

Gathering Storm: Structuring More Successful Responses to Disasters

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Abstract

The period between 1992 and 2005 was turbulent for the Federal Emergency Management Agency (FEMA). Failed responses to Hurricanes Andrew and Katrina resulted in academics questioning the efficacy of FEMA's structure and ability to coordinate a response. The literature studying this phenomenon focuses on whether the failed responses were due to FEMA's structure being too flexible or too hierarchical. This thesis argues this duality misses the point. First, the literature is overly focused on failure at the expense of success. This necessarily ignores half the story. Analysing successful responses will provide a more holistic view of what structures are the most appropriate in a response. Second, responses are never wholly open or closed but rather a mixture of both. FEMA's responses need to be disaggregated into their strategic (policy-makers) and operational (implementers) components and their combinations examined. With reference to two failures, Hurricanes Andrew and Katrina, and two successes, The Great Midwest Floods and Northridge Earthquake, this thesis argues optimal response frameworks are strategically closed and operationally open.

This work is substantially my own, and where any part of this work is not my own, I have indicated this by acknowledging the source of that part or those parts of the work.

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Thunder on the mountain heavy as can be;

Mean old twister bearing down on me;

All the ladies in Washington scrambling to get out of town;

**Looks like something bad gonna happen, better roll your
airplane down;**

Thunder on the Mountain – Bob Dylan

Chapter One – Introduction

You Always Take The Weather With You

In the wake of Hurricane Katrina in 2005 and the catastrophic consequences exacerbated by the bungled government relief effort, The Federal Emergency Management Agency's (FEMA) bureaucratic structure was thrust into the political and academic spotlight. Every sitting member, newspaper editor and scholar had an opinion about whether or not FEMA should be disbanded (Senator Collins, Senate Hearing, 2006), reconstructed (Roberts 2006) or as President George W. Bush stated, consolidated into the Department of Defence (Bush 2005). At the core of each of these actions lie assumptions about the optimal methods FEMA should implement to better respond to disasters.

FEMA is an exemplary case study because its mission and structure have been manipulated over the past fifteen years as Presidential priorities have changed.¹ Bush's comments mirrored Clinton's call for reorganization fifteen years earlier after the failed response to Hurricane Andrew (Frontline 2005). These failures are overwhelmingly represented in the literature. However, these two major events – Hurricanes Andrew (August 1992) and Katrina (August 2005) – bracket a period of time where the organization was able to respond effectively – and with much less attention – to disasters. Material analysing the interim remains relatively scant. I seek to examine the evolution (devolution?) of FEMA in the fifteen years between these two disasters. Under the

¹ For example, up until 1992, FEMA was primarily charged with civil defence against a nuclear attack, from 1993-2003 its mission was to prepare for, and respond to, disasters, and from 2003 it was responsible for defending against domestic terrorist threats. Furthermore, in that time the structure of FEMA changed from a small agency, to a Cabinet level agency and then finally into a sub-section of the DHS. (See Roberts 2006).

guidance of Director James Lee Witt, FEMA became an efficient and respected department and its responses to the Great Midwest Floods in 1993 and Northridge Earthquake in 1994 were exemplary (Nigg, 1997; Comfort 1994). This period was one of unprecedented success for FEMA and yet it received comparatively little attention in the literature. A temporal analysis of FEMA's responses, both failures and successes, between 1992 and 2005 has not been attempted.

Disaster management literature is divided into two fundamental camps: those that promote "open" systems and those that advocate "closed" systems. This partition is due to the different styles and characteristics of management that responders implement during a crisis. Open systems are characterised as being flexible, and involve local communities. They generally have a plan that is able to be adapted according to the context, capacities, and geography. Closed systems on the other hand are based on procedures and hierarchy. Each possible problem is "anticipated" with a contingency plan from which there is little deviation.

I argue that the binary application of these frameworks is flawed. Firstly, academics who write about open and closed systems with regards to disasters or successes often attempt to categorise the response as *either* open *or* closed. Categorisations of whole responses as either open or closed are missing the point. I will demonstrate that in order to provide a more in-depth and thorough analysis, responses need to be further disaggregated into the strategic (policy-creation) and operational (local) components.

As responses are both open and closed, it is safe to assert that a combination of open and closed, at both strategic and operational levels, is required. This distinction is

often missed within the literature. Instead, there is a marked bias towards open systems and their apparent appropriateness in every disaster. Closed systems, on the other hand, are subject to unwarranted criticism for being prone to failure. I argue that strategic actors are, other than in very specific exceptions, always closed and only prone to failure because of potential political pressures, such as scapegoating and blame.

Disaggregating responses into their respective operational and strategic parts, and then determining whether or not they are open or closed, is a better method to use to order to analyse their effectiveness than viewing them in isolation. This division allows for an overview of bottom-up and top-down responders. Strategic actors, those working from the top-down, constitute the upper echelons of decision-making and policy-creation. Actors in this layer are responsible for “setting the parameters for implementation” (‘t Hart et al 1993:30) and remain at a distance from the crisis, taking a hands-on, but largely supportive role. Operational units, on the other hand, are the implementers, largely local personnel, who are, by the virtue of being at the scene, active participants in the technical aspects of a response.

This paper focuses on the *distinct* roles of strategic and operational actors and demonstrates both units have the potential to contribute distinctly to the success or failure of disaster management. Along with the need to compare successes and failures, it is also vital to assess the failures of strategic units through a strategic lens and seek to reform them into more effective units for their supportive and policy-making roles. In doing so, strategic units may need to maintain some approximation of a “closed” system because they are necessarily subject to political and bureaucratic hierarchies. Operational units, the preferred framework for response in disaster management literature, require similar

focussed attention. A more thorough understanding of the strengths and weaknesses of operational structures will be useful to demonstrate where flexibility is needed and how better to empower local communities who are, by definition, the first to respond to the disaster.

A Model Responder (Strategic Closed/Operational Open)

Disaster Response

Strategic and operational actors can be either open or closed, depending on what function they wish to achieve. I argue that disasters offer some universal problems as well as contextual ones. There are usually communications problems in disaster areas. In all four case studies the disaster was large enough to damage phone-lines and mobile towers. This factor causes two distinct problems: strategic actors are unable to communicate missions and roles to operational units and operational units are unable to request supplies and assistance from strategic actors. Contextual problems, such as debris blocking access routes into a disaster area, present different problems, and require flexibility to adapt to conditions.

With these factors in mind, I argue that there is the combination of closed strategic and open operational units addresses problems in responses most effectively. At the strategic level, it combines hierarchical leadership, to delegate responsibilities, with a reliance on conventions to assist with the processing of requests whereas flexibility and adaptability are encouraged in independent units at the operational level. In this thesis, I examine the operational and strategic levels and open and closed frameworks in four case studies, as demonstrated in Table 1.1, to discern why strategically open/operationally

closed frameworks fail, and strategically closed/operational open frameworks elicit successful responses.

Table 1.1

	Operational	Strategic
Open	Midwest (S) Northridge (S)	Andrew (F) Katrina (F)
Closed	Katrina (F) Andrew (F)	Midwest (S) Northridge (S)

Outline

This thesis is divided into six chapters. Chapter One provides an overview of open, closed, strategic and operational theories, and presents an exemplary framework. Chapter Two sets out the methods for this thesis, focusing on why the literature ignores successes. Chapter Three provides a review of the open and closed literature and purports that operational and strategic levels need attention. Chapter Four examines the effect of the strategically open and operationally closed framework on FEMA’s responses to Hurricanes Andrew and Katrina. Chapter Five examines the strategically closed and operationally open framework’s effect on The Great Midwest Floods and Northridge Earthquake. Finally, Chapter Six presents conclusions and areas for future research.

Chapter Two: Out of Focus – Case Study Selection

Introduction

Case study selection is an important factor in a comparative study. There are three reasons why these four disasters and FEMA are the central examples in this thesis. First, focusing on the peak disaster management, FEMA negates some of the problems with the “fractal effect”. Second, although a multitude of studies about the responses to Andrew and Katrina have attributed failure to communication and leadership, a structural analysis has not been attempted. Finally, successes, like the Great Midwest Floods and Northridge are largely ignored in the literature because they are not “catastrophic”. I argue The Great Midwest Floods and Northridge are not garden variety disasters. In fact, they are the largest and most damaging disasters of their type and yet they elicited a successful response. Examining these successes reveals how FEMA was able to modify its practices so quickly after Andrew.

The Fractal Effect:

Strategic and operational structures are persistent throughout disaster management hierarchies. It would be incorrect to assert that there are clearly defined boundaries to where strategic actors end and operational actors begin. The major problem is one that I have deemed the “Fractal Effect”. Fractals are a mathematical phenomenon whereby a “rough geometrical shape can be subdivided into parts that are...a copy of the original shape” (Falconer 2003:27-28). Fractals are also irregular and unique, just like individual organizations. Most importantly fractals remain similar “at any level of magnification” (Falconer 2003:28). In government terms this translates to regardless of how far up or

down the hierarchy the analysis focuses on, the structure will remain comparable (individual organizational differences notwithstanding).

In each organization there is a (individually defined) level of centralization in order to provide a clearer accountability schematic and to increase the efficacy of the delegation of responsibilities. This occurs in strategic organizations, such as those in the Federal sphere such as FEMA, and in operational or “first responder” units like the police and non-governmental organizations. There are undoubtedly leaders and followers, however that is merely a cross section of (any point of) the disaster management hierarchy. In order for any analysis to be useful, limits need to be placed on the scope of what is and what is not operational and strategic.

This paper examines the efficacy of disaster management in the United States. As such the scope of the strategic and operational elements needs to relate to the peak bodies of crisis management, namely, FEMA and its subsidiary agents. Federal organizations, such as FEMA, its Cabinet position under Clinton, and the Armed Forces, provide the basis for the strategic strata. The operational level of analysis is focused on the units being coordinated by the strategic bodies. These groups include police, some NGOs, search and rescue teams, damage assessment units as well as resource-suppliers (for food, ice, medicines etc) and transport agents.

There are two reasons for the scope of this definition; continuity and the removal of obstacles. By assessing the organizations that are directly coordinated by FEMA or its agents on the ground in the disaster zone, the analysis gains a measure of continuity. This is not a study of every group, organization, and individual’s contribution to the disaster response but rather a means of demonstrating FEMA’s responsibilities and pointing out

which units FEMA believed would best coordinate, cooperate, and mobilize to create the most successful response possible. Organizations range from the global, such as the Red Cross, to the state, such as the National Guard, and the local, like the police. Each one of these groups is under the auspices of FEMA in the event after Major Disaster or an Emergency declaration. The ability to make the link between the units and their coordinators is vital in any analysis of the efficacy of disaster response.

The second factor justifying this definition is that it reduces the obstacles clouding the relationship between FEMA as a strategic coordinator and its operational subsidiaries. Defining the actors this way restricts the amount of strategic and operational units in the disaster management spectrum. Any wider analysis would be hampered by individual responses and community groups. While these are a part of the response, they are more self-sufficient and are part of the “inevitable response”, the response that materializes from locals protecting their homes as they are threatened or damaged. If the scope is any narrower, just assessing FEMA for example, then the operational arm of the organization and its coordinating abilities is ignored. The organization’s role is to provide a central point for disaster response. Any analysis not only needs to take its organizational capacity into account, but also its ability to provide assistance through its subsidiary, “second tier” agents. This provides the opportunity to analyse the effect of FEMA’s position, mission, role, and leadership on both strategic and operational units simultaneously, rather than attempt to examine them in a vacuum.

Under-Representation of Successes

Academics set the debate over disaster management in the context of isolated, albeit in-depth, studies of specific disasters. A plethora of studies add to the argument

that open systems are better at responding to disasters than their closed counterparts. This is empirically consistent with reference to the isolated examples of Andrew and Katrina where the failed responses could have been mitigated had FEMA been more “auto-adaptive” in its approach (Roberts 2006). It is useful to put the recommendations made following these failures in the context of successes to test their validity. Under Lee Witt, FEMA successfully responded to the United States’ most costly flood (Great Midwest Flood from May 1993 to January 1994) and earthquake (Northridge Earthquake in January 1994) which occurred only a year after Andrew (Roberts 2005; Schneider 1995; Kweit and Kweit, 2006). Therefore, it is not just singular responses that must be analysed. The effects of changes to organizations’ missions and leadership are made more overt in an analysis of the over-arching context in which the disasters and FEMA are placed.

There is a marked bias in the literature towards writing about “what went wrong”. Academics such as Moynihan (2006), Brinkley (2007), and Kweit and Kweit (2006), concentrate on fundamental aspects such as communication and coordination in an attempt to promote a view about FEMA as either incompetent, needing reform, or in line for abolition. However, concurrently, there is a dearth of stories about “what went right”. One possible reason why academics and politicians assert that FEMA was untested during Lee Witt’s reign as Director (Brinkley 2007; Roberts 2006) could be that there simply is not the same amount of information about and analyses of, successful responses as there are for failed ones. Instead, there appears to be a consensus that FEMA can respond adequately to “garden variety” disasters because its massive bureaucracy is able to mobilize. However, in a catastrophic disaster it would be (and has been) swept aside in

favour of an individual actor at the scene, for example, Secretary Card during Hurricane Andrew.

