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Lessons Unlearnt: The (Human) Nature of Disaster Management

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1. Introduction

This chapter examines the impact of human behavior in disaster management and emergency preparedness. It now is recognized that disasters are rarely 'natural', but rather a product of the interface between hazards and human activity. Population growth, urbanization, poverty, and poor urban planning are human causative factors which have received considerable attention. In response, emergency managers have engaged in widespread mitigation and preparedness efforts, including both investment in technologies and systems as well as public education and awareness-raising. The results have been mixed, even in the most developed countries with advanced emergency management systems; the European heat wave in 2003 claimed over 35,000 lives while Hurricane Katrina in 2005 took over 1,800 lives in the United States.

The failure to effectively respond to disaster events is generally attributed to the shortcomings of emergency management systems, inadequate planning, poor communication and/or coordination. While these reasons are certainly valid, what is frequently overlooked is the possible role that human nature may have in perpetuating these crisis. In *Flirting with Disaster*, Marc Gerstein (2008) points out that accidents and disasters are rarely accidental. Citing disasters ranging from the Challenger and Columbia space shuttle explosions to Chernobyl and Katrina, the author points that organizations that rely on a relatively small number of experts (as is the case with many emergency response teams) can become prone to *group think* which fosters its own form of human bias, distortion, and errors of judgment. As Gerstein points out in the case of the Columbia, "[it] is the story of how organizational pressures, public relations concerns, and wishful thinking contributed to a phenomenon known as *bystander behavior* - the tendency of people to stand on the sidelines and watch while things go from bad to worse".

Emergency management in North America has its roots in civil defense and by necessity retains a strong *command and control* dimension. It has also been largely driven by associated professions including the military, police, fire and other emergency services. As such, emergency management retains a hierarchical culture grounded in clearly defined roles and responsibilities, highly functional and technical systems, and standard operating procedures. While such are critical to the effective management of crises and disaster events, research has shown that these must also be balanced with flexible decision-making, stakeholder awareness, and basic human qualities such as trust and collaboration. Without

such, "there can be reinforced silos of hierarchy and structure that not only hinder communication intra- and inter-organizationally, but constrict interdisciplinary thinking, sharing and trans-departmental thinking" (Devitt & Bordzicz, 2008). With this, there may also be a devaluing of the importance of engaging and planning *with* (rather than *for*) external stakeholders including the public and communities. This can have the further affect of limiting emergency managers' understanding of those critical factors that not only make communities vulnerable but can also be built upon to enhance preparedness and resiliency.

Devitt and Borodzicz (2008) have similarly raised the importance of better understanding incident command systems and leadership styles. The authors note that current models of crisis leadership frequently fail to establish a balance between the requirement for task skills, interpersonal skills, stakeholder awareness and personal qualities. This can have significant consequences during an emergency. "Leaders managing crises under stressful situations are likely to revert to the style which they are most comfortable - an unconscious preference perhaps - and the more disturbing the situation, the stronger the urge to take refuge in familiar procedures" (Devitt & Borodzicz, 2008: 212). To this point, Legadic (1993, cited in devitt & Borodzicz, 2008) has observed, "leaders who are more task-oriented than human-relations oriented [may] reach the point where they neglect human relations altogether (and vice versa)" (212). Additionally, should subordinates be constrained by fears of breaching organizational taboos - be these cross-functional, technical, or hierarchical - it is likely that their effectiveness and usefulness to an organization will also be compromised (Robert & Lajcha, 2002).

The influence of basic human qualities such as trust can not be understated. Dekker et al. (2008), in studying the effectiveness of first responder agencies to learn from response failures, found that the least effective agencies fell short in terms of the most basic human qualities, these being mutual trust and participation. Milstein (in Ross, 2005: 3) has observed that "the development of trust is quite often the single most important tool in overcoming barriers and obstacles … Effective communication, goal attainment, and service attainment are possible only in atmosphere of trust". Going a step further, Peterson and Besserman (2010) have emphasized the importance of trust in building and maintaining informal networks that serve to crisscross the borders of functions, hierarchies, and business units that characterize most governments and organizations. "Efficiency in response is increased since someone who is known informally and in a positive light has a greater propensity of saying yes when asked for assistance and/or resources. This leads not only to more effective response, but more efficient response as well" (Peterson & Besserman, 2010: 9).

Examples of failed emergency responses as a result of poor trust and limited communication and information sharing litter the literature of disaster and emergency management. In studying inter-governmental responses to disasters, Comfort (2002) observed that hierarchical organizations that fail to account for such factors often breakdown due to a lack of timely information flow and analysis, constraints on innovation, an inability to rapidly shift resources, as well as difficulty in responding to new and/or unexpected demands. In the case of the Challenger explosion, for example, Gerstein (2008) points out that a combination of organizational pressures, public relations concerns, and wishful thinking led managers to overlook the o-ring risks voiced by subordinates and launch of the shuttle. In the case of September 11th, investigations revealed a serious problem in the sharing of information between government organizations, which in turn compromised the capacity of

the government to detect and respond to the terrorist attack (9/11 Commission, 2004). In reference to FEMA's over cautiousness and delayed response to the humanitarian crisis of Hurricane Katrina, Sobel and Leeson (2006: 59) have argued that this in part can be traced to a "reluctance to trust local officials due to the widely-held perception of rampant public-sector corruption in New Orleans (and the State of Louisiana)".

