as CALCOORD, or the California Coordination net. The dedication of this frequency is significant, however, in that it assures at least a minimal capability for on-site coordination by field response units. Although the 911 center has the ability to monitor this frequency, they are restricted from broadcasting on it unless other means become unavailable.[111]

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[109] *Minutes Board of Supervisors, Tuesday March 18, 2003*, (accessed).

[110] *Emergency Digital Information System*, (accessed).

[111] *County of Monterey*, (accessed).

3. Potential Improvements to the Information Architecture

Many systems are being considered by (or marketed to) various agencies for improvement to this infrastructure. Often more important than the technology required to implement such improvement is the relationship the new capabilities have to development of cooperation. For example, the development of a multi-agency CBRNE response as described in Chapter III would likely not have been considered without the potential to send a deploying unit real-time updates, including graphical data, and initial sampling results. This gives the unit the ability to conduct planning while responding from a more distant location, an important concept in the development of the capability.

Systems available now and in the near future will let policy-makers and planners consider a wider-range of potential solutions to incident response and management, giving them the flexibility to choose more cooperative approaches. The systems that are likely to influence cooperative efforts can be categorized as Communication systems, Geographic Information Systems, or Response Management Systems, although many of the products being marketed to emergency management organizations integrate several systems. The systems examined in this chapter are under consideration by various agencies within Monterey and the potential to significantly improve the ability of the agencies to cooperate at relatively low cost.

a. Communication Systems

While there has been significant emphasis on improving communication links among field response teams, real progress has been seen more in the areas of organization and training than in technological improvements. Reserved frequencies for field coordination like the CALCOORD system described above have become more widespread, and the number and range of radios in the field has increased. Additionally, systems have been developed to overcome the difficulties associated with radio frequency communications in typically poor quality environments such as heavily built up areas. One such system, the “First Responder” produced by Raytheon and JPS

Communications, is a vehicle-mounted or transportable system that provides the Incident Commander with frequency-optimized radio and cell phone antennas, the ability to patch and link multiple communication channels, and a wireless access point for Internet protocol communications. When multiple systems are used, the manufacturers claim vastly improved communication capabilities in even the worst radio frequency environments.[112]

b. Geographic Information System (GIS)

GIS is simple a group of computer systems "capable of assembling, storing, manipulating, and displaying geographically referenced information."[113] It also encompasses a suite of protocols designed to facilitate the transfer of map and location data between multiple systems and users. While GIS has been widely used by the military for several years and the United States Geological Survey has established a "National Spatial Data Infrastructure" to support the use of GIS, they have not been widely available for use in emergency response due to the high cost of the systems, The Monterey OES has a GIS system located in the EOC, but it has little ability to exchange data with systems in other agencies or the field. Several systems are now available that integrate GIS capabilities with a GPS and a communication device to provide real-time information exchange between a field response team and a central server. Other systems can be integrated with the 911 system to provide a "reverse 911" system. Whereas in the current system a caller is identified by location, reverse systems can be used to notify all phone customers within a given area of critical information concerning evacuations or hazards.

c. Response Management Systems

Response management systems often integrate improved communication and GIS systems into a package designed for use in EOCs. They typically have modeling software to help predict effects of developing

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[112] Anne Marie Squeo, "Keeping Post-Disaster Rescuers Connected," *The Wall Street Journal*, August 28 2002.

[113] United States Geological Survey, *Geographic Information Systems*(2003, accessed 3/19.03); available from http://www.usgs.gov/research/gis/title.html.

situations, and have messaging or computer network-based data sharing to allow multiple input and retrieval from databases. These tools are often designed to speed the assessment process, allowing for a faster and more appropriate response to a situation. The Consequences Assessment Tool Set (CATS) is one package that was initially developed for military use that has been expanded for use in homeland security. CATS runs on a standard PC with a GIS system and is capable of integrating real-time weather and seismic data and accepting data from field-based systems over Internet protocols. It allows an EOC to make casualty and damage predictions, identify at-risk areas and populations, and manage evacuation or relief efforts.[114] In general such systems are designed to automate much of the work that EOC staff do manually, potentially reducing the manning and life-support requirements for an EOC during a crises.

D. CONCLUSION

The information architecture surveyed here indicates several areas where an inability to share information may limit the ESMS's ability to cooperate, but also gives an indication of the potential improvements that are being considered by policy-makers and have influenced their decisions to adopt plans that call for increased cooperation. For example, the inability to accurately exchange map and location data within field response units and from field response units to the EOC or 911 delays their response time, and the forced reliance on telephones as the primary or sole means on communication between the EOC staff and their respective agencies can result in the significant misallocation of resources. Nevertheless, because of the likely gains in these areas as a result of the deployment of GIS systems, response plans such as the interagency CBRNE response can and are being considered.

