

**A META-SYNTHESIS OF EMERGENCY NETWORK  
MANAGEMENT STRATEGIES AND ANALYSIS OF  
HURRICANE KATRINA**

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## **ABSTRACT**

Meta-synthesis is an approach to synthesize qualitative research results. Originally proposed in the medical field and in education, this approach helps to advance current knowledge by generating a new interpretive synthesis. Since current research practices and knowledge development in emergency management is excessively divergent, there has been a need for a synthesis of knowledge from practice and research. One of the main arguments of this study is that the need is met by this study of a meta-synthesis.

In this research, I suggested that many research results dealing with the issue of how to improve the performance of emergency management can be integrated into strategies for network management in emergencies. I used the term strategies in a much more generalized way to capture the idea of managerial/behavioral skills, plans, and insights for emergency management. The meta-synthesis was conducted from a keyword search, surveys, and expert interviews, which identified representative studies in emergency response. The review process of the representative studies is captured in a two-by-two matrix (intervention point axis and planning-improvisation axis) as a way of presenting the meta-synthesis results.

This study then, turned to an analysis of reports of the Hurricane Katrina response

using the meta-synthesis results. Qualitative content analysis was used as a method for the analysis. Reports from the White House, the House of Representatives, and the Senate are the target documents of the analysis. While conducting the analysis, I argued that the attempt of interpreting the failures of Katrina response into the failures of network management strategies provides clearer understandings regarding what went wrong and what was lacking. Furthermore, I argued that the way of thinking attempted in the analysis is a constructive one in that it provides an instructive action agenda for future disasters by connecting lessons learned to the strategies for emergency management.

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# TABLE OF CONTENTS

<b>CHAPTER 1, INTRODUCTION .....</b>	<b>1</b>
1.1. Research Question .....	2
1.2. Research Framework.....	5
1.2.1. Emergency Management as Network Management .....	5
1.2.2. Current Emergency Management Paradigm and Network Perspective .....	10
1.3. Research Method .....	12
1.3.1. Systematic Research Synthesis (Meta-synthesis) .....	13
1.3.2. Content Analysis .....	14
1.4. Outline of the Study .....	16
<b>CHAPTER 2, EMERGENCY MANAGEMENT, ORGANIZATION THEORY, AND PUBLIC ADMINISTRATION.....</b>	<b>18</b>
2.1. Emergency and Emergency Response – An Abundance of Definitions.....	19
2.1.1. Emergency .....	19
2.1.2. Emergency Response .....	21
2.1.3. Emergent Networks in Disasters.....	22
2.1.3.1 Emergent Networks.....	22
2.1.3.2. Background from Network Management .....	25
2.2. Emergency Management and Organization Theory .....	27
2.2.1. Emergency Response Research.....	27
2.2.2. Organization Theories dealing with Emergency Management .....	30
2.2.2.1. Organization Theory and the Nature of Disaster .....	31
2.2.2.2. Studies on Organizational Factors Limiting the Efficacy of Emergency Response .....	32
2.2.2.3. Complexity Theory Approach .....	33
2.2.2.4. High Reliability Theory and Organizational Resilience .....	35
2.3. Emergency Management and Public Administration.....	37
2.3.1. Emergency Management, a Challenge for Public Administration.....	38
2.3.2. Some Contradictions in Emergency Management.....	40
2.3.3. A Proactive Role for Public Administration? .....	42
2.4. Conclusion .....	44
<b>CHAPTER 3, META-SYNTHESIS APPROACH AND LOCATING RELEVANT EMERGENCY MANAGEMENT RESEARCH .....</b>	<b>46</b>
3.1. Meta-synthesis .....	46
3.1.1. Overview .....	46

3.1.2. Issues .....	49
3.2. Locating relevant Studies .....	51
3.2.1. Keyword Search.....	52
3.2.2. Expert interviews and surveys .....	55
3.2.2.1. The processes and results of expert interview/survey .....	55
3.2.2.2. Issues in experts interview and survey results .....	58
3.2.3. Evaluating relevance and finalizing the selections of studies .....	60
3.2.3.1. The logic of selection of studies .....	60
3.2.3.2. Finalizing selection of studies .....	66
3.3. Conclusion .....	70

## **CHAPTER 4, SYNTHESIZING STRATEGIES FOR EMERGENT NETWORK**

<b>MANAGEMENT .....</b>	<b>72</b>
4.1. An Integrative Scheme for Synthesis .....	72
4.2. Reviews of Studies.....	77
4.2.1. Studies providing a comprehensive review .....	78
4.2.2. Studies providing system level perspectives for an effective disaster response system.....	83
4.2.3. Studies providing practical strategies for disaster response .....	87
4.2.4. Studies emphasizing new perspectives .....	92
4.3. Experts Interview Results.....	96
4.4. Synthesizing Strategies .....	98
4.4.1. Mapping strategies into research synthesis framework.....	98
4.4.2. Reciprocal translation of network management strategies.....	100
4.4.2.1. Interpreting emergency response operations to network management.....	101
4.4.2.2. Framing the conceptual relations.....	103
4.5. Conclusion .....	105

## **CHAPTER 5, AN ANALYSIS OF HURRICANE KATRINA RESPONSE OPERATIONS:**

<b>A NETWORK MANAGEMENT PERSPECTIVE.....</b>	<b>107</b>
5.1. Qualitative Content Analysis.....	108
5.1.1. Important features of qualitative content analysis .....	108
5.1.2. Procedures in conducting qualitative content analysis.....	110
5.2. Analysis of Government Reports; procedures and issues .....	112
5.2.1. Documents Selection .....	113
5.2.1.1. Selection process .....	113
5.2.1.2. Overview of the Reports .....	117
5.2.2. Process design and tasks in coding process.....	118
5.2.2.1. Overall process design .....	118
5.2.2.2. Tasks in the coding process .....	120

5.2.2.3. Reliability test results .....	121
5.3. Hurricane Katrina Response Networks .....	123
5.3.1. Overview of Hurricane Katrina response .....	123
5.3.2. Response networks in Hurricane Katrina .....	125
5.4. Network Management Perspective and Hurricane Katrina Response .....	128
5.4.1. The White House Report .....	128
5.4.2. The House Report.....	134
5.4.3. The Senate Report.....	138
5.4.4. Hurricane Katrina response and network management.....	142
5.4.4.1. Merits of Network Management Perspective .....	142
5.4.4.2. Comparison with Meta-synthesis Results and Implications.....	144
5.5. Conclusion .....	148
<b>CHAPTER 6. SUMMARY AND DISCUSSION .....</b>	<b>151</b>
6.1. Summary of the study.....	151
6.1.1. Revisiting the rationale of the study .....	151
6.1.2. Meta-synthesis and Hurricane Katrina Analysis .....	152
6.1.3. Comparison of two models, meta-synthesis and Katrina reports analysis .....	155
6.2. Limitations of the study.....	158
6.2.1. Limitations of meta-synthesis .....	158
6.2.2. Limitations of the Hurricane Katrina analysis .....	159
6.3. Future research agenda.....	161
6.3.1. A full-blown meta-synthesis .....	161
6.3.2. Conducting and accumulating field studies.....	162
6.4. Toward a better emergency management.....	164
<b>BIBLIOGRAPHY .....</b>	<b>167</b>
<b>APPENDIX .....</b>	<b>179</b>
I. Inter-coder Reliability Test Process .....	179
II. Survey.....	183



## LIST OF TABLES

Table 1. A preliminary selection of studies and their main arguments/issues .....	54
Table 2. Expert survey/interview results.....	57
Table 3. 2007 Body of Knowledge Report .....	63
Table 4. Comparison of the Body of Knowledge 2006 and 2007 .....	65
Table 5. Selected studies from the list of influential studies (expert survey/interview) ...	67
Table 6. Selected studies of the influential scholars (expert survey/interview) .....	68
Table 7. Selected studies from keyword search.....	69
Table 8. Studies providing comprehensive literature reviews.....	80
Table 9. Studies providing system level perspectives .....	84
Table 10. Studies providing practical strategies.....	89
Table 11. Studies emphasizing new perspectives .....	93
Table 12. Lessons learned regarding network management in disaster .....	97

## LIST OF FIGURES

Figure 1. A framework of research synthesis .....	76
Figure 2. Mapping strategies into research synthesis framework .....	99
Figure 3. New conceptual framework for emergency response .....	104
Figure 4. Two tasks of content analysis .....	121
Figure 5. An interaction model for Hurricane Katrina response networks.....	126
Figure 6. Hurricane Katrina response networks .....	127
Figure 7. Mapping failures from the White House Report.....	133
Figure 8. Mapping Failures from the House Report.....	137
Figure 9. Mapping Failures from the Senate Report.....	141

## CHAPTER 1, INTRODUCTION

Managing the organizational demands of networks during the very early stages of large-scale disasters is critical for successful disaster response. Quarantelli (2005) wrote, “In disasters, compared to everyday emergencies, organizations have to quickly relate to far more and unfamiliar converging entities.” Researchers and practitioners have been working on this particular organizational phenomenon in an effort to ensure rapid and effective responses. However, there is a lack of research synthesis regarding insights and lessons learned from various research projects since many of them are suggested episodically and are not systematically formulated. This study combines insights from a broad range of literature and interprets them from the standpoint of network management strategies. This study then reviews the Hurricane Katrina response operations in relation to the formulated strategies.

In this research, the focus is on the management of organizational mixtures composed of ‘improvised’ organizations as well as ‘planned’ organizations in disaster. In most cases, the organizational mixtures are construed as ‘emergent’ (or new) networks. In his study about Search and Rescue (SAR) activities, Drabek (1981) observes that emergency responses in American society are multi-organizational and the most salient characteristic of multi-organizational networks is their ‘emergent’ nature, a characteristic that is opposed to a ‘designed’ property. Then, he suggests that the ‘Emergent Multi-organizational Networks (EMONS)’ perspective can guide future research and emergency

management practices. Similarly, Milward and Provan (2006) developed the concept of 'emergent' problem solving networks in disasters.

This study is grounded in the theoretical streams concerned with managing emergent networks and will argue that the network perspective should be regarded even more seriously in the study of emergencies. Additionally, this study will delve into 'strategies' for emergent network management. Kickert et al. (1997) wrote, "Network management is, in essence, an inter-organizational activity." They argued that network management deals with the issues of how to initiate and facilitate interaction processes among actors and how to change and create network arrangement for better coordination (Kickert, Klijin, and Koppenjan 1997). Thus, strategies for emergent network management should include a wide range of organizational phenomena such as leadership, structure, and communication. Indeed, many insights and lessons learned from previous disaster responses deal with such issues and this study will synthesize them as strategies for network management. These synthesized strategies will then be used as criteria for reviewing Hurricane Katrina responses.

## **1.1. RESEARCH QUESTION**

Despite continuing scholarly efforts, scholars and practitioners have not been successful in theorizing solutions for such a complex array of organizational demands in disasters. While accumulating theoretical insights from previous research, the purpose of this study will address the following questions;

1. How can we synthesize findings and suggestions from previous studies concerning emergent networks?
  - 1) What strategies have been suggested regarding the management of disaster response operations?
  - 2) How can we interpret them from the perspective of emergent network management?
2. How do the strategies identified in the synthesis relate to those adopted in an example of managing networks, specifically those of the Hurricane Katrina response operations?
  - 1) How are the strategies, identified by the synthesis, similar to or different from those in the example?
  - 2) Does the synthesis aid in understanding the example?

The current status of theory lacks clear answers regarding how public administrators can develop an efficient model for emergent networks management. This assessment of the lack of theories and practices in this area is supported by Milward and Provan (2006) who agree that only a few insights have been drawn from these ‘unique’ network phenomena. They provide several insights; “1) Expertise is critical, 2) Relationships matter, 3) Coordination is key, and 4) Bold leadership is critical.” Kapucu and Van Wart provide lessons learned similar to those of Milward and Provan; that is, innovative problem solving, horizontal adaptation, collaboration, relationships based on trust, better public sector leadership, decentralized decision making, and intensive human interaction are critical for the success of disaster responses (Kapucu and Van Wart 2006). Comfort and Haase (2006) also observe that effective communication is essential for

successful multi-organizational coordination. However, the lessons learned and theoretical insights have not yet been well synthesized.

Moreover, researchers have rarely discussed the importance of inter-organizational coordination based on network theory (Moynihan 2006). In their study of public-nonprofit partnerships in emergencies, Kapucu and Van Wart (2006) assess that the current theoretical state cannot fully address the dynamic nature of networks in the complex environments of disasters. Only a few researchers have discussed the importance of ‘emergent’ networks (Drabek 1981, 1985; Milward and Provan 2006). In the meantime, as Milward and Provan (2006) admit, developing a model for emergent network management is a significantly difficult task. Considering this, combining insights from emergency management literature and framing them into a network theory perspective may be a good starting point for model development. After aggregating previous research results, this study will produce a new interpretive scheme for emergent network management.

In the meantime, the Hurricane Katrina response may be a good case for applying a network management perspective to emergency management. Comfort and Haase (2006) reported that 535 organizations engaged in the Hurricane Katrina response operations. They include 305 public organizations, 84 non-profit organizations, 143 private organizations and 3 organizations affiliated with the Democratic Party. These organizations were supposed to quickly form efficient networks and gain control over a chaotic situation. However, we have learned that effective collaborations among various organizations did not exist. Admittedly, there are many government reports and scholarly

articles dealing with Hurricane Katrina responses. However, most reviews do not adopt a network perspective. This is especially true within the field of public administration. This study will review organizational responses to Hurricane Katrina from the standpoint of network management strategies.

## **1.2. RESEARCH FRAMEWORK**

### **1.2.1. Emergency Management as Network Management**

Some scholars, especially within the field of public administration recognize the growing importance of networks as an approach to management (O'Toole 1997; Kickert, Klijin, and Koppenjan 1997; Agranoff and McGuire 2001). Agranoff and McGuire (2001) see public network management as a paradigm that competes with the hierarchical-organizational authority paradigm of bureaucratic management. O'Toole (1997) argues that understanding network management is especially important for public managers interacting and participating in network organizations. Otherwise, they risk "either operating with inappropriate organizational models or adapting conventional structures to meet the more challenging demands."

In the meantime, a question arises regarding perspective when seeing a complex array of organizational settings in disaster situations as networks. According to Comfort and Haase (2006), 217 out of 535 organizations participating in the Katrina response operation did not interact with other responding organizations. Three hundred eighteen out of 535 organizations did interact with other organizations. The interactions of these 318

organizations were a kind of emergent phenomenon since not all of those interactions were planned. Meanwhile, they were forming types of networks in that the activities of players, after all, converged into collective problem solving. It is, then, appropriate to see these interacting organizations as emerging networks. Also, the rest of the organizations can be postulated as objects that would have been included in the network (or activated as network players), if the disaster response system had worked. Indeed, scholars like Kickert *et al.* (1997) and Agranoff and McGuire (2001) see activation of network players as an important aspect of network management strategies.

Much of the research on emergency management has focused on coordinating individual responses and has not conceptualized emergency management as network management. There are various perspectives employed in theorizing these complex situations. Scholars have applied chaos theory (Koehler, Kress, and Miller 2001) and complexity theory (Comfort 1994) for the phenomena. However, the weakness of these perspectives is that they are descriptive and do not provide a framework which can encompass the inter-organizational nature of responses in disaster. Therefore, many public administration scholars delve into the issues of intergovernmental relations and focus on structural solutions for intergovernmental coordination (Caruson 2006; Kettl 2003). According to Comfort and Hasse (2006), two thirds of the 318 interacting organizations in the Hurricane Katrina response system were public organizations. Considering these statistics, it is understandable why most researchers who have studied emergency management focus on intergovernmental coordination (Drabek 1985; Rubin and Barbee 1985). Indeed, the government's share of disaster responses is significant; however, this

perspective often leaves out non-governmental organizations. Nevertheless, intergovernmental coordination for successful responses has been the core theme of emergency management. This literature is more prescriptive than descriptive.

More recently, one set of fashionable theories focuses on the issue of building public-private partnerships for emergency management. Since the infrastructures crucial for a functioning society, such as banking, electrical energy and transportation, are often owned by private companies, private sector roles are considered important in emergency management. Also, as Kakuchi (2005) argues, the importance of volunteerism is growing. Kakuchi says, “Local communities have certain advantages during an emergency because they can act faster as they are already on the ground and know the culture, which makes local volunteers more effective in providing immediate relief measures.” Kakuchi reports that the government is increasingly dependent on volunteers who have international connections, knowledge, and experience in disaster relief, qualities that government officials often do not have (Kakuchi 2005). However, this perspective runs the risk of overemphasizing the role of non-governmental instrumentalities in disasters. As mentioned earlier, public organizations have played key roles in many disaster responses and, for this reason, non-governmental organizations’ roles should be viewed as a part of collective action where the public organizations frame the playing fields.

Another set of scholarly perspectives for emergency management comes from organizational theorists. Drabek (1985) conceptualizes ‘Emergent Multi-Organizational Networks’ as “the structure of relationships that form among organizations, or segments of organizations, that are focused on a specific task.” Boin and Hart (2003) argue that crisis



operations are multi-organizational, trans-jurisdictional, polycentric response networks. Denis (1995) argues that disaster operations need to deal with the concept of 'Disaster Mega-Organization (DMO).' According to Denis (1995), DMO is "a kind of network oriented toward managing the response to a disaster." This perspective provides a balanced view regarding the roles of government agencies and non-governmental organizations. Government initiatives after recent disasters seem to emphasize the networked nature of disaster response. For example, "The Federal Response to Hurricane Katrina" (The White House 2006) provides a future agenda regarding integration of foreign contributions and non-governmental aids. It recognizes that there were substantial contributions from non-governmental and faith-based organizations as well as international relief organizations. The government simply couldn't incorporate these capabilities into the federal response.

In the meantime, there are scholarly efforts trying to establish a unified perspective regarding network management and management of intergovernmental programs. Agranoff and McGuire (2003) pointed out the problem of divided scholarship between network theorists and intergovernmental relations scholars. They wrote, "Intergovernmental relations scholars and public management scholars traditionally have talked past each other." However, they observe that everyday practices of public administration outpace the divided scholarship. Public managers are working in the vertical/horizontal matrix which defies the distinction between network and intergovernmental relations even though "government is still the most influential institutions in collaborative structures because of the legal authority it possesses" (Agranoff and McGuire 2003).

To integrate the knowledge gained, a framework should be constructed that can accommodate the descriptive orientation (e.g. chaos theory/complexity theory and much of disaster research done by sociologists); prescriptive orientation (e.g., intergovernmental relations and public-private partnership); and the insights from network management. After a review of a series of theoretical arguments, this project will investigate how the network perspective can lead to a better understanding of the management of emergent complex interactions among various organizations. For example, the descriptive orientation can contribute to viewing the parallel play or isolated efforts in disaster responses as “un-activated plays.” Since Agranoff and McGuire (2001) argue that activation is “the process of identifying participants for the network and stakeholders in the networks as well as tapping the skills, knowledge, and resources of these persons,” those parallel actions can be viewed as activation failure in network management. Also, the network perspective can accommodate prescriptive orientation in that network theory sees that government should take on the role of integrating the complex array of organizational efforts (either government side or non-government side) as much as possible. This study will try to integrate insights from these three perspectives – chaos and complexity theory; intergovernmental management in disaster; and network theory in disaster. To put it differently, a framework for the management of emergent networks in emergency will be constructed from the insights and propositions of these perspectives.

## 1.2.2. Current Emergency Management Paradigm and Network Perspective

Currently, the dominant paradigm of emergency management emphasizes the rational, command and control, and structural approaches (Harrald 2006; Carroll 2001). Many researchers subscribe to this approach and the intergovernmental scholar's theoretical interests are consistent with this approach. Drabek (1985) pointed out that researchers have supported the utility of a generalized approach even though every disaster situation needs different types of collective actions. According to him, the concept of Comprehensive Emergency Management (CEM) and the Integrated Emergency Management System (IEMS) are the roots of the current emergency management paradigm.

Recently, more than thirty years' efforts in dealing with disasters were crystallized into the formation of the National Response Plan (NRP) and the National Incident Management System (NIMS). However, the utility of this paradigm has been severely damaged in the face of the failure during Hurricane Katrina (Buck, Trainor, and Aguirre 2006; Harrald 2006)<sup>1</sup>. Because of the failure, scholars and practitioners began to show their

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<sup>1</sup> This is a controversial argument. Questions may arise but it is hard to make simple and clear answer for them. We may need to go back to the debates over the usefulness of the Incident Command System (ICS) since ICS is the prototype of NIMS. A myriad of proponents and opponents of ICS provided their own rationales which can be directly applied to current debate over NIMS. With respect to opponents' side, Buck, Trainor and Aguirre (2006) provide a nice summary of the arguments; 1) ICS puts too much emphasis on formal organizations and rationality, which might lead to the failure of recognizing unorganized volunteers and emergent groups. 2) ICS is also vulnerable in addressing the transformations of the structure and function of established organizations during the response phase of disasters. According to Buck, Trainor and Aguirre (2006), the critics of ICS eventually argued that "the more appropriate model for organizing response is not, as in ICS, unified command and control, but coordination within and among established official organizations, emergent groups, and convergent volunteers that characterize major disasters" Meanwhile, an interesting aspect of these debate is that proponents of ICS, mostly from practitioners, argue that 'coordination' is the main objective of ICS. Furthermore, proponents of ICS believe that many critics of ICS don't exactly understand what ICS is. To put it differently, the proponents think that the critics are barking at the wrong tree since the main objectives of ICS are, in fact, accomplishing what the critics pursue. I think

interest in different paradigms which had been developed in the area of emergency management and emphasized nonstructural factors such as improvisation, adaptability, and creativity. Scholars who follow this perspective argue that these factors should be regarded seriously because they are crucial for coordination, collaboration, and communication. In this context, Carroll (2001) argues that emergency management practices and theories should embrace the sociological approach which is characterized by including a host of intangibles that are overlooked by a rational-professional approach to emergency management.

Some scholars have tried to reconcile the theoretical confusion. Reflecting the growing skepticism about the rational approach and centralized planning for emergency management, there is a new wave of emerging thought that seeks an uneasy balance between central planning and fostering self-organized and/or coordinated responses by NGOs and individuals. Moynihan (2005) argued that both hierarchy and networks are indispensable in managing emergency situations. He proposed the concept of 'hierarchical networks' through which the government facilitates coordination among different players in emergency management. Wachtenddorf and Kendra (2005) also argued that planning can be a basis for organizational improvisation. They compared the merits of organizational improvisation and planning. According to them, both improvisation and planning are indispensable factors for successful problem solving. Improvisation is creative and collective effort in managing unexpectedness. Planning is synonymous with

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that almost the same thing is happening regarding the usefulness of NIMS and NRP. I quote the criticism since, I think, participating in this debate is beyond the range of this project and I thought that failures in Katrina response operation vividly portrayed the problems of NIMS and NRP.

the rational approach. Harrald's (2006) suggestions are also consistent with this point. He argues that the structural, command-control orientation of the current paradigm does not have to be discarded even though it proved to be problematic in the Hurricane Katrina responses. Indeed, scholars like Moynihan (2005) report that hierarchy, the signature of the current emergency management paradigm, frequently expedites the interactions among organizations within networks. Again, Moynihan's argument praising the hierarchical network is based on this virtue of hierarchy.

Given this theoretical proposition that a perspective is needed that combines hierarchy and networks, looking at the current emergency management system through the lens of network theory is appropriate. Also, more serious attention to formulating the government's role in facilitating various efforts within disaster response networks seems to be relevant considering the pervasiveness of networks in the contemporary public management theories and practices.

### **1.3. RESEARCH METHOD**

This study adopts a systematic research synthesis (meta-synthesis) and content analysis in answering the research questions. Recommendations for and observations about emergent networks will be integrated through a meta-synthetic process for academic literature. Then, using the results of meta-synthesis as review criteria, I will conduct a content analysis. The object of the analysis is the response to Hurricane Katrina.

### **1.3.1. Systematic Research Synthesis (Meta-synthesis)**

Within the field of natural science, accumulation and refinement of knowledge is well established and scientific progress demonstrates sequential and tidy progression. Research activities in social science, however, are disjointed. Wolf (1986) wrote, “Studies not only use disparate definitions, variables, procedures, methods, samples, and so on, but their conclusions are often at odds with each other.” Therefore, there has been an enormous waste of scholarly effort in the social sciences (Wolf 1986). Faced with this problem, scholars have devised a reliable process for an unbiased means of reviewing previous research which has tried to answer similar questions. This process is known as meta-analysis. However, the use of meta-analytic procedures is confined to synthesizing quantitative research. Qualitative or interpretative research does not benefit from this method.

With respect to qualitative research synthesis, Gough and Elbourne (2002) argue that traditional literature reviews in social science are not using sufficiently rigorous methodology and, thus, different reviews end up with different conclusions. In answer to this problem, scholars have developed a rigorous means of synthesizing qualitative research results. This is the meta-synthesis approach. According to Siau and Long (2005), meta-synthesis can be defined as “a research method used to produce interpretive translations, ground narratives or theories by integrating and comparing the findings or metaphors of different qualitative studies.” A meta-synthetic approach resolves the aforementioned issues while providing a systematic way of synthesizing qualitative

research. Also, this approach helps to advance current knowledge by generating interpretive synthesis. This study aims to synthesize previous research and tries to advance it through comparing and criticizing previous research and generating a new interpretive synthesis. That is, this study aims to produce an interpretation of previous research results relying on a network management perspective.

In the meantime, one of the most important characteristics of meta-synthesis (or systematic research synthesis) is that it tries to maintain transparency when it comes to including or excluding previous research results for individual research. By documenting how one comes up with certain research results for their review, the meta-synthetic approach tries to lessen a researcher's bias during a literature review. It has been argued that literature reviews in social science are narrative and are inevitably likely to reflect the bias of researchers. This study will document how I came up with certain research for my synthesis to lessen the likelihood of researchers' bias in selecting relevant studies for this literature review. In order to maintain transparency in selecting studies, the process for locating relevant studies will be documented and the selection criteria - albeit still somewhat subjective - will be established.

### **1.3.2. Content Analysis**

Content analysis is “a systematic research method for analyzing textual information in a standardized way that allows evaluators to make inferences about that information” (GAO 1996). Admittedly, many people regard content analysis as an outdated and strictly

quantitative methodology, however, it can be an effective qualitative research tool, if used properly (Park 2005). Indeed, content analysis has evolved from its initial journalistic roots and there have been many variations of the methodology including the qualitative approach to content analysis (Krippendorff 2003). According to Krippendorff (2003), the qualitative approach to content analysis involves “the re-articulation (interpretation) of given texts into new narratives that are accepted within particular scholarly communities.”

After conducting a meta-synthesis for emergent network management strategies, the study will conduct a content analysis of government documents resulting from Hurricane Katrina. While the purpose of conducting a meta-synthesis is the creation of a new interpretive synthesis, the content analysis can be viewed as an application of the new interpretive synthesis. In other words, previous research done by hosts of scholars and experts will be synthesized into a framework of network theory through the meta-synthetic process and, by conducting a content analysis, the case of Hurricane Katrina will be reviewed from the standpoint of network theory. This process will provide a good opportunity for examining the lessons learned as presented by many researchers after the Katrina disaster.<sup>2</sup>

As of now, many written evaluation and situation reports have been produced after Hurricane Katrina and there is a good opportunity for framing strategies for emergent networks in emergencies. In the meantime, conceptualizing or specifying categories should be completed before the review process begins. The meta-synthesis process will provide

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<sup>2</sup> A detailed procedures and issues of qualitative content analysis will be discussed in Chapter 5.



good conceptual categories. By conducting content analysis, one can review what really happened in the light of network management strategies. Also, considering the aforementioned state of theoretical needs and the documentation status of Hurricane Katrina, adopting content analysis seems to be an appropriate methodological choice.

As for the object of content analysis, I will review two congressional reports. The first is from the House of Representatives, *A Failure of Initiative: Final Reports of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina* (569 pages document). The second is from the Senate, *Hurricane Katrina: A Nation Still Unprepared* (732 pages document). In addition to the two congressional reports, the White House report on Hurricane Katrina, *The Federal Response to Hurricane Katrina: Lessons Learned* (228 pages document) will also be reviewed from the standpoint of strategies for emergent network management. As for the unit of analysis, the study will adopt ‘theme’ as unit of analysis. Theme is a useful unit even though it is somewhat ambiguous in terms of physical boundaries of text. It can be sentence fragments or several paragraphs. However, theme which is defined as “a single assertion about some subject,” is an appropriate recording unit, since the study is looking for insights, recommendations, or solutions for emergent network management (GAO 1996).

## **1.4. OUTLINE OF THE STUDY**

This study will be composed of six chapters. Following the introduction, Chapter Two will present various issues in the area of organization theory and emergency

management theory. Chapter Three will be devoted to the overview of meta-synthesis and the process of locating studies for review. In Chapter Four, a research synthesis framework, reviews of studies, and the research synthesis itself will be described. Chapter Five deals with the content analysis of Hurricane Katrina. That content analysis will be conducted relying on the results produced by the meta-synthesis. Chapter Six will be devoted to wrapping up the findings and a discussion of the results, the limitations of the study and future research topics.

## CHAPTER 2, EMERGENCY MANAGEMENT, ORGANIZATION THEORY, AND PUBLIC ADMINISTRATION

The main objective of this chapter is to provide a theoretical basis for Chapters Three and Four where I intend to synthesize insights and recommendations for managing emergent networks in disaster situations. As described in Chapter One, this study will examine a specific aspect of emergency response and will focus on the management facet. Since the theoretical orientation of this study is largely directed toward organizational studies while focusing on emergency management, there is a need to link these two areas. An organization exists somewhere between chaos and perfect order. Organization theories can be seen as cumulative efforts of explanation for the subject of how we have controlled chaotic situations and how we have created order. In this regard, emergency response is not very different from general organization theory and management theory.

In the meantime, one can recognize that there is an interesting relationship between the terms emergency and management. Ralph G. Lewis (1988) wrote, “Emergency conveys a sense of urgency but it also emphasizes the freedom and responsibility of decision-making generally associated with the term management”. In other words, if we take the term of management as a metaphor for general organization theory, the relations between emergency and management convey some conflicting images, a topic alluded to in the attempt to reconcile planning and improvising later in the study.

This chapter begins by looking at the definitions of emergency and disaster. Then, a brief overview of the field of emergency management and its major findings will be

made. Also, I will discuss the relationship among emergency management, networks perspective, general organization theory, and public administration theory.

