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Adapting and Evolving in Emergency Response: The Case for More Complex Multi-Organizational Partnerships

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Abstract (U)

This paper posits a need for a paradigmatic shift in thinking about how emergency response organizations think about themselves and interact with one another following a major event. Society is becoming increasingly complex, as are the problems that society will need to address. While there has been and continues to be much emphasis in emergency response on the need for better *coordination* of response and recovery efforts, depending on the severity of an event, it may be that other types of multi-organizational partnerships, besides coordination, are needed or will aid in response efforts. There are three fundamental questions that need to be answered following an event: *What needs to be done? Who should do what? How best to do it?* As events increase in magnitude – moving from incidents, to routine emergencies, disasters, and catastrophes – so does the complexity of response and recovery needs and efforts, which makes it increasingly difficult to derive the necessary answers. Major events can have unusual and complicated impacts, which are often beyond the problem-solving and management boundaries of individual organizations. It may be as well that organizations will not already exist to address certain impacts following a disaster or catastrophic event. Deciding how best to respond to an event in all of its facets will necessitate that organizational responders work more closely together they than may currently do by engaging in cooperative or collaborative partnerships. However, depending on how organizations see themselves, entering into collaborative or even cooperative partnerships may not be an easy feat. Before such relationships can exist, organizations must view themselves as *inter*- as opposed to *in*dependent. Doing so requires a shift in thinking from the individual organization to the *meta*-organizational domain. Rather than seeing themselves as independent entities, as a first step, organizations must acknowledge their interdependence with other organizations. Like an ecosystem, organizations need to embrace the idea that they are members of the same environment where the actions of one affect the actions of others. Implicit in this metaphor is the notion of change. Being part of an ecosystem means that organizations need to continually respond and adapt based on their interactions with others as well as other's actions. While the metaphors that organizations use must be conducive to collaboration, organizations must be geared towards emergence of new behaviour. Ensuring an efficient and effective response to major disasters in the future requires that responding organizations be open and willing to collaborate with one another, and be capable of adapting and evolving based on an event's unique requirements.

Résumé (U)

Appuyer « l'émergence » dans les interventions d'urgence : les arguments invoqués en faveur de partenariats plus complexes dans les organisations

L'idée maîtresse du présent document porte sur le besoin d'effectuer un changement paradigmatique dans la manière dont les organisations d'intervention en cas d'urgence se perçoivent elles-mêmes et dans leur façon d'interagir lors d'un incident important. À mesure que la société se complexifie, les problèmes auxquelles elle doit s'attaquer deviennent eux aussi de plus en plus complexes. Bien que l'on ait mis beaucoup l'accent sur une meilleure *coordination* des efforts d'intervention et de rétablissement de l'ordre lors des interventions d'urgence, il se peut, compte tenu de la gravité de l'événement, que d'autres types de partenariats entre plusieurs organisations soient nécessaires en plus de la coordination. À la suite d'un incident, trois questions fondamentales doivent être posées : *Que faut faut-il faire? Qui devrait faire quoi? Quelle est la meilleure façon de le faire?* À mesure que l'importance des incidents augmente – passant de simples incidents à urgences courantes, à désastres et à catastrophes –, la complexité des besoins et des efforts d'intervention et de rétablissement de

l’ordre augmente proportionnellement, ce qui fait en sorte qu’il devient de plus en plus difficile de trouver les réponses nécessaires. Les incidents importants peuvent avoir des répercussions inattendues et complexes qui vont au-delà des capacités de gestion et de résolution de problèmes de chacune des organisations. Il se peut également qu’il n’y ait pas à ce moment d’organisation en mesure de faire face à certaines répercussions d’un désastre ou d’une catastrophe. Déterminer quelle est la meilleure façon d’intervenir en tenant compte de toutes les facettes d’un incident exige que tous les intervenants travaillent ensemble de manière plus étroite qu’ils ne le font probablement actuellement en s’engageant dans des partenariats coopératifs ou collaboratifs. Toutefois, selon la façon dont les organisations se perçoivent elles-mêmes, entrer dans un partenariat collaboratif ou même coopératif peut être un exploit difficile à réaliser. Avant qu’une telle relation puisse exister, les organisations doivent se percevoir elles-mêmes comme *inter*dépendantes plutôt qu’*in*dépendantes. Pour y arriver, il doit y avoir un changement de mentalité, un passage d’organisation individuelle à une *méta*-organisation. Plutôt que de se voir comme des entités indépendantes, des organisations œuvrant telles des machines ou des navires, les organisations doivent, en premier lieu, adopter des métaphores qui reconnaissent leur interdépendance. Comme un écosystème, les organisations doivent accepter l’idée qu’elles font partie du même environnement, un lieu où les actions d’une d’entre elles affectent les actions des autres. Agir ainsi permettra à une mentalité de collaboration de prendre racine au sein de la communauté des intervenants, ce qui peut entraîner une plus grande résilience aux désastres, étant donné que les organisations développent la capacité de s’adapter et d’évoluer en fonction des exigences toutes particulières d’un incident important.

Executive summary

Adapting and Evolving in Emergency Response:
The Case for More Complex Multi-Organizational Partnerships

Sean Norton

Introduction:

Disasters are very often associated with destruction, damage, displacement, debris, and death, disorder and disruption. Given that response and recovery needs of a disaster will frequently surpass the capabilities and authority of individual response organizations, trying to ensure an efficient and effective response effort is no small feat. For this reason, emergency planners have long focused on the need for a *coordinated* multi-organizational and multi-jurisdictional response to disaster events.

History has shown that effectively coordinating a national response to a disaster is exceedingly difficult. While the reasons for this are probably various, the simple fact is that coordination is not always an appropriate, even realistic goal. Coordination[1], as commonly conceived in emergency response, can only occur when there are answers to three fundamental questions: *What needs to be done? Who should do what? How best to do it?*. As events increase in magnitude – moving from incidents, to routine emergencies, disasters, and catastrophes – so does the complexity of response and recovery needs as well as that of overall multi-organizational response efforts, which makes it increasingly difficult to derive the necessary answers to permit a coordinated response.

There are different types of multi-organizational partnerships, of which "coordination" is merely one. A key argument is the need for collaborative partnerships[2] to support multi-organizational emergency response efforts due to the inherent complexity of response and recovery needs. However, entering into collaborative partnerships may not be a simple matter for organizations given that most are conceived of and structured in ways that are not conducive to such interactions. A first step for many organizations is to adopt metaphors that are conducive to collaboration.

A chief goal of this paper is to introduce a conceptual framework intended to change how organizations think about their involvement in emergency response. While advocating for other types of partnerships besides coordination, this paper strives to reframe our thinking about how responding organizations should interact following a disaster. In accepting the need for different types of multi-organizational partnerships, responding organizations are asked to reject the notion that they are isolated and separate entities, each with their own domain or stovepipe of responsibility. Instead, organizational responders should begin to see themselves as operating within a shared environment or ecosystem where their success is tied to that of other organizations operating in the same context. Since change is an implicit feature of an ecosystem, mechanisms must also be put in place to permit and support the ability of organizations to adapt and evolve. Organizations must be geared towards emergence.

[1] Coordination is defined as, interacting, over time, to exchange information, negotiate, and alter activities for mutual benefit, greater efficiency, and the good of a community or the public.
[2] Collaboration is defined as the act of working together, over time, to exchange, create or produce knowledge and information so as to be well-informed about problems that exist, and for negotiating ways of collectively responding to the problems, in an efficient and effective way, for the greater good of a community or the public.

Discussion:

First responders (i.e. Police, Fire, and Emergency Medical Services) are called to respond to a myriad of events ranging from everyday incidents, routine emergencies, to full-blown disasters, even catastrophes. These different events will have different response and recovery needs, whereas, the complexity of inter-agency response efforts and challenges posed by different events will also vary. For instance, unlike incidents or most routine emergencies, disasters tend to produce wicked, "social metaproblems" that are beyond the "problem-solving and management boundaries" (Parker and Selsky 2004) of any one organization. Achieving a timely and effective response to disaster has demanded that responding organizations work together in some capacity due to the cross-cutting nature and sheer scale of the problems that arise. For the past 40 years or so, the goal was thought to be "coordinated action" (Dynes 1970b). How it is to be achieved is the source of ongoing debate.

Part of what defies a solution may be confusion over what coordination actually means. Coordination is merely one of several types of multi-organizational partnerships (i.e. networking, cooperation and collaboration). After differentiating between these partnerships, one can question when coordination, as opposed to another type of partnership, is the right goal. The need for coordination following a disaster is not disputed. What is being disputed, however, is the emphasis given to coordination, as compared to other types of multi-organizational partnerships. For instance, depending on the severity of impacts of an event, collaborative partnerships may be needed to address complex problems before coordination of activities can occur.

The problems usually faced by scientists and engineers are "benign" or "tame" problems since their solutions can be foreseen and resolved ahead of time (Rittel and Webber, 1973). Coordination may be a sufficient strategy when problems are straightforward. However, not all problems are easily tamed. Most planning-related problems, for instance, according to Rittel and Webber (1973), are ill-defined and complex. They refer to them as "inherently wicked" or "tricky" (p6), since they have "ramifications that make them difficult to solve" (Conklin and Weil 1998, p3).

A focus on coordination is based on having confidence in one's knowledge of the types of disasters that a society can reasonably expect to have to face. Coordination is a term that implies knowledge of what is likely to happen and what needs to be done in response. What coordination does *not* imply is working together with others to decide how *best* to respond (i.e. what resources to use and the activities ideally suited to addressing the problems that exist). Coordination is an inadequate goal when society is stricken with *wicked* problems that have largely uncertain and complicated effects (e.g. where the tasks are unknown and necessary structures for completing them do not exist prior to an event). Being able to derive solutions to wicked or tricky problems demand that organizations engage in more complex partnerships, such as those based on collaboration. Collaboration in emergency response is a blending of ideas, knowledge and perspectives. It involves working together to generate knowledge and innovative ideas for addressing problems. Collaborative partnerships may be needed following a major event or wicked problem, before such time as the coordination of inter-organizational and inter-jurisdictional activities can occur.