There are two reasons for the lack of studies focusing on successes; the media, and a preference for recommendations. It is unsurprising that PBS Frontline correspondent Jeffrey Brown described the coverage of Katrina as “the worst week of reporting in the history of American media” (Smith 2005). The media’s preoccupation with showing the horror of disasters, as opposed to the relief effort, has a significant impact on whether a disaster is deemed a “success” or a “failure”. During Katrina, the chaotic response was overshadowed by (largely exaggerated) allusions to looting, mass rapes in the Superdome, and gangs murdering citizens indiscriminately (Brinkley, 2007). Disasters, like Northridge, affect a smaller population and do not provide the same sensational news images as a hurricane, nor do the Great Midwest Floods, which were drawn out over the course of nine months. While discussions about the media’s ability to shape the truth lie outside this paper, it is important to emphasize its power to define what successful and failed responses are.

The second element is the trend towards analysing disastrous responses so as to provide recommendations to avoid future mistakes. In-depth studies are useful for exploring what went wrong, but they lack the ability to draw from (failed and successful) events from a wider timeframe. This is not a wholly selfish motive, however, academics such as Moynihan (2006) and Morris (2006) are perfect examples of in-depth studies of disasters whose conclusions lack analytical comparisons with successes. The lack of data and investigation into successes perpetuates this cycle. This paper aims to rectify a small part of this discrepancy by scrutinizing failures and successes over a thirteen year

timeframe from 1992 to 2005. This comparison will bring new light to any claims about the strengths and weaknesses of the United States' premier disaster relief agency, FEMA.

Disastrous responses are still vital in order to figure out why mistakes were made and whether it was the fault of systemic or contextual factors. Avoiding or ignoring them would be unhelpful. This paper compares both because labelling a response a "failure" or a "success" is often times a misnomer: there are elements of both in all disasters. By teasing out the variables between the two labels, the two structures, and the two levels, it will become clearer which is the most effective framework and will provide a more holistic overview of what it is to be defined as a success or failure.

Garden Variety Disasters

A main element in debates over FEMA's effectiveness in the period from 1992-2005 is the charge that there were no "catastrophic disasters" only those that could only be described as "garden variety" (Schneider 1995:134). With this in mind it is worth examining the extent of disaster occurrences in the United States between those two dates, and how they are classified.

The United States is no stranger to disasters. Each year there are hundreds of disasters of which tens are determined (by a Presidential declaration) to be "catastrophic" or a "major emergency" (FEMA 2007). However, it is not enough to use the Presidential declaration as a guideline for the severity and magnitude of disasters. Warnesley et al (1996) point out that disaster relief is inherently political insofar as regions that are granted funding often use them towards projects that benefit the community and are able to be used as political pork-barrelling. President Clinton set the benchmark for

declarations and remains the President with the most declared disasters in his term, including large snow storms for the first time (Franklin 1995).

There were hundreds of disasters of, major, catastrophic, and garden, variety, between 1992 and 2005 (FEMA, 2007a). Academics project their own definition of catastrophic onto their work (see: Moynihan (2006) and Morris (2006) for example). However, the classification “catastrophic” is only useful to a point. The very political nature of disaster response makes any reliance on Presidential Declarations as a guide for what is and is not catastrophic inherently political as well. Beyond the arguments over the classification of catastrophic, major, and garden variety disasters lies a potential solution: perhaps FEMA *was* tested with catastrophic and major disasters, but there is a lack of discussion on the subject because there were no catastrophic or major *failures*. Catastrophic disasters often have two elements; a natural element brought about from the actual impact of the disaster and a systemic element, brought on by coordination, cooperation, and logistical problems when FEMA is mobilized.

The political nature of disasters makes any kind of declaration a poor, and ultimately subjective, criterion for disaster categorization. Equally, it is unhelpful to argue, as Schneider does, that there are no “garden variety” disasters because it is always catastrophic for someone (1995:134). Clearly, if garden variety is defined as “common” or “standard” then such disasters exist: earthquakes and bush fires in California, hurricanes in Florida, and tornados throughout the Midwest. While these types of disaster may be expected, the context, geography, and intensity of each can move it away from general understandings of what it is to be “garden variety”. The four case studies in this paper are not “garden variety” disasters. The size, damage, and personnel deployment of

each disaster rank them as the some of the most dangerous and damaging disasters of their kind

Classifying Catastrophe

FEMA failing is not sufficient enough to classify a disaster outright. This is why studying successes is vital. In this paper I have added Northridge and the Great Midwest Floods to the analysis of FEMA's efficacy. These incidents are important, and disastrous, in their own right. Northridge is important because it signals the first time Federal Armed Forces (as opposed to the National Guard) were officially deployed using the Federal Response Plan after a disaster (Comfort 1994). Moreover, it was the first successful martial deployment, paving the way for the military to become a key player in domestic disaster management. Lee Witt's ability to coordinate federal, state, and local actors is a testament to his ability to mobilize resources and recognize when he is needed and when he is not. Stickney, Card, and Brown lacked this quality. They either believed the disaster response would collapse without them (Card in Andrew), or that the response would work perfectly without them (Stickney in Andrew, Brown in Katrina)².

Catastrophic disasters are likely to have more than one dimension. Dimension in this case means a disaster-within-a-disaster, for example, flooding after a hurricane, mass power and water shortages after earthquakes, or forced isolationism due to road closures

² I acknowledge that two successful hurricane responses would have strengthened my argument. My view is that the multidimensionality (wind/water/infrastructure damage) of catastrophic disasters, while almost always present in hurricanes, can be present in other disasters. In fact, the very fact that multidimensionality is rare in floods and earthquakes makes an analysis of an agency's ability to respond to them even more important, as it demonstrates the agency's ability to adapt to factors that are uncommon. Equally, Andrew was arguably a uni-dimensional disaster: instead of the flood and wind damage that was seen in New Orleans, South Floridians were largely only affected by wind damage. Taking into consideration that flooding means not only infrastructural damage such as would be found after damaging winds, but also access and transportation isolation, I find the comparison between earthquakes, hurricanes, and floods to be compelling and useful.

and transport damage. These dimensions complement factors such as housing and infrastructure destruction which is common in all four case studies. Identifying dimensions within disasters makes it easier to approach disaster classification with more objective criteria. In this paper I propose six (certainly not exhaustive) guidelines to provide a more holistic analysis of disasters which I call the six “Ds”: size of **d**isaster area; buildings **d**estroyed; **d**isplaced persons; **d**ollars of damage, **d**eaths, and troop **d**eployment (see Table 2.1). With these guidelines I hope to disturb the assumption in the literature that catastrophe is merely magnitude. In fact, magnitude, and by association catastrophe is more than just dollars and deaths.

Table 2.1 Graph of Damage

	<i>Hurricane Andrew 1992</i>	<i>Great Midwest Flood 1993</i>	<i>Northridge Earthquake 1994</i>	<i>Hurricane Katrina 2005</i>
<i>Buildings Destroyed:</i>	126,000 9,000 caravans	47650	12500 (severe) 1000 (knocked down)	205,000
<i>Disaster Area: (sq mi)</i>	300	320,000	Damage recorded 77 miles from epicentre	90,000
<i>Displaced Persons:</i>	160,000-300,000	74000	20000	Up to 1,000,000
<i>Damage Costs: (Billions)</i>	26.5	15	12.5-20	84
<i>Deaths:</i>	26-44	50	72	1836
<i>Troop Deployment:</i>	7000 National Guard 22000 Military 19 Generals	3000-9000 Army Corps of Engineers Five ACE Districts	1500 National Guard	58500 National Guard 22000 Military

Conclusion

Hurricane Andrew, the Great Midwest Floods, Northridge Earthquake, and Hurricane Katrina are four of the most devastating disasters in U.S. history. These four disasters selected to give an equal account of successes and failures. The over-representation of failures and incorrect categorization of successes as “garden variety” makes this balance all the more important. Focusing on failures alone misses half of a

very important question: what is the most effective method of responding to a disaster?
Analysing what combination of open, closed, operational, and strategic was evident within the two successes and two disasters will provide a more holistic view of what framework is the most effective during a response.

Chapter Three: Literature Review and Contribution

Introduction

Advocates of both open and closed frameworks contend that they each overcome the shortcomings of the other. The open framework provides a level of flexibility that is absent in closed, yet the closed hierarchical structure is better suited to more efficient communication and rule-following. Before any addition to the frameworks is proposed, an examination of the strengths and weaknesses of “open” and “closed” is required. I will demonstrate why this division is inappropriate because of the structure of disaster management. Also, I propose that disaggregation into strategic and operational levels is needed and propose criteria which can be used to define efficacy. Finally, the various permutations of the new framework e.g. open/operational or closed/strategic will be examined in order to demonstrate which is the most appropriate.

Table 3.1 – Comparison of Open and Closed

	Open	Closed
Structure	Horizontal integration of individual units with a common goal	Vertical integration of command and control mechanisms
Function	As a pluralistic, individualistic, flexible set of units	Concentrate decision making responsibilities towards the executive
Assumptions of disaster	When confusion occurs, locals are best to intervene.	Chaos needs an artificial body with ability to command and control
Operational Risks	Jurisdictional Overlap Reliant on outside resources Variable experience and leadership	Input overload at executive level Incompetence of executives “Break in the chain”

Open

Introduction

Open units are pluralistic actors who are horizontally integrated and united by common goals. While plans are important, the most crucial factor is the ability to be flexible and improvise. The majority of studies analysing structures in disaster response conclude that relatively decentralized local/operational units are more useful than FEMA's current hierarchical, centralized structure (Schneider 1990; 2005, Sylves 1994; Roberts 2006; Kweit and Kweit 2006). Scavo et al (2006) and Sobel and Leeson (2006) argue that decentralized units are (amongst other things) flexible and effective with their resources to a greater extent and that this "effectiveness" is derived from diffusing responsibility and accountability. Furthermore they argue that more rigid hierarchies necessitate a focus on "efficiency" which (ironically) often leads to misallocation (Scavo et al 2006:16, Sobel and Leeson 2006:66).

Advantages

Open systems are often perceived as being more effective because they are more flexible. Open systems' opponents assume there will be confusion in the disaster. Instead of installing an "artificial body"³, such as the army or FEMA, open advocates maintain that the current social structure is adequate to deal with the situation because of their ability to improvise and adapt. For example, after Hurricane Andrew local responders used their mobiles and satellite phones in an attempt to find new methods of

³ 't Hart et al define a "disaster" as being the overwhelming of local and state levels of government ('t Hart et al. 1993:17). In this regard, an "artificial" body is a 'foreign' entity that is required, be it requested or otherwise, to deploy in an irregular context such as FEMA or the Army.

communication when the phone-lines were destroyed (Madigan 1994). They were able to achieve this by using a more “pluralistic and disaggregated” model, which involves the “horizontal integration” of non-governmental organizations as well as local agencies.

Disadvantages

Although pluralistic units are useful to disperse across a large disaster area there are also two significant problems. First, purely decentralized systems, each with its own communication networks, plans and leaders risks overlapping jurisdictions and being overwhelmed. Second, the added structural variability between open units means that communicating orders can be difficult. If there are multiple decision-makers this can lead to confusion, overlap, and duplication.

Closed

Introduction

Those arguing for a more “closed” system contend that mitigating chaos through command and control should be the primary objective for first responders. Closed systems rely on hierarchy to provide the most effective means of communication and compliance. They are generally more rigid with plans, substituting flexibility for procedures and protocols.

Advantages

Closed systems have the advantage of vertical hierarchy which encourages compliance. Each level is given a role to fulfil and specific protocols to follow. The system is based on “anticipation” (Wildavsky 1988) in order to provide procedures for

every contingency. This structure allows for a more effective transfer of information about procedures to different actors provided that there is no break in the chain of command.

Disadvantages

Dynes (1994; 2000) and Moynihan (2006) argue that “closed” or “military” systems are less effective because they are unable to adapt to “spontaneous, unplanned events”. Further, the closed systems see power as “uni-dimensional in emergencies” when in reality a power is distributed among many separate agencies and organizations (Dynes 1994:149).