## **2.1. EMERGENCY AND EMERGENCY RESPONSE – AN ABUNDANCE OF DEFINITIONS**

### **2.1.1. Emergency**

The starting point of this discussion is the clarification of the meaning of emergency and emergency response as used in this study. One finds that there are various definitions of emergency, disaster, catastrophe, and crisis in legislation (e.g., the Stafford Act). Each definition is carefully formulated in order to fulfill the purposes of the specific legislation. The same thing happens in academia. Scholars define the terms, emergency, disaster, catastrophe, and crisis in many different ways and they use these terms in different contexts. For example, Lewis (1988) uses emergency to refer to an entire event while he sees disasters as “events that have resulted in extensive negative consequences.” He wrote, “... our concern is with management of emergency events in order to avoid or at least to minimize the negative consequences associated with disasters.” However, some scholars like Quarantelli (2007) see that there are qualitative differences in everyday emergencies, disasters and catastrophes. He postulates a hierarchical relationship among emergencies, disasters and catastrophes. Using Quarantelli’s idea, Lucien Canton (2007) analyzes current National Response Plans and separates them into matrices: level of response, response methodology and principal agent. According to Canton, 1) emergency,

which is defined as “a dangerous event that normally can be managed at the local level,” is located in the lowest level of the hierarchy. The response level for emergency is ‘operational’ level and ‘incident command system’ has been established as response methodology for emergencies. Finally, the principal agent for emergency is local government. 2) In the same model, ‘major disaster’ is located in the middle of the hierarchy. ‘Major disaster’ is understood as a disaster which “causes damage of sufficient severity and magnitude to warrant major disaster assistance under (the Stafford Act).” One can construe the response level for major disaster as ‘tactical’ level. Multi-agency Coordination System has been used as the response methodology for major disaster. State and local governments should be the principal agents for major disasters. 3) Catastrophic event is in the highest level of crisis hierarchy model. According to Canton, catastrophic event “results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions.” The response level for catastrophic event should be ‘strategic’ level and it requires ‘crisis management’ as response methodology. Federal and state governments would be the principal agents for a catastrophic event.

Quarantelli’s definitions and Canton’s formulation of the crisis hierarchy model is helpful since one can easily link the terminologies to real world policies. The definitional scheme is especially well fitted to the current structure of intergovernmental relations. Nevertheless, it lacks a generalized or representative terminology. That is, many people might have seen an ‘emergency management’ textbook, not a ‘catastrophe management’ textbook. Normally, we call people in the profession dealing with emergency, disaster and

catastrophe emergency managers, not disaster managers or catastrophe managers.

Moreover, FEMA has the term, ‘emergency’ in it. This is more than a semantic issue.

Even though there may be many kinds of events that one can call emergency, disaster, or catastrophe depending upon the scale of negative effects on society, as Lewis argues, we may need a term designating the entire class of events. Referring to an emergency as the term for the class of events does not conflict with Quarantelli’s and Canton’s definitional scheme. Thus, emergency will be used as a general term in this study regardless of the scale of negative effects.

### **2.1.2. Emergency Response**

Canton (2007) evaluates the study of the National Governors’ Association (1978) that introduced the comprehensive emergency management model as one of the most important works within the field of emergency management. The study recognized four phases of emergency management (mitigation, preparedness, response and recovery) and has provided a good framework allowing one to conceptualize various activities in a whole process. The followings are the four phases and the activities each contain (Canton 2007);

- Mitigation – efforts taken to eliminate or reduce the impact of hazards
- Preparedness – efforts to develop the capacity<sup>3</sup> to respond to disasters
- Response – actions taken to deal with the impact of a disaster
- Recovery – actions taken to restore the community to normal

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<sup>3</sup> Capacity used here has broad meaning. It may include organization design, leadership, communications, etc.

In this study, emergency response refers to exactly the same activities defined by the National Governors' Association. That is, it includes actions such as "providing emergency aids and assistances, reducing the probability of secondary damages, and minimizing problems for recovery operations" (Petak 1985). However, research issues in the response phase of this study are somewhat wider even though the surface meaning of emergency response in this study is the same as that of the National Governors' Association. Indeed, if one wishes to carefully look at the response phase, he or she needs to examine the other phases, especially the preparedness phase. This is because preparedness and emergency response are closely interrelated with each other (Lewis 1988). For this reason, this study will regard the relationship between the preparedness phase and the response phase seriously. Thus, the response activities of emergency management will be examined in relation to the actions taken in the preparedness phase.

### **2.1.3. Emergent Networks in Disasters**

#### **2.1.3.1 Emergent Networks**

In their study on search and rescue activities (SAR), Drabek (1981) quotes a first responder's monologue; "Who are all of these people? Where did they come from? Who asked them to help? Don't they know I'm in charge of this flood?" This monologue shows how complex and volatile a situation may be. Then, he argues the multi-organizational aspect of SAR activities. In addition to the multi-organizational aspect of SAR, Drabek (1981) focuses on the 'emergent' nature of them. In fact, many organizational theorists

such as Quarantelli and Dynes tried to categorize groups and organizations during disaster situations. Stallings (1978) organized them into a two by two matrix which is composed of organizational tasks (old or new) and structure (regular or non-regular); thus, the four types of organized behaviors are as follow; *regular tasks* and *old structure* for the established type (Type I), *regular tasks* and *new structure* for expanding type (Type II), *non-regular tasks* and *old structures* for the extending type (Type III), and *non-regular tasks* and *new structure* for the emergent type (Type IV). In the meantime, the emergent types of organizations in disasters (Type IV) exhibit an improvised way of organizing behaviors. Although proper planning or well-designed preparedness might reduce the probability of occurrence of emergent organizations, it seems that planning or preparedness is inevitably vulnerable in the face of the complexity and uncertainty of disasters and some degree of improvisation is needed (Stallings 1978).

The emergent nature of multi-organizations is reported on by many scholars. In his study on 'Hastily Formed Networks,' Denning (2006) suggests the importance of rapid formation of multi-organizational networks. He argues that hastily formed networks are used in various situations. Quoting former Secretary of Defense Rumsfeld's speech, he separates emergency situations into three categories; *Known* (know what to do), *Known Unknown* (know what to do but don't know time or place), and *Unknown Unknown* (don't know what to do and don't know time or place). Especially, *Known Unknown* situations and *Unknown Unknown* situations need appropriate responses from rapidly formed multi-organizational networks. According to Denning, the capacity forming multi-organizational



networks should be the crucial part of most of humanitarian aid, disaster relief, and large urgent projects (Denning 2006).

From the standpoint of network theory, Milward and Provan (2006) distinguish networks in accordance with the purposes and tasks of networks; service implementation networks, information diffusion networks, problem solving networks, and community capacity building networks. According to them, problem-solving networks are used in the case of disaster and the focus of these networks is “solving existing complex problems rather than building relationships for future problems.” In contrast, service implementation networks, which are popular research objects of public administration scholars, focus on the joint production of public services and put more emphasis on building stable relationships. In problem solving networks, however, relationships last temporarily and networks often emerge in the process of organizing (Milward and Provan 2006). In other words, even though they admit that problem solving networks may either be designed or emergent, emergent (or hastily formed) networks prevail in time of disaster.

Reflecting aforementioned theoretical discussions, we can formulate the characteristics of emergent networks as follow; first, relationships within the network are situational since they emerge in the course of responding to a disaster. Second, some organizational entities or individuals in emergent networks may be dormant once problems are resolved. Third, the boundary of an emergent network is blurred since the formation of the network is ongoing. What, then, are the strategies needed in managing emergent networks? According to Milward and Provan (2006), different purposes and tasks of

networks require different approaches. Current knowledge about emergent network phenomena recognizes that they require different strategies from established networks; however, there is no comprehensive knowledge accumulation for this. Since this study aims to integrate existing knowledge and advance it, there is a need to take stock of the current status of knowledge.

### **2.1.3.2. Background from Network Management**

As Milward and Provan (2006) argued, knowledge regarding emergent network management is in its infancy. Therefore, accumulated knowledge about ‘designed’ network management will be the starting point of the discussion. One example is Agranoff and McGuire’s (2001) study. While exploring the applicability of traditional management processes to networks, they conclude that different strategies need to be used in the management of networks. Specifically, they suggest the four behavioral characteristics commonly used by network managers: activating, framing, mobilizing, and synthesizing.<sup>4</sup> They explain each behavior as follows. Activating includes the process of participants/stakeholders identification and incorporation of their skills, knowledge, and

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<sup>4</sup> The traditional management processes have been described by using the acronym of POSDCORB. In a sense, the required behavioral characteristics of POSDCORB and the four behavioral characteristics commonly used by network managers would be very similar. However, they seem to be different since they emphasize different aspects of organizational processes and one can still argue that there is a tangible difference between the traditional management process and network management process. That is, the inter-organizational relations with which the network perspective must content may be much more complex than that assumed by the traditional management perspective. Network perspective assumes, say, dozens of inter-organizational relations, while the traditional management perspective considers only several organizational relations. Given this, one can argue that the behavioral characteristics required for network manager may be qualitatively and quantitatively different from the requirements that the traditional management posited. Yet, it is still up for research to show.

resources to the networks. Framing is the process of establishing and influencing the operating rules of the network. Mobilizing involves the human relations component such as motivating, inspiring, and inducing commitment. Finally, synthesizing is the process of “creating the environment and enhancing the conditions for favorable, productive interaction among network participants” (Agranoff and McGuire 2001).

Another example is Kickert *et al.*'s strategies for network management. According to them, network managers do have strategic alternatives even though they are in a relatively weak position in terms of the possession of hierarchical means at their disposal. With this premise, they articulate two levels of network management. One level has to do with specific interaction process (game level) and the other level deals with the network structuring (network level) process which aims at the context of game. Also, they distinguish points of intervention; one point of intervention focuses on ideas and perception of actors, the other intervention point deals with interaction between actors.

The discussions of Agranoff and McGuire and Kickert *et al.* should be the starting point of analysis since this study maintains a network management perspective. However, even if one accepts that network management requires different processes, perspectives, strategies, and different behavioral characteristics of managers compared to traditional management strategies, the strategies may be elaborated or may be somewhat different when it comes to issues regarding emergent networks in disasters. Currently, there are insights and lessons from several emergency management scholars who have reviewed previous disaster responses. Thus, the first topic of this research is to delve into the

following issues: what are the lessons learned and insights proposed for effective disaster responses? How can we incorporate them into strategies for emergent network management in disaster?

## **2.2. EMERGENCY MANAGEMENT AND ORGANIZATION THEORY**

### **2.2.1. Emergency Response Research**

The field of emergency management has a relatively short history. According to Canton (2007), full-blown emergency management research began in the 1950s. He argues that the Cold War situation and the enactment of two pieces of legislation (The Federal Disaster Act and The Civil Defense Act) laid the foundation for emergency management research. Also, two important research institutes (The Disaster Research Center at the University of Delaware and the Natural Hazards Research and Application Information Center at the University of Colorado) have resulted in major research impact to the field. Despite the short history of full-blown research, various research topics have been examined and, currently, we have a large body of accumulated knowledge. According to Kathleen Tierney (1993), research on the response phase is the most rigorously studied area and there are numbers of important works done by influential scholars. Lewis (1988) characterized the body of current knowledge concerning appropriate response strategies as follows:

...issues associated with warnings and evacuations are addressed by Quarantelli and by Perry, Lindell, and Greene. Search-and-rescue issues are addressed by Drabek *et al.* There are also a number of

sources such as the U.S. Council of Mayors, the International City Management Association, and the Federal Emergency Management Agency which provide operational guidelines for responding to emergency events.

Tierney (1993) reported that disaster response research can be categorized into three aspects and there are a large number of important researchers in each research area. The first category is research regarding public response to disaster warning and evacuation notice. For example, the works of Mileti, Sorensen, Lindell, Perry, and Quarantelli dealt with public warning response and the design of warning system.

The second research category is about typical responses by the public in disaster situations. Numerous writers such as Quarantelli, Dynes, and Wenger have tried to dispel so-called "disaster myths," which are related to erroneous assumptions about the increase of anti-social behaviors during a disaster period (Tierney 1993). That is, empirical research found that panic, systems breakdown, and the increase of anti-social behaviors are not common in disaster situations. Despite negative consequences of disasters, they concluded that coping abilities of disaster stricken communities were solid.

Finally, the third research category is a group of studies regarding organizational adaptation in disaster situation. This category of studies is related to general management and organizational issues which have been regarded as very important issues for emergency management since apparently perfect planning cannot take into account all of the contingencies that disasters cause. Thus, much research in this category has dealt with organizational capacity to respond to emergency events. As Lewis (1998) argued, many

studies “basically encompass the traditional activities associated with administration: planning, organizing, staffing, leadership, and control” in disaster response periods.

Mileti (1999) also reviewed the body of literature regarding the disaster response phase and articulated important findings. He uses his own categories: 1) emergency shelter and housing, 2) social solidarity, 3) group emergence, 4) organizational and multi-organizational response, 5) community response, and 6) state response. Research findings may be summarized as follow (Mileti 1999):

- *Emergency Shelter and Housing*: Little is known about housing patterns across social classes, racial/ethnic groups, and family types. However, pre-disaster social ties and pre-existing social inequities have a significant impact on housing option after disasters.
- *Social Solidarity*: Social solidarity remains strong and behavior in disaster situations is adaptive. Considerable continuity exists between pre- and post-disaster behavior patterns.
- *Group Emergence*: New groups invariably form during and after disasters. Group emergence has to do with the increase of volunteer activities and convergence of people and resources to disaster stricken area.
- *Organizational and Multi-organizational Response*: Research on these issues has tried to find the impediments and challenges in responding to disasters, such as meeting high demand levels on organization or organizations where uncertainty, urgency, limited control and limited access to information govern. Earlier research usually focused on local emergency management agencies and seldom studied private sector organizations. However, recent trends are focusing on networks of organizations in disaster situations. Also, research has been focusing on discovering operational impediments to organizational networks, especially coordination and communication issues.
- *Community Response*: Research findings conflict in some cases. For example, disaster-stricken communities have been described as altruistic, therapeutic, consensus oriented and adaptive. However, other studies find that disaster can become an occasion for organized resistance against established institutional structure and bureaucratic procedures.
- *State Response*: Currently very little is known about state-level response.

### **2.2.2. Organization Theories dealing with Emergency Management**

Research on disaster response has not been a major topic for organization theory. However, several scholars, if not classified as disaster researchers, delve into issues of disaster responses. For example, Thompson (1967) formulates his concept of “synthetic organization” from a disaster response case. He argued that a synthetic organization emerges from the status of ad-hoc use of human and material resources originally earmarked for other purposes. The initial stage of synthetic organization is characterized by a series of efforts that are isolated from each other. However, those isolated efforts are joined together, and create a synthetic organization. His uses of disaster response situations present a vivid reality through which many organizations have had to go.

Thompson is not the only example that takes disaster as the object of organizational study. Even though disaster research is not yet a popular topic in organization theory, one can easily find literature in organizational study dealing with disaster response. Some organizational theorists begin their analysis by examining the characteristics of disaster; others try to find measures dealing with the complexity and uncertainty in disaster situations. As Lewis (1988) noted, the two most important policy issues in emergency response are 1) examining the relationship between the preparedness phase and the response phase, and 2) enhancing organizational capacity for emergency response. In the next section, topics of emergency management that have been studied by organization theorists will be reviewed.

### **2.2.2.1. Organization Theory and the Nature of Disaster**

Several organization theorists examine the nature of disaster. For example, Comfort (1988) postulates three characteristics of disaster which make it difficult for organizations to respond. These are uncertainty, interaction, and complexity. According to Comfort (1988), uncertainty combined with the interaction of individual agents leads to complexity. That is, disasters - either natural or man-made disasters – are by their nature uncertain and complex and thus limit the effectiveness of standard policy measures. From a different theoretical perspective, Charles Perrow (1984) sheds light on the relations between organizational aspects and the nature of disaster. He argues that accidents are often escalated to disasters because of the tightly-coupled nature of high-risk technologies and the complex interactions among their components. In tightly-coupled complex systems, failure in one small part of the system often causes catastrophic results. This is the so-called 'normal accident' theory. In normal accident theory, an organization does not have an opportunity to recover from small errors because of its tightly-coupled nature.

Uncertainty and complexity are often described as the nature of disasters and normal accident theory since these concepts provide good explanatory tools for disaster situations. As Comfort puts it, the effectiveness of organizations in disaster situations will be lowered because of these characteristics of disaster. Also, as Perrow warned, there is always the possibility of catastrophic escalation of an emergency due to the combination of human factors and organizational factors.



#### **2.2.2.2. Studies on Organizational Factors Limiting the Efficacy of Emergency Response**

In organizational theory, there have been studies delving into organizational factors that might be impediments to preventative/preemptive actions during or before a disaster situation. It is widely believed that frustration with a vague command-and-control structure and the resulting weak coordination gave birth to the Incident Command System (ICS), which is designed for coherent on-scene (or operational level) response to an emergency. In the same vein, the creation of the Emergency Operations Center (EOC) for a tactical or strategic level of response system has been suggested as a solution for problems in emergency response. These are some typical ways organization theorists have focused on structural resolutions for emergency response.

However, some scholars delved into the non-structural factors of organization. Jasanoff's (1994) study about the Bhopal gas leak in India on December 3, 1984 is a good example. He argues that the external context of organizations, internal culture and the means of communication in organizations are examples of such impediments. Jasanoff's study dealt with the organizational issues of man-made disasters and tried to address organizational problems which might escalate small errors into catastrophic disasters (Jasanoff 1994). La Porte (2006) also pointed out some organizational traits as impediments to emergency response. They include large-scale intelligence failures, rigid institutional beliefs, disregard of outside complaints, difficulty handling multiple sources of information, and the tendency to minimize danger. He wrote, "These elements incubate until they become part of the organizational culture, setting the stage for a serious problem

to be triggered by an event that in other circumstances might be easily dealt with” (La Porte 2006).

Even though various aspects have been studied, it is not clear which organizational traits are more responsible for the success or failure of emergency response. Also, the result of certain organizational characteristics may be dependent upon the situation in which an organization is embedded. Therefore, it seems that there are no simple and clear-cut solutions to the issue of emergency response.

### **2.2.2.3. Complexity Theory Approach**

Complexity theory is a relatively new theoretical perspective that scholars are using in attempting to explain emergency response. However, it seems to be powerful in framing the issues of emergency management. It is because the theory can directly apply to the nature of emergency situation in which uncertainty and complexity inherently reside. Moreover, this theory provides a concept of self-organization that can address the gap between bureaucratic perspective and emergent/ad-hoc perspective that arose within stricken communities (Schneider, 1995; Comfort, 2002). Schneider (1995) mentioned gaps that originated from the incongruence between bureaucratic perspectives and order that spontaneously emerges during the time of natural or technological disasters. To some scholars like Schneider, the recognition of this difference, bureaucratic perspective vs. emergent perspective, should be the starting point of discussion about the government’s role in emergency management.

Indeed, we can borrow some concepts from complexity theory for the purpose of theorizing the dynamics of emergency management. For example, “nonlinearity” is the term often used to describe individual agents’ behaviors and environmental feedback. Nonlinearity describes non-proportional relations between inputs and outputs and is the core concept of complexity theory. Another concept we need to mention is the term of *edge of chaos*. According to Possekkel (1999), the *edge of chaos* describes a turbulent state in the middle of the chaos-order continuum. At the *edge of chaos*, an organization’s efficiency is maximized because of its heightened adaptability (Possekkel 1999). Scholars argue that this is possible through the process of self-organization.

The concept of self-organization is very useful because it demonstrates that there are unintended groups emerging in a disaster-stricken community. Comfort (1994) describes “self-organization” in time of emergency as follows; “recognizing the urgent needs created in stricken communities by a destructive earthquake, hurricane, flood, fire, or release of hazardous materials, people respond voluntarily with their time, material goods, skills, and knowledge to restore order to their communities.” Having seen this, one can recognize that there were self-organization phenomena during several emergency cases such as 9/11 and Hurricane Katrina. In the midst of an emergency, most people could not estimate what the situation was. Communication was disconnected in many cases and people simply cannot access media. The government is nowhere to be found. Nevertheless, people began to manage the situation. They demonstrated the process of mutual adaptation based on shared information. They allocated resources in a highly efficient manner. Comfort (2002) wrote about this as follows; “the system reallocates its resources to absorb

the shock of change more readily, becoming less fragile or vulnerable to failure.” Self-organizing phenomena are related to convergence phenomena (the movement of people and resources into the stricken area following disaster impact) in emergencies. Thus, in response operations, a challenging task in emergency management is fostering self-organization by the appropriate management of converging organizational entities.

In any event, emphasizing the nonlinear characteristics of emergency situations and using the concept of self-organization, complexity theory provides a new perspective on emergency response. This approach recommends flexible and adaptive measures for emergency responses while the traditional approach emphasizes formal and structural resolutions.

#### **2.2.2.4. High Reliability Theory and Organizational Resilience**

The theory of High Reliability Organization (or High Reliability Theory) is based on the belief that accidents can be prevented. Because of this optimistic belief which is different from that of the Normal Accident Theory, there has been an ongoing debate between the proponents of the High Reliability Theory (HRT) and the Normal Accident Theory (NAT)<sup>5</sup>. As we have seen earlier, the NAT postulates that accidents are inherent in tightly coupled systems. However, the HRT argues that some organizations can perform flawlessly even under the most stressful conditions. They argue that this can be possible by

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<sup>5</sup> Meanwhile, some commentators like Rijpma (2003) argued that the debate between NAT and HRT seems to result in a deadlock.

adopting good organizational design and management. Rijpma (2003) summarizes the important organizational characteristics of high reliability organization;

The Berkeley school on High Reliability Theory, however, claims to have discovered organizational strategies with which organizations facing complexity and tight-coupling, have achieved outstanding safety records. HROs centralize the design of decision premises in order to allow decentralized decision making; HROs use redundancy in their organization in order to back-up failing parts and persons; HROs maintain several theories – conceptual slack – on the technology and the production processes in order to avoid blind spots and hasty action; and, finally, HROs learn to comprehend the complexities of the technology and the production process.

Supporters of HRT try to expand its theoretical territory. In the case of emergency response, HRT provides the concept of organizational resilience. La Porte (2006) wrote, “Resilient systems and organizations are those that rapidly acquire information about their environment, quickly adapt their behaviors and structures to changing circumstances, communicate easily and thoroughly with others and broadly mobilize networks of expertise and material support.” La Porte (2006) further states that the essence of resilient organizations is the ability to switch between normal mode and crisis mode. Normal mode focuses on planning and routines and is well fitted into managing routine emergencies. Crisis mode emphasizes rapid response and adaptive capacity and may apply to non-routine emergencies. HRT and organizational resilience have been applied to the area of industrial and technological hazards, but these concepts are useful for other emergency cases, e.g. natural disaster, terrorist attacks.

## **2.3. EMERGENCY MANAGEMENT AND PUBLIC ADMINISTRATION**

The field of emergency management has reflected the changing demands of the public and sometimes it has been largely affected by them. For example, Canton (2007) reported that the public saw FEMA as a third tier responder before Hurricane Andrew and Hugo. However, after experiencing those hurricanes, the public expected an active role for FEMA in the early stages of a disaster (Canton 2007). The general sentiment of not seeing government organizations as vital affected research trends. That is, emergency management has been studied largely by sociologists in the realm of social science and public administration scholars have not contributed as much as scholars from other fields (Birkland 2007). Ali Farazmand (2001) wrote,

Crisis and emergency management has generally been neglected as a field of study in public administration. Only recently has it been recognized and pursued as an important area of public management. Despite this recent recognition, however, the dual fields of crisis and emergency management are least recognized as areas of scholarly activity among the public administration and public policy communities.

More recently, however, we have observed that many public administration scholars have shown an interest in emergency management. The tragedy of 9/11 and the conundrums caused by Hurricane Katrina have motivated the community of public administration to show its interest in emergency management. Considering these, the need for linking the fields of emergency management and public administration should be discussed somehow.

### **2.3.1. Emergency Management, a Challenge for Public Administration**

According to Schroeder et al. (2001), the federal government's involvement in disasters is a recent development in American public administration. For example, the presidential declaration of disaster has been rarely used prior to the 1980s. In this respect, Schroeder et al. (2001) focused on the phenomenon of "the nationalization of disasters." They argue that the nationalization of disasters coincides with the development of mass media. Since news can be delivered to the entire nation without a time lag, disasters that might have been treated as local events became national events. Schroeder et al. (2001) wrote, "In many ways, a stopwatch is ticking as the public, through the eye of the media, watches the developing response and assesses the speed with which the agencies deliver aid and support to the affected area." As a result, a stereotype has been produced and disseminated to the public; it propounds inefficient and ineffective emergency management agencies at all levels of government. Wamsley and Schroeder (1996) refer to this as the "CNN syndrome" where mass media create "the growing public pessimism regarding governmental capabilities" in managing emergencies. Having seen this aspect, one recognizes that today's emergency management and its relationship with public administration exists in a changing environment. Citizens expect more proactive roles from the states and the federal government.

Similarly, Petak (1985) argues that emergency management is a challenge for public administration. It is a challenge because public administration must take into account factors other than technical or rational approaches; those factors include social,

political, legal, and economic factors. From the same line of arguments, Carroll (2001) calls for a new perspective on mainstream public administration regarding emergency management. According to Carroll (2001), the current body of literature regarding government's role in emergency management largely focuses on "the rational/professional notion of public administration." Carroll argues that the rational/professional notion of public administration needs to be revised since there is a significant gap between people's behaviors in real emergency cases and the rationalists' assumptions about the behaviors. For example, non-linearity of events and self-organization, which is typical in disaster situations, can not be easily tackled by relying on the rational/professional notion of public administration.

In short, one can argue that the current status of emergency management in American politics and its relationship with public administration is as follows:

- 1) In the U.S., we have seen the phenomenon of the nationalization of disasters and it has changed the political topology for emergency management.
- 2) With the changed political context, public administration, especially in states and at the federal level, has been asked to be more proactive in dealing with disasters.
- 3) However, there is a mismatch between traditional public administration and the new situation. That is, the traditional rationalist approach causes some problems and there is a need for a broader perspective in managing emergencies effectively.



### **2.3.2. Some Contradictions in Emergency Management**

As mentioned earlier, disaster often escalates to catastrophic levels with the combination of human and organizational factors (Perrow 1984; Possekel 1999; Comfort 1988). Also, it is important to note that there are many factors that can affect a society's emergency management system. To name a few for American society, they include the characteristics of the disaster policy area, the American federal structure, and politics. In fact, these framing factors might limit the pure efficacy of emergency management because they preemptively frame social settings in certain ways that cannot be managed in the constrained timeframes of emergency situations. The following are some of the important issues.

First, emergency management is a policy area that has been marginalized by pressing policy issues. Also, this is a policy arena in which policy priorities have been politically swayed by presidential preferences. An overall reform perspective has not been pursued because the capacity of Congress has been constrained by the fact that oversight committees are so fragmented. Also, the American emergency management system is vulnerable to blame assignment. Since there are too many veto points over the use of resources or decision making, blame assignment is a typical phenomenon when emergency responses turn out to be ineffective. More often than not, reform initiatives are forgotten because of blame assignment (Wamsley and Schroeder 1996).

Second, the three-tiered federal structure is a factor that complicates efficient emergency response. Wamsley and Schroeder (1996) wrote, "FEMA can only appear to be

the nation's 911 responder." In reality, it lacks capacities to be the nation's 911 responder and the regime structure of the U.S. hardly accommodates it. Indeed, due to the lack of standardization and organizational diversity, it is hard to expedite emergency response processes in America's bottom-heavy system. The problems caused by a bottom heavy system are exacerbated by the short time horizons of politicians. They know that the stakes will be very high once a disaster occurs; however, politicians regard it as a low probability event. This is the so-called 'not-on-my-watch' syndrome (Wamsley and Schroeder 1996).

Third, disasters are very political events. Former FEMA director James Lee Witt emphasized this aspect. The political characteristics of disaster also have to do with the aforementioned concept of the 'nationalization of disasters.' As Sobel and Leeson (2006) report, disaster declarations are often overused by politicians in an attempt to take political advantage of them. In other words, politicians try to use disaster declarations as tools for vote- and budget maximization. Also, one can observe the growing influence of mass media in emergency management. The political aspects of emergency management have to do with a discussion about the optimum level of a society's collective actions relating to emergency preparedness and response. More often than not, the political topology regarding emergency management makes it hard to establish an effective emergency management system.

As we have seen above, building a responsible and responsive system for emergency management is a very complex task. It is pre-ordained by many factors. However, emergency management issues for public administration fall into four categories of dilemma. According to McConnell and Drennan (2006), there are inherent tensions

between the ideals and the practices of emergency management; 1) the high potential impact of crisis vs. the low priority of emergency management, 2) the need for planning and order vs. the chaotic uncertainty and the inherent disorder of crisis events, 3) the need for an integrated approach vs. the reality of institutional fragmentation, and 4) the need for active planning and genuine readiness vs. symbolic readiness. Thus, public administration for managing emergencies must deal with these seemingly irreconcilable tensions between ideals and practices.

### **2.3.3. A Proactive Role for Public Administration?**

A recent political topology requires public administration to be more proactive than reactive regarding emergency management. Being proactive means that government agencies need to do something before an emergency event happens. Therefore, they need to take measures in the mitigation phase and the preparedness phase of the emergency management process. Meanwhile, mitigation activities such as regulating land-use and building construction are not the focus of this study since this study is delving into emergency response. However, as discussed in the earlier section, activities of the preparedness phase are closely related to the success of emergency response and, because of this, I argue that the relationship between the preparedness phase and the response phase needs to be included in this study.

In the meantime, it seems that being proactive is a difficult task. In fact, it is related to issues in planning. While many scholars see that one of the most important

activities in the preparedness phase is planning, there is controversy regarding planning. In fact, it is about the aforementioned tension between ideals and practices. That is, while many emergency management agencies have plans and they continue to produce myriad elaborate plans, sometimes those plans and planning activities have only symbolic value. This is what McConnell and Drennan (2006) call ‘symbolic readiness.’ Lee Clarke (1999) described plans as having only symbolic value as “fantasy documents.” According to him, fantasy documents are “rhetorical instruments that have political utility in reducing uncertainty for organizations and experts.” By producing fantasy documents, an organization can signal that they are working hard on problems and they have perfect solutions. However, it is unknown that the plans will work in reality. In this case, they have more symbolic value than functional value (Clarke 2001).<sup>6</sup> Considering the risk of producing only symbolic documents, planning as a means for public administration’s being proactive in emergency management poses a serious problem.

Another challenge for a proactive public administration in managing emergencies arises from the issue of institutional fragmentation. This issue brings us back to the discussion about the enhancement of organizational capacity; That is, we have the three-tiered federal structure and today's emergency management needs to take into account

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<sup>6</sup> By referring to the argument of fantasy document, I want to emphasize the tendency that an organization tries to fantasize its ability to cope with disaster. As noted, we do not know if any plan will really work until we try them out. However, the fantasy document argument does not necessarily lead to the argument that every plan has potential to be a “fantasy plan.” This is because the argument of fantasy documents tries to point out the drawbacks of unrealistic plans which often have been produced within the bureaucracy. Indeed, some plans posit unrealistic assumptions from the beginning which make them “fantasy documents.” While we have fantasy documents, there are many plans based on very realistic assumptions, which are not the case of fantasy documents, even though gap between plan and reality might emerge during the implementation stage.

various organizations from private sectors and the third sectors. All the activities and resources of these instrumentalities should be coordinated and integrated for an effective emergency response. However, the truth is that nobody has sufficient power or statutory authority to coordinate and, "in fact no one wants to be coordinated" (Schroeder, Wamsley, and Ward 2001). These apparent deadlocks require public administration to adopt a new approach for emergency management and what this study argues is that one alternative is seeing emergency management as network management.