Three fundamental questions need to be answered in the wake of a major event in order that there be sufficient clarity to permit a coordinated multi-organizational response: *What needs to be done? Who does what? How best to do it?* Answers to these questions are thought to be more easily derived at one end of the spectrum than the other due to the relative simplicity of incidents, even routine emergencies, as compared to disasters, certainly catastrophes. For example, it is much easier to respond in an organized and coordinated fashion to a car accident or house fire than it is to a disaster, let alone a catastrophic event, such as Hurricane Katrina. For one, there are well established patterns of organization for responding to incidents. For everyday incidents, the tasks and activities

that have to be accomplished are also clearly defined within the standard operating procedures of each response organization. However, the scope of impacts of a disaster or catastrophe can easily overwhelm existing response organizations. Also, following a major event, there will likely be many areas and issues warranting urgent attention that will not fall within the bounded spheres of responsibility of any one organization. In situations such as these, new social units will have to emerge to perform urgent tasks and activities. Trying to coordinate response efforts can not readily occur when the impacts of an event are beyond the problem-solving capabilities of any one organization. Nor is it a realistic goal when social units do not already exist to address problems. Instead, responders will have to engage in cooperative or collaborative partnerships to address complex problems and structural gaps before such time as coordination of multi-organizational and jurisdictional efforts can occur.

The coordination of emergency response activities can occur fairly quickly where instances of organization are based on existing social order, i.e., where there are existing response organizations ready and willing to undertake the activities for which they were organized. However, it would be a mistake to think that organizations can be created in advance to handle all manner of problems so as to permit an orderly and organized response effort once disaster strikes. Despite best efforts, *disorganization* might actually be a natural, even necessary stage in multi-organizational and jurisdictional disaster response. There may be a way to iron out certain structural issues, in advance of a major event. Other expressions of social structure will only emerge as a result of an event's unique requirements. That is to say, oftentimes, events are the basis for ironing out structural issues which can aid in preparations for the next disaster, provided that "lessons learned" are being captured, archived and disseminated to first responders.

One of the key arguments in this paper is the need for a collaborative model to support multi-organizational disaster response efforts due to the inherent complexity of response and recovery needs. However, entering into collaborative partnerships may not be a simple matter for organizations given that most are conceived of and structured in ways that are not conducive to such interactions. For some time, academics have expressed the need for organizations, especially those involved in emergency response, to adopt a *systems* perspective concerning their role vis-à-vis other responders.

Where difficulties exist in adopting different organizational views, it may be the result of a conflict with other commonly and deeply held views about organizations. For example, organizations tend to be viewed as independent entities, machine- or ship-like in quality, with distinct roles and responsibilities. Many are also internally focused. When the metaphors used to characterize organizations involved in emergency response fail to acknowledge their interdependence, it is easy to appreciate how this might limit the spheres of activity of those organizations, as well as their ability to adapt and evolve based on ongoing response and recovery needs following a disaster.

Given the likelihood that disasters will spill beyond the boundaries of individual organizations, a paradigmatic shift in thinking is needed away from the individual organization to the meta-organizational domain. To support a shift in thinking, it is suggested that organizations be managed as though they were "complex evolving systems, co-evolving within a social ecosystem" (Mitleton-Kelly 2003). Seeing organizations as complex systems, and the environments in which they operate as ecosystems, enables very different thinking about how organizational responders should behave. For one, it allows more creative thinking about *what is possible*. When viewed as part of an ecosystem, organizations are believed to be engaged in an interactive web of relationships with other organizations operating in the same environment. The actions of any one organization affect the actions of others. In some cases, an organization's very survival is seen to depend on the manner in which they interact with other members of their same environment. From an ecosystem perspective, planning that occurs in isolation might be the same as planning to fail.

Being part of an ecosystem implies that organizations are continually interacting with other entities operating in the same system. Implicit in this metaphor is the notion of change. From an ecosystem perspective, *being* has process not state qualities. Organizations need to continually adapt based on their interactions with others and respond to others' actions. Mitleton-Kelly (2003) uses two inter-related components to describe the change processes that occur: "co-evolution" and "emergence". According to him, co-evolution is a shared process. When there is insight and new understanding about a particular problem or issue, and that knowledge is shared with other entities, then co-evolution is said to occur. When new knowledge leads to new behaviours, "…then the organization can be said to have adapted or evolved" (p.42).

Viewing the environment in which organizations operate as an ecosystem would support a collaborative model or "collaborative ethos" (Fuerth 2006) for emergency response. A collaborative ethos is based on what Fuerth (2006) refers to as an "instinct for teamwork", rather than "the natural search for individual advantage" (p.63). The ecosystem metaphor also permits a domain of responsibility to become "a space of possibilities" (Mitleton-Kelly, 2003), rather than a fixed set of tasks. With this view, multi-organizational response could be oriented towards what needs to be done, but as important, how best to do it. A collaborative model, while incorporating existing views of social order, is the basis of emergent behaviour. Working to address problems with other organizational responders is a way of gaining insight and new knowledge. Doing so allows for the emergence of new social roles, which can lead to the creation of new social units. Collaboration feeds a social action approach to emergency response that can give way to greater social order as emergencies unfold. Collaboration may be a key ingredient for ensuring a more effective response.

While the metaphors that organizations use must be conducive to inter-organizational collaboration, there must also be mechanisms in place to permit and support emergent behaviour. When a disaster strikes, the individual responders will need the flexibility to coordinate, cooperate and collaborate on the problems that exist. They are also the ones who will have to decide when it is best to enter into more complex inter-organizational partnerships. To permit emergent behaviour, responders must, to a certain degree, enjoy "tactical self-reliance". They need to be socialized and trained to be autonomous and self-reliant units, able to make decisions without consulting higher authority or when such authority is absent. They should be empowered to "see something and do it". Whereas, higher levels of control need to be able to keep track of what is happening on the ground, set priorities and where necessary, make decisions, but perhaps most importantly, to find the necessary resources to allow their responders to get the job done. This is the basis of the social action approach: permitting a rapid and flexible response based on the emergent, self-organizing, networked behaviour of individual responders.

Significance:

The main thrust of this paper has been the need for a paradigmatic shift in thinking about how emergency response organizations think about themselves and interact with one another. There may be well established patterns of organization in place for responding to a range of events that mirror past experience. However, society is becoming increasingly complex, as are the problems that society will need to address. Existing patterns of organization are almost certainly insufficient to handle the range of events that society might and probably will have to face in the future. When an catastrophe occurs, such Hurricane Katrina, new patterns of organization will probably be needed to address the severity of effects and suffering that results. It is difficult to imagine that the full range of problems societies now face, in all their complexity, can be foreseen and planned for in advance. Existing organizations will need adapt to address an event's unique requirements, and new organizations will have to emerge to fill the gaps that will very likely exist. No longer can organizations been seen as discrete entities whose activities and success is largely independent of one another. Such views limit

the flexibility and agility organizations have to adapt and evolve to suit the unique requirements of a major disaster. Believing that all organizations will need to do – following a major disaster – is to coordinate their actions with other responders does not acknowledge the complexity of issues for which responders will face, as well as the complexity of the entire multi-organizational response effort.

This paper has argued that greater emphasis be given to more sophisticated, collaborative relationships in emergency response. Being able to answer the fundamental questions (i.e. What needs to be done? Who does what? and How best to do it?) demands that organizations work more closely together than many probably do currently. The ability to come together to address complex problems through more complex partnerships – geared towards the blending of ideas, knowledge and perspectives – will require that many begin to conceive of themselves differently and to revise their structures to make them conducive to such partnerships. One option that has been circulating in the literature for many years is for organizations to adopt a *systems* perspective. More specifically, managing organizations as "complex evolving systems, co-evolving in a social ecosystem" (Mitleton-Kelly 2003) would liberate previously hardened and static views about existing organizational structures. It would be a first step in allowing organizations to respond with flexibility and agility to the conditions surrounding them. Change is happening too quickly to remain wedded to static ideas and inert structures. Like an ecosystem, organizations need to embrace the idea that they are members of the same environment where the actions of one affect the actions of others. Seeing themselves as *inter*- rather than *in*dependent allows the roots of a collaborative mindset or "ethos" to take hold. As is the case with all collaborative partnerships, exposing oneself to different ways of thinking can produce something unexpected. In the context of emergency response, that something is greater resilience to disaster.

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Acknowledgements

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1. Introduction

Disasters are very often associated with destruction, damage, displacement, debris, and death. Depending on the magnitude and severity of the event, disasters can also lead to disorder within communities and the disruption of supply chains as impacts cascade through the system. Given that response and recovery needs of a disaster will frequently surpass the capabilities and authority of individual response organizations, trying to ensure an efficient and effective response effort is no small feat. For this reason, emergency planners have long focused on the need for a *coordinated* multi-organizational and multi-jurisdictional response to disaster events.

More effective inter-agency coordination is often viewed as the solution where there are many different organizations involved in emergency response. However, trying to create some semblance of *organization* by coordinating the activities and resources of many different responders is anything but simple. On the contrary, history has shown that effectively coordinating a national response to a disaster is exceedingly difficult. There are various reasons as to why. However, a chief concern of this paper is that coordination may not be an appropriate, even realistic goal in all cases. There are different types of multi-organizational partnerships, of which "coordination" is merely one. Before an effective multi-organizational response to any class of event can be mustered, there are three fundamental questions that need to be answered: *What needs to be done? Who should do what? How best to do it?* Coordination, as commonly conceived in emergency response, can only occur when there are answers to these questions[3].

The more severe a disaster event, the greater and more complex the challenge of responding efficiently and effectively. Consider a catastrophic event, whether it be a naturally occurring event,

[3] There are different modalities of coordination as noted in the paper, entitled "Values, Coordination and Rationality" Eymard-Duvernay, F., O. Favereau, et al. (2003).

such as Hurricane Katrina[4], or a never before experienced, human-induced event, such as a catastrophic terrorist attack that obliterates entire communities. Worse still, consider a catastrophic pandemic that happens almost everywhere at virtually the same time. History can not always prepare us for what is yet to come. What society might have to deal with in the future will be an intractable mess that will disrupt the supply of vital goods like energy and food. When highly unusual and complex events occur, responders will need to hastily determine what needs to be done, by whom and how best to respond. Answers to these questions, while desperately needed, following all manner of disaster, may be less than obvious when an event produces catastrophic effects. The more complex are the impacts, the more time will be needed to understand the problems let alone any solutions.