Concurrently Harrald argues that to give more power to centralized systems, legislators must concede that the most important aspect of disaster response is discipline in both law and order and operational contexts. Furthermore he states that ultimately the aim of the two streams in the disaster response literature (“agility, flexibility and creativity” on the one hand and discipline on the other) should be convergence (Harrald 2006:256). Although Harrald’s analysis is useful as a discussion of collaboration and coordination prospects, his view that convergence is possible, as long as it does not involve more centralization is inconclusive and logically inconsistent. His argument assumes open systems are more effective when responding to crises because they have avenues for feedback. Firstly, he makes this claim without having compared the operational effectiveness of opened and closed systems. More importantly, closed units, such as the Army or Fire Department, are far more likely to have more uniform and broader oversight mechanisms than open structures. This is because these units have both the organizational resources (as defined by a culture of accountability) to both initiate

such a process, and implement any recommendations. On the other hand, the effectiveness of feedback in open units is variable at best.

Discussions on (limiting) centralization are marred by an error of focus: academics are prone to conflating “operational” centralization (at a local level) with its “strategic” counterpart (at a departmental level). Both Moynihan (2006) and Roberts (2005; 2006) equate failure with the rigidity of (FEMA’s) hierarchical structures in their studies. While these studies come to the same conclusion, they are actually talking about different aspects of centralization. Moynihan focuses on strategic centralization: decision-making being concentrated towards the higher levels of government. On the other hand, Roberts alludes to centralization amongst operational units: decision-making being concentrated towards the higher levels of local groups such as the police, hospital staff or the Red Cross.

The Structure of Disaster Management:

Although some academics have begun to accept that more organized “closed” or “centralized” systems could guard against future “Katrinas”, a sizeable majority maintains its focus on FEMA becoming completely “open” or “decentralized” (for example, Moynihan 2006; Sobel and Leeson 2006). If, as Kapucu and Van Wart argue, “structure does matter” (2006:304) then further research needs to grapple with the gap in the literature by teasing out whether the benefits of centralization are greater at a strategic or operational level. I argue there is also potentially a “third way”. It is possible that improving communication and flows of information is as important as the bureaucratic system. Helco argues that building trust is the most integral facet of improving communication (Helco 1974: 303). Significant reorganizations of bureaucratic structures

(be it at a strategic or operational level) have the potential to undermine any gains by decoupling or complicating pre-existing missions.

The Criteria

Analyses of strategic and operational units each require a different rubric. I examine the different constitutions of these units with reference to their mission, position in the disaster, autonomy, access to superiors, leadership, and role. Although these elements are contextual an examination of their definitions and functions is needed.

Mission

Dominant and subsidiary missions dictate how malleable organizations are under pressure and what tasks they are most likely to perform successfully. Within each organization there is at least one mission, that is, “a persistent, patterned way of thinking” (Wilson 1989:91). Platt (1999) and Moore (2001) argue that in a crisis, if an organization attempts a task they are not familiar with they are likely to “contribute to the very disaster...they are intended to relieve” (Platt 1999:37). These studies are useful to explain individual disaster responses.

An organization’s mission is the most important factor when exploring its primary function. How it sees its own objectives provides as a window to priorities and conflicts within the organization. FEMA is an important example – its mission has been modified on a number of occasions and each time the agency has needed to coordinate a response quickly afterwards. The success or failure of these operations may be due to how FEMA views its position in the disaster response matrix. The expectant norms - how state and local governments expect federal agencies to act – are vital when designing and

implementing disaster response policy because they need to aware of what assistance is mandated, implied or absent in a Federal plan.

The concept of “multiple missions” (Wilson, 1989:95) existing within organizations serves two purposes. First it highlights how selective attention can create an environment where threats to a dominant mission create subordinate ones, which nurture mistrust and confusion. Second, it makes it possible to analyse different styles of leadership and their underlying assumptions. According to Harrald (2006), “closed” systems assume discipline is the most important facet of leadership whereas a more adaptable mentality is promoted in “open” systems. This is of particular interest because interviews with the Governor of Mississippi and Mayor of New Orleans echo the common view in the literature that FEMA’s disastrous response after Katrina was because of a “failure of leadership at all levels” (Smith 2005). What effect did FEMA’s mission have in causing these failings? The rigidity of hierarchy in centralized systems (such as DHS) versus the fluidity of networks in decentralized systems (such as FEMA under Lee Witt) are useful frameworks when exploring how able organizations are to deal with one or more missions such as disaster response and civil defence.

Autonomy

Autonomous units are given more freedom than their subsumed counterparts. Autonomy alludes to the amount of discretion organizations are able to wield to direct its own policies and objectives. This factor is affected by where the organization stands in the departmental hierarchy, both in the case of whether or not it sits in isolation or is subsumed, but also with regards to how powerful actors such as the President perceive its importance. Under Clinton, FEMA was allowed to design and implement its own policies

such as Project Impact. Under George W. Bush, FEMA was subsumed within the Department of Homeland Security and was restricted by its focus on terrorism.

Subsumed

The DHS reorganization was an unprecedented amalgam of agencies covering all aspects of government from disaster relief to chemical waste disposal. By entering into this bureaucracy, FEMA was forced to “downsize” its staff and its budget which some personnel estimate at as much as fifty-five million dollars (Lehrer, 2004). Being subsumed naturally reduces an organization’s standing. However there are some benefits in disaster management. The current Director of FEMA, David Paulison, argues that “being inside of Homeland Security gives us so many more tools than we had before. We have the border patrol [and] we have the Coast Guard right at our fingertips. All those resources would not be right there were we not inside Homeland Security” (CNN 2006). Despite this access FEMA’s ability to change its mission and to access to the President which were available under Lee Witt and Clinton, were rescinded. Moreover, FEMA’s director’s access was further compromised with the re-introduction of the pre-Andrew practice of “political appointments” over experienced personnel.

Access

High

Access is how easily directors are able to communicate with superiors such as the President. Access is vital in disaster management: it increases the efficiency of information transfers in a profession that has immense time constraints. High access is when the leader of the organization has a direct relationship with the President. However, with FEMA, this needs to be clarified further, as “relationships” in the disaster

management sector tend to be the result of nepotism and favouritism rather than professionalism. The most compelling criterion for “high” access is a position in the President’s Cabinet. A chair in the Cabinet guarantees almost weekly meetings, the ability to talk directly to the President, and to attempt to balance political motivations with disaster processes.

Low

Low access on the other hand is the product of increasing the distance from the directors to more powerful superiors. With FEMA, this came when it was subsumed into the DHS, which stripped FEMA’s budget of millions and changed the format of its mission to focus more on counter-terrorism slant (Lehrer 2006). However, this is not the only example of FEMA being in a “low” access situation. In the aftermath of the Cold War, FEMA was still designed with civil defence in mind. The fact that the organization maintained a largely defunct mission, and that it was judged to be superfluous, meant that it was harder to command the ear of the President.

Leadership

The leader of an organization has discretionary abilities to influence how a response is coordinated. Experience and inexperience can potentially be the difference between success and failure because leaders must be able to pick their battles correctly. Although there are external factors that influence policy direction (this paper argues that the War on Terrorism and the Cold War are two such examples), ultimately a leader’s ability to recognize what problems need attention and to convince superiors is improved with experience.

Experienced

In disaster management, experience is everything. Experience in the field requires a leader to be not only equipped with disaster knowledge, but also to be able (and willing) to use it in order to reduce delays and potential paralysis. In this way, experience is intrinsically linked to success whereby the success of an operation relies heavily on the ability of a leader to gain an audience with superiors, and to convince them of a correct course of action. This relationship is unsurprising: Presidents generally surround themselves with experts who are able to provide him or her with appropriate intelligence. Equally, when an organization, such as FEMA, is de-valued the director's ability to influence the President and make decisions on deployments is drastically reduced also.

Inexperienced

Inexperience can strike anywhere in an organization. Operational units are just as likely to be inexperienced as strategic. The real question is which is more likely to cause failure? This question is perhaps outside the scope of this paper; suffice it to say that in terms of strategic leadership, inexperience came in two forms; first, as a result of mass resignations during the merge into DHS, and secondly when the organization became known as a "political dumping ground" in the days when FEMA was thought to be incapable of "organizing a two car parade" (Franklin, 1995).

The potential impact of political appointees, and their respective experience and inexperience, on a response's efficacy emphasises an important question in disaster management: if more successful responses have more experienced personnel, then is it still possible for one to fall apart with the same criteria? Moreover, what is the difference between when a disaster response falls apart and when there are simply no experienced personnel? Access and experience are key factors when attempting to unlock why relief

efforts fail. Further analysis of the turbulent nature of FEMA's planning and leadership could explain what, how, and why these factors caused problems.

Role

An organization's role is the overarching factor in defining how it responds. The role defines whether FEMA is planning to be on the front line in the response or if it will be placed into a more supportive, logistical role. In either case, the role must be clear. Clarity of mission and of role makes cooperation and coordination easier to achieve, and also reduces the chance of confusion. Autonomy and access directly affect roles because strategic autonomy is required to be able to define an organization's mission.

An organization's role is a systemic and structural choice by leaders with regards to gearing units for a particular kind of response: active or supportive. While the role does not change dramatically there is obviously room for flexibility. The fact that organizations can be classified into operational and strategic units, and that each of these levels may have different leaders and different objectives, means that there will necessarily be a measure of both active and supportive roles.

Active

An active role places FEMA in command of the response. FEMA becomes a hub for elements such as information, assistance claims, communications, and tends to organize all aspects. An advantage of the active approach is that there is a general consistency with planning and equipment. Each unit is equipped with largely the same tools to deal with the disaster in an attempt to encourage communication and interoperability.

The main disadvantage is that “active” is sometimes misconstrued to mean “enforcement” rather than rescue. The majority of National Guard in Andrew and conventional military units in Katrina were deployed with a mission to restore “law and order” rather than distribution of supplies or search and rescue. The inclusion of an artificial body, such as the military or FEMA officials, has the potential to provoke overkill in a situation. It is widely reported that not only were “looting” and crime numbers grossly exaggerated, but also that the looting was not a factor of opportunism, but rather a cry of desperation about the lack of resources.

Supportive

A supportive role is one that augments, rather than overtakes, the response. From an operational perspective, this role concedes (or believes) that an artificial body with the ability to deploy more ground units does not necessarily equate to a more successful response. Instead, the familiarity with the area and locals make operational units more appropriate responders. As was seen during the Great Midwest Floods FEMA remained in a supportive role unless a town was overwhelmed, in which case it was able to provide supplies and transportation quickly. This role allowed FEMA to pick its battles, rather than attempt to be everyone’s everything, everywhere.

Synthesis or Division?

The struggle for a balance between the open and closed structures points out a question that has remained largely unanswered: what combination of frameworks should organizations rely on in order to increase its effectiveness in a crisis? Where is hierarchy more important than networking (and vice versa)? With this in mind, the structure of an

organization should not be categorized as absolutes, that is, as either solely “open” or “closed”, but instead acknowledge that the different permutations/nuances within distinct decision-making groups.

Table 3.3 – Comparison of Operational and Strategic

	Operational	Strategic
Personnel	Front Line Responders, Policy implementers, Field Agents	Top-level decision-makers, policy advisors, Senior staff
Function	Decisions on technical issues and details of implementation.	Set parameters for implementation Coordinate heads of operational units and long term policy
Position in a disaster	Local presence, front line, field agent	Geographically distant from crisis
Potential risks/Systemic Flaws	Fragmentation Jurisdictional Overlap Time pressure more visible	Strategic evasion Paralysis Input overload

Strategic

Introduction:

Strategic actors inhabit the upper echelons of organizations. This level comprises of senior decision-makers and policy advisors who are in charge of, and hopefully responsible for, their operational counterparts. A minister of parliament, for example, provides guidelines for what policies public servants are designing and is held accountable for the actions of those public servants. The implication is that the most effective way of distinguishing the actors is from the perspective of a hierarchy. Strategic

actors generally have discretionary abilities to define operational objectives. If multiple strategic actors are involved duplication, overlap, and confusion occur.

Personnel

Strategic personnel are leaders who design the plan or method that will be used to achieve a specific goal. 't Hart, et al argue that strategic elements function to set parameters for implementation (1993: 20). FEMA's Directors, Secretary Card, and Mayor Nagin are example of strategic actors in disasters. They were all responsible to shape the overall response and leave the technical details to operational units. For example, FEMA provides search and rescue teams, electric generators, food and water, but leaves the distribution to operational actors such as the Army and NGOs.

Position in a Disaster

Given that strategic actors are responsible for providing an overview of a crisis (where supplies are needed, what troops are required, which sections of the city should be given priority), it is unsurprising that some level of geographic distance from a disaster is needed. The distance from a crisis supposedly allows strategic actors to be able to take more long-term concerns into consideration: while operational units are focused on getting water to citizens or evacuations, strategic actors aim to provide logistical support, helicopters and trucks for example, to better aid those on the front-line. As will be discussed, the major problems arise from a mixture of information and request overload which results in indecision, duplication, and paralysis.

Open Strategic

Strategically open units are rare. They include three elements: diffuse decision-making abilities, flexibility in planning, and a lack of effective veto. Decision-making in

open structures is naturally dispersed so as to increase an actor's ability to create plans that suit distinct locations and situations. It also means that there is an increased emphasis on flexibility in planning whereby more contingencies are brought forth allowing for more chances of success if a previous plan should fail. Finally, the reduction in, or lack of, vetos is necessary to avoid actors from exerting too much influence on other units.

