A PLAN FOR (CERTAIN) FAILURE:
POSSIBILITIES FOR AND CHALLENGES OF MORE REALISTIC EMERGENCY PLANS

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Abstract

As the range of critical incidents threatening societies widens, calls for more robust societal emergency management capacities tend to grow correspondingly stronger. Fortuitously, there is mounting interest among practitioners and in the academy to improve organizational emergency management response capacities, in part through the development of workable plans. However, there is considerable and persistent scepticism that plans serve any real function in guiding organizations in managing unforeseen or unexpected critical incidents.

Despite scepticism of this kind, plans remain a *de facto* requirement for most if not all public and many major private organizations. If for no other reason, plans serve to reassure organizations themselves, politicians and the public that they are capable of managing emergencies. As long as organizations are required to maintain plans, more realistic approaches to plan development should be considered which account for not only the unpredictable nature of critical incidents but also the possibility that organizations may be inadequately prepared and ultimately incapable of managing them. As emergency management becomes increasingly international, the authors argue that not only organizational but also inter-organizational self-awareness concerning potential vulnerabilities is critical. Plans might be an effective format in which to convey these vulnerabilities to other engaging organizations in an emergency.

If nothing else, plans serve a palliative function and, for that reason, are likely "here to stay." The argument can be made that as long as plans require significant resources to develop and maintain, they might just as well be rendered so as to be as relevant as possible to those organizations they are intended to guide through critical incident management. Here, we offer

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various ways forward in the development of what can only be considered more "realistic" emergency management plans which provide guidance in the face of not only difficult and/or unforeseen critical incidents but also partial if not complete organizational failure.

Introduction

Research on the December 2005 tsunamis, Hurricane Gudrun over southern Sweden and Hurricane Katrina suggests sometimes unrealistically high public expectations concerning the capabilities of governments and societal emergency management functions. While societies might exhibit varying degrees of optimism concerning the ability to prevent and/or mitigate the effects of disaster, national publics (as taxpayers and potential victims) expect systems in place to deliver a satisfactory level of emergency response capacity, a task which is typically the shared responsibility of emergency management organizations (as response executers) and politicians (as policymakers and financers of emergency management organizations) (Bernhardsdottir 2006).

Just like individuals, societal emergency management systems are guided at both general and system component levels by plans. Most incidents are "routine" to the extent that they are foreseen and of manageable proportions; organizations with adequate levels of training and plans in the form of standard operating procedures (SOPs), etc. are typically successful in responding in a manner satisfactory to most if not all stakeholders (the organization itself, partner organizations, the public, elected officials). However, some incidents are unforeseen and/or on a scale such that available resources are rendered inadequate. Research conducted by the authors suggests that in such instances, responding organizations tend to underutilize existing emergency management plans. Furthermore, there is a sometimes weak correlation between actual plan utilization and satisfactory response outcomes. Alexander (2002) would seem to argue that the underutilization or deviation from existing plans is suggestive of poor pre-incident plan development – thoroughly developed and disseminated emergency management plans can guide bureaucratic organizations in managing such incidents poorly conforming to "normal" conditions.

However, that organizations only partially or fail outright to employ their own plans need not suggest poor plan development, as Alexander suggests. Instead, this might be an indication of successful pre-incident, plan-specific training. As a result, the response is executed "by memory," thereby rendering constant reference to existing plan unnecessary. On the other hand, plan underutilization might suggest insufficient plan dissemination and/or plan-specific organizational training but does not guarantee unsatisfactory response outcomes (i.e. response failure). For instance, emergency managers and/or victims themselves may generate an improvised, but satisfactory, response, a strategy not always provided for in planning documents (Marks, 2005). Or, just as likely, organizations are simply lucky (that prevailing winds pushed radiation away from major population centres, that typically unreliable radio handsets worked on the morning of the subway bombings, etc.). Unsurprisingly, determining the relationship between organization plans and planning and response success or failure is difficult, even on a case-by-case basis, just as Kendra and Wachtendorf (2003) suggest.