Problems can be regarded as "benign" or "tame" problems when their solutions can be foreseen and resolved ahead of time (Rittel and Webber, 1973). These types of problems tend to be straightforward, and coordination may be a sufficient strategy for dealing with them. However, not all problems are easily tamed. Rittel and Webber (1973) argue that most planning-related problems are ill-defined and complex. They characterize these types of problems as "inherently wicked" or "tricky" (p6), since they have "ramifications that make them difficult to solve" (Conklin and Weil 1998, p3).

When impacts of emergencies are predictable, it allows emergency planners to derive answers to the three fundamental questions. Contingency plans and task lists can be developed and responsibilities assigned in advance. Appropriate resources can also be set aside. In situations such as these, all that is left is to coordinate inter-agency response and recovery activities. However, there has been little discussion about when other types of multi-organizational partnerships, besides those based on coordination, are needed or will aid in response efforts. Little if any attention has been paid to when response efforts might benefit from collaborative partnerships, for example. Highly unusual

[4] Hurricane Katrina is a notable example of a disaster event that was widely deemed to have catastrophic social and economic effects. While it is fortunate that Canada has not experienced a catastrophe on the scale of Katrina, it is conceivable that an event of this magnitude (i.e. a catastrophic events) could happen anywhere.

events can lead to unpredictable and complex impacts that are beyond the problem-solving capabilities of any one organization. Even defining a *wicked* problem may require the "collective intelligence" of individuals from many different responding organizations; whereas, addressing them certainly will. Being able to derive solutions to wicked or tricky problems demands that organizations engage in more complex partnerships, such as those based on collaboration. Collaboration in emergency response is a blending of ideas, knowledge and perspectives. It involves working together to generate knowledge and innovative ideas for addressing problems. Collaborative partnerships may be needed following a major event or wicked problem, before such time as the coordination of inter-organizational and inter-jurisdictional activities can occur. The time has come when planners and responders must look beyond traditional coordinating mechanisms to more complex and dynamic inter-organizational partnerships when responding to disaster events, particularly where the impacts of such events are complex and likely to be catastrophic in nature, both socially and economically.

The goal of this paper is to introduce a conceptual framework intended to change how organizations think about their involvement in emergency response. In so doing, this paper intends to expand the disaster response lexicon to include other types of multi-organizational partnerships with an emphasis on collaborative relationships. However, one can not explore different partnerships without also challenging deeply ingrained views about organizational structure. In accepting the need for different types of multi-organizational partnerships, responding organizations must also begin to reject the notion that they are isolated and separate entities, each with their own domain or stovepipe of responsibility. Such views serve merely to constrict mindsets, and must be abandoned. Instead, responding organizations must begin to see themselves as operating within a shared environment (i.e. an ecosystem) where their success is tied to that of other the organizations operating in the same context. While advocating for new types of multi-organizational partnerships, this paper strives to reframe our thinking about how responding organizations should interact. In the present context,

where both natural and human-induced disaster events can produce catastrophic effects, a more complex understanding of the nature of “inter-organization” is sorely needed.

1. Events Described

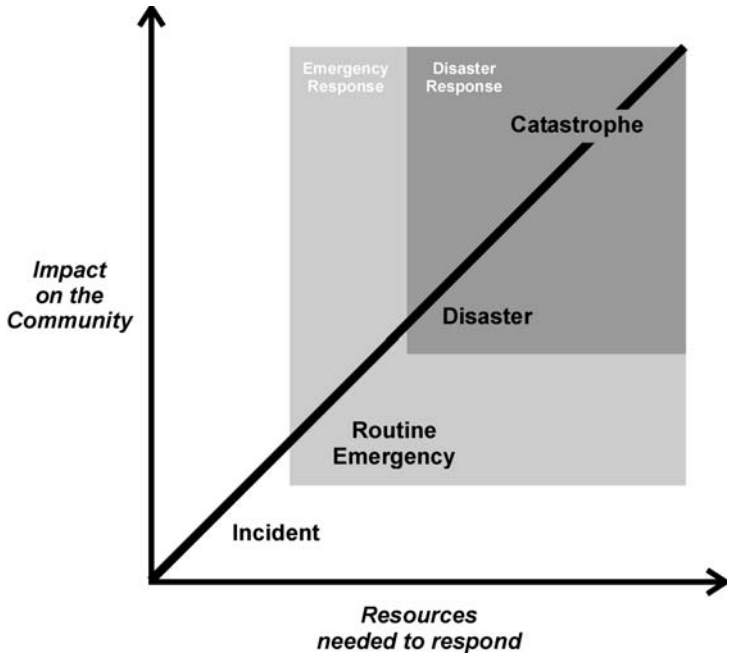
First responders (i.e. Police, Fire, and Emergency Medical Services) are called to respond to a myriad of events ranging from everyday incidents, routine emergencies, full-blown disasters, even catastrophes. Understanding how these events differ is important, since different events produce different response and recovery needs. The complexity of inter-agency response efforts is also likely to change as events increase in magnitude. Yet, as this section reveals, there is a surprising lack of clarity concerning the definition of these terms. Very often, one type of event is taken as a synonym for or confused with other types. For instance, the term “emergency response” has been used to characterize a response to all manner of emergencies, be they local, regional or national in scale. Disasters are often referred to as emergencies, even crises; whereas the term “catastrophe” is increasingly being used to refer a new class of “disaster” with significantly greater quantitative and qualitative effects. Hurricane Katrina will be discussed in this section in so far as it is believed to represent a catastrophic event. This section will then proceed to define these events in ways that are suitable to emergency response.

A 1998 doctrine paper – prepared for what was then Emergency Preparedness Canada – interprets events “as points along a spectrum” based on two factors that were used to gauge the severity of an event: “the impact the event has on the community” and “the resources available to respond” (Kuban, 1998: p1). This second factor warrants consideration. While constraints on the availability of resources will affect the response effort, this factor is unrelated to the scale of an event. Whether resources are actually available to respond to events of varying degree reflects factors, such as the perceived likelihood of an event, political considerations, etc. A better way of gauging the severity of an event would be to examine the resources *needed* to respond. As events increase in magnitude, it is reasonable to expect that additional resources will be needed for response and

recovery efforts. Figure 1 provides a visual depiction of these two factors (i.e. impact on the community, resources needed to respond). The graph adapts and expands upon Kuban's spectrum by making reference to necessary, as opposed to available resources, by including a new event class, referred to as a "catastrophe", and by viewing disaster response to be a subset of emergency response.

Figure 1

Spectrum of Events Based on Impact on the Community and Resources Needed to Respond



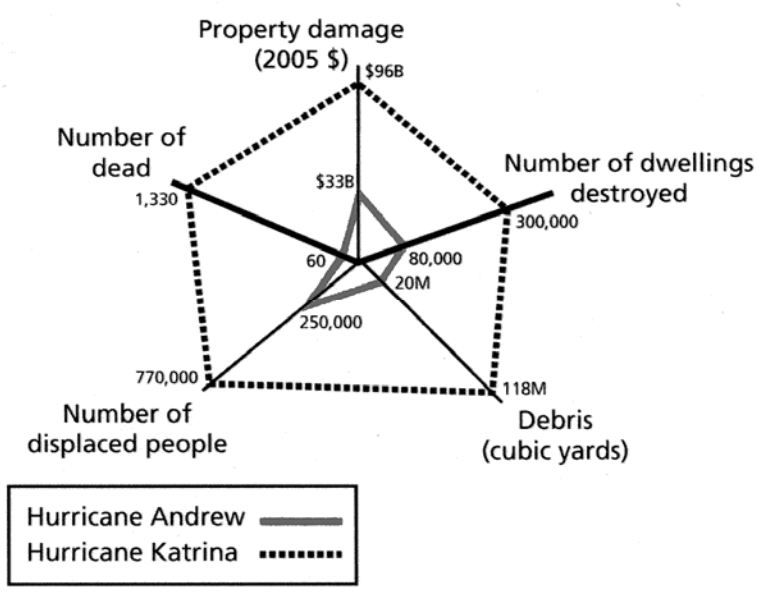
Source: Adapted and expanded upon from Kuban, R. (1998). The Emergency Site Management (ESM) System: A Doctrine Paper. Emergency Preparedness Canada. Ottawa, Government of Canada

There is an argument for using conceptual categories (i.e. incident, routine emergency, disaster, catastrophe), instead of other groupings, when referring to events of varying magnitude. Doing so allows the focus to remain squarely on an assessment of impacts and resources. One could refer to other groupings for events (e.g. car accident, large fire, hurricane), but the severity of impacts and the resources needed to respond to specific types of events can vary, in some cases, quite considerably. Take Hurricane Katrina, for instance. The White House lessons-learned report (United

States, 2006) refers to five characteristics (i.e. property damage, number of dwellings destroyed, debris, number of displaced persons, number of dead) as means to characterize hurricane-specific impacts. After quantifying and graphing these characteristics (Figure 2) one can quickly observe how Hurricane Katrina compares with a "typical" hurricane (i.e. Hurricane Andrew; ibid.). It is easy to see in Figure 2 how the impacts of Katrina and the scale of the response was unlike that of any other hurricane. In that sense, hurricanes or even "natural" disasters can not be said to comprise a particular class of event, since the impacts of one hurricane versus another can be significantly different.

Figure 2

Characteristics of Hurricane Andrew and Hurricane Katrina



Source: Davis, L. E., J. Rough, et al. (2007). Hurricane Katrina: Lessons for Army Planning and Operations. U. S. Army. Santa Monica, RAND**,** pp. 2.