In part, these incidents reflect the inherent risks associated with the emergence of 'virtual teams' and organizational processes that increasingly rely on technologies and software to ensure coordinated planning, information management, decision-making and communications. While these functions are critical to managing complex operations, over-reliance on 'systems' may contribute to a second set of problems associated with human nature. In many cases, agencies may have specific mandates that contribute to 'stovepipe' operations, or rigid functionally organized departments that act as 'silo traps' for information (Eggers & O'Leary, 2009). When interactions do occur, especially when not face-to-face, "cultural and language differences become magnified, as do conflicts. It is much easier to hide errors and problems, sweep misunderstandings under the rug, and make erroneous assumptions when you are communicating via phone and e-mail rather than person. Furthermore, such mistakes and mix-ups are more likely to become full-fledged disasters when the group does not feel free to acknowledge and address them openly" (Ross, 2005: 3).

To this point, Delorme (personal communiqué, September 5, 2011) has observed that many incident command courses and trainings do not focus on leadership competencies or the development of these competencies with participants. Rather, the focus is typically on the procedures and processes of emergency response systems. This leads to "poor" leaders reverting and requiring adherence to the processes of incident management systems rather than the prima fascia issues of the emergency (namely information sharing, coordination, and tem work). This factor becomes more problematic as the emergency (and therefore the emergency response system itself) increases in complexity, requiring greater coordination, information sharing, and joint decision-making across agencies. In such instances, the importance of incident command systems and processes often decrease vis-à-vis the importance of leadership traits of an incident commander. These latter typically include a willingness to receive and share information, to rely on sources and expertise outside of one's own organization, to work in coordination with other organizations, and to view the achievement of strategic and tactical objectives as an integrated team effort (Comfort, 2002; Currao, 2009).

Since the 1990s, especially within the corporate sector, the importance of 'soft' leadership skills (or emotional intelligence) has been recognized as being critical to both effective day-to-day management but also crisis management. Emotional intelligence can be broadly defined as an ability to recognize the meanings of emotion and their relationships, and to reason and problem-solve on the basis of these (Mayer et al., 1999). Elements of emotional intelligence include self-awareness of one's strengths and weaknesses (and how these affect others), self-regulation of disruptive emotions and impulses, motivation to achieve beyond expectations, empathy or understanding or other's feelings, and social skills to engage others and manage relationships (Goleman, 1998).

Goleman (1998) has argued that while intelligence, toughness, determination and vision are required for success, these are not sufficient in and of themselves to achieve the highest

levels of achievement. Further, emotional intelligence becomes increasingly relevant and important in senior management positions which require more leadership than technical skills. "It is not that IQ and technical skills are irrelevant. They do matter, but mainly as *threshold capabilities*; that is, they are the entry-level requirements for executive positions … [But] emotional intelligence is the sine qua non of leadership. Without it, the person can have the best training in the world, an incisive, analytical mind, and an endless supply of smart ideas, but still won't make a great leader" (Goleman, 1998: 3).

Applied to emergency management, the concept of emotional intelligence as a premise for building trust, communication has obvious implications. As noted in previous examples, including September 11th and Hurricane Katrina, the breakdown in both preparedness and response activities can often reflect a clear lack of trust between agencies and different levels of government. However, the concept of emotional intelligence can be applied at a more basic level, where nuances of human behavior may be more subtly manifested in styles of communication and decision-making styles that may have immediate and tragic results. As one such example, the main factor leading to the 1978 United Airlines DC-8 crash in Portland, Oregon was attributed to the failure of the crew members to successfully communicate concerns to the captain that the plane was running low on fuel (National Aviation Safety Board, 1978). In *Outliers: The Story of Success*, Malcolm Gladwell cites the crash of Korean Air Flight 801 as an example of how cultural differences can lead to accidents. In the case of the Korean flight, it continued to circle the Guam airport at the request of the controller while running out of fuel, a decision which Gladwell attributes to a culture's Power Distance Index (P.D.I.), this being a measurement of "how much a particular culture values and respects authority".

