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## A Critical Evaluation of the Incident Command System and NIMS

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# A Critical Evaluation of the Incident Command System and NIMS\*

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## Abstract

This paper aims to draw a series of generalizable conclusions regarding the incident command system (ICS) as a management tool for structuring the activity of disaster response agencies at the site of disasters in the United States. It identifies the basic elements of the system and makes some observations regarding its range of applicability. The analysis is drawn from several sources of information regarding the use of ICS in nine different disasters in which Federal Emergency Management Agency's (FEMA) Urban Search and Rescue (US&R) Taskforces participated. Results suggest the applicability of ICS in a range of emergency response activities, but point to the importance of context as a largely un-examined precondition to effective ICS. Our findings indicate that ICS is a partial solution to the question of how to organize the societal response in the aftermath of disasters; the system is more or less effective depending on specific characteristics of the incident and the organizations in which it is used. It works best when those utilizing it are part of a community, when the demands being responded to are routine to them, and when social and cultural emergence is at a minimum. ICS does not create a universally applicable bureaucratic organization among responders but rather is a mechanism for inter-organizational coordination designed to impose order on certain dimensions of the chaotic organizational environments of disasters. We conclude by extending our observations from the USAR context to the reconstruction, recovery, and mitigation phases of disasters in order to illuminate the general limitations of the approach as an all-encompassing model for disaster-related organizational and inter-organizational functioning and coordination. Our final conclusions suggest that the present-day efforts in the National Incident Management System (NIMS) to use ICS as a comprehensive principle of disaster management probably will not succeed as intended.

**KEYWORDS:** ICS, NIMS, emergency management, social science

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## Origins and Development of ICS in the USA

During the response to extensive forest fires in California during the 1970's, differences in personnel, equipment, terminology, and ways of organizing among the firefighting agencies impacted effectiveness. The effort to correct this lack of integration led to the creation of the Firescope Program, which was a cooperative program among federal, state and local forest firefighting agencies in California. Among the products of the Firescope Program was an emergency response system, now called the Incident Command System or ICS (available at <http://www.firescope.org>). The U.S. Forest Service, Bureau of Land Management, and National Park Service adopted ICS, calling it the National Interagency Incident Management System (NIIMS, Fire Protection Publications, 1983). NIIMS was an early version of the nationwide and much more comprehensive system now part of the U.S. Department of Homeland Security called the National Incident Management System (NIMS; available at <http://www.nwcg.gov>). The U.S. Forest Service endeavored to teach NIIMS to state forest fire fighting agencies, while the U.S. Fire Academy in Emmitsburg, Maryland, advocated a slightly modified version they called the Incident Command System to volunteer fire companies and urban fire departments.

ICS is a disaster management tool based on a series of rational bureaucratic principles similar to those often discussed in organizational studies as classical management theory (Morgan, 1986, 26). It extends the domain of rationality and bureaucratic organizing to the uncertain and often chaotic environment of disaster responses. It provides a set of rules and practices to guide the actions of the various organizations responding to disaster, and creates the necessary division of labor and coordination mechanisms among them. There are several versions of ICS (Goldfarb, 1997). All include some of the following program elements: standardized job descriptions with a training program for those positions; common terms for equipment and supplies; a structured chain of command from the specialist on the ground to the incident commander with unity of command emphasized and each person in the organization reporting to one boss; authority commensurate with responsibility, and task assignments made rationally to the person most qualified for the assignment regardless of rank in the organization; span of control limited to the number of people that one person can effectively control; sectoring of work to insure efficiency, effectiveness and safety; finally ICS is based on the scalar principle, with its size and complexity depending on the size and complexity of the disaster or emergency incident to which it is applied.

Another important element of the ICS system is a focus on operations, planning, and logistics (Witt Associates, 2004). Explicitly designed for the incorporation of multiple internal and external resources into a response network, ICS was originally created for forest firefighting where resources often come from distinct locations and there is an important need for coordination. Under ICS, the logistic section brings resources to a staging area. From there the operations section dispatches them, for it

commands all the activities on site. The “planning function” is central to ICS. It is the glue that holds an operation together and is a central aspect to the management by objectives approach in ICS. The planning cycle creates specific goals to attend during each operational period. In it there is a strategic or campaign plan and a tactical or action plan. In the action plan, objectives are set for each operational period. The entire set of organizations responding to an incident work toward accomplishing those objectives. The operational plan not only sets the objectives, but also identifies who is going to accomplish them.

During the time that ICS evolved among the firefighting community, the Federal Disaster Assistance Administration, part of the U.S. Department of Housing and Urban Development, and later the Federal Emergency Management Agency (FEMA), was developing catastrophic earthquake plans in California, Washington, and Alaska. An amalgamation of these efforts resulted in the Federal Response Plan (FRP). At its inception FRP did not include ICS principles but as time passed it began to incorporate portions of the approach in large part due to the influence of firefighting associations. The organizational features of the Emergency Response Team (ERT) set up by the FRP was similar to those typical under ICS. They included an Operations Section under which all operational entities fell, an Information and Planning Section, conceptually similar to the Plans Section under ICS, and a Logistic Section (FEMA, 1982). A Federal Coordinating Officer (FCO) was responsible for managing the entire organization, very much like an Incident Commander (IC). What was unique about the ERT was that attached to the Operations Section were 12 Emergency Support Functions (ESFs). FEMA headed two of these ESFs, The American Red Cross headed another. The other nine ESFs were headed by other federal agencies. While FEMA did not control the staff of these agencies, it could direct the agencies to take on missions in support of the overall disaster response operation. The agencies heading the ESFs responded using their own organizations, resources, and communications, a practice that violated some key ICS principles, such as scalar (hierarchical) organization, unity of command, standardized job descriptions, terms for equipment, and supplies. One important omission in the Federal Response Plan was a definitive role for the Information and Planning Section, an ESF headed by FEMA. The omission led to an important shortcoming in that no one had the responsibility of putting together the Incident Action Plan. As previously mentioned this plan guides all operational activities of all the sections and organizations participating in the incident. In the context of the Federal Response Plan, the first time incident action planning took place was during the Northridge Earthquake response in 1994. During this response, the State of California Office of Emergency Services promoted the incident planning process (see for example OES, 1992), and FEMA was a less than enthusiastic partner.<sup>1</sup> In later years, FEMA embraced the action planning function, so that by the time

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<sup>1</sup> On scene observation by Richard Buck, who was Deputy Federal Coordinating Officer for Mitigation during the incident.

of the World Trade Center disaster in 2001 it was an integral part of the incident management process under the FRP. As this brief historical account shows, the ICS is an incomplete and emerging arrangement for inter-organizational coordination in times of crisis. It has not failed to attract controversy, as we document next.