It is important to realize as well that impacts can vary significantly in both scale and type, which can complicate matters when comparing and contrasting events. The characteristics in Figure 2 could easily be applied to other disasters, besides hurricanes, but no doubt, other disasters would also

produce other types of impacts that would need to be assessed as well. In addition to the characteristics identified in the White House report are potentially many other impacts. There are a series of hypothesized psychological impacts of traumatic events, for example, such as posttraumatic stress, anxiety, depression, anger, dissociation, aggression and antisocial behaviour, somatic complaints, and substance abuse (Briere and Elliott 2000). While psychological impacts of events are usually associated with acute symptoms, they can also be long-term.

Given that psychological symptoms can vary based on the type of event, as Briere and Elliott (2000) indicate, "…comparisons should take into account any severity characteristics (e.g., likelihood of producing extreme fear, capacity to injure or kill)" (p663). Unfortunately, data is lacking on psychological effects, which may be due to difficulties predicting psychological symptoms from exposure to different events. Even where data is available, however, it would be exceedingly difficult to contrast and compare events based on these, as well as other severity effects, as the basis for determining where along the spectrum different events should lie. Additional efforts may be needed to understand the full range of impacts of different events on the community, as a basis for organizing future response efforts.

Events Defined

At any given moment, Police, Fire and Emergency Medical Services are responding to a whole range of events across the country. At one end of the spectrum in Figure 1 (bottom left) are the mostly routine incidents, such as house fires and car accidents. The three traditional responders are trained and equipped to respond in a fairly straightforward way to these incidents. Their impact is localized and the resources needed to response are relatively negligible.

An **incident** "…is often used to describe events which occur rather commonly in day-to-day life and for which response organizations (e.g., Fire, Police and Emergency Medical services) are well prepared. These events may include single-house fires, single-car accidents or armed incidents (e.g., homicide or domestic violence)." (Kuban 1998, p2).

Further along the spectrum in Figure 1 are less common events, which Kuban describes as "emergencies". The Oxford Dictionary describes an emergency as "a sudden serious and dangerous event or situation which needs immediate action to deal with it" (Oxford University Press 2005). Since the term "emergency" can and often is used to describe events of varying magnitude, for purposes of clarity, what Kuban refers to – e.g. multi-vehicle accidents, large fires and shootings – should probably be qualified as *routine* emergencies. The impact of routine emergencies will be greater than incidents. There will be a need for additional resources and it may be that other, less traditional response organizations will become involved; but otherwise, routine emergencies still fall within the everyday capabilities of the traditional and other responders who are called upon to deal with these events. It is likely that the vast majority of events happening at any given moment are incidents or routine emergencies.

A **routine emergency,** while less common than an "incident", still falls within the everyday capabilities of traditional and other responders and their organizations. Routine emergencies may include large fires, multi-vehicle accidents, hostage-taking or shootings (adapted from Kuban 1998).

At any given moment, emergency response organizations may be called to respond to a disaster, which the dictionary defines as "an unexpected event, such as a very bad accident, a flood or a fire, that kills a lot of people or causes a lot of damage" (Oxford University Press 2005). Disasters can be either naturally occurring (e.g. earthquake, flood, ice-storm) or human-induced (e.g. acts of terrorism). Their impacts are often significant, as referred to in the definition, as are the resources needed to respond and recover from them. Disasters are not merely extensions of routine

emergencies, however. They are unique events that have significant quantitative and qualitative differences that “necessitate the emergence of new behaviours” (Quarantelli 1991: p3).

> "...[I]n disasters the involved organizations have to: quickly relate to more and different groups than normal; adjust to losing part of their autonomy to overall coordinating groups; apply different performance standards and criteria; operate within a closer-than-usual public and private interface; and function when their own facilities and operations may be directly impacted by the disaster agent." (Quarantelli 1991: p4).

Disasters will affect entire, often multiple, communities. No one organization will have the capability to respond alone. Typically, numerous organizations from many different jurisdictions will be involved in the response effort. Also, provincial and/or federal assistance is often required to supplement municipal and provincial efforts, capabilities and resources. Overall, responding to a disaster is likely to be a messy, taxing and time-consuming affair.

A **disaster** is an unexpected event that affects an entire community or multiple communities, such as a very bad accident, a flood or a fire, that kills a lot of people or causes a lot of damage. Disasters can be either naturally occurring (e.g. earthquake, flood, ice-storm) or human-induced (e.g. acts of terrorism). Numerous organizations from many different jurisdictions will be involved in the response effort as well as many individuals. Government assistance is often required to supplement municipal and provincial efforts, capabilities and resources. Responding to a disaster is likely to be a messy, taxing and time-consuming affair (Oxford University Press, 2005; Kuban, 1998).

When events are thought to be more severe, they are very often referred to as a “crisis”. Once again, the meaning of the term is usually implied, rather than made explicit. As a result, the term “crisis” is often conflated with an “emergency”. Kuban even likens a “crisis” to that of a “disaster”. According to the Oxford dictionary, a crisis is defined as “a time of great danger, difficulty or confusion when problems must be solved or important decisions must be made” (Oxford University Press 2005). While, conceptually, this definition is very similar to that of an emergency, it should not be taken as a synonym for a “disaster”. The definitions of an emergency and crisis emphasize the quality of an *event* (e.g. a time of great danger, difficulty or confusion), whereas, the definition of a

disaster focuses on the quality of its *impacts* (e.g. an event that kills a lot of people or causes a lot of damage). Although, the term "routine emergency" is associated with a particular class of event, generally speaking, terms like "emergency" or "crisis" are ways to characterize more severe events. Following a routine emergency or disaster, it would be appropriate to refer to the response effort as being emergency or crisis response or in the case of a disaster to refer to it as "disaster response".

Since the terms **emergency** or **crisis** are ways to characterize the quality of an event, such as a routine emergency or disaster, the phrase **emergency response** is a way of characterizing the manner of response to a routine emergency, disaster or catastrophe. **Disaster response** is a more specific way of charactering the response to subset of more extreme events, being a disaster or catastrophe.

Disasters were believed by Kuban (1998) to close off the opposite end of the event spectrum. However, that is no longer believed to be the case. With the attack on the twin towers, more recently, Hurricane Katrina and the South Asian earthquake/tsunami, the public has witnessed what can only be described as a new event class widely referred to as a "catastrophe". Reverting to the Oxford Dictionary, a disaster and catastrophe are listed as synonymous. Elsewhere disasters are even referred to as natural catastrophes. Really, it should be the other way around. A catastrophe might be referred to as a "disaster", but not every disaster should necessarily be viewed as a catastrophe. A catastrophe is defined as "a sudden event that causes many people to suffer". Whereas the definition of a disaster focuses on loss of life and damage, the definition for a catastrophe includes an additional emphasis on human *suffering*.

Hurricane Katrina is often referred to as a disaster, but one of epic proportions, and has been given the label of a "catastrophic incident" or what is also referred to as a disaster with catastrophic social and economic effects. The word "disaster" cannot account for the more than $100 billion price tag of Katrina, to say nothing of the social effects or scope of "[human] suffering" to which the Oxford definition refers. According to the White House lessons-learned report (United States 2006),

Katrina forced the evacuation of oil platforms, which significantly reduced Gulf of Mexico oil production, and led to a sharp spike in gasoline prices nationwide. Significant oil spills occurred, the results of which were on par with some of the worst oil disasters in history. When the hurricane made landfall on the Gulf coast, the storm surge that followed affected a geographic area the size of Great Britain. Effects of the disaster were not limited to one town, one city or even one State. Several smaller towns were completely decimated and many others were heavily damaged. Breaches to the levee system in New Orleans resulted in sustained flooding, which destroyed most of the city, and required the largest search and rescue operation in U.S. history. Broadcast communications were also severely disrupted, which frustrated early response efforts. “The wave of destruction created environmental and health hazards across the affected region, including standing water, oil pollution, sewage, household and industrial chemicals, and both human and animal remains.” (United States 2006: p8). Along with economic effects were an unimaginable array of social effects. Nearly 800,000 people were displaced. Several thousand people remained in shelters months after the incident. Few services were available to those few who returned to New Orleans. Most schools and hospitals remained closed, and returnees were faced with a crippling unemployment rate. As noted in the White House lessons-learned report, “…the images of suffering and despair from Hurricane Katrina are forever seared into the hearts and memories of all Americans” (ibid.; p9).

The word “suffering” – frequently invoked in discussions about Katrina – is as a way of highlighting the qualitative differences between disasters and catastrophes, in terms of their human impacts. The overall effects of catastrophes are debilitating, which greatly restricts response and recovery efforts. A national disaster (e.g. 1998 ice storms in eastern Ontario and western Quebec, and the 1997 Red River flood in Manitoba can cause great damage or loss of life, but does not result in extreme impacts, such as the destruction of entire communities and communications infrastructure that was witnessed following Katrina. According to the U.S. National Response Framework, a

catastrophic incident "…results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions" (United States 2008: p42). Catastrophes challenge the resiliency of communities[5]. Also, unlike most other disasters, there is a greater likelihood that a catastrophe will affect part of the responder community or their infrastructure, greatly impeding response efforts. As such, Hurricane Katrina and the more recent focus on catastrophic terrorism scenarios have led to a differentiation in the types of disasters that countries have faced or conceivably, might have to face in the future.

A **catastrophe** or **catastrophic incident** can be referred to as a disaster, but one of epic proportions. It "…results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions" (United States 2008: p42). Catastrophes challenge the resiliency of communities and cause many people to suffer.

Managing a multi-organizational and multi-jurisdictional response to a national disaster is an exceedingly difficult thing to accomplish at the best of times. By definition, disasters are abnormal events that tend to overwhelm individual response organizations, which "demand an unusual, extensive and taxing response effort" (Kuban 1998). Far from the best of times, such events are very nearly the worst imaginable. Yet, most disasters are a far cry still from catastrophic events, such as Katrina. Trying to manage and coordinate response efforts in the wake of a catastrophic incident, as witnessed by Katrina, was virtually impossible, and maybe an unrealistic goal altogether, at least during the initial phase of the response. The U.S. lessons-learned report acknowledged that the "…current system …does not provide the necessary framework to manage the challenges posed by 21st Century catastrophic threats: (United States 2006: p52). Given the sheer complexity of events

[5] P. Chouinard, comments following editorial review of paper, 8 May 2008.

like Katrina, what is needed may well be different and more complex multi-organizational partnerships to handle response efforts..