## **2.4. CONCLUSION**

This chapter explains some definitional issues, emergency management research and its important findings, the organization theory dealing with emergency management issues, and the relationship between emergency management and public administration. The reason for reviewing these topics is to lay the theoretical foundation for Chapters Three and Four where I intend to synthesize strategies for emergent network management. With this intent, I've made the following arguments in this chapter;

- 1) Within the definitional scheme, this study focuses on the emergency response phase, however, preparedness phase needs to be included since the preparedness phase and the response phase are closely interconnected.
- 2) One of the most important issues in the response phase is the enhancement of organizational capacity. As a result, emergency response is inherently related to organizational studies and there are various studies in organization theory that can apply to emergency management.

- 3) Emergency management as an area of public administration is located in a changing environment and a new perspective is needed in order to deal with newly arising challenges. A new perspective should take into account problems in planning and institutional fragmentation

While there have been continuing efforts for finding a new perspective for emergency management and public administration, Schroeder et al. (2001) argued that the network perspective should guide emergency management and public administration. They criticized the dichotomized, traditional bottom-up versus top-down approach of public policy and argued that those approaches cannot accommodate today's public administration and the management of emergencies. This study follows their arguments and will contribute by 1) putting together previous research findings and 2) translating them as strategies for network management. All of these tasks will be attempted in Chapter 3 and 4.

## **CHAPTER 3, META-SYNTHESIS APPROACH AND LOCATING RELEVANT EMERGENCY MANAGEMENT RESEARCH**

One of the main purposes of this chapter is to discuss the issues of meta-synthesis for social science.<sup>7</sup> The discussion will show that there is a need for a well-conducted research synthesis for various field of social science. Also, I will make a case that a well-conducted research synthesis might lead to evidence-based policy decision-making since it can provide coherent and readily applicable research results to practitioners, an argument that is directly applicable to the field of emergency management.

Another purpose of this chapter is locating previous research results that deal with the issues of managing converging organizational entities in disaster situations. The process of locating studies for meta-synthesis will be reported in detail. In fact, this study will locate representative studies of previous disaster research and a three-step selection process for the research synthesis will be adopted in order to reflect the trends of emergency management research found in those studies.

### **3.1. META-SYNTHESIS**

#### **3.1.1. Overview**

From the 1980s, the British government has tried to establish a way of ensuring research informed decision-making for policy and practice. It is well-represented by Tony

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<sup>7</sup> “Meta-synthesis is a research method used to produce interpretive translation, ground narratives or theories by integrating and comparing the findings or metaphors of different qualitative studies” (Siau and Long 2005)

Blair's announcement that "what counts is what works." This trend focuses on 'basing policy and practices on the best evidence available' (Tranfield et al. 2003). In the area of medicine, evidence-based medical interventions have been established by international initiatives such as the Cochrane Collaboration.<sup>8</sup> The Campbell Collaboration is trying to establish a systematic review protocol in the areas of education, justice, and social welfare (Frank and Deveraux 2003).<sup>9</sup> Discussions on balancing the use of procedural craft and declarative research knowledge have been held in the area of education (Gough and Elbourne 2002). In the area of management, Tranfield et al. (2003) discussed the possibilities of applying the meta-synthetic approach developed in medical science to the field of management. Also, some fields of social science have tried to incorporate the so-called 'medical model' of meta-synthesis in their fields. Thus, it is important to know issues that scholars in medicine identify in conducting meta-synthesis. Also, other issues, which might originate from differences between the medical field and social science, should be discussed.

Many scholars in the health sciences recognize that there has been little consolidation of the understanding gained from an accumulation of qualitative studies.

Sandelowski et al. (1997) wrote,

The relative lack of effort to "put together" the findings from qualitative studies has important implications for both knowledge development and the utilization of qualitative research in nursing. For these findings to have impact, they must be situated in a larger interpretive context, and

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<sup>8</sup> See Cochrane Collaboration: <http://www.cochrane.org>

<sup>9</sup> See Campbell Collaboration: <http://www.campbellcollaboration.org>



they must be presented in an accessible and usable form in the real world of practice and policy making.

For this reason, Sandelowski *et al.* (1997) argue for the necessity of meta-synthesis for qualitative studies even though they admit that ‘summing up’ qualitative studies may cause “an unconscionable loss of the uniqueness of individual projects.” However, they also pointed out the risk of “working in isolation from each other” if researchers continue to produce only idiographic knowledge. They argue that qualitative research is eternally reinventing the wheel. For this reason, the meta-synthetic approach can help to situate one-shot qualitative studies in larger programs of research or fields of scholarship by putting together their findings (Sandelowski, Docherty, and Emden 1997). The rationale for putting together qualitative research is defensible; however, there are additional issues for applying meta-synthesis to social science.

While comparing the management and medical field, Tranfield *et al.* (2003) argue that the main question should be how the management field can apply the review process developed in the field of medicine to its scholarship. However, this will be a difficult task because there are many differences between the two fields. For example, the research culture of medical science is convergent and research is subjected to rigorous scientific evaluation. However, the research culture of management is divergent and the research perspective is split into positivist and non-positivist perspective. With respect to research question, there is high consensus in medical field, however, it is often true that there is low consensus for research questions in management field. With respect to experiment, it is feasible in medical field while it may or may not be feasible in management field. Also,

research design in medical field is based on evidence when triangulation is widely used in management field (Tranfield *et al.* 2003). Considering this, applying meta-synthesis to social science is a challenging task since there are so many differences between the medical field and management field. In a sense, the application needs to be tailored in a way that mirrors the characteristics of each discipline. Tranfield *et al.* (2003) wrote, “Indeed researchers from an interpretivist or phenomenological position may suggest that systematic reviews, with their positivist leanings, should not be adopted in the social science”. However, Tranfield *et al.* (2003) argue that research synthesis in social science can be achieved “through summarizing the findings of a group of studies”. This is so since much of the research is heterogeneous in terms of methodology, data set and focus and the use of numerical aggregation is prevented.

### **3.1.2. Issues**

According to Sandelowski *et al.* (1997), there are several issues which need to be discussed in conducting a meta-synthesis:

- 1) Determining topical similarity
- 2) Setting inclusion criteria
- 3) Determining methodological comparability, and
- 4) Explicating methods and techniques for synthesis.

Determining topical similarity is about “deciding which studies are really about the same substantive phenomenon, event, or experience.” Researchers can locate studies by

referring to stated research purposes, research questions asked, and the kinds of findings produced.

Setting inclusion criteria is related to the issue of excluding studies because of the quality of studies. Sandelowski *et al.* (1997) argue that synthesists should not use quality as an inclusion or exclusion criterion because a synthesist may underestimate or overestimate the quality of studies with his or her own bias. However, if there is a need or rationale for excluding some studies from synthesis, a synthesist should explain the reason and apply this criterion coherently and objectively for the entire population of studies.

Determining methodological comparability is the process of comparing “conceptual underpinnings” of studies. According to Sandelowski *et al.* (1997), this process includes comparing, for example, the kind of literature reviewed and the research design features for the studies. The synthesis can add a ‘gestalt’ of various studies. Explicating methods and techniques for synthesis is the most important part of meta-synthesis because this is the process of “developing and communicating the techniques used to compare the findings of each study” (Sandelowski, Docherty, and Emden 1997). Technically, one may use diagrams to present differences and similarities of various studies. Meanwhile, when it comes to the issue of techniques for synthesis, Noblit and Hare (1988) suggest three different ways of synthesizing research; the first method is reciprocal translation in which “each study is translated into the terms (metaphor) of the others and vice versa.” The second method is a refutational synthesis, a method that “takes into account the implied relationship between competing explanations” and eventually aims to incorporate research by conducting substantive analysis. The third method is the

line-of-argument approach, similar to the theorizing process itself. The main question of this method is “What can we say of the whole, based on selective studies of the parts?” The first method (reciprocal translation) will be used for research synthesis in this study and Chapter Four will be devoted to it.

### **3.2. LOCATING RELEVANT STUDIES**

This study uses three steps for locating previous research in order to satisfy the rationale of meta-synthesis.

- 1) The first step is conducting a keyword search in a social science database (e.g., social science databases of CSA Illumina<sup>10</sup>).
- 2) The second step is locating important studies through surveys and interviews with experts. At least four key academics in the disaster research area will be identified and interviewed in order to locate important studies in this area. Since a keyword search is insufficient at times, this process guards against the omission of seminal studies in the disaster research field.
- 3) The third step is finalizing the selection of studies. In this step, the aggregation of the bibliographies may be included in order to complement the previous results, key words search and expert survey/interview. This step also includes evaluating of the relevance of each study from the standpoint of the research focus of this study and producing the final selection of relevant studies. The criteria for the selection of studies are that the studies 1) must deal with the multi-organizational aspects of emergency response and 2) provide lessons learned or recommendations for coordinated responses.

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<sup>10</sup> Cambridge Scientific Abstracts (CSA) offers access to a wide variety of the most respected bibliographic research databases in diverse areas of the sciences, social sciences, and humanities published by both CSA and other publishers. ([www.csa.com](http://www.csa.com))

### 3.2.1. Keyword Search

As a first step to locating relevant studies, this paper uses the social science databases of CSA Illumina to locate relevant articles. The databases included in CSA Illumina are;

- 1) ASSIA: Applied Social Science Index and Abstract (1987-Current): Social service, psychology, sociology, health information
- 2) PAIS International (1972-Current): Public affairs, public and social policies, international relations
- 3) Political Science: A SAGE Full-Text Collection (1974-Current): Political science, American government, policy studies
- 4) Risk Abstracts (1990-Current): Technological risks, biological risk, natural hazards
- 5) CSA Sociological Abstracts (1952-Current): Social structure, inequality, social change, social problems, and
- 6) CSA Worldwide Political Science Abstracts (1975-Current): Politics, international relations, government, public policy

I began the search with the terms ‘emergent network’ and ‘disaster,’ however, this combination of keywords led to limited search results. Since this study needs to include research from several theoretical frames – e.g. chaos and complexity theory, intergovernmental management in disaster, and network theory in disaster – I needed to expand the keyword search. Therefore, I next used the combination of terms such as ‘intergovernmental relations,’ ‘public-private partnership,’ ‘network theory,’ ‘chaos theory,’ ‘complexity theory’ and ‘disaster’. However, those combinations of keywords also

produced small numbers of studies. I decided to use the combination of keywords, 'disaster' and 'coordination' since they are more general than the previously used terms and should produce better results. Keyword searches of the database using 'disaster' and 'coordination' produced seventy-five articles from the six databases<sup>11</sup>; three articles from ASSIA, twelve articles from PAIS international, five articles from Political Science: A SAGE Full-Text Collection, five articles from Risk Abstracts, thirty-eight articles from CSA Sociological Abstracts, and twelve articles from CSA Worldwide Political Science Abstracts.

A question may be raised regarding the reason for including various disciplines of social science, especially sociology. I included studies from those disciplines because political science and public administration have provided only a small contribution to disaster studies. A recent study by Thomas Birkland (2007) shows that, within the data set of 789 articles<sup>12</sup> in major disaster journals (*Natural Hazards Review*, *Disasters*, *International Journal of Mass Emergencies and Disasters*, and *Journal of Contingencies and Crisis Management*), authors from political science backgrounds have contributed eleven per cent and authors from policy, administration and management only five per cent. The majority of research, thirty one per cent, was from the discipline of sociology (Birkland 2007). Given the findings of Birkland's study, it is clear that the data pool for

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<sup>11</sup> Even though this study tries to synthesize the strategies for emergent network management, I searched databases with the combination of keywords, 'disaster' and 'coordination.' This is because the essence of emergent network management is to discover ways of coordinating various organizational entities in disaster situations. Meanwhile, using the term of 'network' or 'emergent network' might lead to limited search results.

<sup>12</sup> This number is the total number of articles published in those journals.

meta-synthesis should include the works provided by sociologists and the preliminary keyword search result shows that the majority of studies come from sociology.

I eliminated fifty articles because many of them were not relevant for the purpose of this research; there are some redundant studies in search results and many studies do not include lessons learned from multi-organizational efforts for disaster responses. Therefore, the objects of the preliminary review total twenty-five articles. Although many of these twenty-five articles provide some implications for enhanced disaster responses that can be translated into network management strategies, some are still not as clearly relevant as others for the purpose of this research. In any events, Table 1 presents the main arguments/issues of selected articles.

**Table 1. A preliminary selection of studies and their main arguments/issues**

Studies	Main Arguments/Issues
Couldrey and Morris 2005; Hicks and Pappas 2006; Moore 1956; Wedel and Baker 1998	Pointing to leadership as one of the most important factors for effective disaster response
Comfort and Haase 2006; Kapucu 2006; Kettl 2006; Lanou 1993; Toulmin, Givans, and Steel 1989; Harrell and Zakour 2003; Pijenburg and Duin 1990; Comfort, Ko, and Zagorecki 2004	Emphasizes the importance of communication, connectedness, information dissemination, or access to core information.

Leavitt and Kiefer 2006; Harrald 2006	Emphasizes the importance of flexible response. Also argued that nonstructural factors such as adaptability, improvisation and creativity are essential for managing complex interactions in disaster situations.
Rudisill 2006; Dorsett 2005	Calls for pre-disaster coordination and argues that building strategic partnerships is important for coordinated disaster responses.
Uys 2006; Britton and Wettenhall 1990	Appreciates the value of central coordinating structure for enhanced interactions in disaster situations. The management of interlinkage among various converging organizational entities is crucial for disaster response.
Dimas 2005	Points out the importance of the integration of assets
Childs et al. 2002	Delves into the issue of hazard perception
Hewett et al. 2001	Tries to adopt the U.S. Army's model of synchronization matrix for effective coordination and integration of various activities
Shechet and Jordan 1993; Dennis 1995	Argues that jurisdictional boundaries of various organizations cause problems for coordinated responses and argues that negotiation among organizations is required to resolve the problems caused by jurisdictional boundaries
Apeland et al. 2005; Kettl 2006; Menghetti and Drumtra 2004	Emphasizes coordination itself.

### 3.2.2. Expert interviews and surveys

#### 3.2.2.1. The processes and results of expert interview/survey

As mentioned earlier, expert interviews and surveys were conducted to ensure the inclusion of important studies that are regarded as influential among scholars and practitioners. Indeed, the keyword search is not sufficient since it didn't locate articles that



do not have the words of ‘disaster’ and ‘coordination’ in their abstracts. Therefore, there is a need to get experts’ opinions regarding important studies and scholars. These processes support the rationale of meta-synthesis of pursuing transparency when it comes to the decision about selecting previous research results for research synthesis.

To do this, a total of twenty-seven scholars and practitioners were selected from the preliminary literature review. I acquired their e-mail addresses from their works or other web-sources. I sent e-mail invitations that asked them to choose 1) participating in an on-line survey, 2) interview (via phone/in-person/e-mail), or 3) both. Ten experts provided their opinions (five experts participated in an on-line survey, two gave phone interviews, one gave an in-person interview, and two participated in an e-mail interview). The response rate was 37%. They were asked the following two questions:

- 1) Please name several important scholars whose works you think have significantly influenced research in managing networks during times of emergencies or disasters.
- 2) Regarding the coordination issue in disaster response, please list up to five studies that you think are the most influential.

These two questions are designed to include scholars and studies that are regarded important within the field of emergency management. Table 2 shows the results of expert surveys and interviews.

**Table 2. Expert survey/interview results**

Issues	Experts' opinions
<p>Major Scholars * (Number of votes)</p>	<ul style="list-style-type: none"> <li>● L. Comfort (5), R. Dynes (4), T. Drabek (4), G. Kreps (2), R. Sylves (2) E. Quarantelli (2), W. Waugh (2), J. Kendra (2), D. Gillespie, K. Carley, R. Bea, N. Kapucu, B. Cigler, T. Wachtendorf, S. Cutter, D. Mendonca, C. Butts, R. Stallings, G. Webb, K. Tierney, D. Mileti, L. Minear, T. Weiss, C. Wise, G. Wamsley, F. Winslow, S. Schneider, A. Farazmand</li> </ul>
<p>Influential Studies</p>	<ul style="list-style-type: none"> <li>● Rodríguez, Quarantelli, and Dynes (2006) Handbook of Disaster Research (in particular Drabek's article on Coordination.)</li> <li>● Lindell, Prater &amp; Perry (2006). Fundamentals of Emergency Management (* relevant chapters and bibliography)</li> <li>● Committee on Disaster Research in the Social Sciences. (2006). Facing Hazards and Disasters: Understanding Human Dimensions. (* relevant chapters and bibliography)</li> <li>● Drabek &amp; McEntire (2002). Emergent Phenomena and Multi-organizational Coordination in Disasters: Lessons from the Research Literature</li> <li>● Wachtendorf &amp; Kendra (2004). Considering convergence, coordination, and social capital in disasters.</li> <li>● Comfort (1999) Shared Risk: Complex Systems in Seismic Response (* relevant chapters)</li> <li>● Kapucu (2006) Public-Nonprofit Partnerships for Collective Action in Dynamic Contexts</li> <li>● Kapucu (2006) Interagency Communication Networks during Emergencies: Boundary Spanners in Multi-agency Coordination</li> <li>● McLoughlin (1985) A Framework for Integrated Emergency Management, Public Administration Review, 45 (Special Issue)</li> <li>● Tierney, Lindell and Perry (2001) Facing the Unexpected: Disaster Preparedness and Response in the United States</li> <li>● Scavo, Kearney and Kilroy Jr. (2006) Challenges to Federalism: Homeland Security, Disaster Response, and the Local Impact of Federal Funding Formulas and Mandates.</li> <li>● Sylves (2006) President Bush and Hurricane Katrina: A Presidential Leadership Study.</li> <li>● Tierney, Bevc and Kuligowski (2006) Metaphors Matter: Disaster Myths, Media Frames, and Their Consequences in Hurricane Katrina.</li> </ul>

	<ul style="list-style-type: none"> <li>● University of Colorado at Boulder, Natural Hazards Center. (2006) Learning from catastrophe: quick response research in the wake of Hurricane Katrina</li> <li>● Waugh (2006) The Political Costs of Failure in the Katrina and Rita Disasters.</li> <li>● Wise (2006) Organizing for Homeland Security after Katrina</li> <li>● Farazmand (2007) Learning from Katrina: Lessons for Future Crisis Management: A Global Perspective, Public Administration Review.</li> <li>● Handbook of Crisis and Emergency Management (2001).</li> </ul>
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### 3.2.2.2. Issues in experts interview and survey results

It is apparent that there are significant differences between the keyword search results and the experts' interview/survey results. L. Comfort, N. Kapucu and their studies in keyword search results are the only two cases that experts suggested as important studies and influential scholars. Nevertheless, it does not necessarily mean that the studies selected by keyword search are less important studies. Conversely, it can be argued that the studies identified by the keyword search and those suggested by experts interview/survey should be pooled as the objects for research synthesis. The results can be used complementarily because the keyword search produced a relatively pinpointed list of studies and most of them deal with disaster coordination directly. However, many of the experts suggested studies dealing with social, political, economic, or cultural contexts of disaster coordination. Furthermore, some experts reserved their opinions in providing specific lists. One expert professed his opinion about the overall process of this research synthesis by stating that the reviewer should make the decision about which study need to be included for research synthesis. Considering this opinion, I combined the two results.

In the meantime, there is a need to discuss the issues that were raised during the process. One issue that arose in conducting the expert survey and interview is that most of the practitioners had difficulties in professing their opinion about important scholars and influential studies. Many practitioners who were asked to participate in survey and interview expressed their unfamiliarity about scholarly works. This brought us back to what Gough and Elbourne (2002) pointed out, the gap between research and practice. They wrote, “Issues surrounding the role and provision of evidence to inform policy and practice have become topical and problematic. . . . Policy makers have expressed concern at the difficulty in their ability to access and make use of research” (Gough and Elbourne 2002). Indeed, even after several communications with me, practitioners could not provide answers regarding influential scholars and important studies. This divide between research and practice should be regarded seriously and researchers and practitioners should make efforts to bridge the gap.

Another issue that I observed is that there is divergent research practice, or there is a lack of research integration in the field of emergency management. One scholar confessed,

There is a vast research literature on this topic that goes back over at least a half-century. The most influential/ground breaking work was done in the 1960s and 1970s since that was when the most was available to be learned on this topic. Since then, many of the practical guidance documents for what constitutes good emergency management and preparedness have been built on top of the findings of social science research on the topic, *although, few, today, might even know it.* [My emphasis]

Even though this observation needs more evidence, it can be used as supporting rationale for the meta-synthetic approach of this study. Research synthesis should be regarded seriously among scholars in order not to waste scholarly effort by reinventing the wheel.

### **3.2.3. Evaluating relevance and finalizing the selections of studies**

The third step is to evaluate the relevance of each study from the standpoint of the research focus of this project and to finalize the selection of studies.

#### **3.2.3.1. The logic of selection of studies**

Harris Cooper (1989) argues that judgment about the relevance of studies is dependent upon several factors. He says that the decision is influenced by a reviewer's open-mindedness and expertise. The amount of time a reviewer spends on the decision also influences the results. With respect to the amount of time, I spent quite a long time to review the pool of studies resulting from keyword searches, expert interviews/surveys, and even bibliographies of some studies. As for open-mindedness and expertise, I asked help from experts from other disciplines such as sociology.

The real issue here is that the size of the pool is still too big, even though it is significantly narrowed. It is evident that all of these studies cannot be the object of meta-synthesis. Synthesizing all those studies is not desirable since the keyword search and experts' interview/survey results contain some studies that are not relevant to the focus of this project. In other words, some of studies from the keyword search still are not as clearly

relevant as others with regard to the focus of this study. When it comes to interviews/surveys, some experts suggested general directions or comments on literature but didn't provide specified studies. For example, one scholar did provide her opinion about influential scholars for this research topic; however, she reserved her opinion of important studies. Also, suggestions regarding important studies and scholars often reflect their area of interest, for example, studying disaster relief focusing on the analysis of international NGOs. Conversely, several studies are dealing with generalized issues that under-gird the overall discussions of this project. Those studies are too general to be included in this research synthesis.

For these reasons, a decision needs to be made about the studies selection. Since this study adopts the rationale of meta-synthesis, the process should be reported in detail in order to maintain transparent research synthesis. Admittedly, a fundamental criterion for the selection of study is adhering to the standpoint of the research focus or the conceptual framework of this study. Therefore, the final selection of the studies for research synthesis should be made from the lists provided by keyword search, expert interview/survey, and collected bibliographies.

In the meantime, the most difficult part of maintaining transparency for this project when selecting studies is that we need to handle the list of important scholars, the list that experts provided through survey and interview. Expert survey/interview produced the list of twenty-eight influential scholars who have contributed emergency management

scholarship<sup>13</sup>. Many respondents of the survey/interview nominated scholars without nominating a specific study. Therefore, there is a need to search for representative studies of the prominent scholars. As a first round trial, I attempted to use ‘impact factors’ or ‘cited reference’ search to decide a representative of a certain scholar’s work since those can be objective criteria for the judgment. However, it turned out that those measures could not work in this case.<sup>14</sup>

As an alternative to select a representative work of certain scholar, I referred to existing project results as guidance. I selected *2007 Body of Knowledge Report: The Practitioner’s Viewpoint, FEMA Emergency Management Higher Education Project*. This research was conducted by C. Cwiak. Professor Cwiak surveyed twenty-eight

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<sup>13</sup> Some experts who participated in survey and interview did not provide list of prominent scholars’ works.

<sup>14</sup> Since this is an issue of literature search, I contacted a librarian of Virginia Tech. During consultation about this measure, the librarian said,

“Thomson ISI Web of Knowledge is the best available package of databases for judging the impact of scholars' work, but it is severely limited. It has two main components, Web of Science, which provides data on individual studies, and Journal Citation Reports, which compiles data on journals. ... Emergency management is not a big enough academic field for ISI to treat separately from others such as public administration, social work, or a variety of others you can see in a pull down menu within the social sciences section of the Journal Citation Reports. Web of Science citation indexes, which are the origin of the whole idea of impact factors, look at citations appearing in fewer than 10,000 journals, most of which are in the hard sciences. Web of Science does not look at all at how work is cited in books, other academic journals, working papers, conference papers, non-academic periodicals, agency reports or studies, reports or hearings of Congress or other legislative bodies, nor citations in judicial opinions. Those other places could all be reasonably regarded as indicators of the influence of a study, but the task of indexing them would be impossibly expensive to attempt. Strictly speaking, "impact factors" refer to the influence of journals; measured by how many times those journals are cited in journals ISI indexes. Impact factors do measure the impact of individual articles within those journals. ... The most you can do to approximate the influence of a known study is to do "cited reference" searches in Web of Science to see how it is cited in the journals ISI indexes. However, I'm emphasizing that you should search for studies for which you already know author and title, because searching Web of Science and interpreting the results can be very difficult otherwise.”

According to him, it is possible to have a measure for judging how a study is influential if one has the title of a study and the name of researcher. However, it is impossible to get a measure if one doesn't have a specific title of study and the name of researcher. (In my case, I have name of researchers but I don't have specific titles of studies of those researchers.)

practitioners at all government levels (22) and in the private sector (6) in order to list the current body of knowledge in the area of emergency management. Cwiak (2007) reports that a total of 149 contributions were offered and this resulted in a 86-item list. Table 3 is a portion of the list (28 out of 86-item) and each of the items got at least two votes from the participants.<sup>15</sup>

**Table 3. 2007 Body of Knowledge Report**

Title	Author/Editor	Year	Publisher
Living with Hazards, Dealing with Disasters: An Introduction to Emergency Management	Waugh	2000	M.E. Sharpe Publishers
Emergency Management: Principles & Practice for Local Government	Drabek & Hoetmer	1991	International City Management Association (ICMA)
Disasters By Design: A Reassessment of Natural Disasters in the United States	Mileti	1999	National Academies Press
FEMA-IS 100/200/In-resident ICS 300 & 400 & 402	FEMA/DHS	-	U.S. Government
The 9/11 Commission Report	The National Commission on Terrorist Attacks Upon the U.S.	2004	U.S. Government
National Incident Management System (NIMS)	FEMA/DHS	2004	U.S. Government
National Response Plan (NRP)	FEMA/DHS	2005	U.S. Government
Robert T. Stafford Disaster Relief Act	-	-	U.S. Government
Facing the Unexpected: Disaster Preparedness and Response in the United States	Tierney, Lindell & Perry	2001	Joseph Henry Press
The Professional Emergency Manager	Drabek	1987	University of Colorado Natural Hazards
Disasters and Democracy	Platt	1999	Island Press
Response to Disaster	Fischer	1998	University Press of America

<sup>15</sup> Professor Cwiak's survey results have same issue with the survey/interview of this project; she reported that some respondents listed no specific titles and many practitioners noted difficulty in providing the list.



Avoiding Disaster:How to Keep Your Business Going When Catastrophe Strikes	Laye	2002	John Wiley & Sons
Disaster Response and Recovery	McEntire	2007	Wiley
Disaster Response:Principles of Preparation and Coordination	Aur der Heide	1989	Mosby
EIIP Virtual Forum	-	-	<a href="http://www.emforum.org">http://www.emforum.org</a>
Emergency Management: Concepts and Strategies for Effective Programs	Canton	2007	John Wiley & Sons
IAEM Bulletin			IAEM
Introduction to Emergency Management	Haddow & Bullock	2005	Elsevier Inc.
Journal of Homeland Security and Emergency Management	-	-	Berkeley Press
Natural Hazards Observer	-	-	Natural Hazards Center Institute of Behavioral Science
Principles of Emergency Planning and Management	Alexander	2002	Oxford University Press
Stronger in the Broken Places	Witt	2002	Times Books: Henry Holt and Co.

Source: Carol L. Cwiak. 2007. 2007 Body of Knowledge Report: The Practitioner's Viewpoint - FEMA Emergency Management Higher Education Project, FEMA. (Available at <http://training.fema.gov>)

The listed works are good reference sites for locating representative studies of suggested scholars, scholars recognized by experts from a survey and interviews. Thus, it is reasonable to rely on the Body of Knowledge Report list in locating representative works of a scholar. The question of why we need to rely on the practitioners' list rather than the scholars' list may arise. This question can be resolved, by looking at the scholars' list of Body of Knowledge. The Emergency Management Institute conducted the same project in 2006 and the project surveyed scholars and academic institutions with the same questions. The project results show that there is notable similarity between the 2007 Body of Knowledge list (practitioner version) and the 2006 Body of Knowledge (academic version).

Indeed, six of the top-ten from each list are the same. (Table 4 is the comparison of the two versions of the Body of Knowledge Report.) However, Cwiak argues that the practitioners' lists are much more coherent than the academic list, since the academic lists are divided into three different lists corresponding to the levels of educational institutions. Also, using the practitioners list complements the survey and interview results which are largely dependent on scholars' views. Thus, selecting the works of the suggested scholars, while relying on the results of the 2007 Body of Knowledge Report, seems to be understandable. Here is one example; *Emergency Management: Principles & Practice for Local Government* (1991) which was edited by Drabek and Hoetmer, published by the International City Management Association (ICMA) and ranked the second important work in the list. It contained many influential scholars' works such as Kreps and Gillespi. When I try to locate representative studies of Kreps and Gillespi, I consider their work in *Emergency Management: Principles & Practice for Local Government* as representative of their works. Those works will be included as the objects of research synthesis.

**Table 4. Comparison of the Body of Knowledge 2006 and 2007**

	Academic List 2006	Practitioner List 2007
1	Disasters By Design: A Reassessment of Natural Disasters in the U.S.	Living with Hazards, Dealing with Disaster
2	Introduction to Emergency Management	Emergency Management: Principles and Practice for Local Government
3	Facing the Unexpected: Disaster Preparedness and Response in the U.S.	Disasters By Design: A Reassessment of Natural Disasters in the U.S.
4	Living with Hazards, Dealing with Disasters	FEMA-IS 100/200 –ICS 300, 400 & 402
5	The 9/11 Commission Report	The 9/11 Commission Report

6	Natural Hazard Mitigation	NIMS
7	Introduction to Homeland Security	National Response Plan
8	National Response Plan	Robert T. Stafford Disaster Relief Act
9	NIMS	Facing the Unexpected: Disaster Preparedness and Response in the U.S.
10	Disaster and Democracy	The Professional Emergency Manager

\* Shaded cells are the studies that appear in top-ten studies of both versions.

### 3.2.3.2. Finalizing selection of studies

This section reports the final selection of studies and rationale for the selection. Summarizing the results that have been produced in this chapter is a good starting point. The process for locating studies resulted in the following;

- 1) Key word search produces 25 articles.
- 2) Expert survey/interview produces 19 studies and a list of 28 scholars.

Therefore, we have 44 studies and 28 influential scholars' names. Meanwhile, the main focus of discussion in the previous section was how to locate a representative study of 28 influential scholars that the experts provided. I argued that referring to the Emergency Management Institute's projects results would be a solution for that. In the following section, I demonstrate how I selected the final studies.