### **The Debate over ICS**

The response community has been almost universal in its praise of ICS (see for example Morris, 1986; Veintimiglia, 1986; Ryland 1990, Carley et al., 1993; Yeager, 1997; Kane, 2001), while other writers have been less than sanguine about its efficacy. The response practitioners in their writings have focused on the command and control value of ICS, while critics have expressed concern for ICS's lack of focus on coordination between organizations and levels of government responding to disaster. The debate has gained importance because of the federal government's current initiative to make ICS the disaster operations law of the land in the form of the National Incident management System (NIMS). If as some critics assert, ICS is flawed, expansion of ICS usage may exacerbate the difficulties in the organization of emergency response.

Social scientists recognize a distinction between response-generated demands and agent-generated demands (Quarantelli, 1997). While agent-generated demands are specific to the situation and cannot be entirely anticipated, response-generated demands are those created by the response to the disaster and are amenable to strategic planning during the preparedness and mitigation phases of disasters. Its proponents see the ICS model as the best way to create a universally applicable management model that satisfies response-generated demands created by disasters. Its critics suggest that the emphasis on formal organizations and rationality fails to recognize a series of key factors in disaster response, particularly the presence of unorganized volunteers and emergent groups as well as the transformations of the structure and function of established organizations during the response phase of disasters. They suggest that disaster response occurs in the context of high levels of uncertainty regarding both what and who will be useful to the effort and how to select satisfactory responses in the midst of a rapidly changing operational environment. This alternative viewpoint expands on the mass assault conceptualization of disaster response to argue 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 (Dynes, 1994)

Wenger, Quarantelli and Dynes (1990) provide the best-known critique of ICS that uses the logic of the coordination model. Based on a number of field investigations of emergency responses done by the Disaster Research Center (DRC), they concluded that the system might contribute to difficulties in managing disasters. In their view, implementation of ICS often: (1) meant only that someone took charge of the disaster site, without using all the mechanisms designed to facilitate site management; (2) the

shifting of command from the initial responder to high level staff often led to loss of control over the situation; (3) ICS was weak in inter-organizational coordination-- for instance, separate command posts were established by police and fire organizations, and coordination was even worse with local emergency management, relief agencies and volunteers; (4) use of ICS, if indeed it was fully implemented in small incidents, resulted in over-convergence of emergency resources such as staff and equipment; (5) ICS was not a panacea for solving communications and intra-organizational problems; (6) unless they had prior experience working with each other, ICS did not solve problems in incidents involving responding mutual aid providers; and (7) the command and control model of ICS did not really work in dealing with civilian organizations. They concluded that "the social complexity of disaster occasions preclude the application of one organizational model to a response which is multi-organizational in nature." Practitioners disagreed and claimed that Wenger and his colleagues did not understand ICS.<sup>2</sup> They pointed out that the fundamental reason for establishing ICS was to coordinate response among multiple agencies, and that ICS has specific structures, such as Unified Command, Area Command and Multi-Agency Coordination centers to deal with coordination issues among agencies and various levels of government. They also pointed out that better training would solve some of their criticisms, which reflected faulty application of otherwise sound principles.

Practitioners have recognized weaknesses as well. Thus, in an otherwise very positive evaluation (Cole, 2000) of ICS after 25 years of implementation, respondents in California, most of them fire chiefs, found some weak areas. These centered on the integration in the response of non-fire agencies and organizations, non-governmental agencies and volunteers, and consistency of implementation. Among practitioners, it is recognized that ICS has been most successful among firefighting organizations and less successful with law enforcement, public health, and public work organizations (Baltic, 2004). Howitt and Leonard (2005: 41), while also generally favorable to ICS, raised the issue of "What is the question to which IMS (Incident Management System) is the answer?" In trying to ascertain what ICS does for emergency responders, they noted that it does a lot for the fire service. It clarifies command; assigns responsibility; provides for collaboration among responders, including mutual aid providers; it is scalable; provides for in-the-moment allocation of scarce resources; has overall flexibility; and it does these things because of the presence of roughly comparable or standardized components of fire departments and the comparably more stable and scientifically understood nature of fire as a hazard. They point out, however, that these dimensions are not as pronounced in law enforcement responses. The police officers who first arrive at the scene resolve most incidents. While they may require some reinforcement, other officers in their precinct

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<sup>2</sup> Critiques of Wenger and his colleagues are found in letters from Brewster, Dimmick, Haney, and Perry published in *Hazard Monthly*, May 1990, pp. 7-13; also letters from Long, Foley, Irwin, McCoy, in *Hazard Monthly*, June 1990; and a separate letter from McCoy to Wenger, et.al., March 23, 1990 available at the DRC E. L. Quarantelli Special Collection.

usually accomplish this. Thus, when the time comes to participate in a complex disaster involving multiple agencies where ICS could be helpful, law enforcement personnel is not familiar enough with it to implement it successfully. Howitt and Leonard conclude (42) that “ICS functions best when it is directed at a well-defined, reasonable consistent or clear prioritized set of purposes.” Put differently, ICS works for the fire services because they have been able to reduce the level of uncertainty in their disaster responses. This bodes poorly for large disasters which often involve a. multiple hazards occurring in close temporal and spatial succession, b. with multiple agent-generated demands, with c. multiple responding agencies, d. attempting to satisfy often conflicting goals that cannot be anticipated and reconciled. Firefighters can focus on putting the fire out; but in disasters occasioned by diverse hazards and impacts, response will mean not only putting out the fires but also providing medical services, evacuating people, sheltering and feeding them, emergency protection of facilities, coordination among multiple agencies and groups, and keeping the population informed and safe. We next examine these conflicting viewpoints on ICS with information obtained from a study of FEMA’s urban search and rescue taskforce system.