Problems arise with this structure because it is difficult to guarantee consistency of both mission and ability across all actors. Andrew and Katrina are examples where multiple actors with different strengths and weaknesses attempted to command the entire response instead of delegating responsibilities. On their own, each actor lacked the authority to overrule other strategic actors' proposals. Consequently there were three different strategic responses, with three different missions, and three different actors which caused delays and confusion.

Examples of this system are difficult to operationalize due to the fact that few organizations maintain procedures where there are no superiors, and accountability is not considered to be of primary importance. The purest examples I can present are terrorist cells. Cells can work independently from one another, have back-up plans or secondary targets when attacks initially fail, and are not subject to hierarchical vetos such as those in the military. Although individual examples are difficult to manifest, I argue that strategically open frameworks materialize when there are multiple strategic actors with multiple missions and objectives. Compelling examples exist within the disaster response literature in the strategic levels in the responses to Andrew and Katrina. In both cases, even though three closed actors were involved, the overall framework is open.

Closed Strategic

Strategically closed structures are more abundant than their open counterparts. One reason for this is that closed strategic units are vertically integrated which makes conveying orders much more efficient than if it were horizontal. Strategically closed organizations have an increased focus on accountability, command and control, and combating chaos with an artificial body. One of the most active strategically closed actors in disaster responses is the Armed Forces. Generals at the strategic level are able to use the vertical hierarchy to communicate orders, objectives, and missions to troops in the disaster zone. Providing that there is not an excessive amount of flexibility needed, or that contingencies are mapped out, closed units are the most effective at the strategic level.

The strategically closed structure is vulnerable to paralysis if there is inexperience or input overload. Experienced leaders, who are aware of what is needed to be done, are more likely to influence success than inexperience personnel who delay the process to work out contingencies. Paralysis can also occur if operational units are overwhelmed and inexperienced leaders are forced to manage both strategic and technical concerns at the same time.

Operational

Introduction

Operational units are the front-line troops of disaster management policy. FEMA describes these units as “first responders...namely the local government's emergency services as well as those that help from nearby municipalities, the state and volunteer

agencies” (FEMA 2007b). These are the actors that are in the immediate response which precedes any requests for federal resources. As stated previously, the problem with assessing efficacy in disaster management is in attempting to grapple with the scale of units that are involved in the response. With this in mind this section aims to examine both what constitutes an operational unit as well as their characteristics.

Unlike strategic units, whose roles can change over time from active to supportive, operational units are almost always active. Their position, which is by definition has been affected by the disaster, necessitates that their mission remains solidly on actively implementing a disaster response.

Position in disaster

A major variant between operational and strategic actors derives from their position, both geographically and hierarchically, in a crisis. Operational units are ostensibly field agents; front lines responders to the disaster. ‘t hart et al (1993) argue that one the advantages of operational units is their “local presence” which provides a familiarity with the scene. These front-liners include community branches of charities and local populations. A common sight during floods, for example, is the presence of suburban streets being populated with a flotilla of small, personal sailing vessels for the purpose of extracting people from rooftops or ferrying supplies. Although strategic units are often pre-deployed, the emphasis in both the pre- and post-disaster environments is to better equip the local population with the tools to respond more effectively, that is, to help the locals help themselves.

Operational units are not only a “local presence” but locally-based, locally-sourced, and locally-focused. The fact that equipment and employees are in the

immediate area creates an interesting tension in a crisis situation: on the one hand, the members are all aware of the damage and are on hand to assist. However, on the other hand, these responders are also the most likely to be affected by the disaster which can cause tensions between their responsibilities to their jobs and to their own families or property.

Open Operational

Open operational actors are pluralistic, local groups merging to provide immediate assistance. As first responders, these groups are able to disperse across a large area, following separate plans to achieve success with search and rescue and mitigation. The horizontal integration means their overall mission is comparable (disaster response) but their roles differ according to regional imperatives and priorities. The main advantage with open units is their flexibility. If the current plan is ineffective, each unit is more able to improvise than their closed counterparts. In this thesis, I also include community groups such as local charity branches and Churches because the personnel are sourced locally, they have local knowledge and familiarity, and are community focused. Their presence is unavoidable in a response and is a vital element that needs to be further analysed.

The main faults with the open operational structure are fragmentation, communication, and overlap. Although more able to adapt, if leadership is inexperienced operational units have the potential for fragmented responses that are inconsistent across the disaster area. Due to the number of operational actors that are deployed after a disaster and the area that they cover, effective communication of missions and objectives is a significant obstacle. Finally, improvisation can hinder the procedures and protocols

from closed units. During Katrina, locals attempted to sandbag the levees before experts and equipment arrived. The result was a suboptimal and ultimately unhelpful obstacle.

Closed Operational

Closed operational units are locals who are deliberately organized in a vertical hierarchy. These units are generally more professional such as the police and fire department and use defined procedures and hierarchy which supports more effective communication between actors. A major advantage of the professional nature of closed structures means there is more potential for experts to be a part of the response. The assumption of command and control combines with a reliance on contingency plans and anticipation. Closed operational actors use protocols to complete objective and technical actions as set by their strategic counterparts.

Anticipation is only effective provided that all contingencies are planned for. This is rarely the case during disaster responses due to equipment arriving late or being destroyed, or debris blocking access to victims. Unplanned events also have the potential to de-couple the hierarchy and cause breakdowns. A main fault of vertical hierarchies is that if isolated or without communication they are less likely to be able adapt to the context that open systems (Dynes 1976; 2000).

Failures

Operational and strategic actors face similar problems in a crisis: time constraints, the difficulty of prioritizing suffering, and coping with the enormity of a situation are all issues that need to be overcome if a response is to be successful. On top of the comparable obstacles across the two groups of actors, there are a number of individual

risks and failures that can be caused by communication problems, coordination deficits, and because of varied degrees of competence.

There will always be failures in disaster responses. Time, equipment, personnel are all elements that are too easily wasted, misplaced, or under-utilized. This is not to say there are no successes in failed responses. The Katrina Committee strenuously promoted the Coast Guard as an organization that was exemplary in an otherwise lacklustre effort (Senate Report 2006:15). Equally, there are always elements in a successful response, such as the Midwest floods, that are considered to be failures, such as a local improvisation hindering federal efforts (Tierney, 1995:7). Considering that failures, regardless how large or small, are inevitable in disasters, it is useful to create a set of criteria for what constitutes a failure. The question of whether there are any failures that are exclusive for operational or strategic actors arises. This section explores the potential risks for operational and strategic actors as well as open and closed structures.

One of the advantages of operational and open units is their capacity to adapt to unforeseen circumstances faster than their strategic and closed counterparts (‘t hart et al 1993:19). On the one hand, this can lead to a more effective response with local units being able to use the resources they have available to the greatest effect. On the other hand, there are two potential risks of such an adaptive unit: first, the potential for mission fragmentation, and second, the possibility of jurisdictional overlap. While open units, and operational actors, are designed to be flexible, a problem arises when community groups are so dispersed that they are unable to confirm what their mission is with superiors. This is a symptom of a deficit in long-term strategic thinking in operational units: it appears to be the most effective means of action to have community units attempt to repair flood-

damaged housing, rather than take into consideration the mayor, governor, and reconstructive experts' belief that razing the houses is safer and more efficient with resources at hand.

Open and operational units are designed to be able to respond and adapt to local concerns. It has been a FEMA directive that local and state disaster services should be the primary providers of disaster relief (FRP 1992; NRP 2006). Federal relief, from FEMA or the Army, is only supposed to be a last resort, after the state and local units have been overwhelmed. In theory, if a disaster is “routine” then there is little need for a mass federal mobilization of equipment and troops/personnel. In practice Presidents have been rather broad with their classification of a disaster as a “state of emergency” and thus authorizing federal support. There are two reasons for this; first, FEMA is designed to assist responses at any and every level: if a mass mobilization is needed, then it is able to comply, just as it is able to provide logistic support for long-term infrastructure reconstruction and insurance claims. Second, Dekker and Hansen (2006) have documented the political nature of Presidential declarations. They argue that often politically sensitive states, like Florida or California are given resources even though the impact of a disaster might be minimal. For example, after Katrina, there were insurance claims for damages due to rain from Katrina from as far north as Delaware (FEMA 2007a).

Conclusion

Operational, Open, Closed, and Strategic theories share many similarities and are complement each other. The main argument I wish to emphasis is that organizations can be a mixture of these four elements as opposed to being solely closed or open. Increasing

the scope of analysis and disaggregating each organization allows for a more solid understand of individual roles, missions, and what are the most efficient and effective combinations in a disaster response.

With Operational and Strategic units clarified, it is necessary to project these concepts onto the existing Open and Closed theories and examples of failed and successful responses. Undoubtedly each unit or organization has a unique structure. However, this structure cannot be simplistically labelled as either “open” or “closed”. Instead, applying the two layers that are activated in the planning and implementation stages of policies, strategic and operational, is required. Disaggregating these layers will provide a better platform from which the middle ground between the two theories can be approached. Units’ strategic and operational structure is a combination of open and closed systems. Examples of these structures can be found in Figure 3.2 and will be used throughout the analysis.

Those arguing for a more “open” framework assert that each disaster demands a different response (due to the geography, demography, and resources for example), and therefore the response should be as flexible as possible. Proponents of the “closed” framework argue that contingency plans that designate roles and clearly define missions are more effective when time pressures are a predominant factor. I argue it is unreasonable to believe that the “best” structure is either wholly open or wholly closed. Instead, organizations (and responses in general) require a measure of both flexibility and hierarchy to be effective in disasters.

Table 3.2 – Examples

	Operational	Strategic
Open	Alcoholics Anonymous Centres Church Groups	Terrorist Cells (Some) Charity Organizations
Closed	Police Watch Commanders Fire Department	Military

Chapter Four – Case Studies – Failures

Introduction

Failed responses to disasters have received the majority of academic attention. However, the prevailing analytic framework needs to be fine-tuned. Instead of characterising disasters as wholly open or closed, scholars will gain more leverage by disaggregating the responders into strategic and operational levels in order to examine whether or not there is an exemplary model, or a pattern, which can be more widely applied. An analysis in these terms could be adopted by the scholarly community to better understand the causes of failure in disaster management.

By examining the failures in responses to Hurricanes Andrew and Katrina, I argue that the combination of strategically open and operationally closed units is suboptimal. This is shown by the increased confusion caused by both multiple strategic actors with multiple missions, and also by inept leaders. Furthermore, operationally closed units are effective only if providing with adequate training, equipment, and given clear objectives.

Andrew

Introduction - Why was Andrew a Failure?

Hurricane Andrew, which ravaged South Florida and Louisiana in August 1992, was the most devastating hurricane to affect the US to date. It was responsible for almost thirty deaths, destroyed twenty-five thousand houses and caused \$27 billion dollars in damage. There was also a second agent in the devastation: FEMA. The response to Andrew in Florida characterises the term “disastrous response” and was caused by a series of structural errors that reveal problems larger than the sum of their parts.

I argue that there were four main reasons why the response failed. First, there were major coordination failures at the strategic level involving FEMA, Secretary Card, and the Military; second, there were communication breakdowns at all levels (in terms of the flow of information, requests, and objectives); third, multiple and conflicting missions meant that FEMA was ill-prepared to respond; and finally, poor leadership made strategically closed units ineffective; and finally, These failures were the fault of both closed and open frameworks. The multiple closed, strategic actors working in isolation created an open system which led to confusion with who was in charge and what plan to implement. Strategic actors, like FEMA, either stuck too rigidly to the Federal Response Plan (FRP), or as was the case with Card, flouted previously held conventions. Multiple strategic actors were driven by multiple missions and inept leaders, which caused overlaps and evasions of responsibility. Although the operational level should have been open due to the amount of actors, FEMA centralized the response into several offices which resulted in bottlenecks for requests.

The three primary actors responding to Hurricane Andrew, responsible for overarching strategic direction and policy were FEMA, Secretary Card's Task Force on Hurricane Andrew Recovery, and the Military. Each actor had a vertically integrated hierarchy, attempted to conform to pre-prepared protocols, and focused on bringing order to chaos through command and control. As such, each of these can be characterized as a closed system. Paradoxically, these three actors working at the same time trying to resolve the issues creates a system that is more akin to an open framework as there are multiple actors working independently from one another, implementing unique plans with little communication with each other.

I examine what plan each actor used to respond (be it FRP or otherwise), how multiple missions affected the response, leadership clashes, and communication to argue that despite having shared characteristics of closed strategic systems, the three actors working alongside each other, but not in concert, was unsuitable. Theoretically, closed strategic systems are more likely to yield success, and therefore the system that was implemented by the three strategically closed actors after Andrew should have been optimal. However, in practice, this combination created a strategically open framework which further exacerbated the disaster. Concurrently, I examine the operational level and demonstrate that although a number of units were active in the response, including the local community, the decision to centralize requests through a small number of offices, with a small number of personnel, was fundamentally flawed.