Somewhat counter-intuitively, organizational responses in slavish adherence to standing plans can just as easily result in failure. This might be due to the fact that plans prompt unrealistic expectations of the organization and possibly even the larger emergency management system. Plans describe what is expected of organizations but also what organizations formally expect of themselves. Critically, however, these are not necessarily accurate reflections of real capabilities.

Clarke (1999, p. 2) terms plans such as these "fantasy documents," defined as "…forms of rhetoric, tools designed to convince audiences that they ought to believe what an organization says". Such documents, while persuasive reading, allow organizations to maintain unrealistically high estimations of actual response capabilities, and thereby "contribute to increased danger by decreasing vigilance" (Clarke, 1999, p. 168). Organizational reliance on

such fantasy documents has serious implications for emergency management. Perrow (1999) for one argues that as societies become increasingly "tightly coupled," the underperformance or failure of an organization during an emergency may prompt a "cascade" effect among other societal organizations, prompting overall system collapse, just as normal accidents theory predicts.

If only for this reason, there would appear to be a strong argument for organizations to maintain accurate capability assessments. This might preclude organizations from being assigned mandates which they cannot realistically fulfil. This paper aims in part to illustrate the need for a greater degree of public (or at least intra-system) disclosure of organizational vulnerabilities within planning documents. The authors aim to explore the real feasibility of developing and implementing more "realistic" forms of emergency management plans that accurately reflect organizational vulnerabilities despite a number of apparent political, bureaucratic and organizational cultural challenges. Empirics are drawn from historical examples, including two objects of the authors' study, namely Hurricanes Gudrun (over southern Sweden) and Katrina (over the US Gulf Coast), respectively.

The (inevitable) underutilization or deviation from plans

Underutilization of or significant deviation from plans is likely during an emergency response. As noted above, the task of determining why organizations depart from plans is difficult. Plan deviations might reflect positively on the organization which has trained on existing plans, but also encourages improvisation in certain situations. On the other hand, these might instead suggest total or incomplete plan non-dissemination, inadequate training, and/or a poorly-formulated or irrelevant plan. The following discussion using a chronological model of emergencies described by Kelly (1999) catalogues factors which might explain underutilization of or deviation from plans. It is important to note that many such factors suggest inherent organizational vulnerabilities. Considering factors affecting the extent of plan utilization is helpful when considering alternative approaches to plan development and dissemination.

Pre-event phase

Factors detectable in the months and years ahead of the next emergency can impact on actual plan utilization during the emergency. As Kreps (1991) notes, organizations may emphasize the importance of pre-event planning and training on standing plans, a fact which renders physical plans of little real value during an emergency – emergency managers are able to fall back on training to operate. That emergency managers report on occasion that they "never looked at the plan" or that the plan "never came off the shelf" should not necessarily suggest plan non-utilization (Boin, 2005; interviewee C, personal communication, November 24, 2005). But it just as likely may. Non-utilization might instead indicate unfamiliarity/discomfort with and/or possibly even outright hostility toward standing plans. Factors such as organizational position/composition of organizational planning offices, plan dissemination and training, funding, and/or so-called buy-in might explain the latter, more pessimistic view of plan underutilization.

Auf der Heide (1989) posits that "disaster planning is often relegated to a position of low status in the administrative hierarchy of organizations – isolated from any existing sources of political power and from the priority-setting, budgeting, and decision-making processes." However, just as likely, emergency planning functions might be assigned to rescue services or law enforcement departments, where the planning office's "priorities sometimes take second place to those of the [host] agency." Being embedded in such first responder organizations, "cooperation with other agencies can be dampened because the disaster office is not seen as a neutral body" (Auf der Heide, 1989). Also problematic is the fact that planners sometimes have little operational experience and thus may be disconnected from the organization at large and thus be incapable of developing truly "actionable" plans. According to one emergency manager after Hurricane Katrina, "There are too many times a plan is written without taking

the operational aspects into account and this leads to non-usable plans" (Fontenot, 2006). On the other hand, planners might have considerable operational experience, but only be permitted to dedicate a small fraction of their time to planning activities (Auf der Heide, 1989). They may also possess inadequate writing/communicating skills.