I started the selection process by cross-checking the 19 studies list and the 28 influential scholars' lists that were recommended by experts. Among the list of 19 studies provided by expert survey/interview, 10 studies were conducted by the scholars who were nominated as influential scholars. However, two of them are not as clearly related to the focus of this research as others and I eliminated those two studies. Thus, eight studies are

selected. In the meantime, I made a minor change for the selected eight studies. That is, I selected Drabek’s study of *Strategies for Coordinating Disaster Responses* instead of the suggested study (Drabek’s article in *Handbook of Disaster Research*) since the article mainly refers to the study - *Strategies for Coordinating Disaster Responses* - and this study contains more detailed information.

In addition to that change, I added the National Research Council’s study, *Facing Hazards and Disasters* to the selection, which will be the ninth study. In fact, some experts suggested that the study is important and one chapter of the study is directly related to the focus of this project. Thus, nine studies are selected from the list that the experts suggested. Table 5 shows the list of selected studies which resulted from the experts’ suggested studies.

**Table 5. Selected studies from the list of influential studies (expert survey/interview)**

Title	Author	Year	Publisher/Journal
Facing the Unexpected: Disaster Preparedness and Response in the United States	Tierney, Lindell & Perry	2001	Joseph Henry Press
Strategies for Coordinating Disaster Responses	Drabek	2003	University of Colorado
Public-Nonprofit Partnerships for Collective Action in Dynamic Contexts of Emergencies	Kapucu	2006	Public Administration
Shared risk: complex systems in seismic response	Comfort	1999	Pergamon
Facing Hazards and Disasters: Understanding Human Dimensions	National Research Council	2006	National Academies Press
The Evolution of Emergency Management in America in <i>Handbook of Crisis and Emergency Management</i>	Schroeder, Wamsley, & Ward	2001	Dekker

Considering convergence, coordination and social capital in disasters	Wachtendorf & Kendra	2004	Disaster Research Center
Emergent Phenomena and Multi-organizational Coordination in Disasters: Lessons from the Research Literature	Drabek & McEntire	2002	International Journal of Mass Emergencies and Disasters
Organizing for Homeland Security after Katrina: Is Adaptive Management What's Missing?	Wise	2006	Public Administration Review

As for the handling of the scholars' list, 10 out of the 28 scholars' works are already selected in Table 5<sup>16</sup>. Thus, 19 scholars are left. Among them, 6 scholars' works are selected since they are more clearly related to the focus of this research than others. The Emergency Management Institute's project results were used in deciding which studies are the representative works of certain scholars. I mentioned the Kreps and Gillespie's case previously. Meanwhile, Schneider's work and Canton's work were included through bibliographical reference. I came upon the Schneider study while reading the Tierney, Lindell & Perry study and the Mileti study. Canton's study was included while reviewing Quarantelli's work and I selected Canton's study rather than Quarantelli's study since it provides a practitioner viewpoint while applying a theoretical arguments<sup>17</sup>. Table 6 shows the selected studies through the above-mentioned process.

**Table 6. Selected studies of the influential scholars (expert survey/interview)**

Title	Author	Year	Publisher
Living with Hazards, Dealing with Disasters: An Introduction to Emergency Management	Waugh	2000	M.E. Sharpe Publishers

<sup>16</sup> Some of scholars worked together or served as editors of study.

<sup>17</sup> Canton provides good summaries of many of Quarantelli's studies

'Organizing for emergency management' in <i>Emergency Management</i>	Kreps	1991	International City Management Association (ICMA)
'Coordinating community resources' in <i>Emergency Management</i>	Gillespie	1991	International City Management Association (ICMA)
Disasters By Design: A Reassessment of Natural Disasters in the United States	Mileti	1999	National Academies Press
Flirting with Disaster	Schneider	1995	M. E. Sharpe
Emergency Management: Concepts and Strategies for Effective Programs	Canton	2007	John Wiley & Sons

Finally, keywords search results were also considered in finalizing the studies selection. Among 25 articles, I chose two articles for in-depth review because some authors' works are already reflected in the final selection (e.g. Comfort and Kapucu). Moreover, major arguments of other articles are covered by the selected studies from expert survey and interview. Even though only two articles are included in the review, the main arguments of the rest of the articles will be included in the synthesis (See Table 1).<sup>18</sup> Table 7 is the selected studies from the keyword search results.

**Table 7. Selected studies from keyword search**

Title	Author	Year	Journal
Agility and Discipline: Critical Success Factors for Disaster Response	Harrald	2006	The Annals of the American Academy of Political and Social Science
Coordination in a Governmental Disaster Mega-Organization	Denis	1995	International Journal of Mass Emergencies and Disasters

<sup>18</sup> The main arguments and issues of those articles were listed in Table 1.

### 3.3. CONCLUSION

This chapter first reported an overview and the major issues of meta-synthesis. Then, I described the keywords search and expert survey/interview process. Finally, the selection logic of selection was discussed and the selection of studies for review was completed. A total of 17 studies are included in the final selection. The processes described and the arguments made in this chapter have implications for the field of public administration. First, there is a need for establishing review protocols for the field of public administration. Public administration is an interdisciplinary field of study. Thus, importing or adopting research findings from other disciplines and fields of study has been a typical research activity. Given this research practice, it seems that a research synthesis should be regarded seriously among public administration researchers. Second, when it comes to the case of emergency management, the need for adopting a meta-synthetic approach cannot be over-emphasized. Providing safety and security for citizens is an inherently governmental responsibility; however, emergency management is a traditionally neglected research area in public administration. Therefore, little accumulation of knowledge has developed in this area and, because of this, the uses of the meta-synthetic process need to be encouraged.

Meanwhile, questions may be raised regarding the applications of the meta-synthetic process in public administration and emergency management. For example, one may criticize the process of locating studies conducted in this chapter since the process that intended to ensure transparency in selecting studies ended up with subjective decision-making in selecting the studies. However, this does not necessarily mean that the meta-

synthetic process loses any of its important rationale because of the intrusion of subjectivity. Since the application of the meta-synthetic process has not been widely attempted yet, there are no established protocols for public administration. Therefore, the processes taken in this chapter should be regarded as an attempt that can be complemented by other methods. Moreover, locating studies, establishing selection criteria and application of them are only parts of the meta-synthetic process. Reviewing and synthesizing selected studies may be the more important aspect of meta-synthesis. These will be accomplished in the following chapter.



## **CHAPTER 4, SYNTHESIZING STRATEGIES FOR EMERGENT NETWORK MANAGEMENT**

In the previous chapter, we finalized the selection of studies for synthesis. Now, we are ready to extract strategies for emergent network management from those studies. Admittedly, disaster research has not been synthesized directly into the theme of network management strategies. However, the main premise of this study is that many emergency/disaster studies can be integrated into a network management perspective. Also, it will be the major argument of this chapter that synthesizing various theoretical efforts into the framework of networks is useful considering the pervasiveness of networks in contemporary public management theory and practice.

This section will start by providing an integrative scheme for synthesis. A two-by-two matrix will be proposed as a research synthesis framework. Then, I will review the selected studies with a view to extracting strategies that can be interpreted into the network management perspective. Finally, I will perform a meta-synthesis on the extracted strategies by mapping them into a two-by-two matrix.

### **4.1. AN INTEGRATIVE SCHEME FOR SYNTHESIS**

In the first section of Chapter Three, we discussed some similarities and the differences between the medical field and the management field. One of the similarities is that they both demonstrate a divergent and idiosyncratic nature in terms of the focus of

study. Despite that commonality, writers endorse various perspectives and produce very different recommendations. As we will see in the review section, several studies focusing on the synthesis of previous research attempt to put together the findings and insights of earlier research, however, systematic research integration is rarely accomplished because most studies have been conducted idiosyncratically. For example, while many studies emphasize the importance of communication related issues in disaster responses, other studies elaborate on other issues of interest such as jurisdictional boundaries, leadership, and the importance of non-structural factors in emergency management. Thus, a researcher or practitioner who reviews disaster literature looking for a monolithic picture of emergency management might be frustrated because of the variety of disaster research presented.

Indeed, the many and disparate recommendations and insights render an equally many, disparate and confusing implications for readers. Readers may have trouble in understanding the gestalt of what scholars suggest since individual scholarly works tend to focus on a specific issue at a time. The confusion may be aggravated if suggestions are not clear, especially in the area of preparedness measures or post-disaster contingency measures. Moreover, there is no clear answer from academia as to whether the bureaucratic structure and methods for emergency management are still effective or how much one should rely upon them when it comes to managing complex situations in disasters. Therefore, a framework is needed to integrate the various perspectives and findings in order to provide a coherent and comprehensive perspective to practitioners and researchers alike. Moreover, the integration should lead to 'research informed decision-making for

policy and practice' in order to avoid building a separating wall between practice and academia. In this study, the network management perspective was chosen for the research synthesis.

We have seen throughout this study that an emergency response system consists of networks of various organizations. Thus, one can view emergency management as network management. If one tries to interpret the coordination issues in emergency management from the perspective of network management, coordination inevitably means 'the furthering of joint problem-solving through interaction,' which is the main objective of network management. Therefore, it is logical to borrow a network management framework to study emergency management. Kickert *et al.* (1997) provide one of the best theoretical frameworks for network management. Following is a brief summary of their argument; Kickert *et al.* (1997) see that there are three activities in network management: 1) Intervening in existing patterns/restructuring of network relations, 2) Furthering conditions for cooperation (consensus building), and 3) Joint problem solving. Regarding strategies for network management, they wrote,

There are two points of intervention for network management strategies. In addition to strategies aimed at influencing the interaction processes directly, network management may be directed at the institutional context, the structure and culture of the network, in order to improve conditions for cooperation indirectly. Thus, two forms of network management may be identified; managing interaction within networks, or, game management, and building or changing the institutional arrangement that make up the network, network structuring.

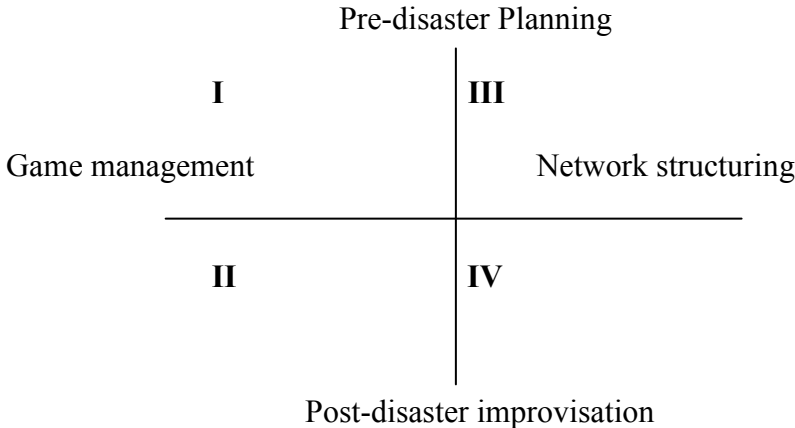
According to Kickert et al. (1997), game management includes topics such as network activation, arranging interaction, brokerage, facilitation, and mediation/arbitration. Activating networks refers to initiating processes and games. Arranging interaction means, “establishing ad hoc organizational arrangements to support interaction.” Brokerage includes activities that bring together problems, solutions, and interested parties. Facilitation refers to promoting favorable conditions for joint action. Finally, mediation and arbitration is related to conflict management. In addition, Kickert et al. (1997) argue that modifying networks rather than managing interactions might be an alternative to problem solution, if it proves impossible to solve problems within the existing networks. This is what they called ‘network structuring’, including strategies of changing relations, resources, rules, and existing value, norms, and perception of actors.

Following Kickert et al.’s notions of ‘game management’ and ‘network structuring,’ one can categorize various recommendations from disaster research. For example, communications falls under game management since effective communication is necessary in order to expedite interactions among various organizations within the network. Conversely, efforts establishing a smoothly functioning EOC, clear jurisdictional responsibility, or emphasizing non-structural factors can be a part of network structuring because they have to do with changes in institutional context and culture. Most importantly, emphasizing non-structural factors is different from the focus of the current emergency management system in the U.S. and it requires considerable change in existing values and

culture. Thus, game management and network structuring may be good concepts for synthesizing various findings and insights from disaster research.

Factors within both game management and network structuring can be divided into pre-disaster activities and post-disaster activities. There have been continued debates about where to place the priority between planning<sup>19</sup> and improvisation; however, a theoretical compromise is that good planning is the basis of organizational improvisation in a disaster situation (Wachtendorf and Kendra 2005, Kreps 1991). In a sense, categorizing disaster response success factors into pre-disaster planning and post-disaster improvisation can provide a practical way to assemble previous research results. Therefore, we have a pre-disaster planning and post-disaster improvisation axis and a game management and network structuring axis. These comprise a two by two matrix (Figure 1).

**Figure 1. A framework of research synthesis**



<sup>19</sup> Lee Clarke (2001) argues that planning has been used by organizations because it can signal that they are doing something about a problem and, for this reason, “sometimes planning is more symbolically than operationally useful.”

Quadrant I encompasses strategies such as pre-disaster planning, training and exercises. Quadrant II includes *ad hoc* negotiation of jurisdictional boundaries during the early stage of disaster response<sup>20</sup>. Quadrant III represents efforts to reform emergency management structures in a less hierarchical way. Also, building strategic partnerships can be posited in this quadrant. By the way, it seems that only limited activities and strategies may be posited within quadrant IV because there is not enough time to change the perceptions and values of participants and the culture of networks given the short timeframe of disaster response. However, bold leadership, for example, may restructure the context of disaster response in a network quickly and bring successful results as exhibited in best-case scenarios.

## 4.2. REVIEWS OF STUDIES

The selected studies for meta-synthesis have at least one thing in common - every study deals with recommendations and insights that can be interpreted through the network perspective. Meanwhile, a careful reading of the selected studies reveals that those recommendations and insights can be categorized by their research orientations and perspectives. Thus, I organized the selected studies into four categories; 1) studies providing comprehensive review on emergency management, 2) studies providing system level (or regime level) perspectives, 3) studies providing practical solutions, and 4) studies emphasizing new perspectives. In the following sections, the reviews of selected studies

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<sup>20</sup> If negotiation about jurisdictional responsibilities is made during pre-disaster situation, it should be placed in quadrant I.

will be presented in one of those four categories. With these categories, one can easily get a study's contextual relations with other studies.

In reviewing each study, I will categorize recommendations/insights using the two levels of network management presented by Kickert *et al.* (1997). That is, strategies that deal with specific interaction processes will be categorized as game level strategies while strategies that deal with network level issues will be categorized as network structuring strategies. The categorization of recommendations/insights into the two levels of network management perspective should serve as a preliminary process for the mapping of suggested strategies into the research synthesis framework. In the meantime, two challenges emerge in conducting the process: 1) every study has its own context, and 2) the focus of recommendations and insights are divergent rather than convergent. Thus, discussion and categorization of those recommendations/insights should be accomplished using integrative or inclusive terminologies.

#### **4.2.1. Studies providing a comprehensive review**

This category includes Drabek and McEntire (2002), Mileti (1999), Tierney, Lindell & Perry (2001), and National Research Council (2006). One of the main objectives of these studies is to aggregate previous research results. All of these works cover a vast amount of previous research and they deal with almost every aspect of emergency management including disaster mitigation, preparedness, response, and recovery. Table 8 shows recommendations and insights from those studies. Again, one can see that each study's recommendations and insights are very divergent in terms of issue focus and level

of elaboration. Nevertheless, as argued previously, those recommendations can be categorized into game management or network structuring. For example, criticism of the command-and-control model of emergency management (Drabek and McEntire 2002; National Research Council 2006) can be regarded as a network structuring issue. Conversely, establishing working inter-organizational communications (Mileti, 1999) is a game management issue.

Expanding the logic of the two levels of network management strategies to the entire list of recommendations and insights produced the following results. First, recommendations and insights categorized into game management include;

- 1) Establishment of working inter-organizational communication
- 2) Establishing legitimate authority structure
- 3) Establishing mechanisms to resolve inter-agency conflicts
- 4) Organizational willingness to give up autonomy for overall coordination
- 5) Clear mutual understanding over jurisdictional responsibility and domain consensus
- 6) An improved decision support technology
- 7) Sound planning principles and appropriate planning

Second, recommendations and insights categorized into network structuring are

- 1) Integration of emergency management office into day-to-day activities and structure of local government
- 2) Extensive relationship with other community organizations (including mass-media)
- 3) A functioning Emergency Operation Center
- 4) Reforming structural arrangement in a more organized and less hierarchical way



Some insights appear to be too broad to include in network structuring category. These include the assessment that experience, knowledge, professionalization, organizational learning, and education are important in emergency response. As for the National Research Council's (NRC) study results, I did not incorporate the study's findings into the network structuring category since those are already reflected in the research synthesis framework. Those findings should and will be used as fundamentals for the analysis of emergency response operations. Table 8 provides a summary of the findings in this category.

**Table 8. Studies providing comprehensive literature reviews**

Author, Title	General argument regarding disaster response	Recommendations/insights for an effective response
<p>Drabek and McEntire (2002), Emergent Phenomena and Multi-organizational Coordination in Disasters: Lessons from the Research Literature</p>	<p>1) The bureaucratic model of disaster management aggravates coordination problems during disaster operations.</p> <p>2) Ad hoc emergence in disaster situations should be managed effectively since many organizational entities, especially voluntary organizations, can be either assets or burdens for coordinated disaster responses.</p>	<p>An extensive review of the literature produced discouraging factors for coordination;</p> <ol style="list-style-type: none"> <li>1) Communication problems caused by information overload,</li> <li>2) Breakdowns of communication infrastructures,</li> <li>3) Interagency conflicts, and ambiguity over jurisdictional responsibility</li> <li>4) The lack of authority, experience, knowledge, and appropriate planning</li> </ol> <p>As for response to those challenges, the study listed suggestions from the literature that reinstate the importance of</p> <ol style="list-style-type: none"> <li>1) Planning, training, and exercise</li> <li>2) Smoothly-functioning Emergency Operations Center (EOC)</li> <li>3) Reforming structural arrangements in a more organized and less hierarchical way</li> <li>4) Requisites of contacts, cooperation, and communication</li> </ol>
<p>Mileti (1999), Disasters by Design</p>	<p>1) Mileti tries to put together quarter-century's research findings. "Sustainable hazard mitigation" is the conceptual backbone of the study and Mileti relies on the concept while he integrates the</p>	<p>I extracted following list from Mileti's work as insights for disaster responses.</p> <ol style="list-style-type: none"> <li>1) Adequately staffed and supplied emergency operations centers (EOCs)</li> <li>2) Establishing working inter-organizational communications: this prevents problems with obtaining and disseminating accurate</li> </ol>

	<p>previous research findings.</p> <p>2) Sustainable hazard mitigation is important since shortsighted and narrow conception regarding disaster management has resulted in repeated failures.</p> <p>3) The essence of disaster response activities is coping with response generated demands such as the need for coordination, communications, ongoing situation assessment, and resource mobilization during the emergency period</p>	<p>information.</p> <p>3) Prior disaster experience is important: Measures should be taken to enhance the awareness of the consequences of disasters and the demands that disasters generate.</p> <p>4) The integration of emergency management office into the day-to-day activities and structure of local government, extensive relationship with other community organization, and concrete outputs to the community (e.g. maintenance of EOC) are success factors for local emergency management agencies.</p> <p>5) Professionalization: Professionalization contributes to providing specialized knowledge, skills and training.</p>
<p>Tierney, Lindell &amp; Perry (2001), Facing the Unexpected</p>	<p>1) More than 100 researchers and practitioners participated in a systematic survey of what is currently known and what still remain to be learned on disaster-related topics.</p> <p>2) The authors argue that research on emergency response have dealt with</p> <ul style="list-style-type: none"> <li>a) Organizational and governmental response in disasters,</li> <li>b) Factors influencing disaster preparedness and response, and</li> <li>c) Societal factors influencing emergency management policy and practice.</li> </ul> <p>3) Emergency response research has remained largely qualitative and case study oriented and this make generalization of findings difficult. Thus, their reviews adopt the strategy of listing important research findings and their comments about those findings.</p>	<p>1) The characteristics of effective operations</p> <ul style="list-style-type: none"> <li>a) Excellent information collection and distribution</li> <li>b) A fully-staffed and functioning EOC</li> <li>c) Adequate human and material resources</li> <li>d) A specialized division of labor among responding units with the coordination of those units by one agency</li> <li>e) A legitimated authority structure</li> <li>f) Integrated and coordinated relationship with outside organization</li> <li>g) Mutually beneficial and effective relationships between emergency officials and mass media representatives</li> <li>h) Reality-based activities</li> </ul> <p>2) Factors for enhancing interorganizational cohesiveness</p> <ul style="list-style-type: none"> <li>a) Domain consensus or a clear understanding of the responsibilities of each organizations in the network</li> <li>b) Mechanisms for resolving disputes among organizations</li> <li>c) Organizational legitimacy and resource adequacy</li> <li>d) Organizational willingness to give up autonomy for the good of the overall response system</li> <li>e) High-level of communications linkage among organizations</li> <li>f) Clearly established authority structures and clarity with respect to lines of interorganizational contact</li> <li>g) Shared knowledge of the way the system is supposed to operate</li> </ul> <p>3) Factors influencing to an effective supra-local</p>

		<p>and national response</p> <ul style="list-style-type: none"> <li>a) Organizational learning</li> <li>b) Sound planning principles</li> <li>c) Education</li> <li>d) Professionalization</li> <li>e) Improved decision-support technologies</li> </ul>
<p>National Research Council (2006), Facing Hazards and Disasters</p>	<p>1) Demands in disaster situation need to be differentiated.</p> <ul style="list-style-type: none"> <li>a) Agent-generated demands: the types of losses and forms of disruption that disasters create</li> <li>b) Response-generated demands: the need for situation assessment, crisis communication and coordination, and response management.</li> </ul> <p>2) Emergency management system often cannot meet response-generated demands and following list are those challenges unmet.</p> <ul style="list-style-type: none"> <li>a) Failure to recognize the magnitude and seriousness of an event</li> <li>b) Delayed and insufficient responses</li> <li>c) Confusion regarding authorities and responsibilities, often resulting in major 'turf battles'</li> <li>d) Resource shortage and misdirection of existing resources</li> <li>e) Poor organizational, inter-organizational, and public communications</li> <li>f) Failures in intergovernmental coordination</li> <li>g) Failures in leadership and vision</li> <li>h) Inequities in the provision of disaster assistance</li> <li>g) Organizational practices and cultures that permit and even encourage risky behavior</li> </ul>	<p>Several important insights for interorganizational level issues can be summarized as follow;</p> <ul style="list-style-type: none"> <li>1) Post-disaster response activities involve the formation of new (or emergent) networks of organizations</li> <li>2) Managing the mixture of planned and improvised networks is significant issue in disaster response</li> <li>3) Commonly described 'disaster-generated chaos' should be described as the understandable confusion.</li> <li>4) Empirical research finds essentially no support for the command-and-control model either as a heuristic device for conceptualizing the disaster management process or as a strategy employed in actual disaster</li> <li>5) Response networks must also be able to accommodate processes of self-organization- that is, organized action by volunteers and emergent groups. This approach contrasts with command-and-control notion of how major crises are managed.</li> <li>6) Combining technical with organizational system appropriately enables communities to face complex events more effectively by monitoring changing conditions and adapting its performance accordingly, increasing the efficiency of its use of limited resources</li> <li>7) Diversity of organizations and community sectors involved in pre-crisis planning; plans and tools enabling the rapid expansion of crisis communication and information-sharing networks during disasters to include new organization; and protocols, such as mutual aid agreements, make it possible for new actors to more easily join response networks.</li> <li>8) Improving strategies for network management and developing better methods to take advantage of emergent structures and activities are crucial for an effective disaster response</li> </ul>

#### **4.2.2. Studies providing system level perspectives for an effective disaster response system**

Studies conducted by public administration scholars exhibit somewhat different foci and loci compared to those works done by sociologists. Generally, works conducted by public administration scholars are more focused on the political economy of emergency management than social behaviors or structures in disasters. The selected studies were conducted by public administration scholars, and as might be expected almost all of the selected studies point out regime level problems that influence the effectiveness of disaster response, including the fragmentation of the emergency management system and the absence of political constituencies for emergency management programs and policies. Thus, it can be argued that public administration scholars seem to be more interested in providing insights from a system-wide perspective. Also, their recommendations for disaster response are much more concrete in that they are related to specific political offices and governmental agencies. Indeed, public administration scholars' studies in this category have little connection to work done by sociologists. In other words, the major research issues and arguments of the selected studies in this category seem to be in a different paradigmatic world. Public administration scholars rarely quote research results that are recognized as important in sociology even though these two fields deal with similar organizational issues.

However, categorizing recommendations/insights into game management or network structuring is still effective for the selected studies in this category. The recommendations and insights categorized into game management include:

- 1) Preventing the development of different perspectives across three levels of government
- 2) Preventing breakdown of the system due to the interruption of nongovernmental actors, elected officials and media
- 3) Greater involvement of president and White House in disaster response
- 4) Immediate deployment of FEMA agents to disaster area

Recommendations and insights that fall into the category of network structuring include:

- 1) Clearer legislative authorization for FEMA’s role and responsibility
- 2) Integration of DoD’s resources into a broad federal response system
- 3) Enhancing state and local government’s capacity through flexible funding
- 4) Appointing experts to FEMA’s top management positions
- 5) Building less hierarchical, more flexible/adaptive/participative responding systems
- 6) Reform existing emergency management systems following the adaptive management perspective

Table 9 provides a summary of the findings in this category.

**Table 9. Studies providing system level perspectives**

Author, Title	General argument on disaster response	Recommendations/insights for effective response
Schneider (1995), Flirting with Disaster	The success or failure of governmental response to natural disasters is dependent upon following factors; a) The size of the gap between bureaucratic norm and emergent norm during the time of disaster. It is the size of the gap, rather than the size of the disaster, that determines the effectiveness of the governmental response. b) The implementation styles of government response processes can be differentiated into top-down, bottom-up, or confusion pattern. People	1) Different perspectives can and often do develop within the governmental response system itself, particularly across the three levels of governments. Thus, it is essential that officials from each level of government understand their own duties. 2) Some case studies show that serious breakdowns in the system occurred precisely because nongovernmental actors, elected officials, or both intervened in the response process. Political leaders, the media, and individual citizens all have their reasons for circumventing standard operating procedures and all of these can hinder the overall effectiveness of disaster response.

	perceive government response activities positively when lower level of governments handles them.	
Schroeder, Wamsley & Ward (2001), <i>The Evolution of Emergency Management in America in Handbook of Crisis and Emergency Management</i>	<ol style="list-style-type: none"> <li>1) Framing the evolution of American emergency management system as ‘from a top-down to a bottom-up to a network model’ is the main argument of this study.</li> <li>2) They argue that only network perspective rather than top-down or bottom-up model can tackle “special responsibilities for catalyzing, convening, synthesizing, and exerting leadership in the public interest.”</li> <li>3) In general, the authors pay more attention to political economy of emergency management on its maturation processes than management side of it. However, the study does provide some important insights for emergency management itself.</li> <li>4) With respect to practical recommendations, the authors largely relied on the study of National Academy of Public Administration directed by one of the authors (Wamsley).</li> </ol>	<p>They are calling for the followings agenda for an effective federal response.</p> <ol style="list-style-type: none"> <li>1) A greater involvement by the president and White House in disaster response, and the assurance of a swift, effective response to disasters</li> <li>2) The immediate deployment of FEMA disaster assessment team in an emergency</li> <li>3) Clearer legislative authorization for FEMA to mobilize resources for catastrophes</li> <li>4) Integration of the Department of Defense’s resources relevant to disaster response into a broad federal response system</li> <li>5) FEMA’s moving toward a comprehensive emergency management charter</li> <li>6) Increased flexibility of funding to state and local government to improve their own disaster response program</li> <li>7) Appointing FEMA’s top management positions to individuals with sufficient professional backgrounds and experience to handle disaster response</li> </ol> <p>These recommendations intend to cure identified problems of FEMA and emergency management;</p> <ol style="list-style-type: none"> <li>1) The lack of comprehensive disaster assessment</li> <li>2) The lack of FEMA’s explicit authority in mobilizing the broad multi-organizational array,</li> <li>3) The lack of adequate training and funding for state/local government.</li> </ol>
Waugh (2000), <i>Living with Hazards Dealing with Disasters: An Introduction to Emergency Management</i>	<p>Main concern is providing overviews and/or introductions for many aspects of emergency management. Waugh argues that establishing an effective emergency management system is hard because of the following obstacles;</p> <ol style="list-style-type: none"> <li>1) Emergency management is a low-salience political issue</li> <li>2) Emergency management programs generally do not have strong political constituencies</li> <li>3) Regulatory efforts for emergency management often</li> </ol>	<ol style="list-style-type: none"> <li>1) Current management theory suggests that command and control type organizations are not suitable for organizations working on unstable task environment.</li> <li>2) Responding organizations should be more adaptive and flexible, since disasters, by nature, create unstable task environment.</li> <li>3) Guidelines for organizational flexibility to respond to changing demands. <ol style="list-style-type: none"> <li>a) Structural fluidity: organizations need to develop ad hoc structures to accomplish specific tasks</li> <li>b) Organizational flexibility: organizations need to assign employees with complementary knowledge, skills, and competencies to teams and task groups</li> </ol> </li> </ol>

	<p>meet strong opposition</p> <p>4) Few elected officials and career public administrators understand and appreciate the importance of emergency management programs</p> <p>5) The effectiveness of emergency management policies and programs is difficult to measure</p> <p>6) The technical complexity of emergency management makes it difficult to appeal budget agency and the public</p> <p>7) The horizontal and vertical fragmentation of the federal system creates jurisdictional confusion</p> <p>8) The different capacities among federal, state, and local agencies make it hard to work together</p> <p>9) The current political climate is more supportive decentralized system and is asking for self-reliance to state and local agencies.</p> <p>10) There is little money available for new programs unless a new policy window is opened by a major disaster</p> <p>11) The diversity of hazards complicates the assessment of risk and the design of emergency management programs</p>	<p>c) Less hierarchical or non-hierarchical organizations: organizations need to give work groups greater autonomy and assign leadership responsibility on the basis of specific technical skills or personality traits</p> <p>d) Participative and consensus-based organizations: organizations need to encourage open communications, shared decision-making, and non-directive leadership</p> <p>Waugh's recommendations are declarative rather than giving practical implications. However, his suggestions for organizational issues are instructive in developing strategies for an effective emergency management system.</p>
<p>Wise (2006), Organizing for Homeland Security after Katrina: Is Adaptive Management What's Missing?</p>	<p>Focuses on:</p> <p>1) The issue of 'knitting together' various organizations in homeland security and delves into the question of how to make it possible.</p> <p>2) An adaptive management perspective can provide some instructions to the present system, which is based on command and control model.</p>	<p>1) Adaptive management; some principles</p> <ul style="list-style-type: none"> <li>- Bringing together interested stakeholders to discuss the problem and any available data, then moving on to develop models of problems</li> <li>- Developing plans to meet goals and generating information to reduce data gaps and uncertainties</li> <li>- Implementing along with monitoring plans designed to analyze data and updating managers' understanding of how the adopted approach worked in practice</li> <li>- Monitoring results to evaluate the progress achieved by the management approach taken</li> </ul>

	<p>3) The current system proved to be defective since the command control model couldn't facilitate various organizational participants in action networks. He proposes the adaptive management perspective as an alternative for effective network management.</p>	<p>2) Key practices for collaborations among federal agencies</p> <ul style="list-style-type: none"> <li>- Defining and articulating a common outcome</li> <li>- Establishing mutually reinforcing or joint strategies to achieve the outcome</li> <li>- Identifying and addressing needs by leveraging resources</li> <li>- Agreeing on agency roles and responsibilities</li> <li>- Establishing compatible policies, procedures and other means to operated across agency boundaries</li> <li>- Developing mechanisms to monitor, evaluate, and report the results of collaborative efforts</li> <li>- Reinforcing agency accountability for collaborative efforts through agency plans and reports</li> <li>- Reinforcing individual accountability for collaborative efforts through agency performance management systems</li> <li>- Involving non-federal partners, key clients, and stakeholders in decision making</li> </ul>
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### 4.2.3. Studies providing practical strategies for disaster response

Five studies in this category have in common since they are presenting practical strategies for disaster response. Since the authors delve into narrowly defined research issues such as coordination strategies and success factors for disaster response, they provide recommendations/insights directly related to game management rather than network structuring. This is especially true in that almost every recommendation/insight of Drabek (2003) and Denis (1995) deals with the issue of how to arrange interactions among various organizational entities. Harrald (2006) and Gillespie (1991) also focus on game management. However, they do present success factors for response operation rather than specific strategies. Also, Canton (2007) provides strategies that are practical



recommendations in that they are rooted in current emergency management systems and rendered by experienced practitioner. In short, the five studies in this category provide highly practical and detailed game management strategies. However, the authors seem to be relatively less interested in network structuring issues.