Adherence to a plan

The guiding principles for FEMA action were articulated in the FRP. This called for strict guidelines and procedures for requesting assistance and FEMA's response and included "the process and methodology for implementing and managing Federal recovery and mitigation programs and support/technical services" (FEMA 1992). Action on FEMA's behalf hinged on communication between its field offices and operational units (i.e. local governments and first responders). The formation of the FRP was designed to mitigate the inevitable delays and confusion when responding to a disaster. Ideally the policy called for a "bottom-up" approach where Federal and State actors augment local efforts at their request. There was however considerable scope for federal agencies to intervene and implement policy from a "top-down" perspective.

The response in South Florida was neither of these. The local entities neither understood nor complied with the FRP and did not request Federal intervention- although they did request support in the form of supplies such as tents, water, and generators (Schneider 1995). While the FRP had room for Federal discretion in intervening in the local context, FEMA did not understand the degree to which local actors were overwhelmed as they had received no request from locals to intervene. As such, FEMA found itself in a “Request and Receive” role whereby minimal operational activities were required. This led to significant problems: requests for supplies were not approved and equipment was not being sent.

The nature of the FRP as being largely “bottom-up” also explains FEMA’s position in the disaster. Although some units were pre-positioned in an attempt to centralize assistance offices, the bulk of FEMA’s strategic actors were distant from the disaster. The major problem with this position is the lack of overt time pressures, and the possibility of underestimating the immediacy behind some of the requests. FEMA believed they could take longer with their decisions compared to those made by operational units. Strategic actors relied on protocols and bureaucratic conventions, rather than remaining flexible which consequently led to paralysis in the flow of information and supplies.

Additional strategic units further complicated the response and led to fragmentation. After three days of inaction from a paralysed FEMA, President G.W.H. Bush was embarrassed into action by Kate Hale’s (in)famous call to arms “enough is enough. Quit playing like a bunch of kids. Where the hell is the cavalry on this one? For God’s sake, where are they?” (Cooper and Block, 2006:57). Consequently President

G.W.H. Bush circumvented the FRP and created the “Task Force on Hurricane Andrew Recovery” led by Secretary of Transport Andrew Card (hereafter: Card). This action further opened the strategic framework and functionally sidelined/excluded FEMA from the rest of the operation with the implication being that chaos had ensued due to a lack of cohesion between FEMA and South Floridians.

Instead of following FRP protocols, Card implemented his own plan to distribute money which the administration believed could be used for food and shelter (Schneider 1995). These grants were approved without going through standard procedures (Cooper and Block 2006). However, although the money was welcomed, there were no banks open and people who needed money also generally had more pressing problems, such as mitigating further damage to their houses. In his attempt “to cut through the bureaucratic mess” (Schneider, 1995:95), Card had fragmented the overall strategic response and added to the confusion over which plan was being implemented. Confusion, and ultimately suboptimal outcomes, caused long term ramifications with insurance claims and Card’s funds needing retrospective approval for over a year afterwards⁴.

Concurrently the Army was being deployed for the first time in a domestic disaster (Mittler 1997). While FEMA and Card clashed over how to distribute aid, the Army’s arrival completely paralysed any efforts to bring disaster personnel, supplies, or equipment into the area. The planes that could have been carrying these supplies were instead diverted to carry troops. Hale stated that “for the first few days the Army made the situation worse: it meant we needed to feed, hydrate, and shelter 20,000 more people” (FEMA, 1993). The Army, the third strategic actor in the response, not only brought with

⁴ When James Lee Witt took over as FEMA Director in 1993, he commented on the amount of claims that were still yet to be approved. This confusion, and *increasing* of red tape, was largely due to The Task Force (Daniels and Clark-Daniels, 2000)

it additional personnel, but also another method of implementing a response. The strategic level now had three heads, FEMA, Card, and the Army, and also three plans of action, the FRP, cutting red tape, and logistical support. Although the Army was successful after it deployed, the confusion and fragmentation it caused by being in South Florida was a significant obstacle.

Mission

Open frameworks allow for each individual actor to act independently. One reason why each strategic actor had a unique method of implementing was because they had all defined their missions and roles differently. FEMA's mission in 1992 was in a state of flux. On the one hand, it had been designed in 1979 to respond to disasters, both man-made and natural, but it was also given the task of "Continuity of Government" if a foreign power should ever attempt a strike on the US homeland (Bullock et al 2006). During Andrew it became clear that these missions, although completely independent of one another, affected the efficacy of the strategic response. FEMA's "Black" or classified projects involving satellite technology and mobile communications trucks were not permitted to be used in a scenario involving a natural disaster (Cooper and Block, 2006:46, 60). These technologies, which would prove to be vital in future responses, demonstrated that FEMA was still geared towards the Cold War instead of disaster response. FEMA's inability to deploy technology caused jurisdictional overlap because the Army was required to fill the technology gap and attempt to integrate with local responders. It also led to strategic evasion, whereby due to FEMA being sidelined by Card and the Army, it was unclear if the role it had inherited was more than simply "Request and Receive".

Card's mission could not be described as strictly disaster response, but rather a combination of (short-term) response and (long term) relief. This dual purpose highlights the latent political motives. Schneider (1995) argues that Card's deployment became more of a political exercise than one focused on human needs. Finally, it was the potential for political backlash that overwhelmed political actors (namely the President) and caused the Army to be deployed in South Florida. The Army's overt mission may have been to augment and support the National Guard, which they did admirably, however the tacit reason was to publicly demonstrate to both Floridians and Americans at large, that the President was (at last) willing to intervene with everything he had.

Closed strategic actors work on the assumption that chaos requires command and control. The Army was brought in because the National Guard had been overwhelmed, mainly due to their base in Homestead being flattened by the winds. The Army wisely chose to delegate law and order, and response activities between its own units and the Guard. The combination of the Army's and Guard's hierarchical structures, both of which are trained to accept orders, lead to a largely successful division of responsibilities. However, quantity is no substitute for punctuality. Even with the increased funds and attention, a significant amount of damage had been done because they had arrived three days late.

Card's Task Force was active and hands on, distributing cheques in a quasi-door-to-door fashion. However, the aid did not solve "immediate" problems like a lost roof or home, nor did it assist hospitals who were low on beds. Simply put, you can't eat a cheque or have surgery on the promise of payment. Card strategically evaded the short term requests for aid and instead attempted to produce short term political success with

money. In this way, the response was further fragmented because there were two sets of strategic actors with two unique missions. On the one hand, FEMA was attempting, albeit slowly, to meet human needs, and on the other, Card who had more latent political motives, namely, attempting to secure votes in a swing state during a Presidential election year. The range of unique actors with distinct missions highlights the difficulties inherent in an open framework at the strategic level.

Leadership

Although strategically closed structures are desirable in a response because they are most likely to create optimal outcomes due to more ability to communicate via hierarchy and comply with orders, even the most perfectly structured, strategically closed unit needs good leadership. Wallace Stickney, the Director of FEMA during Andrew, was not a good leader. A major factor in the failed response was due to his being a political appointee with no disaster experience. He was famously quoted as saying that if he “went back to work for the government for three more years” he would receive “a nice retirement package” (Cooper and Block, 2006:57). This became a problem for local officials and political actors like the President, when supplies were not arriving and locals were unable to respond to the magnitude of calls for help. His inexperience led to bureaucratic paralysis during the first three days after landfall because objectives and jurisdictions had not been clarified before the storm, nor had objectives been communicated to responding actors after the storm.

Stickney was the central point in FEMA’s hierarchy. With strategic decision-making taking place (or not taking place) at Stickney’s level, paralysis and information overload were potential problems that could, and did, negatively affect the response. By

concentrating power towards the executive, for example, requisite official documents and signatures for request approval, the response was immediately hampered by a quagmire of paperwork. The centralization appeared to only have one advantage and a political one at that: three days into the disaster, when it became clear that “the cavalry” was not coming, it gave President G.W.H. Bush a scapegoat who he could fire. After Stickney was dismissed, a void was left at FEMA’s helm at a crucial moment during the response. In attempting to fill this void, the President enacted a type of “formal” strategic evasion, whereby Card was given separate, almost opposite responsibilities to FEMA and told to respond with money rather than food and medicine (Mathews et al 1992).

Beyond blaming individuals lies the fact that FEMA itself had a relative small amount of employees considering it was in charge of twenty-seven agencies. Only approximately three hundred employees “were trained in disaster relief services and those who are trained are underused” (Foreman, 2005). In fact after Andrew Leo Bosner, a Senior FEMA Official stated that; “FEMA's biggest problem is that too few people in the agency are trained to help in emergencies. You have a small number of people doing disaster work while the rest of us go back to our desks...[w]e have good soldiers but crummy generals” (Foreman, 2005). FEMA’s inability to respond to requests for assistance was a direct result of their own conventions and Stickney’s miscalculations.

Operational Closed

Although functionally the operational level, with its multiple actors, should be open, the response was centralized towards FEMA offices, through which all requests for assistance were made. FEMA was operating in a relatively open system, but creating conditions by funnelling requests that make it more closed than open. The focal point for

equipment and aid requests, offices were of great importance in terms of command and control. Although damage assessment teams worked on technical issues, public servants and professionals in the offices were in charge of centralizing requests. This was done through official documents, needing official signatures, and duplication. The paradox of bureaucracy, which is necessary in order to find how, where, and when resources are available, is that the process is often slow and cumbersome. When strategic leadership failed, and when faced with increasing time pressures, FEMA's operational arm reverted to conventions set out in the FRP and quickly ground to a halt, paralysing the major distributor of aid and assistance.

It is important to note that FEMA was not completely reactive in its approach. Closed systems are designed with anticipation and contingencies in mind. In fact, believing that the storm would affect a large urban area, FEMA had been in the area setting up offices and signing request forms twenty-four hours before (Schneider 1995). Unfortunately, these were counter-productive, as requests from the following three days, those that referenced actual deficiencies, were placed in a lower priority to these "proactive" ones. The lack of prioritizing is one of the major failings of FEMA's operational actors caused by a reliance on protocols as instilled in the FRP. Although hierarchy generally provides a reliable communication framework, being "closed" meant that flexibility, such as using mobile phones on a large scale, came into effect too late.

The added flexibility from open actors would prove to be vital for the response. However it would be a fallacy to argue that there were no successful closed actors. In fact, apart for the initial problems with deployment, the Army was the most productive actor in the response. While Card and FEMA struggled with political problems, the Army was

able to focus on its sole mission in the disaster: response. By delegating enforcement roles to the National Guard, the Army was able to channel all of its resources into a single mission. The addition of a further artificial body (which employed command and control functions) succeeded because objectives were well known by all affected parties. The professional training and experience that the Generals were able to bring to Florida proved that the Army could be a viable partner in disaster management. In fact, in the Andrew's aftermath Senator Reid argued that all crisis management should be given to the Military (GAO 1993). The closed, artificial body was successful, but perhaps made more so in comparison to the bungled, ill-prepared efforts of FEMA.

Communication

Dependence on protocols as instilled within each strategic and operational actor caused communication failures between strategic actors, and between strategic and operational units. They were a result of the mixture of missions and leadership breakdowns. Each closed actor had established a stringent and narrow mission which impinged on their ability to coordinate with the operational heads in the field – there was no indication from strategic heads that the response should be more flexible if it was not working effectively. As such, when there were no orders from above, because of a preoccupation with requests or a lack of the severity of the situation, there was little or no action on the ground. This obstructed the distribution of aid and essential supplies to the affected population causing frustration and adding to the potential for a breakdown of law and order.

Communication before the disaster had not been an issue for the Army. A week before the hurricane, based on their experience with Hurricane Hugo, they had compiled

lists of needed items such as tents, blankets, water, and electric generators for FEMA. Although the Army was ready to go, State officials in Florida did not have a clear idea of the damage done. The communication breakdown would be another example in a mistake-riddled response.

The generals' ability to delegate proved to be a decisive factor in the success of the operation after the Army arrived. More clarity was achieved by separating the National Guard and Army objectives, thus reducing the likelihood of jurisdictional overlap. Although moving troops and segregating missions is seemingly an active, hands on function, in the overall scheme of events the generals played a supportive role to the individual ground units who complied with their orders. The centralized structure of the Military allowed more efficient communications up and down the hierarchy: requests were made and generally fulfilled because there were fewer levels of "red tape" to cut through.

Communication means more than just requests for aid or mission clarifications. At the strategic level it alludes to how much autonomy the organization has and how much access it has to the President. Although FEMA was an autonomous unit, that is, able to define its own mission and design a plan of action it was hampered by its archaic Civil Defence role. Moreover, because Stickney was an inexperienced political appointment, he did not have the influence to attempt to change this role too dramatically. In an open system the ability to communicate is vital. The rigidity of FEMA's FRP meant that when phone lines were destroyed, and satellite phones were unavailable, the central offices were essentially cut-off from any strategic guidance.