Even assuming appropriate, qualified staffing, planning offices may lack the ability to effectively disseminate finalized emergency management plans throughout the organization. In such a situation, plans are of little practical utility unless distributed by other offices or individuals with significant resources and/or organizational clout. Strong leadership is required to declare organizational priorities, such as familiarity with and exercise on standing plans.

According to Perry (2004, p. 66), "…training is the activity that translates information defined as needed by the plan into coherent program that can be imparted to responders." Given that plans are altered as a result of reorganization, dynamic threat assessments, and/or routine re-write cycles, training is ideally a regularly recurring activity. Training exercises allow planners to gauge levels of organizational plan acceptance, and to collect feedback which provides indications of the plan's real workability (McEntire and Myers, 2004). Unfortunately, training exercises routinely suffer from funding shortfalls. Clarke (1999) suggests that neither emergency management plan development nor training is "sexy" enough in the eyes of emergency managers or elected officials "holding the purse strings." Mindful of coming election cycles, elected officials in particular are disinclined to fund activities unlikely to attract media/constituent attention. In part for this reason, organizations seek inexpensive training solutions. For instance, the US Federal Emergency Management Agency (FEMA) offers short online trainings on the 400-page National Response Plan (NRP) (United States, 2006). It is unclear if such compromises between cost and exercise depth/fidelity result in reduced plan familiarity (Perry, 2004).

Insufficient funding negatively affects the quality of training exercises in other ways. For instance, total participant numbers may suffer, thereby impacting overall exercise fidelity, in turn affecting reliability of plan workability assessments generated during the exercise. For lack of funding, follow-up meetings intended to address identified weaknesses in planning documents may be foregone or postponed indefinitely. Nowhere was this more evident than after the first Hurricane Pam exercise in Louisiana (Fontenot, 2006).

In many instances, poor organizational position and low staffing levels too can be explained as the result of inadequate funding (Fontenot 2006). Appropriate equipment, office space, and adequate staff levels are required to develop plans and subsequently train organizations on them. The support of organizational leaders and major financers is critical, but particularly when total organizational exposure to and training on plans is likely to be costly (Auf der Heide, 1989). According to Auf der Heide (1989), "Many emergency organizations operate on a 24-hour-a-day basis. This means that ongoing training sessions must be repeated for each shift, or personnel must come in on their day off." However, even with adequate support, funds may be rendered inaccessible through compartmentalization or "earmarking", or through appropriation by competing organizational interests.

Obtaining acceptance of a plan ("buy-in") is also critical. Unsurprisingly, emergency management plans which do not enjoy a high degree of organizational acceptance are likely to go underutilized in an emergency. Plans should not just be written for the sake of compliance and then "put on the shelf," but should instead be intended for actual usage and developed in cooperation with those expected to use them: "Those who participate in developing the plan are more likely to accept it. This is preferred to adopting a plan written by someone else who may not understand local circumstances" (Auf der Heide, 1989). Indeed, US civil defence plans formulated by disaster planning offices rather than by emergency response agencies themselves during the 1970s and 1980s lacked legitimacy, something which the California FIRESCOPE plan development concept sought and continues to address (Auf der Heide, 1989). Official emergency management agencies may neglect to obtain buy-in from other

extra-organizational actors, including non-governmental organizations (NGOs), the private sector, and the public.

But how to explain then plan underutilization in instances when adequate funding, planning staff, and buy-in from operators has been secured? One explanation is that plans, even those with high levels of organizational support and acceptance, are in fact ill-suited to the situation at hand. After-action reviews routinely suggest that plans lacked the imagination necessary to envision certain, arguably fantastic, contingencies, such as that civil passenger aircraft might be used essentially as guided missiles. The City of New York appears to have failed to consider this when a primary emergency operations center (EOC) was located on a lower floor of one of the highly visible World Trade Center towers (Clarke, 1999).

However, organizational planning activities do not necessarily reflect clear and present societal threats, even if they have been imagined. Instead, Clarke (1999) agues that plans may only reflect the priorities, interests, and/or even simple fears of critical stake-holders including elected officials, the public, and/or other states and international organizations. (After all, states are keen to be in compliance with certain international treaties/agreements.) Such discordance between likely threats and planning activities might be obvious or more subtle, as when the US Department of Homeland Security (DHS) nominally adopted an "all-hazards" approach to emergency management, though the response to Hurricane Katrina would suggest that resources were allocated primarily to counter terrorist threats (Mueller, 2006).