### **Our Study of the Incident Command System**

Information on the use of ICS analyzed in this report comes from a study of the Federal Emergency Management Agency’s Urban Search and Rescue System. As such it is a limited view of the use of ICS. Our findings are preliminary and in need of replication which would examine the use of ICS by other agencies and organizations at various levels of government. We collected information from eleven key managers of the US&R system (Kreps and Bosworth 1993) who were included in the study because of their reputation, as reflected in documents and accounts from other interviewees. They represented the political, administrative, operational, and tactical levels of the organization. Another source of information for this project was a series of ten focus groups (Fern 2001; Krueger 2000; Edmunds 1999) conducted with 83 active members of US&R task forces. We included in the study nine of the twenty-eight US&R task forces now in operation along with one well-developed state US&R task force outside the federal system to use as a control. These taskforces varied in their level of experience in actual deployments. We also conducted semi-structured (Kreps and Bosworth 1993) telephone interviews (Rubin and Rubin 1995) with 32 respondents from other organizations involved in the nine deployments. These organizations and groups represented the typical (Loseke 2003) acting units involved in US&R deployments. They include local fire departments, local police departments, local offices of emergency management, other FEMA staff and federal disaster relief agencies, fire and police departments from nearby communities, Federal Bureau of Investigation, and state police agencies. A final source of information was an extensive

literature review<sup>3</sup> involving hundreds of documents. These included: media accounts, after action reports, special operations guides, field-guides, articles in practitioner and academic journals, internet web sites, relevant literature from the National Fire Academy Library at Emmitsburg, Maryland, and all available documentation from the Enrico Quarantelli Research Collection located at the Disaster Research Center (DRC). *Atlas ti 5.0*, a computer software program for textual analysis was used to carry out the content analysis of documents, fieldwork notes, in depth interviews, and focus group discussions. The Atlas program allowed us to code and conceptualize the relevant textual passages in search of redundancy and variations between and within the multiple sources of data. It then extracted that information in a manner amenable to qualitative analysis and theory building. The triangulation of multiple data sources and various perspectives throughout the project makes for a robust design that increases the validity of our findings.

We used the information on these deployments to determine how and to what extent elements of the ICS model were present in the multi-organizational response. We found that in these incidents, the elements of the ICS model were used to varying degrees—ranging from the presence of many if not all of these elements, to implementation of ICS in name only. While we do not focus on the effectiveness of the US&R system nor rate each deployment as a success or a failure, in the next few pages we present information that illustrates the relative use of ICS principles in US&R deployments. These incidents are arranged roughly in descending order in terms of the extent to which ICS was utilized in them. (Due to lack of space, more detailed information on the incidents is provided in Appendix A, see attached file).

## The Incidents

Multi-organizational response in the Pentagon, North Ridge Earthquake, Oklahoma City Bombing, Atlanta Olympics Bombing, and DeBruce Grain Elevator Explosion used many elements of the ICS Model appropriately.

**Pentagon.** The use of ICS and unified command in the Pentagon incident response was in many ways a textbook example of high effectiveness. Some of the key reasons for this success can be linked to having taken place in a federal facility that had a very secure campus with excellent perimeter control and a system of safeguards and military discipline that created a stable environment for supervision of personnel involved in the operation. Most of the responding organizations were part of the federal government, which eliminated many jurisdictional problems that often occur in this type of operation. Perhaps as important, the incident took place in a region that had experienced an important transformation in its readiness posture in the aftermath of the

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<sup>3</sup> Available at the E. L. Quarantelli Special Collection as an extensive annotated bibliography that extends Wenger et al's (1991) work on the same subject and as an ongoing database of non-federal local search and rescue response teams.

Air Florida crash into the 14th Street Bridge over the Potomac River on January 13, 1982. Perceived failures in this response led to the establishment in December 1983 (revised in September 1990) of the Greater Metropolitan Area police and Fire/Rescue Services Mutual Aid Operational Plan. This mutual aid agreement established protocols for inter-organizational development in times of crisis and disaster and has encouraged inter agency training and cooperation. The staff of the various agencies responding to the incident had trained together under ICS and had developed familiarity with each other, with the procedures they would follow during emergencies and disasters, and with the supporting goals they would pursue. In fact several of our respondents, both from local and federal governments, who were key participants in the Pentagon response, learned about it while participating in an inter-agency training session on weapons of mass destruction (WMD) hosted by the Federal Bureau of Investigations.

**Northridge Earthquake.** Northridge (1/17/94) was a significant earthquake, although only two structural collapses required heavy urban search and rescue activities. As in the Pentagon, pre-existing relationships facilitated inter-organizational cooperation at the Northridge Meadows apartment complex. The IC knew and respected the leadership of the taskforce and their capabilities. Thus, the assistant fire chief, who was the incident commander on scene, had declared an end to SAR, yet he agreed to a request from a US&R in-state taskforce, which asked permission to conduct their own searches believing that not all areas had been exhausted. State and local agencies used ICS efficiently during the Northridge Earthquake. This was due in large part to the limited nature of the SAR-related earthquake task in this incident, and the long-term commitment of the State of California to the ICS system and to interagency training and cooperation. This case is also interesting in that it points to the importance of political preconditions to effective ICS implementation. As was the case for the state assets, the deployed federal US&R taskforces were trained under ICS yet could not participate in the response due to the different perspective of state and federal officials regarding what was needed on site---which among other things indicates a very high level of control of this site by state authorities.

**Oklahoma City Bombing.** ICS worked effectively in organizing the response to this incident. From the very start, the Oklahoma City Fire Department (OCFD) was committed to use the incident command system (Hansen, 1995; Rohde, 1995; Powers, 2002). All throughout the response, OCFD retained overall command of the incident. Their command staff was well trained in ICS, which facilitated their interaction with other agencies in the response. In this incident most if not all of the elements of the ICS were used to manage the inter agency response to the disaster. For most purposes ICS provided an effective means to coordinate inter agency efforts. The collapse of the Murrah Building presented a number of operational challenges. Nevertheless, it was a limited incident involving primarily one heavily damaged building, a secure perimeter,

and disaster-generated demands with the characteristics for which heavy urban search and rescue teams and firefighters train to respond. While many of the responding agencies had not worked and trained together, they knew ICS and had trained on it, and thus after some negotiations were able to use it to coordinate their responses to this incident.

**Atlanta Olympics Bombing.** With the FBI in charge, an incident command post was established in a building bordering the park. A second command post was placed in a building nearby. Perimeter control was established an hour after the explosion; all 110 injured were removed from the park in less than an hour and taken to hospitals. Within the hour, crime scene investigations began such as interviewing witnesses. Atlanta Police were not in the actual park after the incident occurred; they were outside the park establishing perimeter control and security. They focused on directing people away from the park and allowing emergency response services to gain access to the incident. They established their own command center to handle these duties. In this instance as well, established relationships prior to the bombing facilitated inter-organizational coordination in response. Georgia Bureau of Investigations and the FBI had worked out Olympic command and plans of operations. As one of our respondents indicated, knowing who the other agencies were and their capabilities made working together a success. In this response then, as in the Northridge Earthquake, ICS did not include the US&R taskforces but seemed to have worked well as a mechanism to organize the response to the incident. The comparatively circumscribed and limited nature of the bombing incident and previous inter-agency planning facilitated the operational success.