Summarizing recommendations and insights categorized into game management is quite challenging since each writer lists various and divergent strategies for disaster response. The process of comparing each writer's strategies and success factors and searching for reciprocally reinforcing concepts produces the following list:

- 1) Sharing and distributing situational awareness
- 2) Familiarizing available resources
- 3) Negotiating jurisdictional boundaries
- 4) Using hierarchy, prior legitimacy, impersonal rules/plans for coordination mechanisms
- 5) Promoting shared leadership and overlapping board membership
- 6) Enhancing the awareness of cultural differences and building shared vision
- 7) Establishing information sharing and dissemination systems

As stated earlier, with respect to network structuring, the five studies in this category do not heavily focus on the issue; however, each writer coherently argues that non-structural factors and emergent aspects, or cultural components should be emphasized as much as structural and established aspects of response. To those authors, maintaining an uneasy balance between structural aspects and non-structural aspects is one of the most important prescriptions for network structuring. Recommendations/insights for network structuring can be summarized as follow:

- 1) Reconciliation among structural solution vs. non-structural solution, emergent aspects vs. established aspects of disaster responses
- 2) Structuring for coordination (e.g. service contract, rotate board member, matrix design)

Table 10 provides a summary of the findings in this category.

**Table 10. Studies providing practical strategies**

Author, Title	General argument on disaster response	Recommendations/insights for effective response
<p>Drabek (2003), Strategies for Coordinating Disaster Responses</p>	<ol style="list-style-type: none"> <li>1) After integrating insights about managing environmental uncertainty from organizational theorists, Drabek interviewed 62 local emergency managers to formulate coordination strategies.</li> <li>2) He documented five broad types of strategies that were used during disaster responses.</li> </ol>	<ol style="list-style-type: none"> <li>1) Core Strategies <ul style="list-style-type: none"> <li>- Domain Clarification</li> <li>- Jurisdictional Negotiation</li> <li>- Resource Familiarization</li> </ul> </li> <li>2) Consequence Strategies <ul style="list-style-type: none"> <li>- Display of Decisions,</li> <li>- Use of Information Technologies</li> <li>- Maintenance of a hospitable emergency operation center social climate</li> </ul> </li> <li>3) Customer Strategies <ul style="list-style-type: none"> <li>- Communication of Citizen Expectation and Requests</li> <li>- Facilitation of Media Relations</li> <li>- Documentation of Damage Assessments</li> <li>- Documentation of Disaster Repair and Restoration</li> </ul> </li> <li>4) Control Strategies <ul style="list-style-type: none"> <li>- Appeals to Prior Legitimacy</li> <li>- Reference to Planning Documents</li> <li>- Reference to Prior Experiences (Includes Simulation Exercise and Prior Disasters)</li> <li>- Decentralization of Decision Making</li> <li>- Use of Self-Managed Work Teams</li> <li>- Emergent Collaborative Planning</li> <li>- Emergent Community-Government Partnerships</li> <li>- Implementation of Mutual Aids Agreements</li> </ul> </li> <li>5) Cultural Strategies <ul style="list-style-type: none"> <li>- Enhance Awareness of Cultural Difference among Responding Agencies</li> <li>- Enhance Awareness of Vulnerable Populations</li> <li>- Enhance Awareness of Community Diversity</li> <li>- Promote Inter-agency Cross-Talking</li> <li>- Build Shared Vision</li> <li>- Develop an In-house schoolhouse</li> <li>- Celebrate Success</li> <li>- Monitor Stress Symptoms (Includes EOC Personnel and Other Responders)</li> </ul> </li> </ol>

<p>Harrald (2006), Agility and Discipline: Critical Success Factors for Disaster Response</p>	<p>Harrald tries to reconcile the two apparently opposite streams of thought in emergency management; 1) Focusing on the ability to structure, control and manage a large response. 2) Non-structural factors.</p>	<p>The following list is his recommendations for successful disaster response and these are resulted from the reconciliation of those two theoretical streams.</p> <p>1) Critical success factors: Initial Reaction and Mobilization</p> <ul style="list-style-type: none"> <li>- Situational awareness is obtained and shared across organizational networks</li> <li>- Resources in place are capable of initial life and safety response</li> <li>- Resource mobilization is based on accurate estimate of need for people, funds, and equipments</li> <li>- Resource mobilization is governed by preplanned organizational structure and process</li> </ul> <p>2) Critical success factors: Organizational Integration Phase</p> <ul style="list-style-type: none"> <li>- Mobilized response resources are rapidly and efficiently integrated into predetermined response organizations</li> <li>- Coordinated multi-organization, networked response system is established</li> <li>- Ability to manage the collection, synthesis, analysis, and internal and external distribution of information is established</li> <li>- Organizational and operational adaptability and agility is maintained</li> </ul> <p>3) Critical success factors: Production Phase</p> <ul style="list-style-type: none"> <li>- Organizational productivity and resources are sustained and supported</li> <li>- Requirement and productivity metrics are developed and monitored</li> <li>- Accountability is established</li> <li>- Requirements for recovery are identified</li> </ul>
<p>Gillespie (1991), Coordinating Community Resources</p>	<p>1) Gillespie sees that an effective disaster response has to guarantee the coordinated uses over the five important resources during disaster, which are information, people, money, physical space and equipment. 2) In order to accomplish this, several forms of coordination have been suggested. Gillespie wrote, "The simplest are to share data banks and enter into</p>	<p>The following list is the impeding or facilitating factors for coordination.</p> <p>1) Factors impeding coordination</p> <ul style="list-style-type: none"> <li>- The tendency of organizations to seek autonomy</li> <li>- Staff commitment to professional ideologies and work autonomy</li> <li>- Differences in organizational technologies and resource needs</li> <li>- Fear that the identity of the group or organization will be lost</li> <li>- Concern about the redirection of scarce resources</li> <li>- The proliferation of organizations and</li> </ul>

	<p>mutual aid agreements to provide contingency exchanges or service contracts. Other ways are to share or rotate board members, and develop cooperative councils. The most complex form of coordination can also be undertaken: joint planning and programs."</p>	<p>interest groups across multiple political jurisdictions</p> <ul style="list-style-type: none"> <li>- Differences in costs of and benefits from participating in coordination</li> </ul> <p>2) Factors facilitating coordination</p> <ul style="list-style-type: none"> <li>- Shared goals or expectations about what the organizations will and will not do</li> <li>- Shared leaders or overlapping board memberships</li> <li>- Diversity of roles and interests</li> <li>- Similarity in technologies and resources needs</li> <li>- High rates of environmental change</li> </ul>
<p>Canton (2007), Emergency Management: Concepts and Strategies for Effective Programs</p>	<ol style="list-style-type: none"> <li>1) Canton's study provides a practitioner's perspective. Canton distinguishes disaster response into three layers; operational response, tactical response, and strategic response.</li> <li>2) Operational response deals with immediate needs such as providing emergency medical care, temporary housing. The roles of operational response are, in most cases, pre-determined.</li> <li>3) Tactical response deals with both the management of operational response and required roles beyond operational level. It has to have much wider perspective than operational response.</li> <li>4) For this reason, disaster management team must insulate itself from becoming overly involved in field operations in order to deal with non-routine issues with limited timeframes.</li> <li>5) He argues that the tactical level of response is main focus of disaster response and emphasizes the difference between agent and response generated needs.</li> </ol>	<p>Canton sees that response-generated needs can be full-filled by well-designed pre-disaster planning while agent-generated needs have to be dealt with case-by-case approach. Canton's recommendations for disaster response coordination are based on principles developed by Quarantelli.</p> <ol style="list-style-type: none"> <li>1) Recognize the difference between agent and response generated needs</li> <li>2) Carry out generic functions in an adequate way</li> <li>3) Mobilize personnel and resources in an effective manner</li> <li>4) Involve proper task delegation and division of labor</li> <li>5) Allow the adequate processing of information</li> <li>6) Permit the proper exercise of decision-making</li> <li>7) Focus on the development of overall organizational coordination</li> <li>8) Blend emergent aspects with established ones</li> <li>9) Provide the mass communication system with appropriate information</li> <li>10) Have a well functioning Emergency Operation Center</li> </ol> <p>Canton also emphasizes the value of incident management system (Unified and Area Commands, Multi-agency coordination system, Emergency Operation Centers), communication and interoperability, information processing, mutual aid, resource management and logistics and the joint information center.</p>
<p>Denis (1995), Coordination in</p>	<ol style="list-style-type: none"> <li>1) Denis' study deals with the issue of coordination in</li> </ol>	<p>Commonly used coordination mechanisms are relying on</p>

<p>Governmental Disaster Mega-Organization</p>	<p>Disaster Mega-Organization (DMO). She uses the terminology of DMO to describe networks of public, private, and nonprofit organizations and individuals in disaster spot. DMO is a kind of network and it exists temporarily for the most cases.</p> <p>2) Denis argues that cultural strategies should be placed on the top priority in coordinating disaster mega-organization. Problems leading to the lacks of coordination are usually related to cultural issues such as autonomy-seeking organizations, questioning the legitimacy of coordinators. She sees that shared values, accepted behaviors and norms can complement the structural coordination mechanisms.</p>	<p>1) Hierarchy  2) Impersonal rules  3) Culture (organizational culture, professionalization, disaster culture)  4) Technology  5) Planning  6) Liaison roles (mutual adjustment or feedback, coordinators, task force committees, permanent teams, matrix design)  7) Cooperation.</p> <p>Her argument is that absence of these mechanisms can pose challenges for coordinated response.</p> <p>As for the strategy for cultural change, she recommends to use planning process as a resource for developing professional norms and enhancing openness to new phenomena.</p>
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#### 4.2.4. Studies emphasizing new perspectives

The four studies categorized as emphasizing new perspectives actually try to reframe the existing perspectives of emergency management. The authors try to provide resolutions for the managerial challenges posed by the convergence and self-organization phenomenon found in a disaster situation. Kreps' study and Wachtendorf and Kendra's study drive organizational improvisation to the forefront of emergency management research. Comfort's study provides the perspective of framing disaster response system as socio-technical system. She proposes a policy agenda for building an effective information infrastructure. Kapucu's study deals mainly with public-nonprofit partnership building as the crucial factor for effective emergency management. Since network structuring has to do with network level issues such as coupling and decoupling of the game, changing

relations, rules and resources, most of the recommendations/insights of the studies under this category are related to network structuring issues. However, the studies do provide some strategies for game management, which are developed from those studies' specific perspectives.

The studies' recommendations and insights for game management are:

- 1) Establishing an effective flow of information
- 2) Setting boundaries for activities and areas that volunteers can be of most help
- 3) Establishing mechanisms to give credentials for converging volunteers
- 4) Familiarizing volunteers with existing response system
- 5) Enhancing conflicts resolution mechanisms and effective use of authority

The studies' recommendations and insights with regard to network structuring are:

- 1) Designing a knowledge base for information infrastructure
- 2) Building partnership and trust among public agencies and nonprofit sector agencies
- 3) Taking organizational improvisation as the foundation of emergency management
- 4) Allowing decentralization and fostering self-organization

Table 11 provides a summary of the findings for this category.

**Table 11. Studies emphasizing new perspectives**

Perspective, Author, Title	General argument on disaster response	Recommendations/insights for effective response
<b>Organizational Improvisation</b>		
Kreps (1991), Organizing for emergency management	<ol style="list-style-type: none"> <li>1) One of the most important arguments Kreps raised is that both improvisation and preparedness should be the foundations of emergency management.</li> <li>2) He argues that preparedness can make significant difference in disaster situation;</li> </ol>	<ol style="list-style-type: none"> <li>1) Kreps does provide criteria of successful coordination rather than strategies to achieve it.</li> <li>2) A successful coordination needs followings;               <ul style="list-style-type: none"> <li>- Efficient mobilization of personnel and resources</li> <li>- Timely communication of information within and between local clusters of organizations</li> </ul> </li> </ol>

	<p>however, it is impossible to prepare every situation.</p> <p>3) Therefore, the role of improvisation is filling the gaps between plan and reality.</p> <p>4) While recognizing improvisation and preparedness are the twin foundation of emergency management, Kreps argues that having in place a planned emergency operations center is a prerequisite for effective disaster coordination</p>	<ul style="list-style-type: none"> <li>- Timely communication with the public</li> <li>- Resolution of conflicts over goals, tactics, and resources</li> <li>- Effective interaction with regional and national government units when needed</li> <li>- Effective exercise of authority when needed</li> </ul> <p>3) 'Modest planning' is a reasonable goal since there is always some resistance to emergency preparedness and it is simply impossible to plan for every contingency. Also, detailed plans easily become out-of-date due to the fluidity of disaster situation. Moreover, detailed plans may be intimidating or confusing potential users.</p>
<p>Wachtendorf &amp; Kendra (2004), 'Considering Convergence, Coordination, and Social Capital in Disasters</p>	<p>1) This study deals with management issues that are resulted from the dual characteristics of volunteer convergence; volunteers as assets versus volunteers as burden for disaster response.</p> <p>2) The study delves into the management of convergence while focusing on organizational improvisation. Improvisation involves reworking activities, resources, and organizational structures in novel ways under time constraints.</p> <p>3) Meanwhile, this doesn't necessarily mean that improvisation should be placed as the first priority in disaster response operation action agenda. They argue that top-down planning and the role of public agencies as well as bottom-up process and the roles of converging voluntary groups are also important for "galvanizing community around a variety of partnership-building and partnership-knowing activities."</p>	<p>1) Establishing and maintaining partnerships: Organizations not typically involved in disaster management can be good resources in time of extreme events. Ideally, partnerships need to be established prior to a disaster.</p> <p>2) Incorporating groups not traditionally involved in disaster response: Some community groups can provide a clearer understanding of the needs of different segments of the population and some groups have their own resources, skills and expertise that can be added to the tool for a community's capacity</p> <p>3) Setting boundaries: Even though converging groups and organizations can be good resources for disaster responses, it is crucial that volunteers have a clear idea regarding the types of activities and areas they can be of most help in as well as the types of activities and areas beyond the scope of their assistance efforts.</p> <p>4) Credentialing: Credentialing encompasses a number of tasks, including training, certification, checking into licenses or qualifications, and issuing badges. Decision-makers need to consider ways to ensure that the valuable assistance providers get in and the well-meaning but less immediately useful convergers do not.</p> <p>5) Familiarizing volunteers with existing response system</p> <p>6) Leveraging initiatives to maximize opportunities: There is a need building networks in communities continuously and this makes possible to mobilize social capital to best adapt emerging crises</p>

Disaster response system as a socio-technical system		
<p>Comfort (1999), Shared Risk: Complex Systems in Seismic Response</p>	<ol style="list-style-type: none"> <li>1) Comfort sees a community as socio-technical system and her main research focus is information flow. She delves into the issue of timely information flow through all level of government agencies, private organizations and nonprofit organization.</li> <li>2) Technical structure, organizational flexibility and cultural openness are critical factors for seamless information flow.</li> <li>3) She concludes, "Process of self-organization in disaster response are dependent upon a socio-technical infrastructure that supports the timely, accurate exchange of information in a rapidly changing environment."</li> </ol>	<p>Comfort's recommendations for establishing socio-technical system that facilitate the emergence of self-organization in disaster situation are as follow;</p> <ol style="list-style-type: none"> <li>1) Evaluation of the model of a rapidly evolving disaster response system: This includes the tracking the processes of information search, exchange, and adaptation in action</li> <li>2) Building effective information infrastructure, which includes both technical and organizational components: Forming a consortium of public, nonprofit, and private organizations will bring into the most effective results.</li> <li>3) Designing the knowledge base for the information infrastructure with full participation of relevant personnel.</li> <li>4) Defining standards of responsible performance and organizing training programs: All of these activities should be consistent with global standards for disaster response.</li> </ol>
Disaster response system as public-nonprofit partnership		
<p>Kapucu (2006), Public-Nonprofit Partnerships for Collective Action in Dynamic Contexts of Emergencies</p>	<ol style="list-style-type: none"> <li>1) Kapucu delves into the issues of building cooperation among public and nonprofit organizations in time of emergency.</li> <li>2) He reports the magnitude and the importance of nonprofit organizations' roles in disaster response operation and suggests recommendations for managing those complex networks.</li> <li>3) He confirms that there was phenomenon called 'convergence' in the World Trade Center disaster and nonprofit organizations consist of the largest share among converging organizational entities on that disaster situation.</li> </ol>	<p>After analyzing the response to the World Trade Center attack, he aggregates several lessons learned from the response operation.</p> <ol style="list-style-type: none"> <li>1) Effective response operations require partnership and trust between government agencies at all levels and between the public and nonprofit sector agencies. A surprisingly coordinated response system, composed of public/private/nonprofit organizations and individuals was established within hours.</li> <li>2) The collective action by the nonprofit organizations in response operations was neither centrally controlled nor directed. The collective action was both flexible and adaptive, focused on solving emergent problems after the extreme event.</li> <li>3) The effective flow of information across organizational boundaries is critical for an organization's ability to remain effective in dynamic disaster environment. Also, the communications need to be timely and trustful.</li> <li>4) Contrary to contemporary principles of public administration, there is a need to resist the temptation to consolidate and centralize public organizations in order to effectively work with other agencies and nonprofit organizations.</li> </ol>



### 4.3. EXPERTS INTERVIEW RESULTS

As a part of the expert survey and interview, I asked respondents to answer the following question; “*What do you think are the most important insights or lessons learned from previous research on managing networks during emergencies or disasters?*” This question was prepared to determine if experts have new ideas compared to the reviewed studies. Four respondents provided their opinions and most are similar to the studies reviewed in the previous section. Respondent A and B share the same opinion that management challenges arise in handling the issues of converging volunteers and emerging new networks. Both of them argue that organizational improvisation is necessary for dealing with those issues. Also, imposing hierarchical structure might cause negative effects for the overall performance of networks. Similarly, respondent C emphasizes the importance of the non-linearity of disaster situations and argues that building effective information networks is a good solution in responding to that non-linearity. In the case of Respondent D, he emphasizes the issues in intergovernmental relationship and seems to focus more on system level issues.

Meanwhile, Kickert et *al.*'s concept of two levels of network management framework is also applied here. Regarding game management, experts' opinions can be summarized as follow:

- 1) Pre-disaster planning, training, and exercise with members of networks is necessary
- 2) Building reliable information networks for coordination
- 3) Effective leadership is necessary for successful response

- 4) Managing entry to broad response networks: need to understand one aspect of networking phenomena where some groups gain entry into the network more easily while others cannot.

With regard to network structuring aspect, experts' opinion can be summarized as follow:

- 1) Response systems need to be structured in way of accommodating self-organization and improvisation (non-hierarchical structure)
- 2) Establishing working inter-governmental relations and federal government leadership

Table 12 provides lessons learned regarding network management in disasters.

**Table 12. Lessons learned regarding network management in disaster**

<p>Respondent A</p> <ol style="list-style-type: none"> <li>1) Plan, train, and exercise with members of network before disaster strikes.</li> <li>2) Expect the planned network to expand or even to have a new network emerge during a disaster.</li> <li>3) Many different agencies have legal authority in an incident, so be prepared to adopt unified command.</li> <li>4) Be prepared to respond positively to citizen groups in terms of their demands for response action and their offers to volunteer.</li> <li>5) Be prepared to improvise novel responses based on the constraints imposed by other organizations</li> </ol>
<p>Respondent B</p> <ol style="list-style-type: none"> <li>1) Effective networks emerge by themselves; they are not the result of coordination.</li> <li>2) Imposing a hierarchical management structure on an inherently networked and non-hierarchical system is a mistake. It leads to poor performance.</li> <li>3) Understanding the nature and form of post-disaster relief and recovering networks of various actors is very difficult because these networks are fluid and there are relatively few barriers to entry.</li> <li>4) Some groups get more attention than others, and therefore gain entry into the network. Other parts of a network will fail to connect to the broader network, or will fade away, if they have no connection to the broader network.</li> </ol>
<p>Respondent C</p> <ol style="list-style-type: none"> <li>1) Disaster response evolves in nonlinear ways.</li> <li>2) Disaster environments generate complex adaptive systems of response and recovery.</li> <li>3) Information networks are critical to coordinating disaster response.</li> <li>4) Information is the dynamic driving change in disaster environments.</li> </ol>

5) Disaster response systems involve both social and technical networks of action.
Respondent D
<ol style="list-style-type: none"> <li>1) Failure in leadership, in preparedness in organizational coordination, in decision-making, and failure in evacuation and response systems inhibit successful disaster response</li> <li>2) Also, failure in local-state-federal intergovernmental relations and failure in federal government leadership of 'command structure' building and application lead to failure in disaster response</li> </ol>

## 4.4. SYNTHESIZING STRATEGIES

### 4.4.1. Mapping strategies into research synthesis framework

Recommendations and insights from the selected studies were categorized using Kickert et al.'s two levels of network management scheme in the previous section. The categorization involved summarizing and suggesting integrative terminologies because the writers provided divergent insights and recommendations. After the categorization was completed, I developed two lists of strategies ('pre-disaster planning focus' and 'post-disaster improvisation focus'). Then, I mapped those lists into the two by two research synthesis framework. Figure 2 is the result. A careful look at Figure 2 reveals that there are at least three important mapping features. First, insights and recommendations that have both characteristics of 'pre-disaster planning focus' and 'post-disaster improvisation focus' are categorized into 'planning/ improvisation mix.' It is hard to draw a clear line between the 'pre-disaster planning focus' and 'post-disaster improvisation focus' even though the mapping was intended to distinguish the two for strategies that are allocated into the two levels of network management.

**Figure 2. Mapping strategies into research synthesis framework**  
**Pre-disaster Planning Focus**

<p><i>Planning</i></p> <ol style="list-style-type: none"> <li>1) Pre-disaster planning, training, and exercise with members of networks is necessary</li> <li>2) Establishment of working inter-organizational communication</li> <li>3) Establishing legitimate authority structure</li> <li>4) Promoting shared leadership and overlapping board membership</li> <li>5) Establishing information sharing and dissemination system</li> <li>6) An improved decision support technology</li> <li>7) Building reliable information networks for coordination</li> <li>8) Sound planning principles and appropriate planning</li> </ol> <p><i>Planning/Improvisation Mix</i></p> <ol style="list-style-type: none"> <li>1) Organizational willingness to give up autonomy for overall coordination</li> <li>2) Clear mutual understanding over jurisdictional responsibility and domain consensus</li> <li>3) Prevent developing different perspectives across three levels of government</li> <li>4) Prevent breakdown in the system due to the interruption of nongovernmental actors, elected officials and media</li> <li>5) Greater involvement of president and White House in disaster response</li> <li>6) Enhancing conflicts resolution mechanisms and effective use of authority</li> <li>7) Familiarizing available resources</li> <li>8) Enhancing awareness of cultural difference and building shared vision</li> <li>9) Establishing mechanisms to give credentials for converging volunteers</li> <li>10) Sharing and distributing situational awareness</li> <li>11) Immediate deployment of FEMA agents to disaster area</li> <li>12) Setting boundaries for activities and areas that volunteers can be of most help</li> <li>13) Familiarizing volunteers with existing response</li> </ol> <p><i>Improvisation</i></p> <ol style="list-style-type: none"> <li>1) Negotiating jurisdictional boundaries</li> <li>2) Using hierarchy, prior legitimacy, impersonal rules/plans for coordination mechanism</li> <li>3) Managing entry to broad response networks: need to understand one aspect of networking phenomena where some groups gain entry into the network more easily while others cannot</li> </ol>	<p><i>Planning</i></p> <ol style="list-style-type: none"> <li>1) Integration of emergency management office into day-to-day activities and structure of local government</li> <li>2) Extensive relationship with other community organizations (including mass-media)</li> <li>3) A functioning Emergency Operation Center</li> <li>4) Reforming structural arrangement in a more organized and less hierarchical way</li> <li>5) Clearer legislative authorization for FEMA's role and responsibility</li> <li>6) Integration of DoD's resources into a broad federal response system</li> <li>7) Enhancing state and local government's capacity through flexible funding</li> <li>8) Appointing experts to FEMA's top management positions</li> <li>9) Building less hierarchical, more flexible/adaptive/participative responding system</li> <li>10) Reform existing emergency management system following adaptive management perspective</li> <li>11) Reconciliation among structural solution vs. non-structural solution, emergent aspects vs. established aspect of disaster responses</li> <li>12) Structuring for coordination (e.g. service contract, rotate board member, matrix design)</li> <li>13) Designing knowledge base for information infrastructure</li> <li>14) Establishing working inter-governmental relations and federal government leadership</li> <li>15) Building partnership and trust among public agencies and nonprofit sector agencies</li> </ol> <p><i>Planning/Improvisation Mix</i></p> <ol style="list-style-type: none"> <li>1) Allowing decentralization and fostering self-organization</li> <li>2) Response systems need to be structured in way of accommodating self-organization and improvisation (non-hierarchical structure)</li> <li>3) Taking organizational improvisation as the foundation of emergency management</li> </ol>
	<p><i>Game management/Network structuring Mix</i></p> <ol style="list-style-type: none"> <li>1) Effective leadership is necessary for successful response</li> </ol>

Network Structuring

Game Management

Second, effective leadership is placed between game management and network structuring. Leadership roles normally focus on directly influencing the interactions among actors; however, leadership also plays critical roles for the structure and culture of networks. Thus, it is understandable that effective leadership should be in the ‘game management/network structuring mix.’

Third, game management seems to have more emphasis on improvisational aspects of management strategies than on the network structuring aspect. Network structuring requires a significant amount of time for changing the structure or culture of a network. This is not possible during improvisation.

#### **4.4.2. Reciprocal translation of network management strategies**

As mentioned in the first section of Chapter Three (meta-synthesis), reciprocal translation means translating each study into the terms (metaphor) of the other studies. Some scholars believe that reciprocal translation is a good way of synthesizing previous research results. In this section, previous research results will be reciprocally translated by using the terms of network management strategies theorized by Kickert *et al.* Mapping insights and recommendations (See Figure 2) provides a clear and comprehensive understanding of what strategies are available for an effective emergency response. However, each strategy mapped into the two by two research synthesis framework is still divergent and there is a need for looking at them through a different conceptual lens.

Kickert *et al.*'s terminologies should be a good tool for the reciprocal translation of insights and recommendations.

#### **4.4.2.1. Interpreting emergency response operations to network management**

Emergency response operations are needed to manage new networks that are emerging in disaster stricken communities. Stalling (1978) postulates the four types of organizing behaviors in disaster response operations (established, extending, expanding, and emergent organizations). From the perspective of network management, those organizing behaviors can be seen as the creation of new networks. They are 'new' networks since some organizations in a network will extend or expand their roles/responsibilities and this leads to the formation of new interactions within the planned networks. Also, an established organization has to interact with those organizations and, by so doing; form a new way of networking. Thus, the presence of planned response networks, in which established organizations play major roles, does not necessarily mean that networks in emergency response are always pre-existing networks. Since the networks keep renewing themselves, they can be described as emergent (or emerging) networks. Many case studies report self-organization in disaster and self-organization phenomena often result in the formation of emergent organizations. This introduces new actors to existing networks. Accordingly, the formation of new networks often takes place during disaster response operations.

Since many activities in disaster response operations occur in networks (Drabek 1981), it is acceptable that insights and recommendations from previous research can be

viewed as strategies for network management. As strategies for network management were introduced in the first section of this chapter, some game management strategies of Kickert *et al.* can describe several insights/recommendations for disaster response;

- 1) Selective (de-) activation; This strategy involves the activation of links in a network. That is, this is the issue of who should be involved and who should not. This is an important issue in disaster response operation and researchers have treated this issue seriously. Examples include, (1) managing entry to broad response networks (improvisation-game management), (2) establishing mechanisms to give credentials for converging volunteers (planning/improvisation mix-game management)
- 2) Arranging interaction; Using hierarchy, prior legitimacy, and impersonal rules/plans for coordinating mechanism (improvisation-game management) are examples of this strategy. Also, effective leadership (game management/network structuring mix-game management) might be another example.
- 3) Brokerage; Brokerage involves the activities of matching problems, solutions and actors. This strategy encompasses several insights and recommendations for disaster response. Becoming familiar with available resources (planning/improvisation mix-game management) is a good example of this strategy.
- 4) Facilitating interaction; This strategy has to do with creating conditions for the favorable development of strategic consensus building. Improved decision support technology (planning-game management) and establishing information sharing/dissemination system (planning-game management) are two examples.
- 5) Mediation and arbitration; An important element of mediation and arbitration is the provision of conflict resolution mechanisms. Insights/recommendations for disaster response also deal with this issue. For example, enhancing conflict

resolution mechanisms and effective use of authority (planning/improvisation mix-game management) deal directly with this issue.

Also, among the network structuring strategies that Kickert et al. suggest, insights and recommendations for disaster response can be associated with the following strategies;

- 1) Changing relations among actors; Many recommendations fall under this strategy. For example, (1) integration of the emergency management office into day-to-day activities and structure of local government (planning-network structuring) and (2) building partnerships and trust among public agencies
- 2) Influencing distribution of resources among actors; For example, integration of Department of Defense's resources into a broad federal response system (planning-network structuring).
- 3) Altering established rules; Allowing decentralization and fostering self-organization (planning/improvisation mix-network structuring) and reforming the structural arrangement in a more organized and less hierarchical way (planning-network structuring) are good examples.