Nevertheless, organizations do routinely succeed in accurately identifying standing threats and initiating planning activities to meet them, though even then, it is less certain that they have access and/or the ability to process pertinent information about the threat (physical workings of particularly natural threats, likely affected areas, prioritized response objectives in these areas, likely individual responses among victims, etc.). For instance, they may persist in believing in so-called "disaster myths" which depict disaster victims exhibiting certain maladaptive behaviors (panic, looting, etc.) when in fact they are typically far more proactive and rational in their actions (Auf der Heide, 1989; Drabek, 1986; Perry & Lindell, 2003a).

Informational deficiencies might be due to suboptimal staffing and education, both of which hinder data collection and analysis. This task is critical, though modern societal complexity makes the accurate prediction of threat impacts difficult. Risk analysis tools such as hazard/vulnerability maps using global information systems (GIS) are helpful tools in processing available information, but do not guarantee that risks and vulnerabilities are then disseminated to offices and/or individuals with the resources and clout so as to sensitize organizations to them. Further complicating matters, departments and agencies collect varying forms of data sets which, when synthesized, may provide more accurate threat assessments than if analyzed independent of one another. However, security concerns, divergent organizational cultures, etc. render inter-organizational information sharing difficult (Clarke 2005). The US intelligence community's failure to piece together clues gathered by its members ahead of the 9/11 attacks is an appropriate example of this tendency (Richelson 2007).

However, even with all available intelligence regarding threats at hand, planners may still encounter difficulties formulating plans at a level of abstraction so as ensure usability during an emergency. While "all-hazards" plans are arguably suitable to multiple types of emergency, they can be of a length and on a level of abstraction so as to be ill-suited for use in stressful situations ('t Hart, 1997). Incident-specific plans, on the other hand, may be so detailed as to preclude personnel from maintaining a conceptual understanding of how to respond (Perry, 2004). Both lengthy all-hazards and highly detailed, threat-specific plans are costly and laborious to maintain, given that they require constant revision. Otherwise, they risk lapsing into irrelevance (Perry & Lindell, 2003b). However, there is evidence to suggest that the usability of plans in many cases hardly matters, given that they may exist only so as to remain in compliance with mandated preparedness standards. Shorter, more usable plans sometimes exist on an unofficial basis for operators (Auf der Heide, 1989).

Emergency phase

As can be seen, pre-event plan development issues may play a crucial part in determining the real utility of a plan during an emergency. However, there are factors emerging during an emergency which determine the extent to which even well-funded and organizationally accepted plans are utilized.

Plans serve as guides for organizations as they interact with one another during an emergency. However, organizations with different sets of historical references, experiences and responsibilities may maintain differing perspectives on the same situation, a fact which may determine when and by which organizations system-level emergency management plans (such as the NRP) are activated. When responsible departments and agencies are not "singing from the same sheet of music," the efficacy of the system is jeopardized (Enander, 2006). Joint operations centers (JOC) aimed at establishing common situational understanding may mitigate such risks assuming all mandated departments and agencies are represented.

Full plan pursuit is further complicated as an increasingly number of critical functions are "outsourced" to service providers in the private sector. The response to Hurricane Gudrun over southern Sweden is an illustrative example. Telia, a public telephony provider, arranged for a private firm to chart the location of all mobile telephone transmitter/relay masts. However, in the aftermath of the storm, Telia personnel were unable to access this information as the firm's offices were closed over the weekend (interviewee E, personal communication, April 25, 2006). On the other hand, private sector actors without any formal mandate or representation at formal coordination centers may extend unbidden assistance, as Wal-Mart did when it projected assistance into central New Orleans, thereby assuming *de facto* responsibility for commodity flows which were otherwise the formally mandated responsibility of FEMA (Freedburg, 2005).