**DeBruce Grain Elevator Explosion.** The incident commander at the site was the local fire chief. By the time the US&R taskforce arrived, incident command had already been established. However, the incident commander did not know that US&R was responding to the scene until they actually showed up. The incident command structure stayed the same throughout the incident. US&R did not assume command but rather helped with creating the daily action plans for the incident. A quote from one task force member elaborates on this point: "...they did allow us the flexibility as an incident support team and task force to develop the, the daily action plan because again they felt that we, when they took a look at it, were best qualified. We didn't assume command, but we certainly prepared it and they approved it." Knowledge of ICS that local fire and other agencies had acquired prior to the incident, the limited nature of the incident, and the strong perimeter control of the site, facilitated operations. To varying extent, ICS was effective in organizing the inter-organizational response in this incident. Responders had trained in its application, in some cases had developed a sense of trust and familiarity with each other, the demands occasioned by the hazard were expected by the responders, so that they had the tools and training needed. By way of contrast, as we show next, multi-organizational response in the other four incidents included in this study---

Columbia Space Shuttle, WTC, Hurricane Floyd, and Humberto Vidal gas explosion--- did not use many elements of the ICS Model. In these other incidents we observe a much greater extent of improvisation in inter-agency coordination.

**Columbia Space Shuttle Accident.** In contrast to the incidents presented so far, this incident was diffuse spatially and did not have clear boundaries. Perimeter control could not be accomplished. It was thus less possible to select and control the organizations and individuals who would participate in it. Rather, what took place can be more accurately understood as a mass assault incident in which IC was used by specific agencies but was not initially implemented through unified command. The incident had a number of distinct phases. Over time, the command and control aspects of the search were established, but during the first few days it was carried out in part by neighbors of Kerens and Rice in Navarro County, Texas and other towns in which the debris fell. They worked with Jr. ROTC members, police academy members, local police, sheriffs, and other community and state agencies to secure the pieces of debris until these could be removed by NASA. In this incident, the neighbors and organizational volunteers became important although largely unrecognized actors in the federal effort. As it often happens, the important work of these first responders was eclipsed by the work of subsequent responders who were bureaucratically empowered to create master definitions of what happened in the response. Importantly as well, the large extension of terrain meant that it was not possible to establish a perimeter or control over the site. Instead, the mass media and existing emergency management and police systems alerted the public and instructed it in the ways it could assist the efforts of the federal government in recovering the parts. Furthermore, rather than entire US&R taskforces, only elements of some of these taskforces such as canine specialists and hazardous material specialists participated in the operation, again, a marked departure from their common pattern of operation; since the tasks to be performed were unique to the incident there was no need for most of their equipment and trained personnel.

The incident came under Department of Justice jurisdiction, with the FBI as the putative lead federal agency. It was thus defined in such a way as to be outside the established division of labor of the National Response Plan (NRP) in which FEMA is the lead federal agency. There is some evidence that NASA was in fact ultimately in charge. In the words of one of our respondents, the operation was “management by a committee with NASA pretty much, you know, it was their baby that was lost, so.” She agreed that everybody was allowed to give their input, but NASA made the overall decisions. The unified response system was ad hoc, emergent, in some important ways outside the boundaries of written ICS manuals and established procedures. It involved agencies that had not trained together and that often had to improvise. Perhaps one of the most important lessons from this incident is that it created unique demands for which available ICS procedures did not apply in their entirety, so that it called forth many forms of social and cultural emergence.

**WTC.** ICS and unified command were absent in the first critical days of the WTC response. This was due to many reasons, among the most important of which was the size and complexity of the effects and demands generated by the attack, its impacts on responding organizations such as the New York Fire Department (NYFD), and the absence of inter-agency planning and cooperation among first responder organizations. In turn, the absence of IC added to the confusion and made it harder to satisfy response-generated demands during this incident. What makes SAR at the WTC so different from other events of its type is the enormous destruction at the site, the sheer complexity of the demands generated by the attack, and the paucity in reestablishing command and control at the site. While still a subject of research, the indication we have is that during the first 5 or 7 days after the terrorist attack, perimeter control and a workable division of labor and cooperation among various responding official agencies was not accomplished. This was in part due to the sheer size of the area impacted by the attack, as well as by the effects of the attack on key organizations in charge of disaster response for the city. It would take time and innovation to reconstitute the official response capabilities which were severely impacted by the destruction of New York City's Office of Emergency Management and Interagency Preparedness, and the tremendous losses in special operations and command structures of the NYFD and less so of the New York Police Department (NYPD) and the Port Authority Police Department.

The US&R taskforces had a very difficult time accessing the site of SAR operations. There were no standard operating procedures understood by all responding organizations providing guidance in this inter-organizational effort. Instead, it was an ad hoc process in which US&R taskforces "negotiated" access to the site from very often suspicious and unwelcoming NYFD officials. There were many reasons for this general attitude, foremost among them ignorance by NYFD personnel operating at the site about what the US&R taskforces were and their technical capabilities, in a context in which the site was peopled by many volunteers who made false claims regarding their technical competence in US&R procedures. The result was that very often US&R taskforces would be left waiting for things to do at the Javitts Center during the first critical days of the response. Eventually they performed fire suppression responsibilities elsewhere in the city to allow NYFD personnel to participate in the WTC operations, in effect acting as regular fire department units; a worthwhile function but not one that reflected the purpose of the taskforces.

**Hurricane Floyd.** In this incident there was no ICS in place and no history of inter-agency training, and the US&R taskforce we studied assisted local emergency response organizations and delivered needed SAR services despite the absence of ICS and without effective coordination with FEMA and the state emergency management office, which also seemed to have been disconnected from local operations.

**Humberto Vidal gas explosion.** The Puerto Rico Civil Defense agency was the lead agency in charge of search, rescue and recovery at the Humberto Vidal gas explosion (11/21/96). The IC was the Puerto Rico Police Superintendent and at the time president of the Security Commission of Puerto Rico. This operation was impacted by lack of coordination between the taskforces and the incident support team (IST) as well as by cultural differences with local responders. According to the After Action Report, there were difficulties and confusion in roles and responsibilities between the US&R and IST personnel due to the “unclear and undefined function of the IST.” The Input of US&R taskforce leaders was not included in operational planning, and in some cases the IST Operations Section dealt directly with the rescue team manager rather than the taskforce leader. Most tellingly, reportedly there was never a meeting held among all management personnel in order to outline roles and responsibilities, nor was there a clear chain of command among FEMA, taskforces, IST, and local government agencies. Considering these incidents as a whole, it is clear to us that ICS facilitated inter-organizational coordination in some of those incidents for which we have information, but only under specific conditions. We now turn our attention to one of these conditions, the social matrix of ICS operations.