#### **4.4.2.2. Framing the conceptual relations**

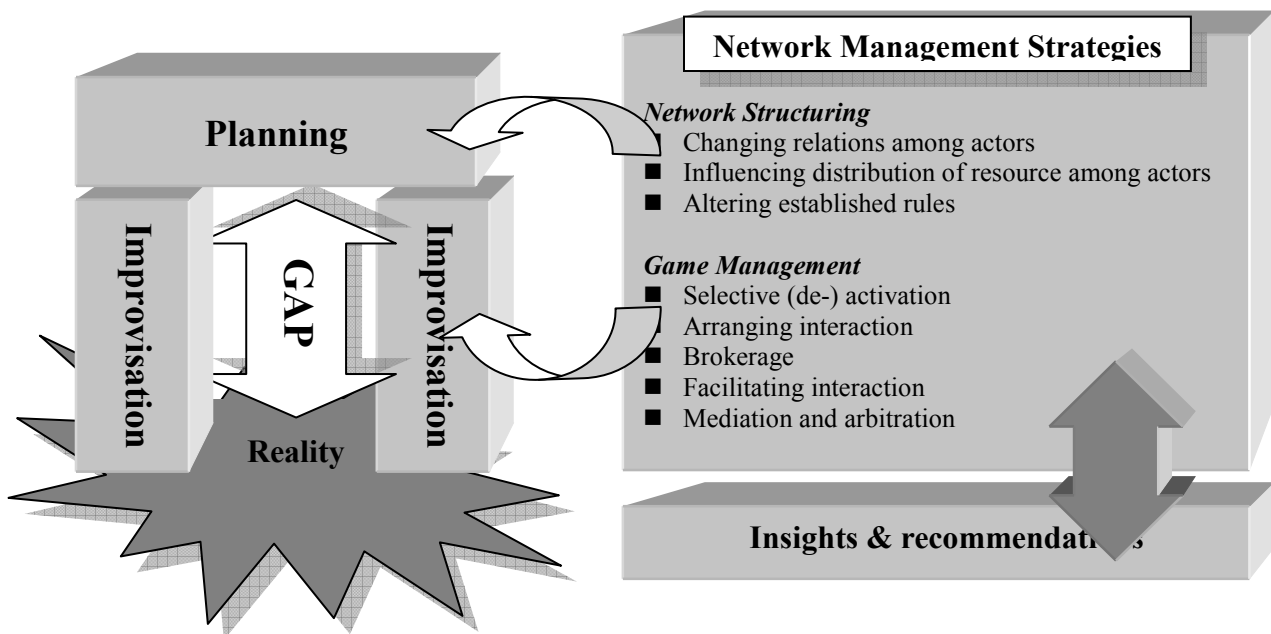
Planning (or preparedness) and improvisation are two foundations of emergency management (Kreps 1991; Wachtendorf and Kendra 2004). Kreps (1991) wrote, "Without improvisation, emergency management loses flexibility in the face of changing conditions. Without preparedness, emergency management loses clarity and efficiency in meeting essential disaster related demands." While reciprocally interpreting insights and recommendations of emergency response to network management strategies, it becomes clear that strategies of network management fall into either planning or improvisation. As a result, a conceptual relationship among aggregated insights/recommendations, network



management strategies, and planning/improvisation can be framed as follow (Figure 3 shows the conceptual relationship):

- 1) Emergency response has to deal with the management of new (emergent or emerging) networks. Thus, network management strategies can address aggregated insights and recommendations.
- 2) Planning and improvisation are two foundation of emergency response. Improvisation fills the gap between plans and reality. As a result, network management strategies can be postulated as either planning or improvisation of emergency response.

**Figure 3. New conceptual framework for emergency response**



\* Figure 3 contain the information of Figure 2 and it is provided in a very shortened form. Figure 3 depicts the argument that organizational improvisation can fill the gap between planning and reality while I tried to deliver the information that there are two dimensions in network management, game management and network structuring. I also categorized all the information and recommendations of Figure 2 into seven categories; selective activation, arranging interaction, brokerage, facilitation, mediation and arbitration, changing relations among actors, influencing distribution of resource among actors, and altering established rules. By so doing, this figure provided a new conceptual framework for emergency response.

## 4.5. CONCLUSION

In the first section of this chapter, a two by two matrix is proposed as an integrative framework in synthesizing selected research results. The matrix was used as guidance in framing lessons learned in disaster responses and, as a result, it produces an integrated list of research findings. Since the suggested matrix is grounded in network management, an important perspective of public administration and management, this research synthesis might be useful for scholars and practitioners in emergency management. I also incorporated the prevailing perspective of emergency management to public administration by covering representative research on disaster response.

The processes and the results of meta-synthesis have at least two implications. First, the synthesis has contributed to the scholarship of public administration by incorporating major research findings of emergency management for public administration. As mentioned earlier, emergency management has been a neglected area in public administration and the growing interest for emergency management among public administration scholars is only a recent phenomenon. Considering that there is a need to incorporate research findings from other disciplines, this chapter can be seen as a response to that need.

Second, the contents of the synthesis may contribute to the practices of emergency management. The meta-synthesis results provide valuable instructions to practitioners; the results inform us that planning and improvisation are inevitably intertwined. Therefore, practitioners need to conduct post-disaster improvisation as well as pre-disaster planning,

which means that we may need to plan for improvisation in some cases. Also, practitioners can use the meta-synthesis results as check lists for preparation and planning since each item in the two-by-two matrix is a good action agenda. If the synthesized strategies can contribute to a program or policy, it will be a good example of research informed policy-making. However, it is difficult to inform policy-making with research results because of the divide between scholars and practitioners. One can easily find many cases that show that emergency managers simply do not know, or do not pay attention to, basic research findings; the bi-partisan committee of the House wrote, “As with so many other failures related to Katrina, what’s most vexing is that emergency managers should have known such problems would arise among the chaos” since those problems are well documented in research findings. Considering this, the meta-synthesis results should be regarded seriously among practitioners because it tries to pull together ‘representative’ research findings on emergency response operation.

## CHAPTER 5, AN ANALYSIS OF HURRICANE KATRINA RESPONSE OPERATIONS: A NETWORK MANAGEMENT PERSPECTIVE

This chapter delves into the analysis of Hurricane Katrina by conducting qualitative content analysis of government reports. Researchers from various disciplines have studied Hurricane Katrina response operations with several using content analysis as their research methodology. However, most of the studies deal with communication or media related topics.<sup>21</sup> The content analysis in this chapter is somewhat different from those studies. First of all, the objects of the content analysis of this chapter are the government reports on Hurricane Katrina responses from the White House, the House, and the Senate. The reasons and rationales for selecting these documents for the analysis will be discussed in a later section. Second, the content analysis in this chapter is regarded as a tool for translating what happened during the Katrina response operation into the network management perspective. In conducting the translation, I will rely on the meta-synthesis results done in the previous chapter.

This chapter then begins with the discussion of qualitative content analysis. Also, procedures and tasks for content analysis will be elaborated. After that, a brief overview of the Hurricane Katrina response operations will be presented. Finally, the results of the

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<sup>21</sup> For example, Stock (2007) analyzes news coverage of Hurricane Katrina in 'Katarina and Anarchy: A content analysis of a new disaster myth.'

qualitative content analysis and the theoretical/practical implications of them will be discussed.

## **5.1. QUALITATIVE CONTENT ANALYSIS**

According to Graneheim and Lundman (2004), there have been conflicting opinions about qualitative content analysis. That is, qualitatively oriented content analysis is not readily acceptable to researchers since content analysis has been regarded as an objective, systematic and quantitative method dealing with manifest content of communication. Even though researchers, especially from psychology, nursing and education, have tried to establish reliable procedures and logic for qualitative content analysis, there are still unresolved issues in applying the method to qualitative analysis (Graneheim and Lundman 2004). Before discussing those unresolved issues, there is a need to look at basic concepts of qualitative content analysis. Also, issues and procedures for the method should be discussed.

### **5.1.1. Important features of qualitative content analysis**

Content analysis is a very flexible method for analyzing text data. Because of its flexible features, the use of the method ranges from impressionistic, intuitive, interpretive analyses to systematic, strict textual analyses (Hsieh and Shannon 2005). Krippendorff (2004) argues that even the most quantitative approaches cannot take away from the qualitative nature since all reading of texts is ultimately qualitative. In the same vein, some

scholars have supported qualitative content analysis, rather than a more quantitative approach, by arguing that “overemphasis on quantification tends to lessen the accuracy of analysis” (Kracauer 1952).

Before delving into characteristics of qualitative content analysis, it is important to look at the relationship between quantitative content analysis and qualitative content analysis. Kracauer (1952) provides an excellent response for that. He wrote,

Quantitative analysis includes qualitative aspects, for it both originates and culminates in qualitative considerations. On the other hand, qualitative analysis proper often requires quantification in the interest of exhaustive treatment. Far from being strict alternatives the two approaches actually overlap, and have in fact complemented and interpenetrated each other in several investigations.

Graneheim and Lundman’s (2004) argument is also related to the complementary relations between the two approaches. They see that qualitative content analysis can be applied to both the analysis of ‘manifest content’ and ‘latent content’ of a text. The analysis of manifest content focuses on ‘what a text says’ and tries to describe the visible and obvious components of a text. Conversely, the analysis of latent content deals with ‘what a text talks about’ and tries to interpret underlying meanings of a text. (Graneheim and Lundman 2004).

Nevertheless, when it comes to the issue of frequency counts, the qualitative approach and its quantitative counterpart see the frequency counts differently. Indeed, the qualitative approach is relatively free from the adoption of a frequency count for an analysis, while its quantitative counterpart put emphasis on it. However, it is important to note that it doesn’t necessarily mean that qualitative content analysis will not have any

frequency count at all. In other word, qualitative content analysis may or may not use frequency counts. Generally speaking, however, the qualitative method put more emphasis on substantive meaning of a text (Kracauer 1952).

Several important concepts need to be addressed. Concepts of *meaning unit*, *condensation*, *code*, *category*, and *theme* are closely related to the processes of qualitative content analysis. It is important to discuss these concepts in detail. According to Graneheim and Lundman (2004), *meaning unit* refers to “words, sentences or paragraphs containing aspects related to each other through their content and context.” ‘*Condensation*’ refers to the shortening processes of texts. ‘*Code*’ refers to the label of a meaning unit. *Category* is defined as “a group of content that shares a commonality.” Meanwhile, categorization is the core process of qualitative content analysis<sup>22</sup>. Finally, a ‘*theme*’ is a thread of an underlying meaning and focusing on theme is perceived as looking at latent content of a text (Graneheim and Lundman 2004). In Chapter One, I wrote, “As for the unit of the analysis, the study will adopt ‘theme’ as unit of analysis.” Thus, the unit of analysis of this chapter is theme and it means that I will focus on latent content of government reports on Hurricane Katrina.

### **5.1.2. Procedures in conducting qualitative content analysis**

Schilling (2006) wrote, “Many researchers reject the idea that qualitative research can be represented as a linear process of stages and tasks.” However, Schilling argues that

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<sup>22</sup> In most cases, researchers need to explain the rationale of categorization in detail before an analysis. However, things are different here; since meta-synthesis chapters (Chapters 3 and 4) provided a good conceptual category, I used the results of my findings from those chapters for the content analysis.

there is a need to establish some kinds of principles, heuristics, and rules that can guide the actions and decisions of researchers for qualitative content analysis. Schilling provides five steps of qualitative content analysis. The following are brief descriptions of what Schilling suggests for the steps of qualitative content analysis;

- 1) From tapes to raw data: This step involves issues in tape recording and transcribing interviews. (We don't have to pay much attention to this process since content analysis in this study will not include the interview process.)
- 2) From raw data to condensed protocols: This step has to do with working on definitions and rules that will guide the whole analysis. First of all, one needs to define the unit of analysis. Also, categories should be either developed or deductively applied. After these, the condensation process will follow. During the condensing process, one needs to reduce materials while preserving the core contents. (In this chapter, developed categories from meta-synthetic processes will be used for this stage.)
- 3) From condensed protocols to a preliminary category system: This process is about structuring preliminary categories, which means attaching each condensed statement to one of the defined dimensions. (Again, we will skip this process, since this study will use meta-synthesis results as categories for content analysis.)
- 4) From preliminary category systems to coded protocols: In fact, this process is the heart of qualitative content analysis. Formulating categories, revising categories and coding process will be conducted in this step. Among these processes, revising categories is an important process to ensure reliability of the analysis. According to Schilling, checking the difference among coders after 10 to 50 percent of the material has been coded is a rule of thumb for this process.



- 5) Concluding analyses and interpretation: In this step, conclusion will be drawn through the processes of comparing objects within and between categories or mapping concepts.

Schilling's five steps for qualitative content analysis can be a heuristic for the process that is attempted in this chapter. While this study relies on Schilling's five steps, there is a need to modify some parts of the steps since the content analysis that will be conducted in this chapter is somewhat different from what Schilling is assuming. In other words, the analysis attempted here does not need to go through the process of categories formulation.<sup>23</sup> For this reason, the content analysis that will be conducted in this chapter is similar to what Hsieh and Shannon called 'directed content analysis.' In directed content analysis, codes are defined before and during data analysis. Codes are derived from theory or relevant research findings (Hsieh and Shannon 2005). The meta-synthesis result is assumed as guiding theory or existing research findings that will direct the coding.

## **5.2. ANALYSIS OF GOVERNMENT REPORTS; PROCEDURES AND ISSUES**

As mentioned earlier, the objects of the content analysis are the government reports on Hurricane Katrina responses from the White House, the House of Representatives, and the Senate. Since the goal of the analysis is looking at Hurricane Katrina response operations from the perspective of network management, the qualitative content analysis that is conducted in this chapter can be seen as a meaningful tool for that

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<sup>23</sup> It is because meta-synthesis results will be used as categories

goal. In this section, several issues including document selection, and designing processes and tasks will be discussed.

## 5.2.1. Documents Selection

### 5.2.1.1. Selection process

Before elaborating the coding procedures and tasks, there is one thing that needs to be discussed, which is the choice of documents. After reading broadly about what had been said about Katrina, I selected three national government documents that I thought would serve as a reasonable selection of documents to illustrate the translation of findings into network management categories of meta-synthesis. In order to get expert opinions about the choice of documents, I conducted expert interviews and surveys with 9 respondents out of 27 asked to participate. The respondents were selected because of their reputation and scholarship in emergency management<sup>24</sup>. These nine experts responded with their opinions about the documents choices. The survey questions or interview questions are as follow.

After completing the meta-synthesis, the study will review several government documents resulting from Hurricane Katrina in terms of the types of strategies for emergent network management. The following documents are the ones selected for research review.

- 1) *A Failure of Initiative: Final Reports of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina (U.S. House)*

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<sup>24</sup> I participated in the 2007 Annual Workshop of the Natural Hazard Center at the University of Colorado and the 2007 Hazards and Disasters Researchers Meeting in order to familiarize to the field and scholars.

2) *Hurricane Katrina: A Nation Still Unprepared (U.S. Senate)*

3) *Hurricane Katrina, The Federal Response to Hurricane Katrina:  
Lessons Learned (The White House)*

- Do you think these documents are representative of reports dealing with Hurricane Katrina response operations?
- Do you think these documents are appropriate to use to describe some of the strategies for managing emergent networks in disaster?
- If 'No' to either of the above, what documents would you suggest?

Of the nine experts who provided their opinions to the first question, four experts said 'yes,' four experts said 'no,' and one expert said that it would not be an issue since a researcher can choose documents as long as the choice has been made reflecting the research focus. As for the second question, the question of appropriateness of the documents in describing network management strategies, four experts said that those documents could be good resources in reviewing some (not all) of network management strategies. However, four experts argue that those documents are not appropriate resources considering the research focus. One expert warns that those documents are mostly elite oriented and do not reflect the ordinary people's viewpoints. With respect to the third question, those experts, who see that the documents choice is not appropriate, suggested that I need to look at reports dealing with lower level governments' response operations as well as many communities' responses.

In reviewing the experts' opinions, I realized that I may not have been as clear as I could have been about the fact that I wanted to use a selection of reports from a case study to examine if, and how, the themes in the reports could be translated into a common

framework, network management. If the goal of this study had been to view all the perspectives on Hurricane Katrina to gauge the plausibility of recommendations or to be inclusive of all perspectives, including those of local governments or nonprofit, these reports would not have been sufficient. However, since the purpose of analyzing the reports is to illustrate if, and how, the meta-synthesis categories could be useful in understanding various recommendations, these reports, which have been referenced continuously in the literature, seemed most appropriate. Thus, I used the experts' opinions as advisory and given the somewhat conflicting recommendations and my reasoning above, I decided to maintain the original choice, mainly because my intent in this study is to illustrate the meta-analysis. Further justification of my choice is as follows.

Retaining the three reports from a national perspective seemed most appropriate since translating the literature in the meta-synthesis had revealed complexity in responses. Staying with a national level perspective assisted me in bounding to some extent the number and types of responses with which to deal for this first application of the meta-synthesis. Additionally, these three reports at the national level deal with the relations among government organizations and other converging groups/organizations and, because of this, they are good resources for the analysis. Further, since public organizations have played critical roles in many of the emergency responses, selecting the aforementioned three government reports for the analysis of Hurricane Katrina responses is meaningful.

Second, scholars recommend that these reports are crucial to review. For example, Ink (2006) sees that the reports from the House and the White House are two of the most important public documents about Hurricane Katrina. Ink (2006) sees that both documents

are highly informative and constructive. Landy (2007) also evaluates that the House report focuses on ‘fact finding’ and he also sees that the White House report is also grounded by almost the same perspective.<sup>25</sup> Further, one expert of my survey suggests that Senate report is a good source for outlining what happened during the response operation.

Third, these reports can be classified as examples of reports focusing on response-generated demand. As we have seen in National Research Council’s study in Chapter 4, there are two kinds of demands in emergency situations. The one is agent-generated demand and the other is response-generated demand. Agent-generated demands are dependent upon the kinds of emergency situations such as flood, fire and terrorist attack. They define the term as “the types of losses and forms of disruption that disasters create” (National Research Council, 2006). These demands are case-specific. However, response-generated demands are case-neutral since the need for situation assessment, crisis communication and coordination, and response management are almost the same across different emergency cases. The two congressional reports from the House and the Senate, and the White House report on Hurricane Katrina response focus on failures in meeting response-generated demands<sup>26</sup>.

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<sup>25</sup> Meanwhile, Landy argues that the House report stands out when it comes to fact finding, if not satirically saying faultfinding.

<sup>26</sup> The documents also described that there were some successes in Katrina response operations: For example, the National Weather Service’s forecast was highly accurate, evacuation process considered successful one, and the Coast Guard’s performance was outstanding. However, I argue that the documents focused mostly on what went wrong from the standpoint of so-called the best-practices since overall failure was so colossal.

### 5.2.1.2. Overview of the Reports

Brief overviews about the objects of the analysis, the three government reports, will be discussed in this section. The first report for the analysis is the White House report on Hurricane Katrina. On September 15, 2005, President Bush ordered a comprehensive review of the federal response to Hurricane Katrina. After several months' investigation, Townsend, the presidential assistant for homeland security and counterterrorism, submitted the report to the president on February 23, 2006. As mentioned previously, the report described the Hurricane Katrina responses in a chronological manner, pre-landfall and a week of crisis (August 29-September 5). Also, the report offers 125 recommendations for corrective action.

The second report for the analysis is the House report on the Hurricane Katrina. On September 15, 2005, the House established a bipartisan committee for the investigation of the catastrophe. The purpose of the establishment of the Select Committee was to find "what was supposed to happen under federal, state, and local plans against what actually happened." After several months' endeavors, the 500-plus pages report, *A Failure of Initiative*, was finalized on February 15, 2006. The report deals with almost every aspect of the catastrophe; pre-landfall preparation and Katrina's impact, Hurricane Pam, levees, evacuation, the national framework for emergency management, FEMA preparedness, communications, command and control, the military, law enforcement, medical care, shelter and housing, logistics and contracting, and charitable organizations.

The last government report for the analysis is the Senate report. The report was

prepared by the Senate Committees on Homeland Security and Governmental Affairs (Senate Report 109-322) and it was released December 2006. Since this report was the latest report among the three government reports, the report seemed to incorporate the findings of the previous two reports. In fact, the 700-plus pages report, *Hurricane Katrina: A Nation Still Unprepared*, provides the most comprehensive analysis regarding Katrina response operation. It is composed of the narrative part, chronological descriptions, and analysis part that deals with key organizations and important functions in emergency responses. With respect to recommendations, the report offers seven recommendations include replacing FEMA with a heartier organization.

## **5.2.2. Process design and tasks in coding process**

### **5.2.2.1. Overall process design**

The objects of the analysis, the government reports, are organized into issue topics, which mean that themes are already identified. Considering that one of the important goals of qualitative content analysis is categorizing textual information into themes, the content analysis of this chapter is somewhat different from the content analysis usually conducted. It can be argued that the interpretation of the themes into network perspective is a kind of content analysis. Indeed, content analysis is a very flexible research method and, in this chapter, the content analysis is being postulated as a translation tool of texts to a different theoretical perspective.

In the meantime, the qualitative content analysis procedures suggested in previous sections needs to be modified since the focus of the analysis is somewhat different from what the suggested procedures assumed. However, procedures were initiated to ensure that the application of content analysis in this study would maintain methodological rigor. First of all, I hired another coder in order to test coding consistency. The coder's tasks are reading, interpreting, and presenting themes from a network management perspective. Then, comparison of the coding results, discussion and resolution of differences between the coder and me were conducted. For the issue of how much text needs to be coded separately, which is a sampling issue of the inter-coder reliability test, Schilling's (2006) answer is that comparison of coding results for 10-50% of texts might be enough for checking inter-coder reliability. Thus, I used the executive summaries of government reports as samples of texts for the test.

After testing the coding consistency for inter-coder reliability, the method known as 'intra-coder reliability test' was used for making sure of consistent coding. This method provides for test-retest comparisons of coding by the same observer at different times. Schilling (2006) argues that test-retest comparison is one of way to ensure reliability of coding. Thus, this study has two different measures to ensure consistent coding process. As a result, procedures for this analysis will be as follows:

- 1) Conducting independent coding for 'executive summaries' of the reports,
- 2) Comparing results between coders (inter-coder reliability test),
- 3) Assessing the differences and modifying contents of coding through discussion,
- 4) Conducting coding process for the whole documents and checking the consistency of coding periodically (intra-coder reliability test).



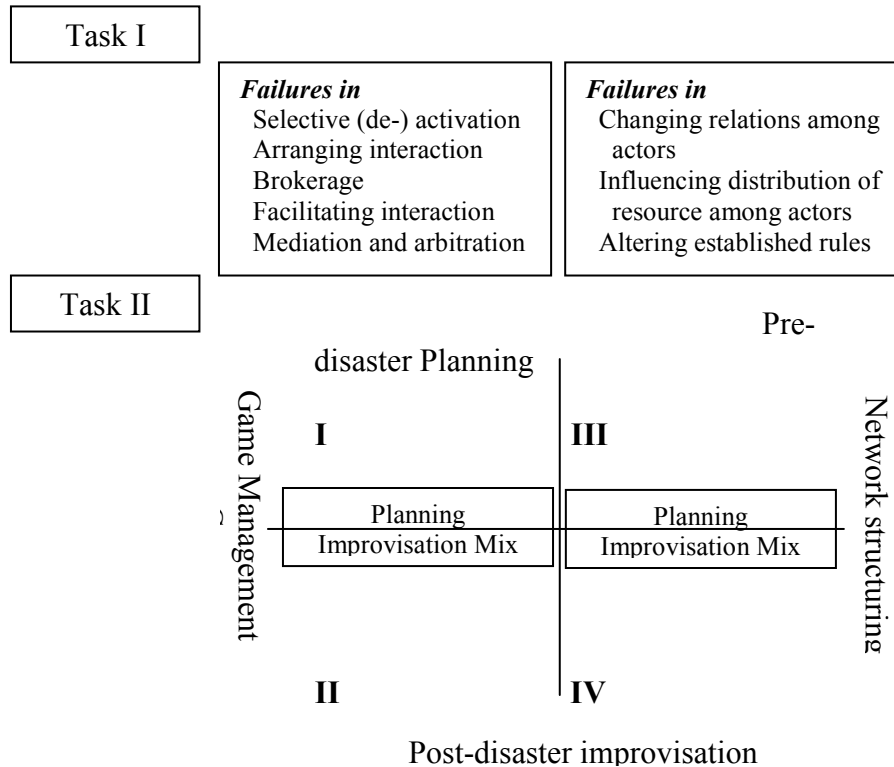
#### 5.2.2.2. Tasks in the coding process

Since this study uses meta-synthesis results for the categories of the content analysis, the real tasks of content analysis was to see if the categories of the network management strategies established in the meta-synthesis could be used to categorize Katrina response operations. What the task really means is to answer the following questions: how can the description of the responses be understood in network management terms? Were responses to Katrina seen as failures of game management or network structuring failure? Can they be described as a problem of planning, improvisation or both? Thus, a final result of content analysis is mapping myriad failures (or responses) of Katrina response operations into the suggested research synthesis framework presented in Chapter Four (see Figure 2, page 99). Also, another point of the analysis would be to translate the assessment of an aspect of the described response operation in terms of the categories of activation, facilitation, or network structuring (see Figure 3, page 104).

In other words, there are two main tasks of analysis in this chapter. The first task is to categorize the described failures in the reports of Hurricane Katrina response operations into the eight categories. That is, categorizing failures into game management aspect (selective (de-) activation, arranging interaction, brokerage, facilitating interaction, mediation and arbitration) or network structuring aspect (changing relations among actors, influencing distribution of resource among actors, altering established rules). The second task is mapping game management aspects and network structuring aspects into *pre-*

disaster planning focus – post-disaster improvisation continuum. Figure 4 depicts these tasks<sup>27</sup>.

**Figure 4. Two tasks of content analysis**



### 5.2.2.3. Reliability test results

As mentioned earlier, the processes of content analysis are as follow; First, executive summaries<sup>28</sup> were used for inter-coder reliability test (See Appendix). The first

<sup>27</sup> Again, Figure 4 is presenting the two tasks that will be conducted in Chapter 5. Task I is recognizing what failed in response to Hurricane Katrina. That is, failures of Katrina response operations will be categorized into the failures in game management or failures in network structuring. In the second phase (Task II), these will be mapped in the two-by-two matrix.

<sup>28</sup> Since there is no executive summary, Chapter 5 was used in the case of the White House report. Chapter 5 is dealing with lessons learned from Hurricane Katrina response operation and provides 17 lessons, which is, in fact, a good summary.

round of inter-coder reliability test exhibits acceptable percentage of agreement. Overall, 42.3% of the two analysts' coding (44% for the White House report, 43% for the House report, and 40% for the Senate report) resulted in the same categorization<sup>29</sup>. The disagreed portion of coding was resolved through discussion. After examining coding consistency with another coder, I conducted the coding process for the rest of the reports. Coding process for the rest of the reports focuses on searching other findings not included in the executive summaries. The searching process and coding results were periodically checked in order to ensure consistent coding process (intra-coder reliability test).

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<sup>29</sup> There are several indices have been developed in order to measure inter-coder reliability. For example, Holsti's 'coefficient of reliability,' and Krippendorff's 'agreement coefficient' are widely used measures. However, only the percentage of agreement was calculated in this study since this analysis is qualitatively oriented and the disagreement of coding needs to be resolved through discussion process, anyway.

## **5.3. HURRICANE KATRINA RESPONSE NETWORKS**

Now, we turn our attention to Hurricane Katrina response networks. The three reports are good sources for providing an overview of Hurricane Katrina. The following overview relies on those reports.

### **5.3.1. Overview of Hurricane Katrina response**

Hurricane Katrina, a category 3 hurricane, can be seen as normal one in terms of its category. There have been 75 Katrina-size hurricanes since 1851, however, the real strength of Katrina was larger than most (The White House, 2006). Hurricane Katrina was the most destructive and expensive natural disaster in U.S. history. The death toll was 1,577 in Louisiana and economic losses were as great as 150 billion dollars (U.S. Senate 2006). High-speed wind accompanied by the Hurricane storm surge and flooding followed by the levee breach in New Orleans was responsible for these losses. In the meantime, most of the death toll came from New Orleans even though the Hurricane bypassed the city. Many people believe that a significant portion of the death toll of the city of New Orleans would have been prevented if timely mandatory evacuation had been executed.<sup>30</sup> The Governor of Louisiana and the Mayor of New Orleans have been criticized because of their late issue of mandatory evacuation orders, which might have saved many lives. Their hesitation in issuing mandatory evacuation orders stood out when the National Weather

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<sup>30</sup> By some accounts, the evacuation was very successful, albeit late. The Hurricane Pam exercise estimated that approximately 79% of the population would evacuate. In the event, according to the Deputy Director of the Louisiana Office of Homeland Security, about 90% of metropolitan New Orleans evacuated before landfall. (Colonel (Ret) Jeff Smith, Deputy Director, Louisiana Office of Homeland Security and Emergency Preparedness, testifying before the Select Committee Hearing, December 14, 2005)

Service (NWS) and the National Hurricane Center had provided adequate warning 56 hours before landfall.

The House and Senate reports are divided into several sections and each section deals with issues in meeting the response-generated demands. Delay in issuing mandatory evacuation orders is one of the most criticized aspects of the Hurricane Katrina responses. In addition to evacuation, other criticisms include the national framework for emergency management, FEMA preparedness, communication issues, problems in maintaining effective command and control systems, the role of the military, issues of law enforcement, medical care issues, shelter and housing issues, logistic and contracting issues, and, finally, the role of charitable organizations.<sup>31</sup> In general, all three reports have overwhelmingly negative evaluations for each section except for the performance of the National Weather Service and the Military. More than anything else, the reports unanimously criticized top officials including the President and the secretary of the DHS for their failures in sharing situational awareness and adaptive decision-making. The reports maintain that, because of the failures, a proactive role of the federal government, the so-called “push system,”<sup>32</sup> was not working. In the same line of argument, the reports conclude that many of the external assistance potentials, including federal resources and capacities and those of non-governmental organizations, could not be properly used while local capacities were immediately overwhelmed with the catastrophe.

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<sup>31</sup> Meanwhile, the White House report chronologically described the response operation.

<sup>32</sup> A “push system” refers to a system “where federal authorities proactively deploy resources to mobilization centers close to the disaster or, in certain circumstances, directly to the incident scene to assist in responding to the incident. Conversely, in a “pull system,” federal authorities have to wait until states and localities request their involvement.