Unmet needs during an emergency may prompt the appearance of other actors who in fact may maintain uniquely adapted, even superior, response capabilities to those of formally mandated organizations. Included among such so-called "emergent groups" are victims themselves, both trained (i.e. formally certified) and untrained volunteers, non-governmental organizations (NGOs), religious organizations, and (to a lesser extent) extra-jurisdictional authorities (Quarantelli, 1997). By virtue of proximity, local familiarity, etc., these may provide useful assistance not always acknowledged in standing plans, documents which typically provide guidance on how to gain "control" over such actors. This is not, however, always without warrant - disaster tourists and uncertified health care providers can be disruptive nuisances and targets of post-event legal action, respectively (United States, 2006). Engaging emergent groups lack experience working with and/or have a limited understanding of the structures, missions, and sometimes wholly foreign cultures of formal emergency management organizations. The failure of plans to provide guidance to emergency managers in working alongside if not coordinating with such actors reduces the likelihood of continual plan relevance. As a result, operators may instead orchestrate a response with a larger, somewhat unfamiliar constellation of responding actors on an *ad hoc* basis.

Evidence suggests that infrastructural collapse and other lesser technological disruptions can negatively impact plan utilization. The loss of the EOC at the World Trade Center complex has already been discussed. The City of New Orleans suffered a similar fate in the wake of Hurricane Katrina. While plans detailed alternative EOC facilities, it is not clear that either municipality maintained the physical means to actually supplant the function (Brinkley, 2006). These EOC losses resulted in severe disruptions to formal chains of command and predetermined information flows.

The loss of other communications technologies (telephony, internet connectivity) can have similar negative effects on response success, though plans may not foresee this possibility. Even those that do fail to identify alternative means of communication, prompting personnel to independently identify and adopt alternative but not necessarily interoperable solutions. Individual communicative capacity is thereby increased, but not necessarily with others,

thereby reducing the likelihood of continued plan pursuit. According to Alexander (2002, p. 110), "…in order for operations to run smoothly, all participants must be part of the command system. If any work separately, or are not accounted for, this can make it difficult to assign tasks effectively and avoid duplication of effort."

Organizations tend to abandon "outdated" technologies as new technologies emerge. These more efficient, albeit somewhat more vulnerable systems, are used during not only day-to-day operations but also during emergencies to the extent possible. However, if such systems fail during an emergency, plans rarely suggest how organizations might quickly re-integrate older technologies into ongoing operation or how to quickly re-acclimate personnel with them. This is perhaps unsurprising given that organizations are prone to "wishful thinking" (that they will hopefully never actually need to re-deploy such systems). As a result, familiarization occurs more often than not only during an emergency, where the learning curve is expectedly steep. As a result, overall response efficacy weakened.

Emergencies necessitate that decision-makers operate in highly unfamiliar and hectic conditions. Stress brought on by long working hours, fatigue, insufficient or overwhelming flows of information, or time pressures is inevitable. Some may even be personally affected by the incident(s) ('t Hart, 1997). Even highly trained emergency managers may experience difficulties coping, a fact which might be manifested operationally by "corner-cutting," or departing from or neglecting SOPs, etc. As Alexander (2002) points out, emergency management plans in the United States typically use an Incident Command System (ICS) structure. However, he argues that "one particular problem with ICS is that its impromptu architecture is easily compromised by the 'freelance' activities of personnel who decide to work alone. In order for operations to run smoothly, all participants must be part of the command system" (Alexander, 2002, p. 110).

Unless managed effectively, the media can constitute a further stressor during an emergency. Most organizations have in place robust media management functions. However, major emergencies will likely prompt media requests for commentary from senior leaders. Leaders who become deeply involved in media relations may neglect other responsibilities formally assigned to them.

As Crondstedt (2002) points out, there is no clear delineation between the emergency phases. The post-event phase may just as easily be considered part of the early pre-event phase ahead of a future emergency. Nevertheless, it is important to acknowledge that after an emergency, organizations are best served by examining the relationship between standing plans and their actions and what any indications of underutilization might suggest. Just as critically, organizations should ask themselves why plans were pursued. In this way, organizations might document, observe and hopefully learn from their experiences and integrate any "lessons learned" into future plans (Boin, et al, 2005). However, there is considerable evidence to suggest that effective learning does not always occur, in part due to hinders described in the pre-event discussion above (Birkland, 2006).