### **The Social Matrix of ICS**

The information presented above suggests that ICS did play an important role in response activities in several of the incidents. ICS, as is true for all rational forms of organization, only works when a series of preconditions are met. Klein (1999), in his analysis of decision making under crisis contexts, discusses the forest firefighting community. Unintentionally perhaps, he also shows the necessary characteristics of an event that qualify it as an “incident” that makes ICS applicable. Klein (1999: 236-238) describes the social organization of wild-land firefighters and documents the importance of a series of conditions as backdrop to ICS. These are: (1) wild-land firefighters get a great deal of experience/ knowledge that cumulates year after year, for there are always fires to fight and the “tactics and weapons” used to fight fires do not change often; (2) They form teams of very well trained professionals who work “side by side every fire season, for decades” even though they do not reside in the same geographic area or even the same state; (3) Every member obtains seniority gradually. They start “at the bottom” and gradually learn what to and not to do in particular situations; (4) Leadership is linked to “competence **and** trust.” (5) They develop networks of social relationships and are “a closely knit community“(237) able to function with calm and competence in the midst of large fires and life and death decisions.

Our findings echo the above-mentioned insights. The effective use of ICS assumes the presence of: (1) Agreed upon technical tactics, which means that the disaster-produced demands coincide with the demands for which first responder communities train. This must include not only a common understanding of the threat but

also a shared vision of how to react, as well as knowledge of the technical aspects of ICS such as terminology, operational concepts, and system procedures; (2) A shared vision of the response through planning, practice, and experience. By working problems together, the participants gain an understanding of and trust in one another; they become comfortable working with one another in an ICS environment. Over a period of time, divergent opinions and perspectives converge into what is a workable plan; (3) A response community: while the training discussed above leads to technical proficiency, it is less often realized but equally important that training creates a sense of familiarity among participants. When the training is at the local, community, or regional level and is inter-agency in scope, participants not only learn ICS; they are more likely to strengthen their sense of belonging to a common response community. While in training, it is often the case that participants learn words used to identify common purposes and to communicate situations and conditions. But they also develop an understanding of intentions and begin to understand the subtleties of personalities and habits, as well as traditions, customs, and cultural expectation of other organizations. This is done through the development of personal ties and shared experiences that are difficult to create during the disaster or in its immediate aftermath.<sup>4</sup> Such interpersonal connections often times become vital to the acceptance and implementation of decisions in crisis situations; (4) Finally, leaders are trusted, and are part of a system that relies on collective recognition of capabilities and limitations and a willingness to accept outside assistance, with an IC who is technically knowledgeable and willing to defer and give responsibility for the completion of tasks to others with the required skills.

These preconditions can be found in the incidents we studied that used ICS. Thus, in the Northridge incident, ICS worked because the local responders were part of a greater Los Angeles response community and a California response community which had been nurtured over a number of years by the California Office of Emergency Services. Many local responders had responded to disasters in other parts of the State as mutual aid providers under the California mutual aid system. In the Oklahoma City example, the city fire department was the pivotal agency around which the response evolved. The fact that the state taskforces supporting them also came from fire fighting organizations and practiced ICS allowed for the emergence of a community of responders. The Atlanta City bombing was an example of an ICS response to an event that had been practiced ahead of time. The federal, state and local agencies involved had planned for a WMD event in the months preceding the Olympics. Outside agencies were

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<sup>4</sup> The present-day disconnect between the social matrix of ICS and the operations of FEMA's US&R taskforces is a paradox, a result of the way they are organized and use in national deployments, which are often far from their regions of origins, as well as the infrequency in which these incidents occur. US&R task forces are very often outsiders to the sites of disasters and to responding local, state, and federal agencies, as shown by most of the case study of incidents presented in this report. The taskforces could be much more efficiently used in disaster response if this disconnect would be remedied, and if the social matrix of ICS operations would be more fully integrated into their disaster planning.

actually pre-positioned in the area—including the US&R taskforces, so that a purposeful response community had been created for the event. The DeBruce Elevator incident was also an example of an event that mainly involved some local responders trained in aspects of ICS—with the addition of an outside US&R taskforce that was from the same State. The local response community was trained and practiced ICS, but did not have the technical expertise needed for this kind of incident, which was provided by one single team of experts—the State US&R taskforce. Finally, the Pentagon 9/11 disaster response satisfied all of the preconditions for effective ICS use, for it involved primarily local responders, who had planned, trained and practiced together. Even the first responding US&R taskforce was from the area and part of the local response community. What was most important in this response, the use of ICS or the level of planning and practice that resulted in a response community? Repeatedly, the respondents in our study cited prior familiarity with the people and the response organizations as the most important factor and suggested that ICS provided a convenient template around which to organize and plan for response. It was a response in which ICS, technical training, and gaining of professional expertise was inextricably linked to the development of social relations and group formation. As these incidents demonstrate, ICS is more than just a technical approach to the management of disasters but also implies the presence of social relations and community among responders (see table 1 in Appendix B of the attached file, in which we compare the two extreme cases of the Pentagon and the Columbia Shuttle Incident and summarize the arguments we have presented so far in this paper).

Just as in the Columbia Shuttle Incident, the other responses where ICS was less utilized also had commonalities. Hurricane Floyd in North Carolina was a case where local responders did not use ICS. But there is also evidence that there was no local and statewide disaster response community. The local responders were overwhelmed but the State EOC did not realize it. It was almost impossible for the outside US&R taskforce to find a place to be inserted in the response system to start its operations. Likewise, this was the case with the Humberto Vidal gas explosion. The use of ICS would have been helpful, but it would have also required the integration of the forces in Puerto Rico into a response community. A simple meeting of all the responding organizations would have helped a lot, but it did not happen. Additionally, this event was also likely confronted with a number of other issues due to cultural differences that we did not uncover. In the case of the WTC, response operations in New York were more the result of resolute leadership and a determined citizenry than of ICS. There was dissension among the city departments, particularly between the police and fire departments. The fire department was not well integrated with other agencies. When WTC attacks happened, the massive impacts required a multi-department response and further, it brought in many outside forces, some requested, some not—including US&R taskforces from around the country. If New York had properly used ICS, the outside resources may have been better utilized, but unlike most disasters it was such a massive event that multi agency coordination would have been difficult in any case. While ICS principles would have undoubtedly

helped in the completion of certain tasks, it was the eventual coordination of response of New York City's Departments under the mayor's leadership that, despite conflicts, was able to develop solutions to the various challenges created by the attack. Finally, the Columbia Space shuttle disaster operation was an example of a partly organized federal response, in which there was a failure to integrate the response with the local and state responding organizations. One reason for the initial disorganization was that two key federal agencies in it, the FBI and NASA did not act as part of the Federal Response Plan.