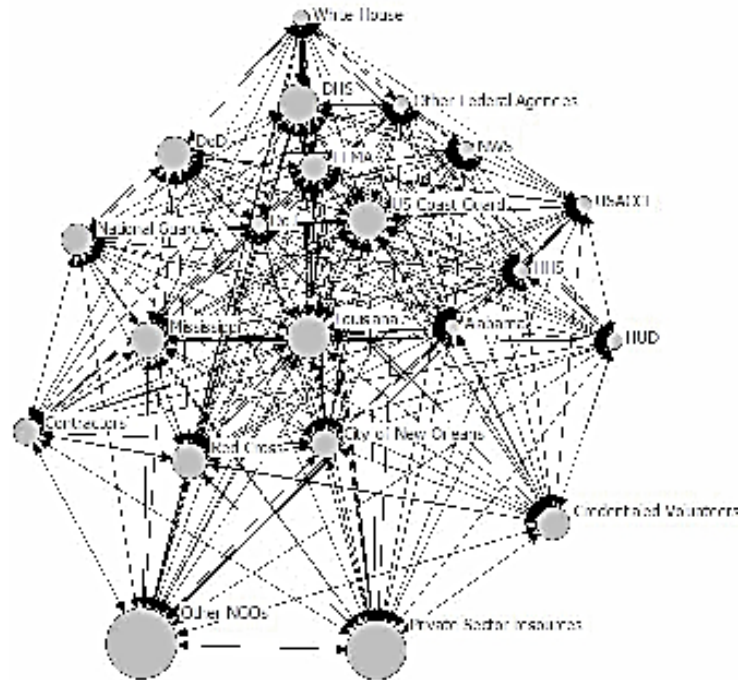
### **5.3.2. Response networks in Hurricane Katrina**

How networks interacted in Hurricane Katrina has been one of the questions surrounding this disaster. Since this study focuses on using Hurricane Katrina reports as an illustration of the application of the meta-synthesis, effort to map the network serve as background to this project. One problem of mapping is that it is highly time consuming and quite expensive since all interactions need to be coded and the codes need to be re-examined. Thus, I adopted a much abbreviated mapping process in an attempt to get a simple overview of the Katrina response networks. That is, I read the government reports on Katrina carefully and tried to identify major organizations or organizational groups. A total 21 organizations or organizational groups have been identified in the Katrina catastrophe in the government reports. Admittedly, there were many more organizations and organizational groups involved in Katrina response operations. However, those 21 organizations and organizational groups are those which received most of the attention in government reports.

Using UCINET, I generated model interactions among the components of the Hurricane Katrina response networks. In other words, Figure 5 is an ideal model of networking and this status of networking is hardly ever accomplished in reality. Also, it's not desirable to try to establish this kind of network since it might lead to information overload when every organization interacts with other organizations as in the network depiction. Yet, the visualization of model networking helps us to understand how complex

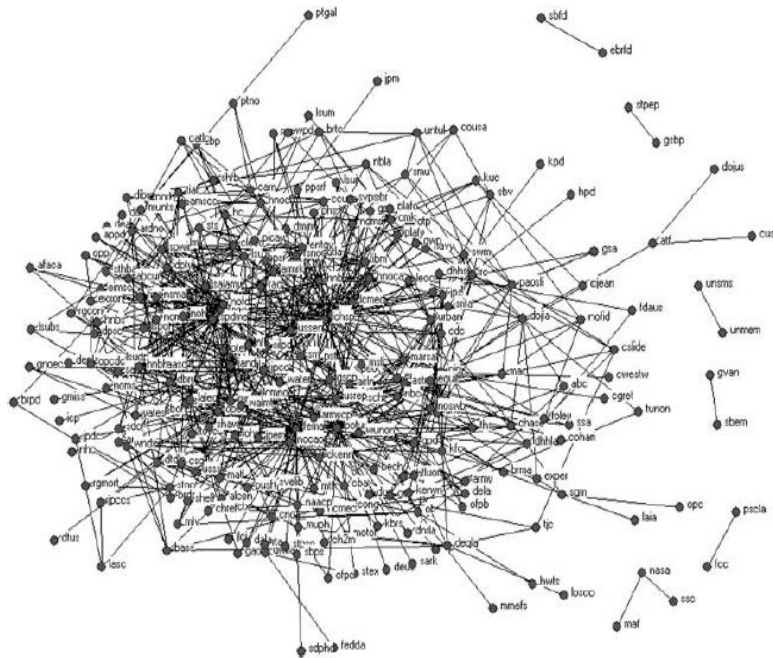
the network interactions would be. If not all, some portion of network interaction should work properly in order to facilitate collective problem solving.

**Figure 5. An interaction model for Hurricane Katrina response networks**



Now, a question may be raised; how then did the real networks look? One of the best estimate of network interaction is that of Comfort and Haase (2006) who tried to map Katrina response networks. They used the local newspaper (The Times Picayune) as a mapping source. They identified 535 organizations that participated in Katrina response operations and Figure 6 is the result of the network mapping.

**Figure 6. Hurricane Katrina response networks**



Source: Comfort and Haase. 2006. "Communication, Coherence, and Collective Action: The Impact of Hurricane Katrina on Communications Infrastructure." *Public Works Management & Policy* 10, no. 4

Those two networks diagrams yield at least two implications. First, those diagrams represent how complex the interactions are. Considering that all of those interactions happened in a very time-constrained circumstance, the complexity and intensity of interactions defies description. Second, as we see in Figure 6, some players and some groups of players are isolated during the response operations. Although mapping the network interactions is beyond the scope of this study, the isolated players would be viewed within the network framework as activation failures in network management.<sup>33</sup>

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<sup>33</sup> While reading government reports, I could recognize myriad cases of activation failures. Even within inter-government relations, there are cases of activation failures. In fact, activation failures within the federal



Activation issue should be regarded as important because government cannot take on all the tasks required in emergency response operations. Also, the complexity of the network interactions emphasize that government needs to incorporate human and non-human resources from private or non-profit sector in order to accomplish effective emergency response operations.

## **5.4. NETWORK MANAGEMENT PERSPECTIVE AND HURRICANE KATRINA RESPONSE**

This section is devoted to a content analysis for Hurricane Katrina following the procedures that were discussed in previous sections. As noted earlier, qualitative content analysis conducted in this section is an interpretive translation of the reports and the translation is grounded in the network management perspective.

### **5.4.1. The White House Report**

Compared to the congressional reports, the main characteristic of White House report is its chronological description of Hurricane Katrina response operation. The organizations of the House and Senate reports reflect major issues in response operations.

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system are caused by the fact that the U.S. emergency management system is basically a ‘pull system.’ In other words, the federal government need local or state government’s request for federal assistance. This is a good case of network activation and this should be regarded seriously. Meanwhile, when it comes to the incorporation of non-governmental instrumentalities to response networks, network activation issue become much more important. The House report wrote, “[t]he efforts of charitable organizations in the Gulf coast represent the largest disaster response effort in United States history.” Nevertheless, we have witnessed that there had been much more charitable organizations not allowed to assist disaster relief activities.

However, the White House report describes the response operation as events unfolded. That is, the report starts with the discussion of the relations between federalism and emergency management which provides general information about the current system of national emergency management. Then, the report describes pre-landfall situations and a week of crisis (from Aug 29 - Sep 5). Finally, the report discusses lessons learned from the response operations.

Among other chapters, Chapter 5 is the epitome when it comes to understanding what happened and what went wrong during Katrina response operation. I reviewed the chapter of lessons learned carefully. The chapter provides 17 sections of lessons learned. Each section can be interpreted into the network management perspective. That is, the description of what went wrong or what we learned from the failures can be mapped into the framework of research synthesis.<sup>34</sup> In order to do this, I read each issue item carefully, condensed the themes as they were stated in the report succinctly, and interpreted each theme into previously established network management strategies. Put differently, I

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<sup>34</sup> The following list is seventeen issue items in the chapter and each issue item contains a theme;

**▲ Hurricane Katrina Critical Challenges**

- |  |  |
|--|--|
| 1) National Preparedness                                     | 2) Integrated Use of Military Capabilities |
| 3) Communications  | 4) Logistics and Evacuations               |
| 5) Search and Rescue   | 6) Public Safety and Security              |
| 7) Public Health and Medical Support                         | 8) Human Services                          |
| 9) Mass Care and Housing                                     | 10) Public Communications                  |
| 11) Critical Infrastructure and Impact Assessment            |  |
| 12) Environmental Hazards and Debris Removal                 |  |
| 13) Foreign Assistance                                       | 14) Non-Governmental Aid                   |
| 15) Training, Exercises, and Lessons Learned                 |  |
| 16) Homeland Security Professional Development and Education |  |
| 17) Citizen and Community Preparedness                       |  |

identified the failures of ‘game management’ and the failures of ‘network structuring.’<sup>35</sup>

After being coded, the results underwent inter-coder reliability tests. Differences in coding were resolved through discussion and, then coded again. The followings are the lists of failures in game management. Each failure in this category mostly deals with interactions-related issues.

- Failure of activation
  - With respect to public health and medical support, it has been reported that there was poor coordination of federal assets and failure to incorporate volunteers
  - Government was not prepared to make the best use of foreign support. In addition, government failed to match relief needs with NGO and private sector capabilities.
- Failure in arranging interactions
  - Uncorroborated information aired without communication with government agencies, which revealed poor media relationship.
  - In conducting public safety and security mission, federal, state, and local law enforcement functions were not highly organized.
  - Active duty military and National Guard did not share situational awareness
- Failure of brokerage
  - When it comes to logistics and evacuation issues, governments failed to utilize supply chain management and lacked prior planning for evacuation.
  - Distribution of human services was not sufficiently responsive, not consumer-oriented, not simple and effective
  - Many agencies took actions under their own independent authority while also responding to mission assignments from the FEMA, causing chaos in the very early stage responses.
- Failure of facilitation
  - Search and rescue operations also lacked an integrated S&R (Search and Rescue) incident command

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<sup>35</sup> Even though there were some successes in Katrina response operation, I focused mostly on what went wrong from the standpoint of so-called the best-practices since I thought that overall failure was so colossal.

- Most government agencies from all levels did not know the impact of the disaster on critical infrastructure.
  - Decision-makers at all levels simply were not familiar with the national plans and this resulted in ineffective coordination of the federal, state, and local response.
- Failure of mediation/arbitration
    - For mass care and housing issue, FEMA ignored offers from Dept. of Veterans Affairs, Housing and Urban Development and USDA and private sector and focused on cruise ship and trailer housing.

Meanwhile, the report also makes arguments that can be interpreted as issues of network structuring of national emergency management. Issue items, such as 1) Training, Exercises, and Lessons Learned, 2) Homeland Security Professional Development and Education, and 3) Citizen and Community Preparedness deal with fundamental issues in emergency management in the U.S. and can be interpreted as network level failures. The following are identified as failures in network structuring.

- Failure in changing relations among actors
  - Incorporation of FEMA to DHS caused a deterioration in the relationships between FEMA regional office and state/local government, which are critical for effective coordination.
  - Hurricane Katrina response operation reveals the weakness in training, exercise, internalization of lessons learned, professional development, and education. It also raises questions about citizen and community preparedness.
- Failure to influence the distribution of resource among actors
  - Many available communication assets were not utilized fully because there were no plans to integrate them.
- Failure of altering existing rules
  - Since current system is a pull system, the Department of Defense needs a FEMA request in order to engage in response operation, this is a 21-step process.

As mentioned earlier, failures in game management aspects and network structuring aspects can be mapped into a pre-disaster planning focus – post-disaster improvisation continuum. Figure 7 is the result of the mapping. As one sees the diagram, the White House report is mainly oriented toward the pre-disaster planning focus. Scholars such as Clarke (2001) warned that government might mislead the public by producing “fantasy documents” which give the impression that everything is covered. Also, Kreps (1991) argues that highly elaborate planning could be counter-productive. He suggests that improvisation and ‘modest’ planning should be the two main components of emergency response. Considering these, the White House report’s over-reliance on pre-disaster planning raises questions regarding the effectiveness of government capacity for managing interactions among networks players.

**Figure 7. Mapping failures from the White House Report**  
**Pre-disaster Planning Focus**

<p><i>Failures in Planning</i></p> <ul style="list-style-type: none"> <li>• Search and rescue operation lacks an integrated S&amp;R incident command.</li> <li>• Most of government agencies from all levels did not know the impact of a disaster on critical infrastructure.</li> <li>• Decision-makers at all levels simply were not familiar with the national plans and this caused the ineffective coordination of the federal, state, and local response.</li> </ul> <p><i>Failures in Planning/Improvisation Mix</i></p> <ul style="list-style-type: none"> <li>• Government was not prepared to make the best use of foreign support. In addition, government failed to match relief needs with NGOs and private sector capabilities.</li> <li>• When it comes to logistics and evacuation issue, government failed to utilize supply chain management and lacked prior planning for evacuation.</li> <li>• Uncorroborated information aired without communication with government agencies, which revealed poor media relationship.</li> <li>• In conducting public safety and security mission, federal, state, and local law enforcement functions were not highly organized.</li> <li>• Active duty military and National Guard did not share situational awareness</li> <li>• With respect to public health and medical supports, it has been reported that there were poor coordination of federal assets and failing incorporation of volunteers</li> <li>• Distribution of human service was not sufficiently responsive, not consumer-oriented, not simple and effective</li> </ul>	<p><i>Failures in Planning</i></p> <ul style="list-style-type: none"> <li>• Incorporation of FEMA to DHS caused loosening the relationships between FEMA regional office and state/local government which are critical for effective coordination.</li> <li>• Hurricane Katrina response operation reveals the weakness in training, exercise, internalization of lessons learned, professional development, and education.</li> <li>• It also raises a question about citizen and community preparedness.</li> <li>• Many available communication assets were not utilized fully because there were any plans to integrate them.</li> </ul>
	<p><i>Failures in Planning/Improvisation Mix</i></p> <ul style="list-style-type: none"> <li>• Since current system is a pull system, the Department of Defense needs FEMA request in order to engage in response operation, which takes 21-step process.</li> </ul>
<p><i>Failures in Improvisation</i></p> <ul style="list-style-type: none"> <li>• For mass care and housing issue, FEMA ignored offers from Dept. of Veterans Affairs, Housing and Urban Development and USDA and private sector and focused on cruise ship and trailer housing.</li> <li>• Many agencies took actions under their own independent authorities while also responding to mission assignments from the FEMA, which caused chaos in the very early stage responses.</li> </ul>	

**Game Management**

**Network Structuring**

**Post-disaster improvisation Focus**

## 5.4.2. The House Report

As Ink (2006) noted, the House report is informative and the report's findings are comprehensive and well-constructed. It begins with the examination of preparation status for Hurricane Katrina, then, it deals with problems in evacuation, national framework of emergency management, communication issues, law enforcement, medical care, shelter and housing, logistics and contracting, and issues in working with charitable organizations. Overall, the report lamented the passivity of all levels of governments during the Katrina response operation. The title of the report, 'A Failure of Initiative,' accurately represents the argument of the bi-partisan committee. One of the most compelling statements the committee made is as follows;

Leadership requires decisions to be made even when based on flawed and incomplete information. Too often during the immediate response to Katrina, sparse or conflicting information was used as an excuse for inaction rather than an imperative to step in and fill an obvious vacuum. Information passed through the maze of departmental operations centers and ironically named "coordinating" committees, losing timeliness and relevance as it was massaged and interpreted for internal audiences.

Since the report focuses on managerial problems in response operations, there are important findings that can be construed as failures of network management. I again read each issue item carefully, condensed the themes as they were stated in the report succinctly, and interpreted each theme into the previously established network management strategies. After summarizing the findings of the report, failures in game management were categorized as follows;

- Failure of activation
  - Government failed to take advantage of private transportation assets for the evacuation of medical patients
  - Charitable organizations' faced challenges due to the size of the mission, inadequate logistics capacity, and a disorganized shelter process.
- Failure in arranging interactions
  - Command and control was impaired at all levels, delaying relief
- Failure of brokerage
  - Critical elements of the National Response Plan were executed late, ineffectively, or not at all. Especially, the Homeland Security Operations Center failed to provide valuable situational information to the White House and key operational officials during the disaster.
  - FEMA failed to take advantage of HUD's expertise in large scale housing challenges
- Failure of facilitation
  - The military played an invaluable role, but coordination was lacking (among DoD, FEMA, and the state of Louisiana)
  - Federal, state, and local officials' failure to anticipate the post-landfall conditions delayed evacuation and supports
  - Massive inoperability in communication impaired response efforts, command and control, and situational awareness.
- Failure of mediation/arbitration
  - Diffused responsibilities for levees operations and maintenances one of direct causes of the devastation.

Even though the House report mainly criticizes the lack of timely and decisive actions rather than the lack of plans, it also points out some system-level issues. The

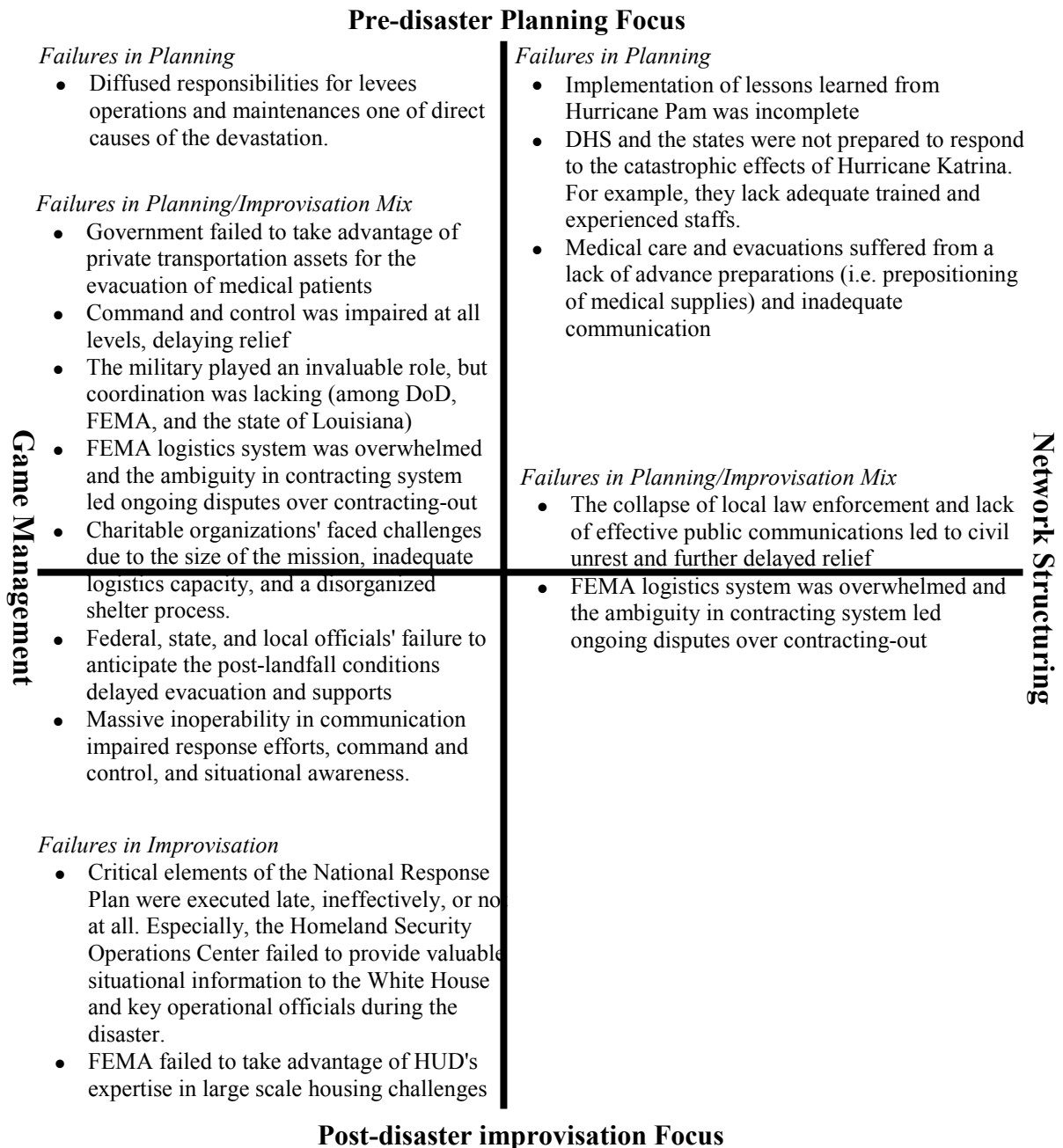


following list is the results of categorizing the committee findings into the network structuring strategies.

- Failure in changing relations among actors
  - The collapse of local law enforcement and lack of effective public communications led to civil unrest and further delayed relief
- Failure of influencing distribution of resource among actors
  - Implementation of lessons learned from Hurricane Pam was incomplete
  - Medical care and evacuations suffered from a lack of advance preparations (i.e. prepositioning of medical supplies) and inadequate communication
  - DHS and the states were not prepared to respond to the catastrophic effects of Hurricane Katrina. For example, they lack adequate trained and experienced staffs.
- Failure of altering existing rules
  - FEMA logistics system was overwhelmed and the ambiguity in contracting systems led to ongoing disputes over contracting-out

After categorizing the committee's finding into network management strategies, it became clear what the committee's conclusion, the failure of initiative, exactly means. In fact, the failure of initiative is the failures of activation, arrangement, facilitation, brokerage, mediation and arbitrations. Also, the committee findings establish that those failures were doomed since there had been failures in structuring network. How, then can the findings be mapped into a pre-disaster planning focus and post-disaster improvisation focus continuum? The result is depicted in Figure 8; it shows that most of the game management strategies fell under the failures in planning-improvisation mix category while many of network structuring strategies fell under failures in planning category.

**Figure 8. Mapping Failures from the House Report**



### 5.4.3. The Senate Report

The Senate report is composed of three parts; the first part is devoted to general description of Hurricane Katrina and the chronology of the response operation. The second part delves into the analysis of the operation. The final part is the presentation of committee findings and recommendations. The Senate report exhibits both characteristics of the House report and the White House report. Indeed, it seems that the report tries to incorporate the findings and recommendations of the reports. The committee repeats similar problems that the previous government reports present and finds four overarching failures; 1) Long-term warning went unheeded and government officials neglected their duties to prepare for a forewarned catastrophes; 2) Government officials took insufficient actions or made poor decisions in the days immediately before and after the landfall; 3) Systems on which officials relied to support their response efforts failed; and 4) Government officials at all levels failed to provide effective leadership. The following list is the result of translating failures in response operation into game management issues.

- Failure in arranging interactions
  - National Guard played important roles but there were no established processes for large-scale, nation-wide deployment of troops for civil supports.
- Failure of brokerage
  - Even though DoD played important roles, the department's preparation efforts were not sufficient and response efforts were not coordinated
  - FEMA did not arrange the Department of Transportation's assets with local needs for post-storm evacuations.
  - FEMA lacked the capacity of acquisitions and distributions of vital commodities

- Failure of facilitation
  - Vital developments in local situations did not reach the White House, and the Secretary of DHS which prevented rapid federal mobilization of resources.
  - DHS leadership failed to bring a sense of urgency to the federal government's preparation for Hurricane Katrina.
  - Leadership failures needlessly compounded the losses.
  - FEMA's former Director lacked the leadership skills that were needed.
  
- Failure of mediation/arbitration
  - Due to the lack of effective law enforcement, real or imagined safety threats were reproduced and these caused unnecessary delays. Also, federal assistance was too slow in coming and often ended up with 'turf war' between DHS and DOJ.
  - While there had been significant planning failures, serious disagreement among officials of several government entities prevented any meaningful planning being put in place.

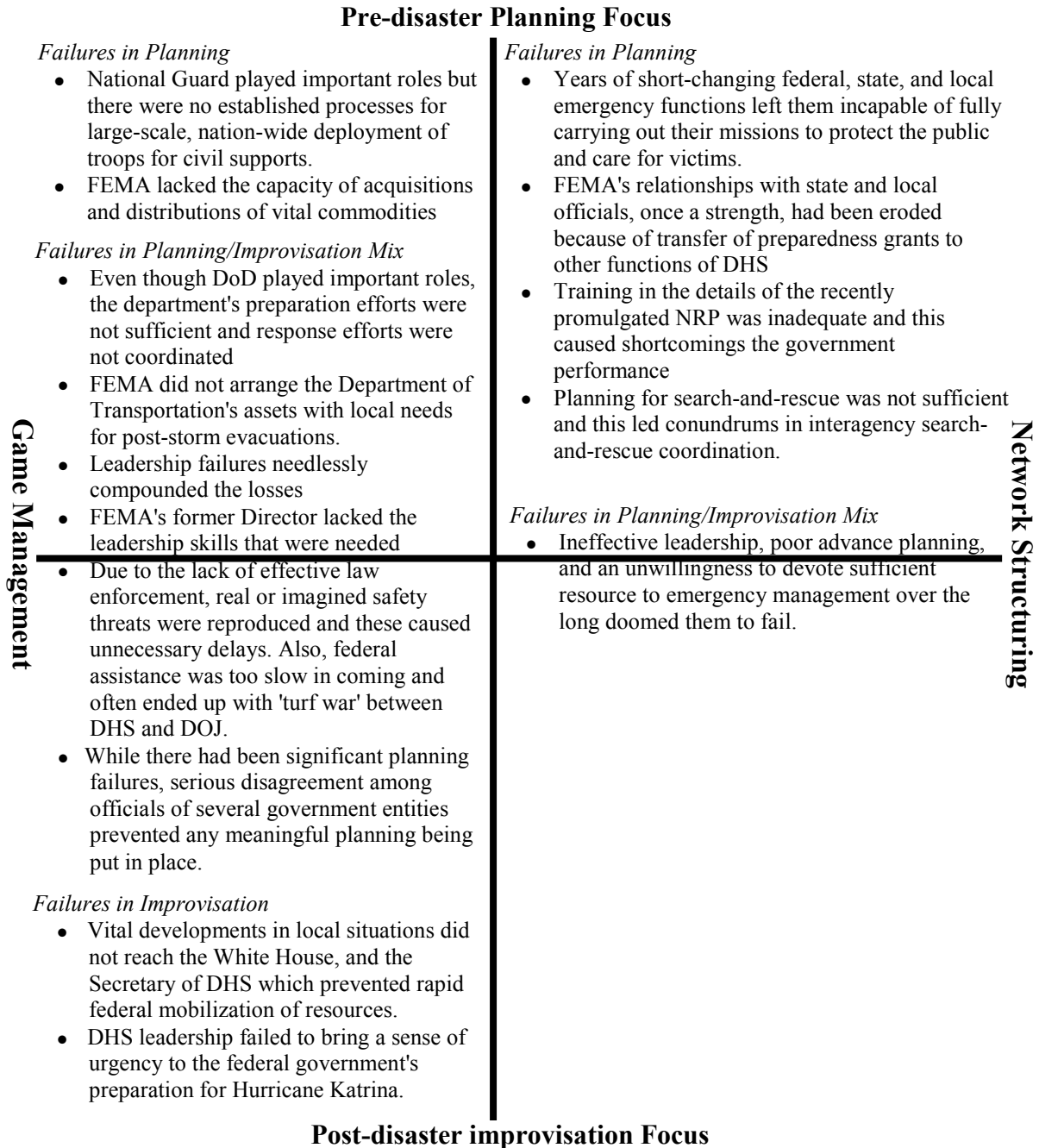
Even though the Senate report shares similar findings with other government reports, the Senate report went further; the committee recommends abolishing FEMA since it maintains that the status of the agency was beyond repair. Then, it proposes to establish a much stronger, more capable structure, to be known as the National Preparedness and Response Authority (NPRO). In order to reach that recommendation, the committee consistently points out system-level issues of emergency management throughout the report. The followings are identified as failures in network structuring.

- Failure in changing relations among actors
  - Years of short-changing federal, state, and local emergency functions left them incapable of fully carrying out their missions to protect the public and care for victims.
  - FEMA's relationships with state and local officials, once a strength, had been eroded because of transfer of preparedness grants to other functions of DHS.
  - Training in the details of the recently promulgated NRP was inadequate and this caused shortcomings the government performance

- Failure of influencing distribution of resource among actors
  - Ineffective leadership, poor advance planning, and an unwillingness to devote sufficient resource to emergency management over the long doomed them to fail.
  
- Failure of altering existing rules
  - Planning for search-and-rescue was not sufficient and this led conundrums in interagency search-and-rescue coordination.

Figure 9 is the result of mapping the analysis into the two-by-two matrix. As mentioned earlier, the Senate report emphasizes structural reform while incorporating many of the findings of the House and White House reports. However, it seems that the mapping result does not fully reflect the main argument of the Senate report since the result is almost similar to those of other two reports. That is, most of the issue items are located in game management axis and the majority of game management issues are mapped into planning or planning-improvisation mix. Yet, when we carefully look at the issues in the pre-disaster planning and network structuring quadrant, one can recognize that each item covers a wide range of issues and most of the arguments succinctly attribute the failures to system level problems. In this regard, it can be argued that the mapping result reflects the general argument of Senate report.

**Figure 9. Mapping Failures from the Senate Report**



## **5.4.4. Hurricane Katrina response and network management**

### **5.4.4.1. Merits of Network Management Perspective**

The previous section was devoted to analyzing the findings of the three government reports and tries to interpret the government findings as failures of network management. In a sense, the previous section is an analysis of analyses since I interpreted existing analyses into issues of network management. In the meantime, having seen the results of the analysis, it becomes clear what the government committees' findings really mean. That is, the House committee, for example, sees Katrina response as "a litany of mistakes, misjudgments, lapses, and absurdities all cascading together, blinding us to what was coming and hobbling any collective effort to respond" This assessment does convey strong feeling and urgency, however, it does not seem to be constructive assessment for the committee's original questions. The House committee previously questioned, "How can we set up a system to protect against passivity? Why do we repeatedly seem out of synch during disasters? Why do we continually seem to be one disaster behind?" The conclusion of the House report is that the Katrina response operation failed because of the lack of initiative. However, the conclusion should have been much more constructive as well as more extensive. A more concrete and constructive analysis might be an integration of failures in network activation, mediation, brokerage, and failures in network structuring for Hurricane Katrina response operation.

The second round analysis, mapping the findings of government reports into two by two matrices, also renders a much clearer understanding of what went wrong during the

Katrina response. While conducting those processes, I have learned that most of the findings of the reports point to failures of planning and improvisation mixture. Thus, I set up the planning-improvisation mix and categorized many findings of the government reports into it since this may help to emphasize the inter-connectedness between planning and improvisation. Indeed, it seems that most of the government reports' findings are just presented without considering if a failure in response operation is a failure of planning, improvisation, or both. This is problematic since the perception of a social phenomenon is likely to influence the prescription for the phenomenon. As Koehler et al. (2001) argued, the current paradigm of public administration is likely to lower the playing field toward planning, command and control orientation. We can observe this tendency when we look at important recommendations of the three reports. In fact, the three government reports, even though their tones for criticism differ, suggest very similar solutions. By calling for a 'push system,' for example, all of them find the utility of centralization, command-and-control, and planning. Nevertheless, since current research maintain the efficacy of balancing planning and improvisation, we need to intentionally pursue an unbiased position. This bring us back to what disaster researchers from sociology have argued; planning and improvisation are two foundation of emergency response. In this regard, the second round analysis, in fact, contributes to promote a new perspective on emergency management.



#### **5.4.4.2. Comparison with Meta-synthesis Results and Implications**

It is a meaningful process to compare the meta-synthesis results presented in Figure 2 (p. 99) and the mapping results of the government reports (Figure 7, p. 133; Figure 8, p. 137; Figure 9, p. 141). Since the meta-synthesis result can be seen as a set of representative insights and recommendations for emergency response, comparison among the meta-synthesis results and the mapping results of the government reports should give us insight into how reframing the governments' recommendations may lead to a better understanding of the differences between the two. By re-interpreting the government reports' recommendations, we can see differences in emphases and what may be omitted in the reports. Also, it is important to know how the national government perceives the response operation since the way government sees it might be the foundation for future emergency management system development. The followings are observations and assessments for the findings of the three government reports;

First, it is apparent that the three government reports cover most of the game management section described in the meta-synthesis results. The game management section includes the issues of planning, planning/improvisation mix, and improvisation. Thus, in framing Katrina response operation, the three government reports pay significant attention to the issues of management of interactions among network actors.