Operationalizing more realistic plan development

Plan underutilization or deviation is a likely if not inevitable element of an emergency response. Non-usage or deviation might reflect positively on the organization which has trained intensely on existing plans, but which at the same time also encourages improvisation in situations not addressed by the plan. On the other hand, this might instead suggest plan non-dissemination, inadequate training on the plan, or a poorly-formulated plan or one irrelevant given the situation at hand. Fortunately, this need not jeopardize overall mission success but might instead save a response effort from failure. Adaptive tendencies may exist in an organization's culture prior to a critical incident or may spontaneously develop during the management phase. Plans are unlikely to describe the possibility that contingencies (either related to the character of the incident at hand or pre-existing organizational vulnerabilities)

should necessitate significant plan departures nor encourage adaptive behaviours in response (Kreps, 1991).

A proposal for the development of more "realistic" plans

The argument can be made that organizations and ultimately societies are best served by the development of plans that reflect the largely unpredictable and often difficult realities of emergency management. More realistic plans might clearly describe the possibility of individual and/or organizational inadequacies/vulnerabilities, thus rendering them more expected and less surprising than they are today. Such a change is significant from an operational and a public communication standpoint. As Auf der Heide (1989) simply states, plans which best serve users (including the public as potential emergent actors during an emergency) are those which describe not what relevant actors "should do" but rather what they are "likely to do." Plans, he argues, are much easier to change than human behaviour or the odds that external contingencies will complicate response.

The way forward

According to Quarantelli (1997, p. 41), effective emergency management plans should: offer possibilities for the coordination of emergent resources rather than attempt to impose command and control management models; assume the absence of maladaptive behaviours; emphasize the need for intra- and inter-organizational coordination during the response phase; and "encourage appropriate actions by anticipating likely problems and possible solutions and options," among other things.

Many emergency management experts argue that improvisation may improve the quality of inter-organizational coordination and coordination with emergent actors. McConnell and Drennan (2006, p. 64) state that "…crisis […] pulls planning in a minimalistic direction, because it requires considerable room for individual autonomy in responding to extraordinary and unpredictable circumstances as they arise". Alexander (2002, p. 134), on the other hand, views improvisation as inevitable but not ideal: "…Although some aspects of any emergency will have to be extemporized because there is no way that they can be foreseen, and flexibility will have to be demonstrated in the handling of the crisis, the aim is to anticipate conditions, as far as possible, and make advance provision for them."

It would seem that while a critical component of emergency management, improvisation is not an adequate "fail-safe" in the event that inherent organizational weaknesses manifest themselves during an emergency. Improvisation may in fact serve to mask these vulnerabilities, a fact which can negatively impact not only the development of more realistic plans but also the wider system's overall robustness, as suggested by proponents of normal accidents theory (Perrow, 1999). As Dynes (1983) suggests, plans should reflect identifiable threats and the problems likely accompanying them. As the nature of real threats shifts, so too should plans, though not all too drastically from one re-write to the next; a focus on a few emergency management principles is preferable to any great plan detail.

Nevertheless, organizations must develop policy dictating what they plan for generally. While some advocate "worst case" planning (Clarke, 2005), others suggest that "…planning should be based on what is likely to happen, not on the worst scenario" (Dynes, 1983, p. 655). While some organizations, such as DHS, might prepare for "worst cases" (in the form of a CBRN attack, for instance), others prepare for the likely incidents, such as natural disasters. Regardless, organizations seek threats beyond their own boundaries; rarely do planners consider organizational vulnerability as a factor in determining if a routine incident evolves into an emergency or, just as critically, if an otherwise manageable emergency is met with an inadequate response.

This is not to suggest that organizations surrender responsibility for critical emergency management functions simply because there is an acknowledged risk of being overwhelmed by organizational or wider system vulnerabilities or the contingencies of the emergency. Indeed, it is hardly advisable that organizations be permitted to easily cede mandated

responsibilities to other (not necessarily willing) actors. Rather, a system-wide culture should allow individual organizations to routinely assess capabilities and, if necessary, report being overwhelmed. In this way, they might be able to quickly obtain assistance from other system component organizations. The alternative is simply concealing such assessments until it is potentially too late to satisfactorily remedy the situation. Organizations must be made to feel comfortable in revealing their vulnerabilities, as Dynes argues (1983, p. 656): "…Planning should be predicated on sharing information widely to those involved, rather than by restricting information based on the fear it might be misused".