Choosing to emphasize Hurricane Katrina in this report will no doubt draw criticism from a Canadian audience who fail to see the relevance to a Canadian context. As a retired Professor Emeritus, and former head of the Emergency Preparedness Unit at Carleton University, Joe Scanlon, has said, "Canada is not normally subjected to events that cause enormous destruction and loss of life. Therefore, Canadians believe wrongly – "It can't happen here!" That makes it tempting for Canadian governments to ignore planning and be caught short when events occur." (n.d., p3). An event the scale of Hurricane Katrina, in terms of the damage, destruction, number of dead and the extent of human suffering that it caused, while unlikely, could just as easily happen in a place like Canada.

While Canada has yet to experience a catastrophic event the likes of Katrina or the South Asian earthquake/tsunami, there is no reason to expect that it would fare any better given the framework currently in place. In the Thirteenth Report: Emergency Preparedness in Canada (1998), the Senate standing committee on national security and defence, chaired by Colin Kenny, examined governments' efforts to improve Canada's disaster preparation and response. Although Stockwell Day, Minister of Public Safety, called the report irresponsible for not highlighting the "true picture of how much progress has been made in protecting Canadians since the last election", an editorial in the Globe and Mail refers to the document as "a candid piece of political writing"[6]. The committee has highlighted what it still believes are numerous problems and a lack of progress in several areas. Key among the findings is an apparent lack of evidence that federal departmental emergency plans exist. Believing the necessary systems are not yet in place, the committee has said, "…Canadians have no assurance that essential government operations will function during emergencies" (p6).

[6] "Capable of incapability," editorial, The Globe and Mail 5 September 2008, early edition.

Scanlon believes that Canadians "...know a great deal about what happens when disaster strikes" (p2). Though, he would argue that lessons-learned are "well documented and clear, they are often not applied" (p3). Another problem that was emphasized by the Senate committee was a lack of progress in effectively capturing and sharing lessons learned and best practices from past events. According to Public Safety Canada, a secure website is being piloted and will be operational in the Spring of 2009 that will "allow federal, provincial and territorial partners to exchange exercise information, lessons learned and best practices" (p53). There is little doubt that a clearinghouse of information on past events would benefit the responder community when preparing for future events. It is not clear whether the database will include information about events that have happened in other countries. There is certainly no reason to limit the information it contains to events in Canada, particularly if the lessons learned from events that have happened elsewhere (e.g. Hurricane Katrina) can be used to assist Canadians in preparing for events, similar in type or scale, in this country.

A key framework that is scheduled for approval by Ministers in 2009 is Public Safety Canada's Federal Emergency Response Plan (FERP). The FERP seeks to integrate federal, regional, provincial, non-governmental organizations and private sectors into a comprehensive federal emergency "all-hazards" response plan. Given that the FERP still places overwhelming emphasis on the need for coordination, and has little if anything to say about the need for other types of multi-organizational and multi-jurisdictional partnerships, it begs the question of whether the framework it outlines will be any better able to manage the challenges posed by 21st Century catastrophic threats.

2. Multi-Organizational Partnerships

Unlike incidents or most routine emergencies, disasters tend to produce wicked, "social metaproblems" that are beyond the "problem-solving and management boundaries" (Parker and Selsky 2004) of any one organization. Achieving a timely and effective response to disasters has demanded that responding organizations work together in some capacity. For the past 40 years or so, the goal was thought to be "coordinated action" (Dynes 1970b).

History can provide many other examples besides Katrina of the difficulties associated with coordinating a multi-organizational response to disaster. While the reasons are probably various, long after "coordination" was first introduced as a "new requirement" in disaster response (Dynes 1970b), the need for *better* coordination of multi-agency and multi-jurisdictional efforts is still being stressed. How it is to be achieved is the source of ongoing debate.

Coordinating a multi-organizational and multi-jurisdictional response effort can be quite difficult and the reasons numerous. Quarantelli (1991) cites poor intra and inter-organizational information flow following a disaster, organizational problems in the exercising of authority and decision-making (e.g. as a result of jurisdictional disputes, conflicts over authority for disaster tasks). He also refers to coordination problems occurring as a result of the mass influx of outside personnel and resources on impacted communities (p5).

While a main problem in emergency response has been how to improve *inter-agency coordination*, part of what defies a solution may simply be confusion over what that means. The concept of coordination, while commonly used, seems poorly understood. One reason may be that it is rarely (if not poorly) defined. Before ways to improve coordination can be examined, there needs to be a clear understanding of its meaning. Only then can the question be asked whether coordination is

the always the right goal. The need for coordination following a disaster is not disputed. What is being disputed, however, is the emphasis given to coordination, as compared to other types of multi-organizational partnerships. One needs to realize that coordination is merely one of several types of multi-organizational partnerships (i.e. networking, cooperation and collaboration; see Himmelman 1997). These different partnerships are often viewed as synonymous where, in fact, they refer to different modalities of inter-organizational relationship[7].

Himmelman (1997) refers to four types of multi-organizational partnerships as part of a hierarchy. He considers "networking" to be the first level of the hierarchy, followed by the next level being "coordination". Networking has to do with "exchanging information for mutual benefit", whereas, he defines coordination as "exchanging information *and altering activities* for mutual benefit and to achieve a common purpose". Coordinating is often taken to mean cooperating, but as Himmelman explains, cooperating, being the next level of the hierarchy, refers to all of the above plus "sharing of resources". The final level of the hierarchy is believed to be "collaboration" which is considered to be all of the above plus "enhancing the capacity of another for mutual benefit". Himmelman describes this type of partnership as one where "each organization wants to help its partners to become better at what they do". Thus, it is important to realize that "coordination" is merely one of several types of partnerships.

The Oxford Dictionary defines coordination as "the act of making groups of people work together in an efficient and organized way" (Oxford University Press 2005). Public Safety Canada's interim Federal Emergency Response Plan (FERP) uses a related, but somewhat different Oxford Dictionary definition of coordination: bringing (parts, movements, etc.) into proper relation, causing them to function together or in proper order (Canada n.d., p37). While these two Oxford Dictionary

[7] Himmelman describes these four modalities as existing within a hierarchy of different partnerships. Whether or not his categories are truly a hierarchy is questionable. Where his analysis is beneficial is in raising our awareness to the fact that different types of multi-organizational partnerships exist besides coordination.

definitions are similar, the former refers to human interactions and includes an evaluation component, which is thought to be at the centre of coordination (see e.g. Eymard-Duvernay, Favereau, et al. 2003); whereas, the latter highlights the relationship between different activities and the order in which they are undertaken. For purposes of clarity, any definition of coordination should include interactions between human actors. Coordination emergency response efforts has to do with achieving an optimal response effort by reorganizing and altering one's activities in order to reduce interference or to avoid duplication of effort. However, based on views outlined in Eymard-Duvernay and Favereau, et al. (2003), one could argue that inter-agency coordination involves the achieving of some greater purpose. While coordination can be motivated by self interest or strategic goals, in the context of emergency response, there should be a widely shared expectation among actors that in striving for greater organization, harmonization or efficiency, it will lead to a common or public good. Also, if evaluation is at the heart of coordination, then all of the actors need access to the right information to permit them to evaluate the coordination to ensure that goals are being met. In order for coordination to occur, actors also need the political capacity to negotiate and modify their activities in accordance with their desire to coordinate. Finally, beyond the need for evaluation, as Himmelman rightly points out, is a necessary component being information-sharing. Responders need to maintain constant situational awareness of the problem space. One can more easily arrive at solutions where problems are well understood and properly defined (Wittel and Webber 1973). Organizational responders need access to the right information before such time as solutions can be decided on and coordination can occur. Based on the above discussion, the following, more comprehensive definition of "coordination" – of particular relevance to organizational responders – is proposed:

> **Coordination:** Interacting, over time, to exchange information, negotiate, and alter activities for mutual benefit, greater efficiency, and the good of a community or the public.

A focus on coordination is based on having confidence in one's knowledge of the types of disasters that a society can reasonably expect to have to face. Most often, present-day activities are based on historical experience and knowledge of what happens and what works. Coordination is a term that implies knowledge of what is likely to happen and what needs to be done in response. When most organizations – having socially legitimated domains of responsibility and knowledge of a set of tasks – are faced with a disaster, all that needs to be done is organize who will do what and when. In cases such as these, behaviour is altered in response to the current, proposed or observed actions of others. What coordination does *not* imply is the sharing of resources, as Himmelman (1997) suggests. Nor does it imply working together with others to decide how *best* to respond (i.e. what resources to use and the activities ideally suited to addressing the problems that exist), which is one reason that other types of partnerships, such as cooperation and collaboration are necessary.

The term "cooperation" is sometimes used interchangeably with "coordination". But even though these terms share a similar definition in the Oxford Dictionary, there remain important differences. Cooperation is defined in the dictionary as, "the fact of doing something together or of working together towards a shared aim" (Oxford University Press 2005). The dictionary definition of "coordination" focuses, solely, on the order and manner in which groups of people carry out activities (i.e. the act of making groups of people work together in an efficient and organized way). Unlike Himmelman, the dictionary definition for coordination makes no reference to a shared aim or what Himmelman refers to as "…altering activities for mutual benefit and to achieve a common purpose". Coordination can provide for mutual benefit, and be undertaken for the good of the community or the public. However, it is debateable whether those who subject themselves to a process of coordination will necessarily share the same goals or objectives as the other willing or not so willing conjoiners. The fact is that engaging in coordination may simply be a way for different actors to achieve their own aims. Others will regard coordination as unnecessary or possibly even a threat to their autonomy.