Conclusion

The response model that was employed after Andrew was flawed. The combination of three strategically closed actors did not help to clarify roles, and instead forced a morph into a strategically open framework. This framework was inappropriate for Andrew. Although many studies tend to conclude that “all level of government need more communication” (Pressman and Wildavsky, 1984:133) in this case it would not work. *More* communication is not as important as *accurate* communication, for example, what plan is (or is not) being implemented, and who is in ultimate control. The existence of three actors, with three missions, three leadership styles, and three plans, was destined to cause confusion and overlap.

Operationally, problems presented themselves which were caused by the aforementioned deficiencies. Although the bungled deployment of the Army marred the effort in the short term, its mission and leadership quickly made it the crucial actor. It was only when the Army was able to adapt to the situation, and delegate responsibilities with enforcement and response that success became a likely outcome. Hierarchy was important ensure actors complied, but it came down to how quickly strategic and operational actors could adapt to difficulties. In this case, this was most effectively fulfilled by closed operational actors.

Katrina

Introduction – Why was Katrina a Failure?

Hurricane Katrina was the most damaging disaster in the history of the United States. The Category Five hurricane which made landfall in Louisiana on 28th August,

2005 was responsible for 1,100 deaths, led to the displacement of over a million people, and left a disaster area the size of Great Britain (Robinson et al 2006; Roberts 2006). Despite the successful evacuation of 1.2 million citizens, warnings from weather bureaus, and pre-positioning of supplies, FEMA's response was nonetheless a disaster. As observed of the Andrew response, the combination of strategically open and operationally closed actors was inappropriate. I argue there are three reasons for this. First, the ambiguity and complexity of the newly forged National Response Plan caused a significant amount of confusion over which of the three strategic actors (FEMA, Department of Homeland Security [DHS], and the military) was responsible for the response. Second, weak compliance with the NRP was caused by inept leadership and conflicting missions. In choosing to implement their own independent plans strategic actors caused confusion, overlap, and coordination problems. Finally, micro-management by the operational branch of FEMA and the DHS Homeland Security Operational Centre (HSOC) slowed the response with duplication and inexperience.

The system was eerily similar to one implemented in Andrew thirteen years before. A new strategic plan, the NRP emphasised centralization over flexibility and the combination of three strategically closed actors (DHS, FEMA, and the military) caused the framework to shift from closed to open. Also both Katrina and Andrew had an operationally closed entity, in this case the Homeland Security Operational Centre (HSOC) that attempted to adhere to procedures and conventions while local units were openly disregarding them.

Despite these similarities with Andrew, ultimately the response to Katrina was a failure of its own making, albeit with the same combination of open strategic and closed

operational frameworks. Although FEMA had learnt some lessons from the Andrew response, the erroneous adoption of a similar overarching framework made the similar mistake of being open rather than closed. FEMA, DHS, and the military spent almost four days “discussing” who would be in charge of the response while New Orleans’ citizens languished without food, shelter, and the city almost completely underwater. Each agency had a vertically integrated hierarchy and was attempting to implement the NRP which sought to bring order command and control to the area. However, the crowd of actors, and the willingness of each actor to use their veto in decision-making, made the system more akin to an open framework. It appeared that FEMA had not learnt, or could not recognise, that an open framework was inappropriate for a strategic response. I examine the NRP and the discussions surrounding definitions of response and leadership, and how multiple missions caused delays and deficiencies, to demonstrate why the open framework was unsatisfactory. Furthermore, I examine the decision from the operational level to impose a closed policy to argue that maintaining the pre-existing open framework may have produced better results.

Puzzled about the Plan

The NRP was an “all-hazards approach” to disaster response. It contained similar procedures and protocols to the FRP. Both plans provided guidelines for implementing a top-down response within a closed framework. They differed largely in terms only of definitions of disasters. The NRP stated that in the event of a “catastrophic disaster” DHS would take over at the strategic level. “Normal” disasters would require FEMA’s assistance, whereas “run-of-the-mill” disasters would be left to local authorities (Cooper and Block 2006). In each case the framework was closed – a single strategic actor would

be in charge of the response from beginning to end. The success of the plan depended on a clear definition of each disaster and moreover, clarity with regards to which actor had the authority to define it. No such provisions were evident in the NRP. Although the NRP envisioned a proactive national response in the event of a catastrophe, it did not have the types of detailed plans needed to better delineate responsibilities or plans for how such assistance would be provided and coordinated. Given that the NRP was not being implemented, the environment took on the characteristics of an open framework.

The loose alliance of three strategic actors made decisions on the definition of “catastrophic” and leadership difficult. Moreover, the NRP does not provide a definition of a “catastrophic” disaster nor does it state who is responsible for applying the definition: in one section the Presidential declaration is enough, whereas in another the task is left to the Deputy-Director of DHS (DHS, 2006). By not using the NRP (or not knowing how to implement it), the open framework foregrounded the independent response plans from each strategic actor. The DHS asserted a disaster should only be designated “catastrophic” in the event of a terrorist attack, lest the gravity of the situation be lessened (Cooper and Block 2006:121). Instead, an arbitrary criterion was used to define what a catastrophic disaster would look like in New Orleans: had the levees been breached? (Cooper and Block 2006:122-123) This seemingly innocuous question meant the difference between FEMA or DHS being deployed. The lack of a centralized strategic actor, and the existence of too many vetoes over who was in charge of defining the disaster was directly responsible for the response being delayed for nearly five days.

The open frameworks’ dispersed, pluralistic units meant that communication to all members was difficult. DHS’s definitions of “catastrophic” and “normal” were

subjective. Although they would intervene if there was a breach, they would not do so if the levees were “only” overtopped. Regardless, information about the situation was needed to differentiate. Operational units from FEMA and the National Guard were already in the disaster zone and had links to their strategic counterparts. FEMA’s units reported that the levee had been breached, whereas Guard units stated that it had been overtopped. In fact, the levee had been breached before Katrina had made landfall (Moynihan 2006; Kweit and Kweit 2006). Operational actors cried out that “it didn’t matter what type of flooding was occurring, the fact that seventy percent of the city was underwater should have been definition enough” (Brinkley 2007:304). The lack of centralized leadership in the strategically open framework meant that deliberations between multiple actors regarding what *type* of flooding was occurring was prioritized over providing support for those already affected. Communication breakdowns merely emphasized the futility of the open system as a viable response structure.

Mission

The multitude of active units within the strategically open framework meant that the response became influenced by multiple missions. Conflict between missions led to differences in opinions about how the response should progress leading to confusion, duplication, and delays. The most pertinent examples of this influence occurred when FEMA lost its position in the President’s Cabinet, a large portion of its experienced leaders resigned, and it was subsumed into the DHS after the attacks on September 11. The change also meant a modifying FEMA’s role to be subservient during responses as well. FEMA’s submissive role in the vertical hierarchy may have been effective had DHS taken control of the Katrina response. This structure, which is more akin to a closed

framework, would have instilled a clear sense of hierarchy into the response. By centralizing the response, with a clear leader and objectives, all units would be united in fulfilling a single plan. Instead, at the strategic level, DHS deliberated, FEMA waited for orders, and the military was silent.

The lack of a unified strategic mission within the open framework led to confusion over requests and duplication of procedure. Under the auspices of DHS FEMA was unable to call the shots on the ground unless during a “normal” disaster. Moreover, the requirement that requests be processed through DHS not only caused duplication but meant FEMA had little access to information about when and where supplies were coming from. This became clear during the response to Katrina with requests for buses. FEMA had received a verbal request for five hundred buses from Governor Blanco but the request had to be “officialized [sic] by the DHS bureaucracy” (Cooper and Block 2006:213). Problems arose when Blanco terminated the search for local school buses believing FEMA’s promise to have the buses there in twelve hours. Strict procedures and protocols, including having the document set back to the operational command post for a signature, meant that they did not arrive for another two days (ibid., 2006). FEMA’s mission was focused on responding to actual deficiencies on the ground. DHS was more worried about the cost of transport and drivers. The open response, with multiple strategic actors, unnecessarily delayed assistance due to protocols and conventions.

Even if DHS had taken over the response, there was no guarantee the closed framework would have averted disaster. The DHS’s missions which were focused on terrorism-related issues, and enforcing command and control, resulted in the response being incorrectly targeted. DHS protocols for the immediate response included objective

such as “apprehending the assailants” and “sweeping for secondary devices” (DHS, 2006) implying that their response was guided towards terrorism and not human needs. Moreover, before local actors could receive funding or equipment they were required to demonstrate its use to combat terrorism. Harrold points out that flat-bottomed boats (for use in floods) that New Orleans requested were rejected on the basis that they had “no dual purpose” (2006:266). On the other hand, the city was granted the use of Hazardous Material chemical suits. The preoccupation with terrorism and insecurity shifted the focus from assisting the 26,000 starving victims in the Superdome, onto impounding food rations on route to New Orleans because “the cans could be used to manufacture explosive devices” (Roberts 2006). Bazerman and Watkins (2006) describe this situation as a “predictable surprise”, that is one where, an organization is focused on the wrong issues or the personnel are ill-equipped, a failed response can be traced back to a series of obvious deficits.

There was one successful responder, the military, which was deployed five days after the levees broke on September 2, 2005. Much like during Andrew, the Military was able to delegate responsibilities onto its affiliates – Search and Rescue operations to the Coast Guard who had already begun sorties, and portions of law enforcement to the National Guard. The Military had a clearly defined mission: “provide...support, plan, and execute....full logistical support to the Katrina disaster in all declared states” (Senate Report 2006:23). The reduction of objectives meant that the military was able to focus on levee repair and sandbagging, and distribution of resources. The vertically integrated hierarchy meant that each actor (Military, National Guard, and Coast Guard) knew their objective from the beginning. The informal, open framework which FEMA and DHS

were working under failed because there was no single point of contact. Requests, information about flooding and damage, as well as pleas for help from victims were lost in a framework where responsibility was constantly shirked and evaded because of confusion over jurisdictions.

Micromanagement

Delays in the implementation of the NRP, which promoted an operationally closed framework, meant other operational actors were forced to begin their responses without strict guidelines or overarching objectives. I argue that when HSOC arrived it exacerbated rather than alleviated the disaster. In contrast the “chaotic” structure, where each unit ignored the wider plan and was responsible for its own objectives, was largely a success.

The NRP stated that a single strategic actor, be it FEMA, DHS, or Local government, would ensure the most effective response if they were in charge of both strategic and operational functions (DHS 2006). On Wednesday night at 8:22pm the DHS ordered its operational arm, the Homeland Security Operations Centre, into the area to take over from FEMA. This signalled a formal sidelining of FEMA, even though it had already deployed three MERS command vehicles and two Urban Search and Rescue (USR) teams.

Due to communications breakdowns, it was impossible to broadcast this change to every member of the response. Consequently the transition between FEMA and DHS was marred by confusion and logistical delays. Moreover, the clearest cause of failure was due to DHS’s attempt to impose a closed framework on an already functioning open framework. For the first five days, operational actors such as the Federal Protective

Services, Coast Guard, and locals, displayed their own initiative to fill the gap in unified command. The result was an open framework whereby flexible, independent units determined their own rescue priorities, areas to be searched, and locations to drop off the people they rescued. By the time HSOC had deployed, its influence as a commanding actor had diminished.

HSOC's reliance on procedures as set out in the NRP added to confusion due to the delayed deployment. Members of a Louisiana Fire Department reported receiving "a lot of 'I don't know's' from [local] government officials...the command structure broke down—we were literally left to our own devices." (Cooper and Block 2006:180-181) In fact, actors that did not follow the NRP and HSOC were more successful.

The more open framework tended to suit the environment where communications had broken down and no central leadership had been established. Local, open systems like "Boat Gangs" were amongst the most successful – driving to the edge of a flooded region, unhitching their boats, and ferrying victims from their rooftops to dry land (Brinkley 2007). Equally, the most effective closed actor was the Coast Guard who managed to rescue thirty thousand people over the course of the response (Senate Report 2006). Where the mission and objectives were clear – saving isolated victims – both systems tended towards success. However, local improvisation also caused problems. Army Corps of Engineer members, for example, witnessed locals attempting to sandbag a breached levee and although they were informed by the ACE (who built the levees) that their actions were futile, the locals refused to stop (Cooper and Block 2006).

The closed framework was ineffective because it arrived too late and attempted to influence the response instead of adapting to the pre-existing one. Although the closed

framework would have better enabled local response officials to direct operations, obtain situational awareness, and generate requests for assistance to State and Federal authorities, local actors who began the response without official confirmation were amongst the most effective, provided they had access to information and experienced personnel.