Critics often overlook the degree to which ICS as a set of organizational tools can be useful for formal first responders. ICS can and often is an effective way to organize the response for common community emergencies such as accidents and fires. These events are more or less repetitive, limited in their operative goals, scope, duration, and are often events for which community organizations have trained together and devised a predetermined division of labor and a set of formal and informal procedures that facilitate their successful implementation. In the case of most response operations where ICS is used, particularly those that do not rise to the level of a Presidential disaster declaration, only local community organizations are involved. In instances such as this, when a community has adopted ICS and trained in it, they find its principles of great use in organizing and coordinating their response. These findings support Morgan's (1986, 34) insights regarding the classical approach to management of organizations which we believe provides the basis for the ICS approach; rational systems such as ICS are most efficient when tasks are straightforward, the environment is stable so as to make the organizational services or products appropriate, and personnel are knowledgeable about what to do and can be directed and supervised on behalf of the collective goals that are desired. We suggest then that critics do not often examine situations where ICS is useful and as such may under appreciate it.

In looking at proponents who claim that ICS is a universal system for disaster management, we suggest that they may be ignoring the underlying influences and important contextual attributes of the environments from which ICS emerged, that of forest firefighting and the California Mutual Aid System, in which it has proven to be a useful management tool (Klein, 1999). Often overlooked is the social complexity of disaster response activities. For ICS to be effective as a tool to coordinate the response, it must be used by a community of *official* responders who through *training and shared experiences*, over years of public service develop *technical confidence and interpersonal trust* in each other. ICS is useful not as a universal management system for responding to the entire spectrum of disaster-related processes and agency-generated demands. Rather, it is an effective set of principles for coordinating the activities of well-trained and integrated communities of first responder organizations in emergencies and in some but not all aspects of disaster response where social and cultural emergence is at a minimum. Thus, part of the reason for the controversy is that localized emergencies are the most common responses experienced by official first responder organizations and in these

responses ICS is useful, while scholarly writers have in mind more complex disaster occasions, a context where ICS usefulness is more questionable.

While seldom recognized, R. Dynes' earlier emphasis on coordination in disaster planning, usually understood as antagonistic to the command and control approach on which ICS is based, in fact can be thought of as a precondition to effective ICS. It is possible to view coordinative and command and control management styles of interagency coordination in disaster response as complementary---where coordinative systems are more appropriate for dealing with disagreement, controversy, and integrating multiple divergent perspectives, while command systems such as ICS remain useful for the organization and completion of predictable agreed upon tasks by formal agencies. It is not that ICS is the "wrong" system or that it fails only when it is poorly implemented, but that it is a bureaucratic system that requires certain conditions for it to work well. Present day efforts to educate and provide hands-on training on ICS to the official first responder community, scarce as they are, should be increased. They would help create viable response communities and make ICS more effective in the future. Widespread adoption of ICS for response operations would facilitate the development of a culture of cooperation and the social processes needed for effective multi-jurisdictional response. However, these efforts, important as they are, will not solve the problem that ICS cannot anticipate the multiplicity of often unexpected and conflicting demands disasters create for which responders have not trained. It cannot incorporate individual and collective volunteers that are not part of the official first responder community and would not be willing or able to integrate themselves into an ICS structure.

### **Implications for the Efficacy of NIMS**

After the World Trade Center disaster, as part of the Department of Homeland Security, a numbers of new bureaucracies and procedures were created to coordinate disaster response. Thus, there is the Homeland Security Operations Center (HSOC) and the National Response Coordination Center (NRCC) which serve to coordinate federal efforts and assist the Regional Response Coordinating Centers (RRCC). There is also the Interagency Incident Management Group (IIMG), composed of senior-level Federal agency representatives who advise the Secretary of Homeland Security during disasters. Likewise, there is now a Joint Field Office (JFO) to help local officials by providing a central point of contact for federal agencies, and a Principal Federal Officer (PFO) who will help incident managers in coordinating federal response at times of disasters. At the present time no one knows how these new systems will work in actual disastrous events, and whether they will prove effective in managing the response to them.

Since 9/11 the Federal Response Plan has metamorphosed into the National Response Plan and the National Incident Management System (NIMS). NIMS is now mandated by the President for use by all federal agencies that receive federal preparedness grants in the management of all domestic incidents from all causes—

including both terrorism and natural disasters.<sup>5</sup> NIMS extends to civilian life the logic of military organizations. The scope of its intended use is comprehensive, including mitigation, preparedness, response, and disaster recovery. NIMS is a bureaucratic effort to bring about the application of ICS to all emergencies that involve the federal government. To facilitate the adoption of NIMS, a NIMS Integration Center is setting-up national standards for certification, training and exercises, approval of agency plans, and creating a national database on functional qualifications and training (DHS, March 1, 2005). Thus, ICS, as part of NIMS, is now for the first time a full-fledged federal bureaucracy rather than what it was before, a set of practices designed to facilitate inter-organizational coordination taught by FEMA and other organizations.

NIMS recognizes that incidents will often be geographically dispersed and will involve several federal agencies and multiple levels of local and state governments. It adopts an area command to oversee the management of multiple incidents with multiple ICSs, and to oversee the management of one large incident that includes multiple ICSs. It uses a unified command to coordinate multiple incidents involving multiple areas, jurisdictions and legal authorities (U.S. Department of Homeland Security, 2005: 15). In his introduction to the National Response Plan (NRP, U.S. Department of Homeland Security, 2004), then Secretary Tom Ridge stated, "The NRP is built on the template of the National Incident Management System (NIMS), which provides a consistent doctrinal framework for incident management at all jurisdictional levels, regardless of cause and complexity of the incident." The National Response Plan (NRP) replaces three existing response plans: Federal Response Plan (FRP); U.S. Government Interagency Domestic Terrorism Concept of Operation Plan (CONPLAN); Federal Radiological Emergency Response Plan (FRERP). Other domestic response plans are not incorporated in it. Among them are some hazard specific plans, such as the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and agency-specific plans, such as plans for the emergency operations of the U.S. Army Corps of Engineers. NRP does not differ radically from the Federal Response Plan FRP). It goes further than the FRP in recognizing non-federal organizations in response and in mandating ICS to all levels of government. It continues the use of emergency support functions, and expands their number. Conceptually the ESF operations are the same; i.e., particular agencies perform the required function using their own procedures and resources. Under NRP, US&R is part of ESF 9 as it was under the Federal Response Plan. FEMA continues to head it. When US&R task forces are mobilized an incident support team (IST) is established. The roles of the ESF 9 leader and the IST are not entirely separable. Both the IST and the ESF 9 leaders are to establish contact with the local Incident Commander. The ESF 9 leader develops agreements on division of labor and written delegations of authority for the US&R teams from the local IC. The IST develops the mechanism for re-supply of the task forces, but the ESF 9 leader works with other ESFs and the National Response

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<sup>5</sup> See Homeland Security Presidential Directive 5 (HSPD-5), February 28, 2003.