Cooperation implies more than *interacting*. It involves groups of people *working together*. When resources are being shared, it would also appear to be indicative of cooperation, opposed to mere coordination, as Himmelman suggests. As such, the following, more comprehensive definition of cooperation is proposed:

> **Cooperation:** The act of working together, over time, to exchange information, negotiate and alter activities, and share resources**,** for mutual benefit and towards a common aim, for purposes of greater efficiency, as well as the good of a community or the public.

Unlike either coordination or cooperation, collaboration in emergency response is a blending of ideas, knowledge and perspectives. Similar to cooperation, it involves working together, but for the purpose of generating knowledge and innovative ideas in order to better understand and address problems. In so far as Himmelman refers to collaboration as "enhancing the capacity of another for mutual benefit" it appears too limited. The Oxford dictionary uses the verbs: "to create or produce" in its definition of collaboration (Oxford University Press 2005). When organizations are able to collaborate, there is very real possibility that doing so will lead to something new and possibly unexpected. In disaster response, there is a need to coordinate what needs to be done. Cooperation might also be viewed as desirable. But there may be an equally important or greater need to collaborate with other responding organizations on how best to do it. Following a new and significant disaster event (e.g. detonation of radiological dispersal device in a major urban area), there can be a lot of ambiguity in what needs to be done, by whom and how best to respond.

Collaboration is a way of pooling knowledge and expertise in order to generate new and innovative ways of addressing problems and for ensuring an efficient and effective response effort. However, responders need to be well-informed about the problems that exist before they can seek to address them. Depending on the nature and complexity of the disaster event, organizations may need

to network with one another just to understand what is happening, before such time as they can collaborate on ways of responding to the problems. It may be as well that organizations do not already exist to address problems. Partnerships based simply on coordination or cooperation are not equipped to handle the emergence of new organizational types. On the other hand, collaboration can pave the way for new instances of organization to tackle future crises provided that "lessons learned" are being captured, archived and disseminated to first responders. Based on the above discussion, a more comprehensive definition of "collaboration" can be proposed, as follows:

> **Collaboration:** The act of working together, over time, to exchange, create or produce knowledge and information so as to be well-informed about problems that exist, and for negotiating ways of collectively responding to the problems, in an efficient and effective way, for the greater good of a community or the public.

3. Complexity in Emergency Response

As events increase in magnitude – moving from incidents, to routine emergencies, disasters, and catastrophes – so does the complexity of response and recovery needs as well as that of overall multi-organizational response efforts. As the following discussion reveals, understanding that complexity provides the basis for questioning when inter-agency *coordination* is a realistic goal for responding to an event. It is the nature and complexity of an event that should determine which types of multi-organizational partnerships are being sought, and when, as part of the emergency response.

Saying the magnitude of an event is associated with the complexity of response and recovery needs and efforts is an acknowledgement of several points. First, responding to a major event will mean that a number of different activities will probably have to occur on a number of different levels at the same time[8]. Having to deal with many different issues simultaneously can be extremely challenging for even the most seasoned responders. Though, even more challenging is when problems can not be readily defined. Some problems will be so complex that "…you have to be highly intelligent and well-informed just to be undecided about them" (Laurence J. Peter cited in Conklin and Weil 1998). There needs to be an understanding of the problems before any solutions can be decided and acted upon (Rittel and Webber, 1973). Despite "…best efforts to plan and prepare for contingencies, crises transpire, for which no precedents exist, that require rapid decision-making in the face of ambiguity and uncertainty" (Bird 2002, p4). While complexity can characterize the environment in which organizations must operate, it can also refer to the organizations themselves (Anderson 1999; Daft, 1992; Daft and Lewin, 1990). Individual organizations are themselves quite complex, at times. They can have many different levels, job titles or departments, and geographical locations and be involved in numerous activities (Anderson 1999). Consider then, the complexities

[8] According to Anderson (1999), "[o]rganization theory has treated complexity as a structural variable that characterizes both organizations and their environments"; whereas, the complexity of environments is associated with a number of different "…items or elements must be dealt with simultaneously…" (p216).

associated with there being *multiple* interacting organizations and individuals involved in responding to a major event. The time needed to respond is also likely to be greater in situations where the responder community are outsiders who are unfamiliar with the affected area(s). Where there are many different organizational responders and individuals, it can also be challenging to figure out who should be and are actually involved in performing which activities. Knowledge of the impacts and affected area(s) can be limited, but so can knowledge of the roles, responsibilities, resources and mandates of the responders who descend on the scene of an event. It is can be even more difficult when responders have not previously worked together. Major events can also challenge the expertise of responders who are trained and or highly specialized for responding to certain types of impacts and not others. There can also be disagreement about the importance of any given task as well as the best ways of going about completing tasks. Adding to complexity and confusion is the fact that situations tend to be dynamic and continually changing. Implicit in the above is an underlying and cross-cutting factor being human interaction, which can be messy, emotional and highly complex.

In light of the above, it is easy to see how effectively coordinating response activities for higher- as opposed to lesser-order events can be increasingly challenging. Being able to coordinate emergency response activities requires a great deal of clarity concerning the impacts of an event, in terms of the problems that exist and their solutions. It also requires a great deal of knowledge about the numerous organizations that might potentially be involved in the response efforts. Though, coordination is thought to be easier where the individual officials and responders know, have worked together, and trust one another.

Three fundamental questions need to be answered in the wake of a major event in order that there be sufficient clarity to permit a coordinated response that is both timely and effective: *What needs to be done? Who does what? How best to do it?* Answers to these questions are thought to be more easily derived at one end of the spectrum than the other due to the relative simplicity of

incidents, even routine emergencies, as compared to disasters, certainly catastrophes. For example, it is much easier to respond in an organized and coordinated fashion to a car accident or house fire than it is to a disaster, let alone a catastrophic event, such as Katrina. For one, there are well established patterns of organization for responding to incidents. Incidents typically only involve the three traditional responders, which are established social units having clear authority and legitimacy for undertaking specific response activities. For everyday incidents, the tasks and activities that have to be accomplished are also clearly defined within the standard operating procedures of each response organization.

As events increase in magnitude, however, it is increasingly difficult to derive answers to the three questions in ways that permit a coordinated response. There is a whole existing social structure (e.g. police, fire, emergency medical services, funeral directors, hospital pathologists, religious leaders, search-and-rescue teams) that will become critically important when responding to a disaster (Kreps 1989). There will also be "emergent forms of organization" (ibid.:p40) based on the choices and activities of responders, as well as many others who will converge on a disaster scene to see what needs to be done and to help in the ways they can. Unlike an incident or routine emergency, it takes time to fully comprehend *what happened* following a disaster. Where impacts are unusual and severe, it can take even longer to figure out what needs doing, by whom, and how best to do it.

The time needed to derive answers to the above three questions can greatly impede early efforts to coordinate multi-organizational and multi-jurisdictional efforts following an event. Deriving an overall strategy and solution can be all the more time-consuming when organizations try to understand and address problems independently of one another. For complex problems, the whole may be greater than the sum of its parts. There is a tendency on the part of many organizations to dissect problems into "bite-sized chunks" and only address those aspects that relate to their domains of responsibility. The expectation is that in doing so, organizations can independently address that

aspect of problem's entirety. Where the impacts are highly complex, it may also defy organizational efforts to address problems one at a time. Organizations may be required to collaborate with one another, and as the next section describes, it may be necessary to iron out structural issues for addressing the unique requirements of a major event, before inter-agency coordination can occur.

4. Social Structure and Disaster

The emergency response to Hurricane Katrina strained local, State and Federal disaster response to the breaking point. While the White House lessons-learned report refers to 17 critical flaws that hindered response efforts, foremost are two inter-related issues: the lack of functioning State/local incident command structures, and the lack of situational awareness, which was primarily due to widespread communications failure (United States 2006). For example, "[t]he New Orleans Mayor's Office… [was] unable to establish reliable communications with anyone outside the hotel for nearly forty-eight hours. This meant that the Mayor was neither able to effectively command the local efforts, nor was he able to guide the State and Federal support for two days following the storm." (p37). Local and State governments were incapacitated, which meant the Federal government had to step in to perform incident command and coordination, including responsibilities generally conducted by State and local authorities (e.g. rescue of citizens stranded by the rising floodwaters, provision of law enforcement, and evacuation of the remaining population of New Orleans). For these and other reasons, a command structure for managing and coordinating the overall response was largely absent for the first week. Without unified management of the response, and an ability to communicate, many responders began to operate independently of one another, resulting in "…duplication of efforts, gaps in addressing requests for assistance, and the inefficient allocation of resources" (p42).

If there was a way to iron out the structural issues that plagued the Katrina response beforehand, the ability to manage and coordinate response efforts might have occurred sooner. However, as Kreps (1989) explains, patterns of origins of organization fall on a continuum between "social order" at the one end and "social action" at the other end. While there are various social units that will exist prior to a disaster (social order), others will emerge as new following an event (social action). There may be a way to iron out certain structural issues, in advance, whilst other expressions

of social structure will only emerge as a result of an event's unique requirements. That is to say, oftentimes, events are the basis for ironing out structural issues.

The coordination of emergency response activities can occur fairly quickly where instances of organization are based on existing social order – basically, where there are existing response organizations ready and willing to undertake the activities for which they were organized. However, catastrophes like Katrina can easily overwhelm existing response organizations. There will also be many areas and issues that warrant urgent attention that will not fall within the bounded spheres of responsibility of any one organization. Due to the complexity in emergency response, new patterns of organization – activities, human and material resources, tasks and domains – will necessarily emerge to address response and recovery needs (Kreps 1989). Where social units do not exist or are not available to perform urgent tasks and activities, new social units will have to emerge. People might begin to individually, then collectively undertake various activities that do not fall within the responsibility of any particular organization or are simply not being done by others. As enough people get involved, as activities garner attention, or as their priority increases relative to other response activities, resources will probably be assigned to the activities. At this point, a set of tasks will likely emerge, and eventually, social recognition and legitimization of the collective activities, resources and tasks as a particular domain of activity will occur. Kreps (1989) refers to this patterning of elements – activities, resources, tasks, domain – as an example of the end of the continuum referring to social action.