[114] *FY03 State Domestic Preparedness Program, Grant Guide for Local Governments*, (California Office of Emergency Services, 2003, accessed May 2003); available from http://www.oes.ca.gov/Operational/OESHome.nsf.

1. Theoretical Application

The network model developed here cannot be used to asses the willingness or motivation for an interagency emergency management organization to cooperation and coordinate. However it does provide a valuable tool for analyzing the ability of an organization to do so. A network model provides a basis for evaluating the impact of infrastructure improvements on the ability of the organization to cooperate. While there is a tendency in much of the popular as well as some technical literature to treat information technologies as a panacea against failures in interagency cooperation; improvements of information architectures can do little to foster cooperation if structural barriers exist or a group of interagency-oriented policy-makers does not.

2. Practical Application

Some of the systems highlighted in the previous section provide a substantial increase to the infrastructure in areas that already support effective cooperation, while others much more effectively target areas where an infrastructure improvement would likely bring a substantial improvement in cooperation. Because of the large wilderness areas and rough terrain in Monterey County, systems that allow for the collection, sharing and use of GIS data would probably have the greatest impact on the ability of the various agencies to improve coordination. While improvement in the information architecture will not, by itself, improve the level or quality of interagency cooperation this network model does suggestion some policy recommendations that would help to maximize the benefit of such improvements:

- Examine (and if warranted modify) the structure of the ESM network to pair decision-making authority with information availability.
- Target architecture improvements towards providing more accurate and timely information to field response units and critical decision nodes.
- Consider near-term architecture improvements during response planning .

3. Summary

Network theory is used to describe a variety of systems, including social organizations and information exchange. The chapter shows that it can be a useful tool for describing the ability of willing agencies to cooperate. It was demonstrated that the Emergency Management System of Monterey County operates as a networked organization, with multiple, largely independent nodes coordinating their activities in order to generate a more effect emergency response. It was also shown that the ability of such an organization to effectively cooperate is indicated by the ability of the organization to share information and resources between the nodes. Information technologies, while not a panacea for the lack of interagency cooperation, can improve the ability of agencies to share information, particularly when used to develop critical aspects of a system's information architecture. Furthermore, even potential improvements to this architecture can result in improved coordination and the consideration of more cooperative approaches to interagency issues.

V. CONCLUSION

This thesis has examined the role of interagency cooperation in homeland security preparedness and emergency management in Monterey County, California, using three theoretical models from various disciplines. Each one of these models is useful for explaining some aspects of interagency cooperation, but because they were developed for other purposes, none of the models alone provides a comprehensive representation of how interagency cooperation develops and impacts government at the local level.

Because these models describe different factors, influences and impacts of interagency cooperation, it would be useful to consolidate their explanatory benefits into a single model. Additionally the application of such a model indicates that there are steps local governments can take to encourage interagency cooperation, which would allow them to develop a more efficient and effective emergency management system in the current environment of increased risk and decreased budgets. This chapter brings together the somewhat divergent approaches examined in Chapters II, III and IV, providing first a synopsis of the case study, then some ideas on how to developed a more integrated model of interagency cooperation, an overview of the policy recommendations indicated by the model and finally some suggestions for further study in the area of interagency cooperation.

A. CASE STUDY SYNOPSIS

The case of interagency cooperation for homeland security in Monterey County is intriguing for a number of reasons, the primary reason is the conclusion by participants in the March 2002 conference at NPS that the central coast in general was very well prepared in comparison to other, similar communities in the nation and that this was do in large part to the high level of cooperation that exists between the various agencies and governments responsible for providing emergency services.[115] Additionally, this case was chosen for the availability of

[115] Moore.

information, its lack of a major metropolitan center and the wide diversity of governments, physical environments and risks. The latter two factors suggest that this case could serve as a model for other local governments that are formulating their homeland security policies.

The Emergency Services Management System (ESMS) in Monterey County is comprised of emergency services agencies from the federal government activities in the local area (the Presidio, NPS, etc.), twelve municipalities and the county government itself. Additionally, non-governmental agencies, such as the Red Cross, and private sector enterprises, such as Pacific Gas and Electric, American Medical Response and several local hospitals, provide critical capabilities that contribute to the overall response.

The structure of this system, and of the government of Monterey County itself, is such that there can be little centralized control over emergency services. Although the Office of Emergency Services is tasked with coordinating emergency response during a crisis, they have no standing authority to direct agencies to plan, develop or provide any particular capability, nor does OES receive any military-style command authority during a crisis itself. Nevertheless, an examination of budgetary commitments and decisions indicates that for the most part, the various agencies take a coordinated approach to homeland security policy despite potentially diverse motivations during a period of severe budget constraints.