A more flexible approach to emergency management plan development and response necessitates greater familiarity with standing organizational plans system-wide. Leaders should be attentive to evidence suggesting significant plan underutilization or deviation not only within their own organizations but also within others. They should be capable of understanding this as signalling potential entrance into a new phase of the response characterized by a greater degree of improvisation. This is particularly significant in systems guided by a subsidiarity principle. Overarching system-wide emergency management plans should acknowledge the possibility of not only deviation from local and regional emergency management plans, but also the possibility that authorities at these levels may become overwhelmed. Existing plans typically offer no guidance on how such a determination might be made if the affected authorities themselves do not do so.

But what if even other formally mandated authorities are unable to provide the necessary resources? The suggestion that authorities are equally susceptible to overwhelming as private citizens begs a number of questions. Should the general public be prepared to assume a critical emergency management role in the event that formal organizations fail? Does response success require the dispersion of responsibility throughout society as long as formal organizations risk being overwhelmed? There is some support for such a move. As the threats to society grow in number and consequence at the same time that the public sector worldwide shrinks, La Porte suggests the creation of a "society of dread" where citizens assume greater individual responsibility for mitigation and consequence management (La Porte, 2006). While the internalization of threats is demonstrably possible (Israel, for instance), any such program of public threat sensitization is filled with risks, not least from a public health standpoint. It is perhaps sufficient for the time being that emergency managers are better informed about standing threats, including threats to response success originating from within vulnerable organizations themselves.

A first step might be to increase training frequency and during these opportunities emphasize risks related to organizational vulnerabilities. This will likely (and should) proceed the development of any more realistic plans, given that "agencies are often more easily motivated to participate in practical simulations and training programs than to expend valuable resources developing rigid and complex written plans whose value they question"(Auf der Heide, 1989). It is only through participatory exposure to emerging methods of emergency management that individuals might recognize the need for and accept new forms of planning documents. According to Alexander (2002), there is a general need both nationally and internationally for more emergency management training but also that recognized standards and protocols (i.e. ISO certification programs) be developed for quality assurance purposes. Before this occurs, a consensus needs to reached as to what the "state of the art" is in the field of emergency management. However, there is unlikely to be any great consensus around the suggestions made here, as the following section demonstrates.

Hinders for acceptance

Evidence suggests that the development and implementation of more realistic plans will be challenging due to realities that politico-bureaucratic theory assumes and that our own observations confirm. At core lies a reluctance among policymakers, emergency managers and organizations to admit any significant degree of vulnerability which might necessitate the development of new forms of plans. Clarke (1999) for one is sceptical that this reluctance

might ever be overcome: "The antithesis of a fantasy document is the forthright admission that risk and danger are being created. […] Organizations don't generally exist in environments that would permit […] candour" regarding risks and dangers both created and managed by vulnerable organizations.

But what specifically prevents organizations from exhibiting the necessary degree of candour? As noted above, the task of identifying threats and then crafting plans which reflect these is labour-intensive and costly. However, additional funds requests for this type of activity constitutes a *de facto* admission of not only earlier, inefficient use of funds (to the extent that they were used to develop unrealistic plans) but also, potentially, current organizational shortcomings. Even assuming that organizations obtain adequate funding, they are unlikely to voluntarily release findings which cast themselves in a dimmer light than other organizations with which they compete for mandates, funding, resources, etc. Clearly, any new perspective on emergency management plan development must be shared by all system component organizations; everyone must leap at once or none will leap at all. Third, some organizations, but particularly those working with sensitive information or which are designated as executing critical societal functions, may simply be unable to divulge such information.