5. The Limits of Coordination

Trying to coordinate response efforts may be an unrealistic goal when social units do not already exist to address the impacts of an event. Instead, responders will probably have to engage in cooperative or collaborative partnerships to find ways to address gaps in the response. Where emergency planners place undue attention on the need for coordinating mechanisms in emergency response, it can obscure the need for other types of partnerships to iron out the structural issues that are likely to arise when a major event occurs, particularly when the impacts of the event are unique.

Saying that other types of partnerships are needed is not meant to imply that coordination is not needed. It is intended, merely, to recognize that organizations may need to enter into other types of partnerships to address the three fundamental questions that were referred to in the previous section or to permit new instances of organization to emerge, before such time as the coordination of multi-organizational and multi-jurisdictional efforts can occur. Focusing on “coordination” stems from static views of “social order” rather than emergent forms of “social action”. It relies on the mistaken assumption that response organizations can be put in place before an event occurs to handle all manner of problems so as to permit an orderly response when a disaster strikes.

Wicked problems tend to have complicated solutions. Coordination is an inadequate goal when society is stricken with problems that have largely uncertain and complicated effects (e.g. where the tasks and necessary structures for completing them only become clear following an unusual event). If disasters are indeed “social metaproblems” that are beyond the ability or authority of individual organizations, then collaborative partnerships may be needed following (and not before) a major event in order to derive solutions before coordination of activities can occur. Now, it may be that organizational responders already engage in informal, collaborative relationships as part of their response activities. Either way, the need for such relationships among responders should be made

explicit, even encouraged. Where barriers to engaging in such partnerships exist, they should be eliminated. The initial focus should rightly be placed on the *conditions* that will support the creation of different partnerships following an event. However, as the next section describes, it is likely that different conceptual frames and organizational structures will be needed to permit social action – as part of the response – to be the cause of new social orders following an event.

6. “Disorganization” in Emergency Response

Social units are “undeniably transforming” (Kreps 1998: p83) in emergency response as a result of human activity. When social action leads to “organization”, through the patterning of the four elements (i.e. resources, activities, tasks, domain), it can provide the impetus to instituting preparedness measures for dealing with future disasters of the kind already experienced. As Kreps (1998) explains, “social action is a cause social order” (p83). In recognizing that social action and social order are “dialectically related”, meaning that “they are both autonomous but can be reduced to one another”, attention should be paid to how to permit, even promote, the creation of new forms and patterns of organization following a national emergency. By now, readers should begin to appreciate that it is unrealistic to believe that organizations already exist to handle the response and recovery needs for all manner of disasters. As Dynes (1970a) explains: “a community has to become ‘disorganized’ before it can develop a new structure capable of coping with the new and often overwhelming demands made upon it” (p.). In spite of our best efforts to create an orderly response to disaster, it may be that *disorganization* is a natural, even necessary, stage in a multi-organizational and multi-jurisdictional emergency response effort.

Where there is disorder and disorganization following a disaster, it should not necessarily be seen as a failure of planning. Trying to plan for all possible contingencies is an impossible goal. Yet, as soon as disaster response efforts fall off the rails, even slightly, there can and often is public criticism surrounding the need for more or better emergency plans. In fairness, there is probably a strong case for the need for more emergency response planning, but the simple truth is that planning may have less to do with the plans themselves and more with building relationships between organizational responders. Creating order to withstand chaos, by way of more detailed or concrete

emergency response plans, is not always realistic. Even the most elaborate structures, response mechanisms and hierarchies can bust, buckle or bulge following a major disaster.

It is time to encourage social action approaches to disaster response as a complement to social order. Doing so implies greater attention be paid to *conditions*, as well as structures, when planning for emergencies. A useful starting point might be to ask, what are the conditions that support "emergence" in emergency response – what Fischer (1998) refers to as "organized disorganization" – in how individuals and organizations respond to emergencies. As the next section describes, one way of promoting a more pragmatic, social action driven approach to the development of "organization" to address what needs to be done and how best to do, following a disaster, may well be conditions that allow for more complex inter-organizational partnerships.

Another way to think about the relationship between social order and social action is the metaphor of grease in a gearbox[9]. Every operational commander probably knows that too rigid an emergency response system will fail. Likewise, a gearbox without grease will seize. Yet, too much pragmatism (social action) or too little structure (social order) in emergency response or to extend the metaphor, too much "grease" can also cause problems. There must be a balance between social order and social action in the approach taken to emergency response. While there is a need for a structure (e.g. Incident Command Structure), there is wisdom in knowing that if a commander adheres too rigidly to that structure, the response will likely fail. However, if that structure permits the right amount of flexibility or "grease", then the response is more likely to succeed. The trick may be in knowing what you can plan for in advance and how to promote and harness others' ability to be pragmatic following a disaster to derive solutions when they are urgently required[10].

[9] The metaphor of "grease" originated with E. Ouellet and was elaborated on by P. Chouinard.
[10] It should be noted that doing so requires knowledge of the roles, mandates and capabilities of others.

7. Organizations Geared towards Emergence

One of the key arguments in this paper is the need for a collaborative model to support inter-organizational emergency response efforts due to the inherent complexity of response and recovery needs. However, entering into collaborative partnerships may not be a simple matter for organizations given that most are conceived of and structured in ways that are not conducive to such interactions. For some time, academics have expressed the need for organizations, especially those involved in emergency response, to adopt a *systems* perspective concerning their role vis-à-vis other organizational responders (Auf der Heide 1989; Dynes 1970b). Most organizations did not see themselves in this way 30 years ago, according to Dynes. It was nearly twenty years later when Auf der Heide (1989) observed that "many organizations plan for disaster as if they were to function in isolation. Their disaster plans are conceived with a focus on trees and not forests" (p39). The extent to which organizational responders have since adopted a systems perspective is unknown.

Where there are difficulties adopting different organizational views that support "emergence", it may be the result of a conflict with other commonly and deeply held views about organizations. For example, organizations tend to be viewed as independent entities, machine- or ship-like in quality, with distinct roles and responsibilities. Many are also internally focused. While metaphors, such as a machine or ship, are often used, mostly unconsciously, to characterize organizations, they will also determine (and constrain) the thinking of those who employ them (Lakoff and Johnson, 1999). For example, as one executive coaching firm describes, machines are orderly, but not adaptable[11]. They can be repaired or replaced, but not evolve. Similarly, conceiving of an organization as a ship reinforces views about its autonomy whilst placing limits on its flexibility and speed. Ships are largely independent of one another. They each have a clear direction, which is

[11] See Self Renewal Group, www.leadersdirect.com

often decided in advance and it does not readily change. While they are used with a particular purpose in mind, the fact remains they are also slower than other modes of transportation. Also, everyone knows their role and place aboard ship. The deck hands are not the ones who make decisions; in fact, their role is perceived to have no real impact on the ship's course. One could go on and on. The problem is when the metaphors that people use, mostly unconsciously, to conceive of organizations, such as these, emphasize one set of characteristics, as compared to another, it can reinforce particular forms of behaviour to the exclusion of other forms. For example, organizations might prefer independence, rather than interdependence, where the metaphors of those managing the organization are consistent with such views. In the context of emergency response, as Dynes (1970b) explains, organizations may be "somewhat autonomous, but [they are] also interdependent" and this is increasingly the case[12]. How people understand the world depends on their unconscious metaphors (Lakoff and Johnson, 1999). When the metaphors that people depend on to characterize organizations involved in emergency response fail to acknowledge their interdependence, it is easy to appreciate how this might limit the spheres of activity of those organizations, as well as their ability to adapt and evolve based on ongoing response and recovery needs following a disaster. Metaphors that improperly characterize how organizational responders should behave are likely to hinder inter-organizational disaster response efforts by constraining the thoughts and actions of the person's who have them as part of their unconscious and rely on them to structure their thoughts and experience.

Given the likelihood that disaster occasions will spill beyond the boundaries of individual organizations, a paradigmatic shift in thinking is needed away from the individual organization to the meta-organizational domain[13]. Organizations should be managed as "complex evolving systems, co-evolving within a social ecosystem" (Mitleton-Kelly 2003). Seeing organizations as complex systems,

[12] Modern management options (e.g. out-sourcing, contracting) mean that the boundaries of organizations have become fuzzier.
[13] The idea of the "meta-organizational domain" originated with P.Chouinard.

and the environments in which they operate as ecosystems, enables some very different thinking about how organizational responders should behave. For one, it allows for more creative thinking about *what is possible*. "An ecosystem in biology means that, 'each kind of organism has as part of its environment, other organisms of the same and of different kinds…adaptation by one kind of organism alters both the fitness and the fitness landscape of the other organisms (Kaufman 1993 cited in Mitleton-Kelly, 2003; p30). A main characteristic of an ecosystem is the idea of interdependence between organisms, as well as organisms and the environment in which they live. When viewed as part of an ecosystem, organizations are believed to be engaged in an interactive web of relationships with other organizations operating in the same environment. The actions of any one organization can affect the actions of others. Individual organizations cannot function in isolation. Quite the contrary, their very survival depends on the manner in which they interact with other members of their same environment. From an ecosystem perspective, planning that occurs in isolation might be the same as planning to fail.

Being part of an ecosystem implies that organizations are continually interacting with other entities operating in the same system. Implicit in this metaphor is the notion of change. From an ecosystem perspective, *being* has process not state qualities. Organizations need to continually respond and adapt based on their interactions with others as well as others' actions. Mitleton-Kelly (2003) uses two inter-related components to describe the change processes that occur: "co-evolution" and "emergence". According to him, co-evolution is a shared process. When there is insight and new understanding about a particular problem or issue, and that knowledge is shared with other entities, then co-evolution is said to occur. When new knowledge leads to new behaviours, "…then the organization can be said to have adapted or evolved" (p42).