Critical to the development of this level of interagency cooperation has been the involvement of a core group of professionals from various disciplines and agencies. Members of this group have a growing level of influence in policy decisions and share a common set of beliefs regarding public service and safety, the benefits of interagency cooperation and the positive impact of innovation and technological improvements. The members of this group represent the major sectors of emergency services, including emergency management, fire fighting, law enforcement and health services, and consistently take positions that might not be considered as representative of their institutional interests, but are in the

best interest of the community at large. Particularly noteworthy has been the recent development of a unified CBRNE response plan that will maximize federal grant money to provide a regional response capability that is shared among several agencies. The adoption of this plan required that several members of the group forgo grant money that was intended for their agencies so that the major equipment items required for the plan could be purchased.

Integral to the adoption of such plans has been the development of information technologies that allow capabilities spread across various agencies to be employed in a coordinated and effective manner. While many of these technologies are still emerging, the probable effects of short-term improvements to the information architecture of the ESMS were considered during the development of plans and policies that call for more interagency cooperation. Major improvements to the information architecture, such as the construction of the new combined emergency services center, will allow the various agencies to more readily exchange information during a crisis, while distributed technologies, such as GIS and mobile computer and command systems, will help ensure that field response units have the information they need.

B. THEORETICAL IMPLICATIONS

This thesis has borrowed from three widely divergent models in the fields of international relations and information science. While none of these models alone is fully applicable to the case of interagency cooperation at the local level, they all provide insight into various aspects of the case. Bureaucratic Political models can be used to describe the structural aspects of a government that can either hinder or provide increased opportunities for interagency cooperation. Epistemic Community theory, and potentially the model of managed interdependence described by Haas, helps to explain the role of influence groups in the development of interagency cooperation. Finally, networking theory provides a means to incorporate the growing influence of technological innovation into an integrated model of interagency cooperation .

The Bureaucratic Political model was developed and is typically used for a detailed analysis of the decision-making process of a national government, particularly in a period of international crises. The model shows that even in cases of intense stress, when clear national interests are at stake, decisions are often made on the basis of bargaining and arbitration between key players who represent their institutional rather than the national interest. According to this model, this same process would exist during less critical periods as well, and the general process of government is one of trade-offs, winners and losers. In this case presented here however, the bureaucratic bargaining process seems less well defined, but this does not mean that the model is completely inapplicable. The differences in the structure of the systems -- local government agencies acting in a more secure and stable environment, as opposed to a national government acting in an insecure, anarchic environment -- may account, as least in part for the different outcomes. The structure of a local system, including the lack of a central executive, multiple chains of authority, more overlap in institutional motivations and a more constrained budget, indicates a system that has fewer obstacles to interagency cooperation, but it does not, in and of itself provide an impetus for cooperation.

Epistemic Community theory adds to an understanding of interagency cooperation by examining on source of cooperative efforts. This theory has been useful in explaining cooperation is a variety of settings, including the development of international arms control treaties and the development of coherent environmental policies at various levels of government. The strict definitions that have developed to differentiate an epistemic community from other influence groups make the application of the theory more difficult in cases such as the one discussed here for a number of reasons. First, the “community” involved in developing and implementing emergency services is less academically oriented that many of the other communities that have been studied, therefore there is a smaller body of writings and academic backgrounds that would indicate how and where a community’s value system developed. Second, because the members of such a community are more likely to work

together on a daily basis on a variety of issues they may be less likely to discuss differences of opinion and approach with an outside researcher -- potentially indicating a higher level of cooperation than actually exists. Finally, because local government practices are to some extent less formal than those of higher level of governments there may be less documentary evidence (in the form of minutes, statues, etc) on which judgments concerning the influence of the group can be based.[116] Nevertheless the influence of "epistemic community-like" groups within local governments is clear, and when the vagaries of definition can be accounted for, the other aspects of epistemic community theory, including avenues of influence and the coordination of policy, provides tremendous insight into the process of developing interagency cooperation. Examining the role of epistemic community-like groups within the context of a broader model of organizational learning and the role of ideas would be even more beneficial.