- 1) Planning issues: Meta-synthesis results point out, for example, the importance of pre-disaster planning, training, exercise, and the establishment of working inter-organizational communication, legitimate authority structure, information sharing/dissemination system, and decision support system.

Conversely, the three government reports point out the failures in almost every section of the above-mentioned requisites. These include, for example, decision makers' unfamiliarity with national plans for catastrophic disasters (lack of training and exercise), and diffused responsibility for levees operations and maintenances (lack of establishing legitimate authority structure)

- 2) Planning/Improvisation issues: Among the meta-synthesis results, some recommendations deal with the importance of sharing situational awareness, familiarization of available resources, and willingness to give up organizational autonomy. The assessments of the three government reports for the Katrina response operation cover almost every issue in the meta-synthesis results. For example, those include the failure of sharing situational awareness between active duty military and National Guard, government's failure in taking advantage of private transportation assets and foreign supports, and DHS, DOJ's ending up with turf war regarding law enforcement initiatives. By the way, it seems that one of the most important issues in this category is the issue of sharing situational response since shared situational awareness can be accomplished by appropriate planning and, at the same time, this would be the basis of improvisation in time of urgency. Again, the meta-synthesis results and the government findings are unanimously pointing out this issue.
- 3) Improvisation issues: The highly emphasized facet of the meta-synthesis results is the need for contingent coordination mechanism, which might be accomplished by flexible and intuitive use of hierarchy, rules, legitimacy, or negotiation. However, government agencies, especially FEMA and DHS, failed to accomplish contingent coordination during Katrina response. Indeed, they failed to bring a sense of urgency to core decision makers and failed to take advantage of other agencies' capacities (e.g. HUD's expertise in large

scale housing). In other words, the three government reports see the same aspect which the meta-synthesis results emphasize.

In short, when it comes to game management issues, it seems that the three government reports, even though their analytic emphasis and intensity of arguments might differ, point out issues similar to those of research. That is, it can be argued that the analytic orientation they exhibit is similar to that of the meta-synthesis of research. Having seen the analyses of these three reports, we can conclude that government failed in various aspects of planning and improvisation for the management of interactions among networks players. In other words, we can translate the observed failures as failures of activation, arrangement, brokerage, facilitation, and mediation/arbitration.

Things are somewhat different when it comes to issues of the network structuring category. One can easily recognize that there are differences between the meta-synthesis results and the analytic orientation of the three reports. That is, even though the government reports and meta-synthesis results share in common some network structuring issues that are related to structural resolutions, the core insights from meta-synthesis results are not fully reflected in the government's analysis. Having reviewed the government reports' findings, it seems that the reports are based on only a part of the insights the meta-synthesis results presented. The meta-synthesis results present at least two major recommendations. First, a series of recommendations focuses on re-organization of the current emergency management system. These include the establishment of extensive relationships with other organizations, integration of the emergency management office into the day-to-day activities and structure of government,

calling for clearer legislative authorization for FEMA's role and responsibility, and requiring an Emergency Operations Center. Conversely, there is another series of recommendations and insights that call for the reconciliation among structural solutions and non-structural solutions. These include building a more flexible, adaptive, and participative response system. However, it seems that the three government reports did not rely on these recommendations. My argument is that the government reports relied on only the first part of the recommendations. The following is a more detailed discussion;

- 1) Issues in planning: As noted, the three government reports see that failures in Katrina response operation mainly caused by structural reasons such as the incorporation of FEMA to DHS, and the (structurally) rooted tendency of short-changing federal, state, and local emergency function. Even though the meta-synthesis results provide insights similar to those of the reports regarding re-organization issues for emergency response system, the problem is that the reports solely focused on re-organization-driven solutions. To put it differently, the government perspective does not fully consider the alternative perspective, planning for flexible, adaptive, participative response system. In fact, the alternative perspective is about, for example, building partnership and trust among public agencies and non-profit sectors agencies. All the three reports criticize the eroding relationships among FEMA, state and local officials and the reports found that strengthening the relationships is critical for effective/efficient emergency response. Again, the three reports found that government establishing working partnership with the non-profit sectors as important. Some of these requirements may be accomplished by re-organization. However, re-organization would not be sufficient to accomplish the objective, since establishment of working partnership with the non-profit

sector has more to do with cultural aspects which can hardly be changed by re-organization alone.

- 2) Issues in planning/improvisation mix: In meta-synthesis results, an emphasis is laid on structuring an emergency response system that fosters self-organization and improvisation. In fact, it goes further and argues that the emergency response system should be re-organized by taking organizational improvisation as a fundamental principle. However, the government reports do not put much emphasis on this aspect. The reports are mainly focusing on planning aspect, more specifically planning for structural solutions.

Having compared the meta-synthesis results and the government analyses, the Katrina response operation was characterized by the governmental report as truly a litany of failures in almost every aspect of game management, network structuring, pre-disaster planning, and post-disaster improvisation. Admittedly, the impact of Hurricane Katrina was so unprecedented and catastrophic that there might have been only a small space for appropriate planning and genuine improvisation to play critical roles in response operation. Nevertheless, it is evident that these reports see a lack of governmental preparedness and decisive response operation capacity as a important factor in system failures.

## 5.5. CONCLUSION

Chapter 5 consists of two conceptual parts with five sections. In the first part, we have dealt with the issues of content analysis, especially the characteristics of qualitative content analysis and the procedures of the analysis. Then, discussions moved toward the objects of the content analysis, the three government reports on Hurricane Katrina

response operations. Arguments were made regarding the process and the rationale of selecting the government documents. Also, a discussion about procedural design for content analysis was included in the first part.

With those methodological issues covered, a brief overview of Hurricane Katrina was presented in the first section of the second part. In order to get an understanding about the response network, a simple diagram of Katrina response networks was depicted and a previous study result was quoted. Then, the rest of the second part of this chapter was devoted to the interpretation of findings during the Katrina response operation using the framework that resulted from the meta-synthesis. It was argued that the meta-synthesis results and the framework are helpful in understanding the Katrina response operation. Also, I made a comparison among the meta-synthesis results and national government's findings in three reports. In the meantime, it can be argued that the comparison is, in fact, an analysis of the three government reports rather than of the Hurricane Katrina response operation itself. It was somewhat inevitable since this study is seeing facts through the analyses done by government. Because of this, I argued that this chapter can be characterized as 'an analysis of analyses' and that such is permissible as an illustration of how an analysis may indeed be compared with what we know from a meta-synthesis of research.

Some added insight resulted from using the meta-synthesis results and the framework for the analysis of the Hurricane Katrina response. By relying on the results and framework, we can recognize the emphases of the government reports and what government analyses did not emphasize in comparison to the framework of research

results. Perhaps most striking, however, is that the meta-synthesis results vividly highlighted the importance of non-structural solutions and improvisation for an effective emergency management system whereas the government reports did not.

## **CHAPTER 6. SUMMARY AND DISCUSSION**

### **6.1. SUMMARY OF THE STUDY**

#### **6.1.1. Revisiting the rationale of the study**

As the field of emergency management expands its membership to hosts of scholars, schools, and disciplines, there is a need to integrate diverse theoretical perspectives. To put it differently, people use different languages or, say, dialects when discussing the same issues within the field of emergency management. Thus, it is necessary to put those together and make those languages communicable among speakers. The current status of knowledge development and accumulation in emergency management is too divergent, which erects barriers to building upon each other's findings. Some scholars argue that researchers re-invent the wheel every time in conducting research, which might result in the waste of scholarly efforts. It seems that this is a common research practice of social science. Research in the field of emergency management shows the same tendency and studies done by public administration scholars are not an exception.

This project aimed to put one step forward for the resolution of those problems. By adopting the meta-synthesis method, this study tried to integrate representative studies from various disciplines by relying on the network perspective. As Hill and Hupe (2002) argued, public administrators have to deal with issues coming out of the networks which are expanding vertically and horizontally. The field of emergency management can not be an exception for this situation. As a matter of fact, the management of emergencies takes



place in a much more networked environment within the constraints of time and limited resources. Some scholars intentionally emphasized the networked nature of emergency management system and there are growing numbers of scholars who support the way of theorizing emergency management system as complex networks (e.g. Comfort 2007; Waugh 2007; Rubin 2007; Farazmand 2007; Drabek 2001; Kreps 1991; Schroeder et al. 2001). Rubin (2007) wrote,

The national emergency management system is a complex network that include federal, state, and local government agencies; special districts and quasi-governmental organizations; nonprofit organizations; volunteers (both organized and spontaneous); and private sector firms that provides services and products under contract ...Knowing whom to call (and knowing each contact personally), knowing what resources to ask for, and knowing how the intergovernmental system works are crucial to effective and efficient action.

Considering this aspect, I decided to use the network perspective as a theoretical basis for this project. I discussed this issue in Chapter 2.

### **6.1.2. Meta-synthesis and Hurricane Katrina Analysis**

Even though it is getting popular to conceptualize emergency management system as complex network, there are few studies dealing with strategies for the management of complex networks in emergency situations. Given that there has been a myriad of research about how to improve the performance of emergency management; I assumed that many research results can be integrated into strategies for network management in emergencies. Led by this assumption, Chapter 3 and Chapter 4 were devoted to the synthesis of

strategies for emergency response operations. I used the term strategies in a much more generalized way to capture the idea of managerial/behavioral skills, plans, and insights for emergency responses. I conducted a keyword search and surveyed and interviewed scholars who have studied emergency management for years or decades in order to select representative studies in the area. This procedure increased the reliability of the meta-synthesis.

After the selection process, I reviewed the selected studies. In conducting the review, I postulated a two-by-two matrix as a way of presenting the meta-synthesis results. I set up the two-by-two matrix by borrowing concepts from Kickert et al.'s (1997) study. Additionally, the other part of the idea in setting up the matrix was construed from my readings of disaster research largely done by sociologists. I then argued that the matrix is useful for the presentation of meta-synthesis and it is a good heuristic that can deliver the new perspective that resulted from the meta-synthesis. More detailed discussions included the following.

- 1) There are two points of intervention in disaster response; one intervention point is the interaction level among actors and the other is a system level intervention point that regulates or frames the interaction level. Organizing insights and recommendations for successful response under this scheme facilitate the perception of the networked nature of emergency management system. Additionally, thinking of both levels helps readers to be mindful regarding the intervention points, the starting point of choosing appropriate response strategies.
- 2) Planning and improvisation, even though they are treated as separate guiding principles for the management of emergency responses, are, in

fact, closely interconnected in real emergency situations. This means that most of planning should consider the potential for improvisation. In connection with the intervention points, the meta-synthesis results show that improvisation is much more emphasized within the interaction level among actors than in the system level intervention point.

This study then, turned to an analysis of reports of the Hurricane Katrina response using the meta-synthesis results. As mentioned previously, the analysis of Katrina response operation is an application of meta-synthesis. Qualitative content analysis was used as a method for the analysis. The first section of Chapter 5 was devoted to discussing issues of qualitative content analysis and the description of Hurricane Katrina response networks. Reports from the White House, the House of Representatives, and Senate were the target documents of the analysis. The rationale for documents selection was also discussed. Then, the qualitative content analysis of Hurricane Katrina response operations was conducted. Important themes (or major findings of each report) that characterize the response operations were coded into categories previously determined by the meta-synthesis process. The coding process was, in fact, the process of translation since major findings of the Hurricane Katrina responses are mapped and interpreted into the scheme that is used for presenting the meta-synthesis results.

After the process, I argued that the meta-synthesis results (or the way of looking at response operation) aids in understanding the Katrina response operation in a network management perspective. That is, the attempt of interpreting the Katrina responses into network management strategies provides clearer understanding of what responses were

considered and some insight into what responses may have been omitted. Furthermore, I argued that the way of thinking attempted in the analysis is a constructive one in that it provides an instructive action agenda for future disasters by connecting lessons learned to the strategies for emergency management. Of course, strategies for emergency management are understood here as strategies for network management.

### **6.1.3. Comparison of two models, meta-synthesis and Katrina reports analysis**

Even though I often mentioned the differences between the two models, a model from meta-synthesis and another model from Katrina reports analysis, this is a good time to elaborate the discussion. In fact, this discussion is about what are the differences between the prescriptions suggested by representative studies in the area of emergency management and a perceived reality that is reflected in government reports for a real catastrophe.

As for the model from meta-synthesis, I depicted it in Figure 3 (p. 104) and argued that one of the currently available conclusions from the existing body of knowledge is that organizational improvisation should be regarded seriously. That is, filling the gap between the reality and planning is the most important value of organizational improvisation. Further, I argued that we can interpret the various requirements of emergency response relying on the concept of network management strategies. The analysis interpreted the management strategies into the categories of planning and improvisation. In conducting the

analysis, the conclusion was that planning and improvisation are the two main components of emergency management. For example, we categorized almost half of network management strategies from previous studies into the planning-improvisation mix or improvisation categories. Admittedly, we observed that strategies categorized as game management are more inclined to the planning-improvisation mix or improvisation categories than network structuring strategies. On balance, however, we can argue that planning and improvisation become the two main components that constitute effective emergency response, but that the model from meta-synthesis does not support either planning or improvisation as a preferred strategy.

With respect to the model from the analysis of the three government reports, we can conclude that organizational improvisation was not treated as one of the main concerns in reporting the preparation of and response to Katrina disaster. To put it differently, while the reports found a myriad of failures in the response operation, the coders of this analysis categorized many of them as failures of improvisation or failures of planning-improvisation mix. However, it seems that the analyses of the three government reports did not share this perspective because when it comes to concluding the analyses and providing prescriptions, the three government reports did not put much emphasis on improvisation. Given this, we can argue that the three reports on Katrina lacked an understanding of improvisation for emergent networks and they largely relied on a planning orientation. All of the reports suggested that more planning and reorganization are needed to enhance the overall performance of the national system of emergency management. The suggestions might be helpful in correcting some problems; however, it seems that they are overly

relying on planning and structural solutions. This is an important issue. Currently, it is widely accepted lessons that not being mindful of the importance of improvisation might lead to a patchwork approach in structural changes or planning initiative. As we've seen in the model from the meta-synthesis, a balance within the relations between planning and improvisation is an indispensable foundation for effective emergency response.

In fact, the relations between the two concepts may need to go even further; as Wachtendorf and Kendra (2006) wrote; we may need to consider 'planning for improvisation.' In this situation, planning and improvisation are intertwined and they cannot be separated from each other. Wachtendorf and Kendra (2006) wrote,

A great jazz musician or improv actor, after all, must do more than simply make "something out of nothing." Spontaneous composition of music and performance depends on the ability to draw upon a repertoire of training, experience, and a shared vision with fellow performers. Performers must be skilled in reading their cues and making sense of the performance's direction. Similarly, an emergency responder—whether a formal or informal responder—must be able to draw upon a repertoire of training or education, experience, knowledge of the community, and a shared vision with other organizations. These repertoires are what help responders make sense of an emerging disaster environment and are what facilitate effective improvisation.

In a sense, we can recognize that there is a big divide between the planning for improvisation argument and the model from the three government reports. Given that these three reports are all from a national perspective, it is somewhat understandable that they would emphasize planning, rather than improvising among actors "on the ground." However, it does seem that even at the national level, planning could take into account the need for creating an environment in which improvisation could thrive and be supported.

These national government reports simply lack the understanding of improvisation and this might lead to another failure in the next disaster.

## **6.2. LIMITATIONS OF THE STUDY**

### **6.2.1. Limitations of meta-synthesis**

. In this study, the meta-synthesis approach was adopted in order to meet the need of putting together divergent research results. It has been argued that the meta-synthesis process would be helpful in accomplishing a tidy knowledge accumulation in emergency management and public administration. To meet this end, I argued that transparency and objectivity should be two of the most important values in applying a meta-synthesis process. However, a subjective decision was involved in finalizing the review lists. Although the decision was based upon both expert opinion and the keyword search, it can be argued that there is still room for arguing why not to include other studies. This is a legitimate argument and, in this regard, the meta-synthesis results have some limitations.

Second, as many readers already have recognized, the meta-synthetic process is not a well-defined or frequently-attempted method in social science. Even though the Campbell Collaboration is trying to establish protocols in the area of education, justice, and social welfare, this approach is very new to the field of public administration and emergency management. Indeed, a full-blown meta-synthesis needs to be conducted through the collaboration of researchers. The meta-synthetic process attempted in this project has limitations since the research results reviewed for the synthesis may be not as

extensive as it could be. Therefore, this project should be seen as an attempt to apply the meta-synthetic approach to the field of public administration and emergency management. Despite the limitation, we can evaluate that the meta-synthesis is reliable and maintains an acceptable level of transparency for review.

Third, the meta-synthesis did not address the practitioners' viewpoint enough. This limitation has to do with the previous issue of meta-synthesis. Since this study is not a full-blown meta-synthesis with collaboration of other researchers, the scope of synthesis is relatively narrow and the academic scholars' viewpoints are over-represented in the review pool. Even though I tried to include much of the practitioners' viewpoints during the interview and survey process, many practitioners professed difficulties in listing important research and influential researchers. Then, I referred to the Emergency Management Institute's survey results (Practitioners' version of the Body of Knowledge in Emergency Management) in order to include practitioners' viewpoints in selecting important studies and scholars. In a sense, it was an appropriate action for getting balanced opinions, considering the divide between academia and practice. However, it is still a limitation of this study.

### **6.2.2. Limitations of the Hurricane Katrina analysis**

Since the goals of the review of the reports on Hurricane Katrina were to see if the meta-synthesis could be applied and how the meta-synthesis results would differ from the strategies described in a real case study, the sample was limited to looking at the analyses



from one level of governmental response, the national level. The Hurricane Katrina response operations are probably perceived, described and analyzed differently in documents that included states and local governments' situation reports or after-action reports. I cannot say "Yes" for the question of "Do the selected documents fully reflect the aspect of emergency/network management strategies in Hurricane Katrina response operations?" This is a limitation of the study and also a possible avenue for future research to compare how studies from other levels and from nonprofits regard the issues of improvisation and planning as well as network strategies.

Second, there is a limitation regarding the reliability of the content analysis. Even though a measure, inter-coders reliability test, was adopted to ensure consistent coding, the coverage of the test is confined to the executive summaries of the documents. Also, the coding results show that there are discrepancies of the initial coding results from each coder (overall about 40% of agreement). What we can recognize from the discrepancies is that the qualitative content analysis for the Katrina response strategies may involve the analysts' understandings of the response activities, yielding to a possible inconsistency of analysis. Even though those discrepancies are resolved through a discussion/negotiation process where individual biases are normalized and, therefore, consistent coding might be accomplished, it can be argued that coders can still have different amounts of influence during the resolution process. Thus, the content analysis of Chapter 5 may be criticized because it is somewhat idiosyncratic. Again, it constitutes a limitation of this study.

## **6.3. FUTURE RESEARCH AGENDA**

### **6.3.1. A full-blown meta-synthesis**

In Chapter 1, I argued that there have been at least three theoretical streams for emergency management. Also, there are a myriad of concepts in each perspective and this caused the lack of research synthesis in this area. Among various perspectives, few scholars have tried to theorize emergency management relying on a network perspective. It is somewhat surprising considering the pervasiveness of the network perspective in the area of public management. In fact, it is unknown to many of us why network theory has not been popular in theorizing emergency management.

However, I have observed that there are a growing numbers of scholars who adopt the network perspective as a primary theoretical lens for emergency management. For example, Waugh (2007) wrote, "Large-scale disaster response requires multi-organizational, intergovernmental, and multi-sector collaboration. Preparedness and recovery involve social networks in which authority is shared, responsibility is diffused, and resources are widely distributed." Also, Comfort (2007) argues that the core issue of emergency management is how to deal with heterogeneous organizational entities within networks. If the trend goes on, the network perspective will be one of the most popular theoretical orientations in the area of emergency management. Normatively, we can argue that a network perspective should guide the establishment of effective and efficient national emergency management system because government cannot take on all of the

responsibilities required for the management of emergencies. This is not possible as well as not desirable.

Thus, what we need is more knowledge about how government can work with heterogeneous network players in emergency situations. As Waugh (2007) argued, authority, responsibilities, and resources in networks are different from those of hierarchical organizations. The main argument of this study is that we can name the 'governments' how to' as strategies for network management. Additionally, we need to integrate or organize the 'government's how to' in a tidy manner in order to effectuate what we learned from past successes and failures. Thus, this study can be seen as a showcase of such integrating/organizing efforts because the scale and scope of the research synthesis is modest, which is one of limitations of this study. With the small size of synthesis done in this study, a future research topic arises instantly: conducting a meta-synthesis in a full-blown manner. As noted earlier, a full-blown research synthesis needs collaborative processes and it will take a lot of time and resources. Once the synthesis is accomplished, however, the benefit of the project would be extensive.

### **6.3.2. Conducting and accumulating field studies**

As mentioned earlier, the Hurricane Katrina analysis conducted in this study has limitations since only the three national government documents were analyzed. Even though the analysis accomplished its original objectives, the analysis may have contributed a fuller picture if we would have included local and state government level documents and

those from the perspective of nonprofits and other associations. Indeed, the analysis would deliver different pictures, if we would have conducted interviews of, say, members of the Coast Guard or some of the volunteers who were on the spot. This is true because some scholars who studied state and local government level responses may have arrived at different conclusions from studies dealing with the national level reports, for example, reports from the White House, the House, and Senate.

By and large, the national level reports are focusing on strengthening federal level solutions, which was reflected in the discussion of push system vs. pull system<sup>36</sup>. However, scholars who studied state and local level response emphasize the utility of, for example, the Emergency Management Assistance Compact (EMAC), which are mutual aid agreements among states as emergency preparation (Waugh 2007). Waugh evaluates that the state of Mississippi was better than Louisiana in activating and taking advantages of EMAC. The three national government reports also dealt with EMAC issues in some instances; however, they did it briefly and didn't seem to pay much attention to the issue. Morris et al. (2007)'s study is another example. They discussed the Coast Guard's successful responses in the operation and delved into organizational capacity to be adaptive, flexible, and resilient. According to Morris et al. (2007), the core competencies of the Coast Guard are their being "bureaucratically bilingual." They wrote, "The U.S. Coast Guard relied on its multilingual skill sets to bridge gaps, devise solutions, and operate

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<sup>36</sup> A "pull" system refers to the way of operating intergovernmental relations "in which the federal government waits to receive requests from state and local officials, or from other federal agencies." Meanwhile, a "push" system refers to a system "where federal authorities proactively deploy resources to mobilization centers close to the disaster or, in certain circumstances, directly to the incident scene to assist in responding to the incident." (Senate, *Hurricane Katrina: A Nation Still Unprepared*, 2006)

effectively in the inter-organizational realm of contingent coordination." They start the discussion from the organizational level issues such as culture and leadership and describe how the organizational characteristics work in networked setting. Again, this kind of research delivers very different stories compared to the story the national level reports provide.

The selected examples delineate different pictures of how networks are to be managed. They are valuable sources for the synthesis of network management strategies. Thus, what I'm suggesting is that this kind of field study should be conducted often. Also, the study results need to be accumulated in an orderly manner since various field studies might provide lessons in meeting "inconceivable, unthinkable, and unknowable challenges" that may be come up in the future (Farazmand, 2007).

#### **6.4. TOWARD A BETTER EMERGENCY MANAGEMENT**

It seems that the first several years of the 21st century might be remembered by the students of emergency management as the era of deepening the existing research agenda and broadening the area for emerging issues. Due to the 'wake-up calls' from 9/11 and the Hurricane Katrina catastrophe, many scholars and practitioners are committed to studying the crucial issues of emergency management. Because of this, one may argue that the recent rising interest in the field of emergency management seems to have resulted from the fact that people have observed the U.S.'s being vulnerable to natural and man-made disasters. To them, the United States, traditionally regarded as one of the world

powers, was supposed to have a much more effective emergency management system. As we have seen, many judged that the U.S.' emergency responses ended up helpless in the face of recent catastrophes and the world seemed to be shocked by the failures. It was really a wake-up call for researchers of emergency management, many of whom are based in the United States.

Recognizing this sentiment, Farazmand (2007) estimates that we will see a growing number of studies dealing with the issues of emergency management in the near future. We can recognize this trend even in the field of public administration where emergency management research had long been neglected. In fact, we already have witnessed growing numbers of research published in major journals. For example, a recent special issue (Dec. 2007) of the *Public Administration Review* was devoted to the research of emergency management. Also, the International City/County Management Association (ICMA) recently published the second edition of its well-credited 'Emergency Management,' nicknamed 'Green Book,' after sixteen years of waiting. There are many examples other than those that show the recent rising interest for emergency management.

Schneider (1995) wrote, "Natural disaster provides a real-world laboratory for dealing with extremely trying circumstances. If the government can improve its performance here, it may be able to do so elsewhere as well." The several catastrophes that recently occurred have caused rising interest in emergency management. We need to see this as an opportunity for public administration scholars to seriously look at these issues. Indeed, we are witnessing a window of opportunity that allows us to incorporate various research results from other disciplines into the area of public management. Synthesizing

various studies and interpreting them into a network management perspective will allow us to enhance overall reform for the national emergency management system. This project contributes to the field of public management and emergency management by so doing.

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## APPENDIX

### I. INTER-CODER RELIABILITY TEST PROCESS

I hired a coder who is interested in emergency management. He is a Ph.D. student of the Center for Public Administration and Policy at Virginia Tech. While doing his Ph.D. course works, the graduate student has read extensively regarding network theory and emergency management. Thus, we don't need to set aside time for discussing theoretical foundation in a general sense. However, there is a need to provide him an overview of this project and the content analysis processes. Relying on the following material, I tried to share the objectives of this project and give him orientations of tasks that he is asked to do.

- 1) The basic theoretical argument of this research is as follow; Emergency response operation has to deal with new networks that are emerging in disaster stricken communities. For this reason, emergency response operation can be viewed from the perspective of network management.
- 2) This research deals with strategies for network management and it has postulated that there are two points of intervention for network management strategies. Those are game management and network structuring. Game management aims at influencing the interaction processes directly. Network structuring is dealing with the institutional context, the structure and culture of the network in order to improve conditions for cooperation indirectly.
- 3) In the meantime, factors within game management and network structuring can be categorized into elements to be prepared in the pre-disaster stage and

elements that can be applied in the post-disaster stage. We will distinguish these pre-disaster planning focus and post-disaster improvisation focus.

- 4) Given these, the tasks of content analysis are interpreting failures of Katrina response operations into network management strategies.

The coder was asked to do two tasks (See Figure 4, page 121). First, he was asked to categorize the failures of Hurricane Katrina response operations into 8 categories. Second, he also asked to map those failures into the following two by two matrixes. In order to conduct the tasks, the coder was provided the following definitions of network management strategies (The definitions come from the study of Kickert et *al.*). By the way, the coder was asked to follow common-sense definition in distinguishing pre-disaster planning and post-disaster improvisation.

- 1) *Games and Networks: Two levels of network management Strategies applied at the level of the game are aimed at influencing the specific interaction process with regard to one issue or one problem area. These strategies are part of what is called 'game management', which can be distinguished from 'network structuring'. Network structuring refers to strategies aimed at the context of a specific game - the rules, perceptions, values, the ecology of game arena, the ecology of games, the distribution of resources and the pattern of relations that are characteristic of the policy network as a whole. The common denominator of all these variables is that they are more encompassing and more enduring than one single game or one interaction process (although games can be protracted as well).*

## 2) *Game Management*

- a) *Network activation: Network activation involves initiating interaction process or games in order to solve particular problems or to achieve goals. In this context, Scharpf (1978) talks of 'selective activation.' An (empirical) network has many potential relations not all of which are constantly activated. Selective activation involves identifying and activating the parties necessary for tackling a particular problem or particular task.*
- b) *Arranging interaction: Joint problem solving assumes that actors will decide to participate in games. Such decision is not taken without risk. Earlier, the dangers of opportunistic behavior linked with cooperation, such as free-riders' behavior and 'premature pulling out', were mentioned. Hence, action will be more likely to choose cooperative strategies, if they know that such dangers are minimized. To that end, they may proceed to arrange their interaction, for example, by entering into a gentlemen's agreement, a cooperative agreement, a contract, or a joint venture, or by setting up a new public-law or private-law body. These all formalize the agreements and rules which regulate their interaction.*
- c) *Brokerage: matching problems, solutions and actors; Network management as guided mediation may mean (the responsibility of) taking on the role of 'broker' or furthering the performance of this role by others. A broker is an 'intermediary, a go-between'.*
- d) *Facilitating interaction: Game management may also be aimed at creating conditions for the favorable development of strategic consensus building in interaction process. In such a case, the network manager act as 'facilitator', as process manager. Facilitating covers a large number of activities, all of which are of a procedural nature.*

e) *Mediation and arbitration: Mediation and arbitration may be distinguished from facilitation on account of the fact that they are implemented at a time when conflict exists and the interaction process finds itself in an impasse. A distinctive feature of mediation is that the responsibility for reaching a particular outcome rest with the participating parties.*

3) *Network structuring: If it proves impossible to solve problems within the existing network, one might consider modifying the network. Usually, this involves a) Changing relations among actors, b) Influencing distribution of resource among actors, and c) Altering established rules.*

After discussing major processes and issues, the coder and I read the texts carefully and coded the executive summaries of the reports independently. Then, we compared the coding results and discussed differences of our coding results and commented the consistency of coding each other.

## II. SURVEY

### Introduction

Managing emergent networks during the very early stages of large-scale disasters is critical for successful disaster response. However, a comprehensive synthesis of research has not yet been completed. To contribute to a synthesis, this study combines insights on strategies for managing emergent networks and reviews the Hurricane Katrina response operations from the standpoint of the formulated strategies.

**Now, I am requesting about 10 minutes of your time to assist me with this project. All of the answers will be aggregated and no answers will be associated with a specific name. Thank you very much for your participation.**

### Survey Questions

Your name:

1. Please name several important scholars whose works you think have significantly influenced research in managing networks during times of emergencies or disasters.

2. Regarding the coordination issue in disaster response, please list up to five studies that you think are the most influential.



3. What do you think are the most important insights or lessons learned from previous research on managing networks during emergencies or disasters?

4. After completing the meta-synthesis, the study will review several government documents resulting from Hurricane Katrina in terms of the types of strategies for emergent network management. The following documents are the ones selected for research review.

- (1) A Failure of Initiative: Final Reports of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina (U.S. House)
- (2) Hurricane Katrina: A Nation Still Unprepared (U.S. Senate)
- (3) Hurricane Katrina, The Federal Response to Hurricane Katrina: Lessons Learned (The White House)

4-A. Do you think these documents are representative of reports dealing with Hurricane Katrina response operations?

4-B. Do you think these documents are appropriate to use to describe some of the strategies for managing emergent networks in disaster?

4-C. If 'No' to either of the above, what documents would you suggest?

\* Finally, I appreciate your time. How would you prefer for me to contact you about a short interview?

By e-mail: My e-mail is

By telephone: My telephone number and the best time to call within the next few week is:

This is the end of survey.

**Thank you**