Coordination Center to insure that equipment and supplies are available. The IST develops the demobilization plan, which must be concurred in by the ESF 9 leader. (DHS, December 2004, Urban Search and Rescue Annex) The organization of the taskforces, and their standard operation procedures, are consistent with NIMS. They work under the local IC organization, reporting to the Operations Section. Their mission direction comes from the Operation Chief of the IC organization. They do not assume the role of the IC, nor does direction by the IST or ESF 9 leader take precedence over directions from the IC (FEMA, January 2000). The Joint Field Office, from which ESF 9 operates, functions as a multi-agency coordination center under the NIMS framework (DHS, December 2004) The IST might operate out of the Joint Field Office, or the Incident Command Post, or wherever it can best function. On paper at any rate, if strict ICS protocols are followed, there should be no room for confusion on who is directing the disaster response operation.

At the present time NIMS is viewed as comprehensive, addressing mitigation, prevention, preparedness, response, and disaster recovery, although in the NRP there is no discussion about how NIMS will handle the fundamental differences in the four phases. The plan primarily organizes for response, although it creates three new EFS, one of which, ESF 13, is entitled “Community Recovery, Mitigation and Economic Stabilization.” The new ESF recognizes the complexity of recovery and mitigation issues, but does not change the NRP organization.

Is the faith that NIMS can be the universal solution to emergency management problems realistic? As we have shown, it is not enough for responding organizations to be trained in ICS. The success of ICS is also dependent on the nature of the incident itself, which must be sufficiently limited to allow an organized response to it, as well as generate the sort of demands for which first responder organizations train. Only partly based on the findings of this study, but also drawing heavily on contemporary writings in the social sciences of disasters (Rodriguez, Quarantelli, Dynes, 2006; Schroeder, Wamsley, and Ward, 2001), in the remaining pages of this paper we make some critical comments about this new emphasis. We wish to highlight a number of important issues NIMS promoters need to address concerning the operation of this system as presently envisioned

**Practical Difficulties in Administration** Even a cursory look at the domain complexity of NIMS—the activities it will engage in and the external organizational actors with whom it will interact (Haas and Drabek, 1973, 216) ---show that its boundaries include all first responder organizations at all levels of government that receive federal assistance and are thus mandated to change their operations to conform to ICS principles. The mechanisms that will be used to enforce this regulation have not been tested. However, there is a good amount of social science literature on the many unintended and often unwelcome consequences of such programs, such as encouraging rigidity, institutionalized passivity, apathy, and dependency (Morgan, 1968, 35-38). Both

the Department of Homeland Security and NIMS represent an extraordinary expansion of the power of the federal government. Nevertheless, as Moe (1991) reminds us, power over the bureaucracy of the government is open to political uncertainty and compromise, and to efforts by those out of political power to deflect and obstruct the objectives of their political opponents. For these reasons it is a fair bet that NIMS as currently envisioned will not come about. There are other reasons to doubt it.

**Recovery** NIMS ignores the evidence that disaster reconstruction, recovery, and mitigation are intensely social processes dominated by pre-existing social power differentials and economic and political interests in the impacted communities. While limitations of space preclude an extensive review of the relevant literature, two recently published essays reviewing the social science research on disaster recovery point out the complexities. Quarantelli (1999) shows that effectiveness of recovery very much depends on: a. the goals that are pursued, whether to recreate what existed prior to the disaster or to transform the recovered community; b. the extent to which recovery considers principles of mitigation to increase resilience; c. is dramatically different according to the level of social organization recovering (which can be the individual, the household, complex organizations, the community, the region, the society); d. the size of the recovering unit makes a lot of difference in whether a satisfactory end result ensues; e. the same programmatic effort will receive very different evaluations depending on the perspective from which it is evaluated; f. whether recovery includes both the direct and indirect effects of the disaster and the subsequent efforts to assist the impacted units and whether we are speaking of disasters or of catastrophes, society-wide events.

He points out that victims develop a relativistic, social comparison view of what they have received. Patterns of inequality and power existing in the community continue to influence the outcome of recovery, often accentuating the inequalities and social conflicts. Different people have different information about how to apply for help, and for this and other reasons some units receive more assistance than others do, rendering social conflict inevitable. There may be differences between what people perceive and objective criteria of economic recovery: the one does not necessarily imply the other. Quarantelli also examines the agencies involved in recovery. He points out that they overestimate their importance, for a good deal of help comes from families and friends. Recovery is impacted by community's political mobilization and the emergence of new groups, voluntary organizations, and national corporate actors that become engaged in the response. There is little coordination among the social actors engaged in recovery: the population often resists the decisions that are taken, particularly when economic interests and political identification and partisanship rather than humanitarian assistance are prevalent. He emphasizes, "(W)hat occurs in the recovery period reflects considerably whatever existed in the pre-impact period of the social system involved."

Petterson (1999) highlights the "dynamic, interactive, and decision-making process" which characterizes recovery. She concludes that there are no set sequences of

recovery stages, and that the past of community life, and the preparations and measures to deal with disasters, are of key importance to understand what happens during recovery. Importantly, Petterson recognizes that the best recovery is done before the disaster takes place in the form of recovery planning. She writes (6), “It may be difficult to design a standardized technical assistance approach applicable to all types of disasters and communities.” She opines that the most efficacious recovery programs are those placed in the hands of local rather than federal officials, since the former usually have an understanding of the “long term vision for the community” and can relate to the various local groups and social actors participating in recovery. In sum, extrapolating from these authors it is appropriate to conclude that the complexity of disaster recovery does not lend itself well to command and control approaches embedded in NIMS.