Conclusion

In a similar situation to Andrew, the frameworks that were used to respond to Katrina were unsuitable. Although the over-arching plan had been to implement a closed, strategic system, deliberations involving multiple strategic actors led to delays and a muddling transformation into an open strategic framework with no central point of contact.

At the same time it became clear that the DHS had been preparing more for terrorist attacks than natural disasters. The multiple missions that were actively clashing during the response meant that all levels were confused about their objectives. With this in mind, it is unsurprising that the Governor of Mississippi and Mayor of New Orleans blame the failed response on “failure of leadership at all levels” (Frontline 2005). When closed systems with clearly defined roles, such as the Military and Coast Guard, were deployed, they had a greater probability for success.

Finally, delays by the strategic actors caused the plan for an operationally closed response to fail. When the framework was finally implemented it caused confusion (some of which can be attributed to the slow response rather than the addition of a new actor). The most effective units were those who followed a more operationally open framework. While it was certainly not flawless, the open actors were more able to adapt to the

conditions, such as locals using their own boats, and ultimately became the most effective actors in both levels of the response.

Conclusion – Andrew and Katrina as Framework Failures

Thousands of people are affected when FEMA and disaster response fails. It is unsurprising then that these failures, including Andrew and Katrina, receive the most attention from the media and academics. However blaming “the delayed response” (Moynihan 2006) or “dysfunction” (Brinkley 2007:451) only examines part of the problem. I argue that these failures occurred because the structural framework in Andrew and Katrina was inappropriate and encouraged a convergence of leadership, mission, and objective crises.

The trend towards using a strategically open and operationally closed framework included factors that would lead to failures in leadership. The open strategic level, with multiple actors and multiple missions caused confusion over who was ultimately in charge of the response in both cases. Civil Defence and Counter-Terrorism clouded the FEMA’s main function – to respond to disasters as quickly and effectively as possible. Experienced leadership was also lacking. Having three strategic actors vying for, or attempting to evade, control over the response not only caused paralysis but also negatively affected operational actors with supply and request delays.

The operationally closed structure on the other hand had no central point of contact throughout either response. The reliance on procedures for requests added to this factor to create fragmentation, whereby law enforcement took precedence over meeting human needs. The framework ineffectively centralized the response to a small amount of offices and actors who were quickly overwhelmed and not able to adapt. The units that

flouted the closed structure and attempted to adapt to the conditions, such as the Coast Guard and the “boat gangs” were often the most effective.

Familiarity with the response plan is important. The fact that in Andrew and Katrina, the FRP and NRP had only been brought into practice a few months before meant that few had read it and even fewer understood it. However, good plans only go so far. The director of Alabama’s Emergency Management agency noted that “it’s just paper...it doesn’t mean crap...good plans do not mean good execution”. The inappropriateness of the framework used in Andrew and Katrina, with its rigid plan, inept leadership, and convoluted missions led to an unmitigated failure of implementation.

Chapter Five – Case Studies – Successes

Introduction

Unlike failures, successes are largely ignored in the literature. In doing so academics have overlooked factors that influence an effective response. These factors can be aligned in a framework with a combination of strategic and operational structures. By examining the successful responses to two major disasters, the Great Midwest Floods and Northridge Earthquake, I argue that a strategically closed and operationally open framework is the most appropriate. Within the responses there are instances of strong leadership, experienced personnel, autonomy, and mission clarity that are absent in failed responses to Andrew and Katrina.

Midwest and Northridge

Introduction:

In the period 1992-2005, FEMA responded to approximately 748 disasters (FEMA 2007a). It was also during this period that FEMA was described as a “brand name” agency at the “top of its game” (Cooper and Block 2006:63-64). Two disasters embody FEMA’s meteoric rise from “bureaucratic jackasses” (Hearings 1995:79) to a dependable agency: the Great Midwest Floods and the Northridge Earthquake.

The Disasters:

The Great Floods of 1993 (or the Great Midwest Floods) were some of the most far-reaching disasters in American history. Between April 1993 and January 1994, responders were faced with a disaster area the size of Japan, and a flood that entirely

engulfed Iowa and partially submerged eight other states⁵. In total almost fifty thousand houses were destroyed and an estimated sixteen billion dollars of damage was caused (Tierney, 1995). Although the number of deaths directly attributed to the Floods was lower than in Hurricane Andrew or Northridge, it is the scale of the Floods, insofar as it affected an enormous population and land mass, that ranks it as a major disaster.

Northridge was another large-scale, catastrophic disaster. On January 17, 1994, an earthquake measuring 6.7 on the Richter Scale shook Los Angeles for ten seconds, making it the largest magnitude earthquake ever recorded in North America (Nigg, 1997). In total seventy-two people were killed and over twelve thousand buildings were either destroyed, or deemed unstable. The cost of the disaster was between twelve and twenty thousand million dollars, comparable with Andrew two years earlier. Unlike the Midwest Floods the disaster area was small; however the unpredictability of the earthquake, combined with the fact that it occurred in the largest county (in terms of population and area) in America, makes this a truly significant event.

Evidence of Success:

The Midwest and Northridge are examples of successful responses. Basic human needs were fulfilled in both cases. Although there were large portions of the population who were displaced, temporary “tent cities” were created to house these refugees almost immediately. Equally, aspects that plagued the Andrew and Katrina responses, such as requests not being fulfilled were all but non-existent in the Midwest and Northridge due to successful pre-deployments of personnel and “one-stop-shop” field offices that could work independently from each other (Comfort 1994). Shortages of water and food were

⁵ The affected states were North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, and Illinois.

able to be rectified with simple fixes such as supplying Des Moines, Iowa with 30 self-contained water purification machines (Madigan 1994). In both disasters, people were presented with a solution to each of their problems or a work-around strategy until a solution could be found. FEMA's proactive stance in these disasters, deploying experts and providing temporary supplies "until normalcy is restored" (Hearings 1994: 203), is at the foundation of all the evidence concerning why they succeeded.

Same Success, But Different:

The Midwest is an example of the successful use of a strategically closed and operationally open framework. I argue there were three reasons for this success. First, only one strategic actor, FEMA, was in charge of the overall response which meant there was only one central point of contact, and one actor defining the parameters for operational implementation. Second, FEMA had a single mission (disaster response) that was untainted by other factors, meaning the response alone was its main focus. Finally, experience and good leadership at both operational and strategic levels encouraged better coordination and communication so that efficient transfers of information, requests and expertise became the norm rather than the exception. Both were substantial disasters that caused thousands of millions of dollars of damage to infrastructure and required a federal response. However, unlike Andrew and Katrina, there was no paralysing confusion, communication remained functional, and missions were clear.

It would be fallacious to argue that both of the disasters were the same. In fact there are two factors that are distinctly different: predictability of the disasters, and the number of actors. On the one hand, the drawn-out nature of the Floods meant that FEMA was granted more time to predict where disaster would strike and proactively mitigate

damages in flood prone regions. However, the lack of time pressures was countered by the sheer scale of coordination required of FEMA: strategic and operational units from *nine* states. Northridge was sudden. The earthquake hit without warning at 4:31am in a densely populated area. Coordination was relatively streamlined as FEMA's main partner was the California State government. The difficulty of multiple sources of authority did not therefore emerge; it was rather the rapid response capacity of FEMA being tested.

Neither disaster was easy to respond to. FEMA responded to both disasters using the same framework which emphasised responsiveness, mobility, and flexibility. The two factors, predictability and number of actors, are important dimensions and should not be ignored.

Outline:

I examine three elements - first, how changes to FEMA's leadership, professionalization, and autonomy led to the implementation of a successful framework, second, the extent to which experienced, top-down leadership during the disaster increased the efficacy of communications and mission clarity, and finally, the benefits open and closed units gained from the open operational framework. I argue that a strategically closed and operationally open framework is the most effective when actors are given distinct missions, under strong leadership, and their plans are adaptable.

Changing FEMA's Role:

In 1992 FEMA's new Director James Lee Witt had championed FEMA as an organization whose task it was to provide long term assistance (Hearings 1994: 208). This was a departure from previously held beliefs. During Andrew, for example, FEMA

had been seen, at least in the public's eye, as a first responder to disasters: an organization that would be at the forefront of the response not only coordinating, but actively participating in repairs and cleanups. Lee Witt accepted that FEMA was not the best organization for these tasks; primarily because the Army was more technically adept at such activities and local communities were better placed, but also because if FEMA stayed out of the disaster it would be more efficient in providing long term support. Support in Lee Witt's mind was more than providing assistance with newly-declassified technologies: it was about empowering actors to respond more effectively with information and experienced personnel.

After Lee Witt was promoted into the President's Cabinet, and given full autonomy over FEMA's structure, he expressed a desire to change the FRP from "the top-down so that it would work from the bottom-up" (Schneider 1995:22-23). Both the Midwest Floods and Northridge saw the implementation of a new combination of responders – a single strategically closed actor following the FRP and assisting an operationally open framework.

Strategic

Coordinate This:

The employment of the FRP was successful because FEMA was the only strategic actor in command. Under Lee Witt, FEMA was still a closed entity. Although there was undoubtedly more communication both within the organization (with Lee Witt's "Open Door Appointments" on Tuesday afternoons) and between Lee Witt and the President (after being promoted to a Cabinet position), the fundamental assumptions of disaster

response remained similar to the “old” FEMA, except for one factor: the increased role for operational units. Being experienced with disasters, Lee Witt recognised two things, first, operational actors are, by definition, first responders and should be assisted in that role. Second, locals are capable of being overwhelmed in which case more assistance, in the form of equipment or deployment of the Army or Guard is necessary. Because of the autonomy granted by the President, disaster management changed. FEMA became the only actor coordinating at the strategic level. This resulted in a more effective communication of the FRP’s objectives between operational and strategic units.

Part of this communication was the belief that, until there is a situation where locals are overwhelmed, FEMA is best placed to provide support instead of complicating the process through direct intervention. Under Lee Witt, FEMA’s supportive role was redefined. Instead of simply trawling through lodged requests, FEMA de-classified technology which was only supposed to be used in the Cold War era “Government Continuity Plan” and proactively setting up “one-stop-shops” in flood-prone states to prepare for insurance claims and aid distribution. In fact, during the Flood FEMA was able to set up offices in all affected states *before* access became a problem. By the time the flood engulfed the nine states, FEMA had established more than a dozen centers in Minnesota, Wisconsin, Iowa, Illinois and Missouri to deal with the inevitable influx of loan and request forms and distribute aid to victims (Blakely 2007).

Although FEMA was not given the opportunity to pre-deploy during Northridge, its field office in Los Angeles was able to be converted into a comprehensive support and command hub within twenty-four hours of the earthquake (Nigg, 1997. This was

beneficial because it gave state officials a single point of reference for further assistance and requests, nullifying overlap and confusion concerns.

FEMA's supportive role in both disasters was counterbalanced by Lee Witt's active part in increasing the communication and role recognition during the disaster. His "low key hands-on, problem-solving, performance orientated approach" emphasised meeting human needs as its first priority (Comfort 1994:165-166). Lee Witt phoned his senior field officials every day, and personally contacted Congressmen from all nine affected states to ensure they received all the support they needed (Cooper and Block, 2006:61). He also toured throughout all of the states, checking to see everything was working so that he was able to see what was needed first hand and make adjustments as necessary. If any problems persisted, he has able to call upon a factor that no other Director before or since has had: a direct line to the President. This was the significant difference between Andrew and Midwest/Northridge and one of the reasons why the FRP was a success with Lee Witt but not with his predecessor Stickney.

Clarify That:

One of the most crucial factors that led to FEMA's success in both disasters was its ability to instil a consensus about role, and effective responsibility delegation (Hillyard, 2000:42). FEMA's ability to coordinate and delegate roles made the response process more efficient and effective. In a Committee hearing after the events Lee Witt stated that "it is absolutely critical that you look ... at your role and mission and redefine that role and mission to what you feel is important for that agency to be responsible for." (Hearings 1994:197-198).

The strategically closed structures allowed FEMA to be pragmatic at the onset of, or before, floods took hold, and then maintain a supportive role throughout the crisis. FEMA's pragmatic involvement involved FEMA attempting to stay out of the disaster as much as possible except to provide logistical support and set up disaster centres. By doing this they allowed local and state units to initiate their own flood protocols and evacuation procedures. Each unit's role was clarified, but not imposed, and moreover, it was made sure that objectives were achievable. Lee Witt argues that the resulting success was because "we were proactive...FEMA and the Federal Government did not wait to be called upon...we initiated contact, placed personnel, and worked hand-in-hand with our State counterparts in monitoring the situation, identifying needs, and delivering the required assistance" (Hearings 1994: 205). Broader affirmation of FEMA's success comes from the results of 5,000 surveys sent to flood victims one year after to ask them about the agency's performance (Franklin, 1995). More than 80 percent of the respondents approved of the way the agency was doing its job – a percentage that would have been unthinkable after Andrew or Katrina.