New behaviours are rooted in new or different ways of thinking. Adopting a different metaphor for organizations and the environments in which they operate may be the first step before

organizational structures can be adapted to suit collaborative partnerships. One way that existing structures might need to change has to do with prevalent views about the need for organizations in emergency response to have specific "domains" of responsibility. Bestowing a domain of responsibility on an organization provides for external legitimacy. However, domains can also lead to inflexibility by placing constraints on the sphere of activities of organizations. The fear is that organizations will become static, unchanging entities as a result of adhering too rigidly to a particular domain. Organizations operating as part of an eco-system need to be flexible to the conditions surrounding them. Though, having the flexibility to change is only part of the equation. In the context of emergency response, organizations may need to adapt quickly. Adopting a different metaphor of the type proposed by Mitleton-Kelly would be a useful starting point to changing how organizations are managed. Managers could begin to shift their thinking and style of management from what Fuerth (2006) describes as "Procrustean" to "Protean". Paraphrasing Fuerth, rather than chopping problems to fit old concepts, employing different metaphors might help to prepare management "…to change its shape rapidly to match evolving challenges" (p61), including the need to work more closely with other responding organizations.

Viewing the environment in which organizations operate as an ecosystem would support a collaborative model or "collaborative ethos" (Fuerth 2006) for emergency response. A collaborative ethos is based on what Fuerth (2006) refers to as an "instinct for teamwork", rather than "the natural search for individual advantage" (p63). The ecosystem metaphor also permits a domain of responsibility to become "a space of possibilities" (Mitleton-Kelly, 2003), rather than a fixed set of tasks. With this view, inter-organizational response could be oriented towards what needs to be done, but as important, how best to do it. A collaborative model, while incorporating existing views of social order, is the basis of emergent behaviour. Working to address problems with other organizational responders is a way of gaining insight and new knowledge. Doing so allows for the

emergence of new social roles, which can lead to the creation of new social units. “Emergence in a human system tends to create irreversible structures or ideas, relationships and organizational forms, which become part of the history of individuals and institutions and in turn affect the evolution of those entities” (Mitleton-Kelly, 2003: p.42). Collaboration feeds a social action approach to emergency response that can give way to greater social order as emergencies unfold.

While the metaphors that organizations use must be conducive to inter-organizational collaboration, there must also be mechanisms in place to permit and support emergent behaviour. When a disaster strikes, the individual responders will need the flexibility to network, coordinate, cooperate and collaborate, as appropriate, on the problems that exist. They are also the ones who will have to decide when it is best to enter into more complex inter-organizational partnerships. A “Protean” organizational structure seeks to achieve the right balance between *stability* and *freedom*. Relying on an overly hierarchical system of decision-making will not give organizational responders enough flexibility to “change its shape rapidly”, as Fuerth (2006) describes, to suit response and recovery needs or what might be seen as “evolving challenges”. Likewise, an overly free system – one completely devoid of structure – would also be flawed. To permit emergent behaviour, responders must, to a certain degree, enjoy “tactical self-reliance”. They need to be socialized and trained to be autonomous and self-reliant units, able to make decisions without consulting higher authority or when such authority is absent. They should be empowered to “see something and do it”. Higher levels of control need to be able to keep track of what is happening on the ground, set priorities and where necessary, make decisions, but perhaps most importantly, to find the necessary resources to allow their responders to get the job done. This is the basis of the social action approach: permitting a rapid and flexible response based on the emergent, self-organizing, peer-to-peer (networked) behaviour of individual responders.

8. Conclusion

The main thrust of this paper has been the need for a paradigmatic shift in thinking about how emergency response organizations think about themselves and interact with one another. There may be well established patterns of organization in place for responding to a range of events that mirror past experience. However, society is becoming increasingly complex, as are the problems that society will need to address. Existing patterns of organization are almost certainly insufficient to handle the range of events that society might and probably will have to face in the future. When an catastrophe occurs, such Hurricane Katrina, new patterns of organization will probably be needed to address the severity of effects and the enormity of suffering that results. It is difficult to imagine that the full range of problems societies now face, in all their complexity, can be foreseen and planned for in advance. Existing organizations will need adapt to address an event's unique requirements, and new organizations will have to emerge to fill the gaps that will very likely exist. No longer can organizations been seen as discrete entities whose activities and success is largely independent of one another. Such views limit the flexibility and agility organizations have to adapt and evolve to suit the unique requirements of a major disaster. Believing that all organizations will need to do – following a major disaster – is to coordinate their actions with other responders does not acknowledge the complexity of issues for which responders will face, as well as the complexity of the entire multi-organizational response effort.

This paper has argued that greater emphasis be given to more sophisticated, collaborative relationships in emergency response. Being able to answer the fundamental questions (i.e. What needs to be done? Who does what? and How best to do it?) demands that organizations work more closely together than many probably do currently. The ability to come together to address complex problems through more complex partnerships – geared towards the blending of ideas, knowledge and

perspectives – will require that many begin to conceive of themselves differently and to revise their structures to make them conducive to such partnerships. One option that has been circulating in the literature for many years is for organizations to adopt a *systems* perspective. More specifically, managing organizations as "complex evolving systems, co-evolving in a social ecosystem" (Mitleton-Kelly 2003) would liberate previously hardened and static views about existing organizational structures. It would be a first step in allowing organizations to respond with flexibility and agility to the conditions surrounding them. Change is happening too quickly to remain wedded to static ideas and inert structures. Like an ecosystem, organizations need to embrace the idea that they are members of the same environment where the actions of one affect the actions of others. Seeing themselves as *inter*- rather than *in*dependent allows the roots of a collaborative mindset or "ethos" to take hold. As is the case with all collaborative partnerships, exposing oneself to different ways of thinking can produce something unexpected. In the context of emergency response, that something is greater resilience to disaster.

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Annex A: Glossary of Terms

Catastrophe: Can be referred to as a disaster, but one of epic proportions. It "…results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions" (United States 2008: p42). Catastrophes challenge the resiliency of communities and cause many people to suffer.

Catastrophic incident: (see definition for **Catastrophe**).

Collaboration: The act of working together, over time, to exchange, create or produce knowledge and information so as to be well-informed about problems that exist, and for negotiating ways of collectively responding to the problems, in an efficient and effective way, for the greater good of a community or the public.

Cooperation: The act of working together, over time, to exchange information, negotiate and alter activities, and share resources, for mutual benefit and towards a common aim, for purposes of greater efficiency, as well as the good of a community or the public.

Coordination: Interacting, over time, to exchange information, negotiate, and alter activities for mutual benefit, greater efficiency, and the good of a community or the public**.**

Crisis: "a time of great danger, difficulty or confusion when problems must be solved or important decisions must be made." (Oxford University Press 2005)

Crisis response: (see definition for **Emergency Response**).

Disaster: A disaster is an unexpected event that affects an entire community or multiple communities, such as a very bad accident, a flood or a fire, that kills a lot of people or causes a lot of damage. Disasters can be either naturally occurring (e.g. earthquake, flood, ice-storm) or human-induced (e.g. acts of terrorism). Numerous organizations from many different jurisdictions will be involved in the response effort as well as many individuals. Government assistance is often required to supplement municipal and provincial efforts, capabilities and resources. Responding to a disaster is likely to be a messy, taxing and time-consuming affair (Oxford University Press, 2005; Kuban, 1998).

Disaster Response: is a more specific phrase that characterizes the manner of response to subset of more extreme events (i.e. a disaster or catastrophe).

Emergency: "a sudden serious and dangerous event or situation which needs immediate action to deal with it." (Oxford University Press 2005).

Emergency Response: Since the terms **emergency** or **crisis** are ways to characterize the quality of an event, such as a routine emergency or disaster, the phrase **emergency response** is a way of characterizing the manner of response to a routine emergency, disaster or catastrophe.

Incident: "…[I]s often used to describe events which occur rather commonly in day-to-day life and for which response organizations (e.g., Fire, Police and Emergency Medical services) are well prepared. These events may include single-house fires, single-car accidents or armed incidents (e.g., homicide or domestic violence)." (Kuban 1998, p2).

Networking: "[E]xchanging information for mutual benefit" (Himmelman 1997).

Routine Emergency: while less common than an "incident", a routine emergency still falls within the everyday capabilities of traditional and other responders and their organizations. Routine emergencies may include large fires, multi-vehicle accidents, hostage-taking or shootings (adapted from Kuban 1998).

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13. ABSTRACT

This paper posits a need for a paradigmatic shift in thinking about how emergency response organizations think about themselves and interact with one another following a major event. Society is becoming increasingly complex, as are the problems that society will need to address. While there has been and continues to be much emphasis in emergency response on the need for better *coordination* of response and recovery efforts, depending on the severity of an event, it may be that other types of multi-organizational partnerships, besides coordination, are needed or will aid in response efforts. There are three fundamental questions that need to be answered following an event: *What needs to be done? Who should do what? How best to do it?* As events increase in magnitude – moving from incidents, to routine emergencies, disasters, and catastrophes – so does the complexity of response and recovery needs and efforts, which makes it increasingly difficult to derive the necessary answers. Major events can have unusual and complicated impacts, which are often beyond the problem-solving and management boundaries of individual organizations. It may be as well that organizations will not already exist to address certain impacts following a disaster or catastrophic event. Deciding how best to respond to an event in all of its facets will necessitate that organizational responders work more closely together they than may currently do by engaging in cooperative or collaborative partnerships. However, depending on how organizations see themselves, entering into collaborative or even cooperative partnerships may not be an easy feat. Before such relationships can exist, organizations must view themselves as *inter*- as opposed to *in*dependent. Doing so requires a shift in thinking from the individual organization to the *meta*-organizational domain. Rather than seeing themselves as independent entities, as a first step, organizations must acknowledge their interdependence with other organizations. Like an ecosystem, organizations need to embrace the idea that they are members of the same environment where the actions of one affect the actions of others. Implicit in this metaphor is the notion of change. Being part of an ecosystem means that organizations need to continually respond and adapt based on their interactions with others as well as other's actions. While the metaphors that organizations use must be conducive to collaboration, organizations must be geared towards emergence of new behaviour. Ensuring an efficient and effective response to major disasters in the future requires that responding organizations be open and willing to collaborate with one another, and be capable of adapting and evolving based on an event's unique requirements.

14. KEYWORDS, DESCRIPTORS or IDENTIFIERS

Emergency response
Multi-agency
Coordination
Collaborator
Complex Adaptive Systems