**Politicized Responses** Another reason to doubt NIMS’ applicability to all aspects of disaster assistance is the highly politicized nature of contemporary disaster occasions that is brought about in part by mass media coverage of these events (Schroeder, Wamsley, Ward, 2001). There is an increasing tendency for post disaster time periods to become media driven political dramas that demand direct intervention from the president of the United States, other high level political officials, and Congress. Even a cursory review of what happened in the aftermath of Hurricane Katrina indicates that the political effects of this catastrophe superseded NIMS, ICS, and other command and control designs. Many reporters became disaster experts overnight and started doing live broadcasts in New Orleans before official responders to Hurricane Katrina were in evidence. They helped create the nationwide perception of governmental mismanagement, involving for instance a high proportion of African-Americans who had not been evacuated prior to the hurricane, and who congregated at the designated shelter sites where services were severely limited or non-existent. Katrina’s political repercussions involved President Bush, Congress, and state and local politicians. When it was all done, Mr. Bush’s approval rating had dropped to its lowest level up to that time (38%). This was the case: a. despite his multiple attempts to counter the criticisms by visiting the region a number of times, b. sending personal representatives to the region, including his wife, the Education secretary, the Vice-President, the Attorney General, and the secretary of Homeland Security, c. attempting to take over the Louisiana National Guard only to be rebuked by the Governor of the state, d. mobilizing the Army, e. replacing the director of FEMA, f. naming a vice admiral to oversee New Orleans Federal relief and rescue efforts, g. establishing a White House Joint Task Force Katrina commanded by a Lieutenant General, h. waiving federal rules that require states to pay 25 percent of disaster-related expenses, i. promising that the federal government would pay for the majority of the costs of reconstruction, j. proposing a \$5000 stipend for evacuees which they could use on job training and child care expenses and k. a homesteading law that would give state-owned land to anyone wanting to build in them. This partial list provides a glimpse into the highly politicized nature of the Katrina catastrophe and other

contemporary disasters that is partly the result of the activities of the mass media and the degree to which they help create a probably irresistible political need to act. Furthermore, as illustrated in the case of the response to Hurricane Katrina, these events provide opportunities to attack and defend political actors; as such they become the focus of intense national partisan politics. Under this sort of political pressure, procedural protocols and other rational plans and systems such as ICS and NIMS are amended if not abandoned altogether. These systems could not be effective in the reconstruction and recovery periods of disasters. These same misgivings will apply to bringing about solutions to the complex political problems that are often associated with the adoption of mitigation practices and the creation of more resilient communities and regions.

**Mass Assault** Research has shown major disasters are almost always followed by an influx of people into the impacted area. This phenomenon, often referred to as convergence, brings to the disaster scene individuals ranging from the most professional technical responders discussed in this report to untrained, albeit well meaning volunteers. When looking at the work that volunteers do when on site research has suggested that they participate in a wide variety of tasks such as debris clearing, collecting food, supplies and money, providing shelter, and offering medical and psychological aid amongst others (Wenger 1991). In one specific situation, volunteers actually established and operated a transportation system to provide needed commodities donated by the public (Aguirre et. al 1995). The usefulness of these volunteers is discussed by Wachtendorf and Kendra (2004). It is doubtful whether ICS can be used to coordinate all individuals and non-governmental organizations that become involved in disaster response as volunteers. As Quarantelli and Dynes (1977; Dynes, 1970) documented, many of these organizations experience important changes in attempting to respond to disasters that militate against their implementing ICS procedures. The same is true of the emergent groups of volunteers that characterize the aftermath of disasters. At the present time the ICS system does not and probably could not provide for the integration of groups that arise spontaneously and that often perform very important functions in the immediate aftermath and during the lengthy reconstruction and recovery periods of disasters.

**New and International Disasters** All of the preconditions that make ICS work tend to be absent in many disasters which cross international boundaries and which are diffuse in time and space, such as electric blackouts, worldwide epidemics, and nuclear accidents. ICS and NIMS will be of limited use in responding to them. Disasters such as these often involve many diverse local communities, multiple state agencies, and multiple national governments that have never participated together in similar efforts and that may have very different national agendas and very different valuations of risks. In such instances responders will be at great difficulties if forced to adopt an externally imposed organizational system that they do not know. Furthermore, in these catastrophes,

responding organizations face a number of hazards that generate a multiplicity of unexpected demands in need of alleviation for which ICS is not designed to operate.

## Conclusions

ICS works well when official responders have trained in ICS and have a strong sense of community. Wenger et al. correctly identified the weakness in many deployments of ICS. However we agree with responders that the deficiencies identified are not inherent in ICS but rather are related to inadequate implementation. As noted by one of our reviewers, it is possible that the widespread adoption of ICS would create the cultural and social processes required for effective multi jurisdictional response. While we agree with this contention and go as far as to suggest that the California experience demonstrates this perspective. Nevertheless, considering the difficulties regarding the implementation of this program at the national level, even if all involved desired it---and there are good reasons to doubt it---it is unlikely that the system will ever be fully implemented for all phases and actors in disasters. Given previous research findings regarding the limits and fluctuations in material and political support that would be required to provide the training, exercises and joint planning activities needed to create a national and international matrix of ICS response, it is doubtful that the system will be effectively adopted by all actors in all disaster contexts.

Many social demands produced by disasters are too complex and unexpected to be handled by the ICS. The command and control model does not currently, and given the social complexity likely never will work for all phases of disaster operations. The federal government's hopes to apply NIMS to all phases of disaster operation are misguided. The ICS coordinative mechanisms, such as the multi-agency coordination centers or unified commands, are ill suited to the complexity of the recovery and mitigation tasks as well as to a good deal of disaster response efforts. In the recovery and mitigation phases of disaster, as the post Katrina situation in New Orleans and the reconstruction and recovery of lower Manhattan in the aftermath of the WTC terrorist attack reminds us, there will be much disagreement in the goals of the recovery and the objectives and the priority of projects as well as the best way to mitigate future hazards. It is better that the political and social institutions of the communities impacted by disaster engage in these processes. They are the instruments of democratic society and are better able to deal with the disaster-related political, economic and social issues.

Perhaps what is needed is a rethinking of the functions of government and the increased use of non profit and market-based organizations in the mitigation of the effects of disaster. Despite widespread claims to the contrary and the promise of politicians, governments cannot guarantee protection against disaster and catastrophe. People are responsible for their own welfare. Government and non government organizations can facilitate the invigoration and coordination of networks of people and organizations sharing common interests and complementary visions of the good life. It can encourage

them to learn about vulnerability and from past mistakes in devising effective programs. This change needs to happen not just through the formal instrumentalities of the state, but also through the participation of civil society and the market place in projects to mitigate risks and to educate people to appreciate the dialectical nature of vulnerability and resilience (Aguirre). The collective responsibility is to learn from the past and come up with new approaches using the best informed means and most appropriate resources available to the society. This is the larger vision that is needed for a new public administration of disasters.

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