Even if these challenges are overcome, organizations still need to gain buy-in from planners themselves. According to Clarke (1999), reform efforts such as that proposed here typically encroach on the turf of the "experts" who purport to have solved the problem at hand. Organizations may "purchase" expert support, but this is unlikely to be as effective in public debate or the plan development process as support provided by experts who believe in the task at hand. Buy-in must also be secured from other stakeholders, including emergency managers (any plan's primary consumer) and the public (the victims after future critical incidents). There are several indicators to suggest that this will be difficult.

However, the implementation of plans reflecting more forthright vulnerability assessments still might jeopardize organizational interests if they prompt questions concerning the need to continue funding what might appear to be less than completely robust emergency management organizations. Elected officials "holding the purse strings" may opt to prioritize other, potentially more effective organizations. Given this risk, organizations inevitably assume a confidence-building language when speaking to major financers, a language which will likely find its way into plans as well (Clarke, 1999). Indeed, as Brunsson (1989, p. 27) points out, pressures from within an organization's environment create inconsistencies which push leaders to "talk in a way that satisfies one demand, to decide in a way that satisfies another, and to supply products in a way that satisfies a third."

As noted above, any recognition that authorities are even potentially unable to satisfactorily respond to emergencies raises questions regarding the role played by non-governmental actors, including private citizens, the private sector, NGOs, and religious organizations. Indeed, a greater degree of intergovernmental and even intra-societal solidarity would seem to be a requirement when no single organization or constellation of organizations can realistically guarantee a certain level of emergency response capability. However, these societal actors are not instinctively inclined to assume formal emergency management responsibilities. The public, private sector, and NGOs, including religious institutions, must be included in a public discussion concerning possible legal and financial implications in the event that these actors agree to assume greater responsibilities in the future.

Conclusions

The development of more realistic forms of emergency management plan is admittedly a daunting proposition. We propose here that organizations first identify their respective vulnerabilities, and then that these findings are entered into the public record in the form of plans which go so far as to predict the possibility of partial if not complete organizational failure. So-called high-reliability organizations such as nuclear power plants and naval aircraft

carriers operate with such an understanding on a daily basis. It is because the consequences of failure are so great that these organizations must be as forthright concerning existing vulnerabilities as they are.

One might wonder why a similar standard should not be applied to societal emergency management systems responsible for meeting the challenges of critical incidents and taking the first cautious steps toward a return to societal normalcy. A first step in this direction might be to encourage the development of more realistic plans which clearly acknowledge contingencies emerging both in relation to the critical incident at hand and as a result of pre-existing organizational vulnerabilities which serve to potentially jeopardize the satisfactory resolution of the emergency. Emergency management systems guided by such documents might necessarily be more self-aware to the extent that component departments and agencies better understand their own and their counterparts' real capabilities. Somewhat counter-intuitively, such plans might also prompt efforts aimed at role clarification (McEntire, 2006).

A robust and effective emergency management response is only possible if responding agencies are assigned responsibilities which can realistically rather than ideally be carried out. However, in the event that organizations demonstrate an inability to meet their responsibilities, other organizations recognize the possibility that they might be called upon to provide sometimes highly irregular or novel forms of assistance during an emergency in support of other overwhelmed actors (Auf der Heide, 1989). In other words, the likelihood of surprise is reduced. Organizational robustness and effectiveness come to be seen as Rumsfeldian "known unknowables," rather than indisputable "knowables" as many plans presume. In such a system, the state of individual organizations is seen as equally determinant of overall response success as the nature of the emergency itself.

Clarke (2005) suggests that a system-wide recognition of inherent vulnerabilities might prompt organizational "disorganization for disaster" with the recognition that a bureaucratic nature renders organizations ill-suited to contend with emergencies. Indeed, recent response examples illustrate the need to take the notion of improvisation further to include component organizations and the larger system, given inherent organizational weaknesses which existing plans typically do not reflect.

It is a difficult task indeed to successfully navigate between fatalism (that plans are of little real utility because they will be underutilized or deviated from) and over-optimism (that they are essential emergency management tools without which responses inevitably fail). However, we offer here a moderate view, that emergency management plans are an essential element of a response but only up to a point. The challenge is developing a culture in which it is possible for plans to "fail gracefully" without surprising users but still allow for the orchestration of successful responses.

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