Network theory is an emerging group of models that draws from a diverse range of fields including computer sciences, organizational decision-making theory, business, and epidemiology, among others. The various models describe the ways in which nodes (humans, computers, microbes, etc.) interact and the effect these interactions have on the nodes. Recent application of the models in the areas of defense analysis and business indicate that the information infrastructure of an organization can have a profound impact on the way that the organization makes decisions and conducts its activities. While some proponents claim that improvements in the information architecture alone could account for the development of interagency cooperation, most theorists recognize that the structure of the organization itself must be compatible with information architecture and that there must be a decision at some or multiple levels in favor of cooperation for it to develop. The information architecture however gives nodes the <u>ability</u> to cooperate when the other factors allow for and encourage it. Furthermore, known, potential improvements to the information architecture can have the effect of fostering interagency cooperation, especially

[116] It should be noted here that this was certainly NOT the situation in this case. In general the agencies within the various governments of Monterey County keep abundant and accurate records of meetings and decisions and readily made this information available.

in the area of homeland security preparedness, in that they allow planners and policy makers to anticipate the ability to more efficiently exchange information as they develop policies and response plans.

None of these concepts is itself innovative, but taken together they can provide a more thorough representation of interagency cooperation at the local level. Such an integrated model of interagency cooperation at the local then should consider three fundamental facets of the interagency process: the structure of the system, the role of ideas and group learning, and the impact of information technology. According to this integrated model, interagency cooperation, that is, the unmandated coordination of activities and/or sharing of resources between two or more agencies, is more likely to develop (1) if the agencies operate in a system that has few structural barriers to cooperation, (2) if there is a group of public officials in the various agencies that share ideas and values concerning the benefits of cooperation and (3) if the information architecture does, or could in the near future, support the efficient exchange of information and distribution of decision making between the agencies.

C. POLICY RECOMENDATIONS

This model, when applied to the case studied here, suggests that there are policies that local government can adopt that might enhance the homeland security preparedness of the community, and enhance the overall level of interagency cooperation as well. These recommendations have been discussed in more detail in their respective chapters, but are summarized here.

- Establish a decision-making process that involves less arbitration by an executive agent and more peer-to-peer negotiation.
- Decrease institutional barriers to cooperation by protecting the resources saved through cooperation.
- Don’t impose regimes of communication and collaboration that stifle real cooperation.
- Foster cooperation within existing groups by allowing them opportunities to coordinate and giving them authority to develop cooperative efforts.

- Adopt policies that support cooperation. That is, rather than mandate coordination, officially state that cooperative efforts in general are encouraged, then protect agencies and officials who develop cooperative efforts.
- Foster the growth of cooperative communities, by including outsiders and subordinates in cooperative efforts and coordination activities.
- Examine (and if warranted modify) the structure of the ESM network to pair decision-making authority with information availability.
- Target improvement in the information architecture towards providing more accurate and timely information to field response units and critical decision nodes.
- Consider near-term architecture improvements during response planning.

These suggestions fall into three general categories, those that may involve the restructuring of agencies or a change in supervisory relationships, those that may require significant financial commitments and those that can be adopted as a management style or organizational culture. Each of these categories suggests different barriers to the adoption of the recommendations, which, depending on the particular situation, may themselves be insurmountable.

In some situations, charters, documents of incorporation or constitutions may prevent governments from changing the structure and operation of their emergency management system, In others, as in Monterey County, severe budget shortfalls will limit the improvements that a government can make to their information architecture. Most difficult in many situations, however, will be the adoption of recommendations that call for change in management style or organizational culture. While these types of changes may require little in terms of legislation or financial capital, they involve the changing of the attitudes, values and perceptions of individuals.

Furthermore it is difficult to prioritize these suggestions in terms of their potential impact on cooperation in other settings. Intuitively, however, the biggest gains result from addressing those areas that most hinder cooperation.

For example if a local government has a well-developed information infrastructure, but has significant bureaucratic barriers to cooperation they would probably be best served by working to overcome these barriers.

D. SUGGESTIONS FOR FURTHER RESEARCH

This thesis was limited to the examination of those agencies that work directly with the Monterey County Offices of Emergency Services, however in practice, interagency cooperation within the Monterey County Emergency Management System extends beyond this to include a large number of municipal governments and agencies, private enterprises that provide services to the municipalities and a vast array of NGOs that are active during emergency situations including volunteer response groups, churches and service organizations. Further investigation into the impact of these groups on homeland security along the central coast would be beneficial, especially for local governments wanting to increase the participation of the local population in preparedness efforts.

Additionally, the integrated theory proposed here is by no means complete. Most importantly the role of ideas in the development of interagency cooperation should be more thoroughly investigated in order to gain a better understanding of how concepts like the unified CBRNE response plan discussed here are conceived, developed and adopted as policy. There is also opportunity to further investigate the role of organizational structure through a comparative study of different local government systems and the effect these systems have on interagency cooperation. Finally the area of network analysis holds many opportunities for further study, not just in the role of information technologies, but in the role of social networks, human factors of information exchange and the potential for information overload during crisis situations.

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