The closed framework allowed for FEMA to set the parameters for implementation around the FRP, but still left room for initiative to play an important role. The effective integration of California's Standardized Emergency Management System (SEMS) with the FRP was a key component in the successful response to Northridge. SEMS does not require a government declaration in order to begin a response. As such, damage assessment teams were able to respond as soon as the earthquake ended and were quick to finish, taking only six hours (Bolin and Stanford 1998). While this was occurring Lee Witt contacted State officials and began converting the FEMA field office for use as

a command post. By playing a supportive role and delegating the technical roles to state actors, FEMA was able to be better prepared for the response and long-term relief efforts.

Under a strategically closed framework, FEMA was able to deploy previously classified technologies in increasingly creative ways. Its transformation from Cold War relic to New Age Disaster Agency seemed almost complete. A crucial signal of FEMA's metamorphosis was changing came when Lee Witt made resources available in natural disaster responses that had been accumulated in preparation for a Soviet attack. These technologies included the Mobile Emergency Response Support⁶ (MERS) as communication platforms which were converted into mobile command centres and the Mount Weather Doomsday Shelter⁷ that was converted into a communications and unit-dispatch centre (Cooper and Block, 2006:45). In doing so, one hundred FEMA disaster technology specialists were freed up to deal with natural catastrophes (Franklin, 1995). Creative use of technology by transforming their military roles into disaster response capacities made the spread of information, such as points of access and damage assessments, more widespread than during Andrew or Katrina. Both Lee Witt and Lt General Williams argued that this "new approach" was a key factor in "one of the most successful disaster responses" (Hearing, 1994:204)

⁶ MERS was a fleet of three hundred trucks that were mounted with electronic devices and would pick up senior officials in case of a nuclear attack. Cooper and Block (2006) estimated that these trucks cost the taxpayer \$130 million a year. These would be de-classified under Lee Witt and turned into mobile communications platforms during The Midwest Floods and Northridge.

⁷ The Mount Weather centre was the main bunker being used to house senior government officials in the event of the terrorist or nuclear attack (Brinkley 2007: 150-51).

Operational

Bending Over Backwards:

The operationally open framework allowed FEMA to inject more flexibility into the response. Local populations were enabled to improvise. Perhaps more than hurricanes and earthquakes, floods require another level of creative thinking and adaptability in dealing with the disaster. For example, with normal modes of travel underwater in the Midwest, boats and canoes were used to ferry people across rivers, and pick up late evacuees. Moreover, it is important to note that although the economic impact is well documented, the flood had had a profound effect on transport, infrastructure, and social life. The flood paralyzed East-West transport by rail and road for over two months due to the large geographic area it covered (Franklin, 1995). It was clear to FEMA that the local population would be unable to rectify this on their own. The FRP allowed for enough variability in its implementation that open, local units from affected communities could be assisted by closed units, such as the Army.

The added flexibility also assisted during Northridge. FEMA believed that charity and aid organizations such as the Red Cross were in a better position to provide shelters because they were local and familiar with the location (Bolin and Stanford 1998). Consequently the Red Cross and churches had almost fifty emergency shelters and were able to house seven thousand people per night while FEMA provided blankets, water, and electricity generators as requested (ibid., 1998). FEMA's ability to adapt the FRP to the circumstances meant that there was less duplication and confusion. Moreover, its ability to convert field offices into command (and request) posts ameliorated the unpredictability

of the earthquake. Good leadership and role clarity was enough to ensure the beginnings of a successful response.

FEMA quickly recognized that local personnel were being asked to respond in a “different mode from their daily routines” (Comfort 1994:162). The added operational flexibility and inter-operability between the FRP and SEMS meant that disaster experts from the strategic level could be integrated into operational units. The result was that there was common training, shared disaster experience, and a base of common information between FEMA and the state responders throughout the Northridge response. The fact that the FRP and SEMS were compatible, meant that FEMA did not need to be able to predict where disaster struck, as it could in the Floods. Instead, if the state government requested additional personnel, FEMA was in a position to provide them. This was done with the knowledge that the operationally open framework would be flexible enough to accommodate strategic actors into operational units without complicating the process, as was the case during the Andrew response.

ACE in the Holes

The FRP allowed FEMA to use the strengths and weaknesses of both open and closed operational units to its advantage. Closed units like the Army Corps of Engineers (ACE), were the primary military presence in the Floods. Under the flexibility of the open framework, the ACEs were able to implement their own flood control programs which were designed to reduce the susceptibility of property to flood damage and relieve human and financial losses (Hearings 1995:184). The added flexibility meant the ACE was also authorized to perform emergency assistance work requested and funded by

FEMA, such as repairing and restoring flood control levees and supplying emergency clean water to communities (Waugh, 1999).

Equally, the closed framework, wherein strict procedures for sandbagging and levee repair were enforced, meant that there was more consistency amongst the actions of the ACE, as opposed to the local communities. ACE suggested that their methods, which bolstered 157 of 193 levees resulted in the successful mitigation of over seven thousand million dollars in damage (Hearings, 1994:195-196). FEMA's supportive role under the FRP allowed for both open and closed operational units to work independently, and to not have missions imposed upon from above.

A review of the operational response to the Floods highlights the fact that there were many different and diversely structured actors, with different roles and objectives. FEMA's ability to predict where flood damage was likely to be most severe (by using "loss estimation satellites" originally designed to be used after nuclear attacks) meant that it could divert more of its resources to coordination (Tierney, 1995). Flood prone areas were well known and mapped out. As such, it was easier to predict where damage would occur in a flood, than during an earthquake. However, although this predictability negates some of the time constraints that are present in earthquakes or hurricanes, the sheer scale of the number of actors and the geographic area of the disaster presents a major obstacle. FEMA's ability to effectively deploy and coordinate personnel in nine different states was a phenomenal achievement, especially considering that only nine months before FEMA was unable to do so in a small area of South Florida.

Operational Tunnel Vision:

The short-sightedness of local response efforts was one problem that arose from the open framework. Californians were familiar with the reality of collapsed buildings during earthquakes being structurally unsound and needing to be demolished. However during the Floods, President Clinton considered proposals to convert entire towns and some large tracts of farmland to wetlands rather than rebuilding levees to protect them (Schneider, 1993). The policy of “buying up towns” and “leasing some farmland” was a drastic change in flood mitigation policy which had relied heavily on repairing levees after major floods. Largely due to their position away from the disaster and the consequent reduction in time pressures, strategic actors are able to have a more long-term response vision. This characteristic allowed Lee Witt to place more emphasis on mitigation. FEMA’s supportive role, along with its solitary response mission, allowed Lee Witt to design policy around “reactive mitigation”, clearing or bolstering defences of flood prone areas by retro-fitting houses for earthquakes.

Conclusion – Midwest and Northridge as Structural Success:

The successful response to the Midwest Floods and Northridge was due to the increased clarity of strategic and operational roles, experienced leadership and personnel at both operational and strategic levels, and the ability for the strategically closed actor, FEMA, to allow and encourage flexibility in operational units. The closed strategic and open operational frameworks enabled these characteristics. Implementing the FRP with only one strategic actor at the helm was the most significant and successful decision. Lee Witt stated that “the Federal Response Plan...worked [well] during the floods. The Federal Response Plan is a "living" document which is continually updated and expanded

based upon lessons learned from exercises and disasters... [i]t is not a detailed operations plan but, rather, a strategic plan in which Federal departments and agencies have identified critical areas of support that a State would likely require” (Hearings, 1994:213). Unlike Andrew or Katrina, the response to both disasters was not plagued with strategic actors failing to communicate or attempting to evade responsibility. A single hierarchy allowed FEMA to experiment with the FRP and give more discretionary powers to operational units such as field offices and local communities.

Success also lay in focused leadership within the uncomplicated strategic framework. By the provision of a Cabinet position and a direct line from the President to the Director, FEMA was able to better adapt the FRP to suit each disaster. Republican Daniel Inhofe stated that “I haven't spent a lot of time complimenting the President on his appointments but I sure did on this one” (Cooper and Block 2006:60). Experience and leadership were important, but the key factor for success was the uncomplicated strategic framework which enabled it.

The framework was successful because each actor knew what was required of them. The closed strategic framework meant that there were less instances of confusion over who was in charge and as a result information, requests, and orders flowed between strategic and operational levels more effectively. Due to the scale of the Floods, and the suddenness of Northridge, the operationally open framework encouraged units to adapt their own plans to the conditions at the grassroots level, instead of having a top-down plan imposed upon them. This combination was a major factor in the successful responses to the Floods and Northridge.

Conclusion – The Keys to Success

The fact that successful responses have largely been ignored in the literature makes studying them all the more important. Comparisons between successful responses and their failed counterparts provide a more holistic view of disaster management than simply looking at what went wrong. Clearly there is no single factor that separates a successful response from a failed one. Many factors combined to make the responses to the Midwest and Northridge effective. The most vital were strong, experienced leadership, autonomy, and mission clarity. While individual factors stopped paralysis at the strategic level and assisted in responsibility delegation, it was the overall framework that enabled the operational and strategic actors in the response. I argue that the strategically closed and operationally open framework was appropriate for the Midwest and Northridge responses. The closed strategic actor, FEMA, was able to successfully delegate both responsibilities and resources by taking a proactive stance within the disaster and fixing problems before or as they occurred. Simultaneously, the operationally open structure stayed on the “edge of chaos” (Kauffman 1993) by adapting to the specific contexts and recognizing when assistance needed from strategic actors. Experienced personnel, information sharing, and strong leadership at both levels combined with the framework to produce two successful responses that proved that FEMA’s revival after Andrew was no mirage.

Chapter Six – Conclusion

Everything is (Not) Broken

Open and closed frameworks are an effective means of analysing disaster management structures. However, I have argued that the binary application of these is flawed. The first major concern is that the literature is too heavily focused on analysing failures at the expense of successes. This practice ignores over half the disaster management picture and restricts the discussion to “what went wrong” instead of “what went right”. Unlike failures, successful disaster responses demonstrate effective coordination and cooperation.

There is also a misguided assumption within the literature that disaster responses are either wholly open or closed. Disaster organizations and their responses are never wholly open or closed but rather a combination of both. In order to better examine where “balance” is best realized, it is necessary to disaggregate the disaster organizations into their strategic and operational components. The strategically closed and operationally open framework is the most effective in disasters because it enables strong leadership and allows for effective communication of missions and objectives in the disaster responses studied here. Strategically closed actors are able to be more proactive and decisive than their open counterparts. Concurrently, operationally open actors are in a better position to adapt to new conditions and missions that arose throughout the responses.

On the other hand, a strategically open and operationally closed framework is inappropriate for responses. Confusion, evasion, and isolation are more likely under this framework because communicating between multiple strategic actors is difficult. When

strategic actors have their own objectives, roles, and missions and cannot communicate effectively with operational units the result is overlaps, duplication and ultimately sub-optimal responses.

Two other factors reveal themselves to be invaluable throughout all disaster responses: clarity and leadership. Clarity of missions, functions, and roles is vital to the success of a response. Effective communication, both before and after the response, is needed to increase the probability of success. Lee Witt's daily meetings with operational officials and his creative use of civil defence technology for command purposes in the Midwest Floods and Northridge were two elements that were noticeably absent during Andrew and Katrina.

Equally, strong leadership is the other factor that has a positive effect on responses. The ability of a single leader to organize and coordinate a response cannot be understated. When too many strategic actors are involved, confusion and evasion are sure to follow. Lee Witt's ability to command from the top-down, and also allow his operational units to adapt and work from the bottom-up, is a major difference between the successful responses to the Midwest and Northridge contrasting with Andrew and Katrina.

Future Directions

There are a number of aspects on the periphery of my thesis that require further research. First, an examination of the efficacy of placing political appointees in positions of power is needed. A solid answer as to whether the practice is positive or detrimental is inconclusive without examining failed appointees, such as Stickney, successful appointees like Lee Witt, and appointees like Brown, who shared Lee Witt's beliefs on

mitigation and attempted to progress the idea further, but because of a lack of autonomy and access, was unable to operationalize his plans. To what extent does the professionalization of disaster management affect FEMA's position in the departmental hierarchy, its constitution of personnel, and its unique combination of open and closed structures?

Although I have demonstrated that FEMA changed through the seventeen year period from 1992 to 2005, a more in-depth study into FEMA's learning mechanisms is needed. Why did FEMA appear to learn the "right" lessons from Andrew and not use these again in the Katrina response? Meyer and Rowen (1977) also encourage academics to reflect on the influence of leadership and personnel structures within large institutions. Their focus on the struggle to gain internal legitimacy posits that organizations may become internally fractured and ultimately 'decoupled' from the reality they are expected to address. This will have interesting implications for disaster management study: Does the "downtime" between disasters, rather than representing a period of consolidation and learning, in fact become a time of internal power struggles and disintegration without a focussing point – an external crisis – to provide legitimacy?

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