At the same time, at a much broader level, there is a need to apply the concepts of trust, collaboration and emotional intelligence to the strategies by which emergency managers engage the public and the communities they serve. In part because emergency management has its origins in the Cold War, filled largely by emergency services professionals with strong command and control backgrounds, the public has frequently been perceived as a *problem to be solved* rather than *part of a solution* to disasters. Schooch-Spana (2004), for example, has observed that exercises testing emergency response capabilities to biological attacks have frequently framed the public as mass casualties or hysteria-driven mobs. Additionally, "public communication and risk communications have become code words with which to skirt the multifaceted realities associated with community response to terrorism, bio-terrorism in particular. When authorities say they want better communication with the public, what they [often] tend to mean is that they want public buy-in, compliance, and understanding - possibly even absolute - when tough choices arise (e.g., how to distribute scarce resources in an emergency" (Schooch-Spana, 2004: 2).

This attitude of a 'problematic' public is not only potentially pejorative but does not adequately reflect the complexity and underlying reasons as to why people do not adequately prepare for emergencies. Terms such as *apathy*, *denial* and *avoidance* are found throughout emergency preparedness literature to describe why households continue to be unprepared for disasters. Marsha Evans, an American Red Cross president, has used five amusing but not necessarily enlightening terms to describe the 'unprepared' public: "head scratchers" who don't know where to find preparedness advice; "head in the sand" types who believe preparation is unimportant; "head in the clouds" people who mistakenly

believe they are ready; the "headset crowd" that is too busy and can't find time to do it; and people who "simply haven't thought about preparedness" (Mintz, 2004).

These explanations, while perhaps applicable to some people, fail to capture both the nuances and complexity of human behavior. Indeed, the very concept of denial or normalcy bias (a tendency for people to underestimate the possibility of a disaster occurring and its possible effects) is also an essential adaptive mechanism by which people are able to cope with the myriad of stressors they face in life, including serious illness, the lost of loved ones and other tragedies they may endure.

In part, this reflects the tendency of emergency managers to plan for disasters within their own silos, outside the context of other life demands. Framed within the context of emotional intelligence, insufficient attention and understanding (in other words, *empathy*) has been given to the fact that many people (such as the poor or chronically ill) may have more pressing realities of daily living that make the risk of a disaster (which may or may not occur) pale in comparison. To this point, Hutton et al. (2007), in studying preparedness to risks associated with extreme weather events in Canada, found that while 80% of respondents believed the weather was changing, only 4% cited it as a personal worry, in large part because they were more concerned with more urgent daily needs such as personal or family health (32%) or financial issues (28%).

Indeed, the manner in which preparedness information is presented may often have little relevance to a targeted population. In a revealing survey of public perception and response to heat warnings across urban centres in North America, Sheridan (2006) found that while knowledge of the event was widespread (upwards of 90%), only 46% of respondents had changed their behaviour. A majority (60%) did not believe the message was meant for them while those that had changed their behaviour had done so because "it was hot", not because of the heat warning. This can to an extent be attributed to a failure among emergency managers to *understand* and *motivate* the public. To this point, Veil et al. (2009) found that emergency managers in the United States generally relied on one-way media and publicity in their effort to increase citizen emergency preparedness, conceptualizing communication primarily as the dissemination of preparedness messages rather than as a process of research and evaluation (Veil et al., 2009). This intuitively suggests that more engaging and alternative approaches to public awareness might result in higher levels of preparedness. Indeed, the American Red Cross (2006) found that much of the public is in fact not resistant preparedness; while 60% of surveyed Americans indicated they were unprepared for a disaster of any kind, 82% agreed that "If someone could make it easy for me to be prepared, I'd do it".

Despite these findings, emergency managers have been slow to adapt to new practices which might reach targeted populations in more effective ways. In part, this can be attributed to a failure to *think outside the box*, even after disasters occur and lessons may be readily drawn upon. Instead, as James (2004) has observed, organizations too often adopt a reactive and defensive position that prevents learning, focusing on damage control rather than identifying and implementing organizational change efforts aimed at reforming or strengthening organizational systems, policies or procedures. This has been similarly observed by Roux-Dufort (2007). In examining crisis management research of large scale industrial accidents (including Three Mile Island, Bhopal, Chernobyl, the Challenge and

Exxon Valdez incidents), Roux-Dufort found that that such were often descriptive and generated 'knowledge about accidents than organizations', rather than focusing on underlying organizational processes and decision-making structures that that may also serve as contributing factors. To this end, James (2004: 7) has written, "What is needed is not simply management of the situation but acts of leadership whereby the organization, crisis, and the environment are considered holistically … Crisis leadership first involves a *corporate mindset* that allows for the possibility that forms are vulnerable to uncontrollable events *and* that there may be bad seeds in the organization that intentionally or unintentionally engage in behaviors that lead to crisis".

The consequence of not fully understanding and engaging the public can be significant. In reviewing the failures of the Katrina response in regard to supporting people with disabilities, for example, it was found that many emergency managers were simply misinformed. Many shelters did not have ramps for wheelchairs, accessible toilets for persons with disabilities, as well as alternative information formats for the visually and hearing impaired (National Council on Disability, 2006). A survey of emergency managers further revealed that only 27% of surveyed emergency managers had taken the FEMA planning course for persons with special needs, 58% did not have preparedness materials for seniors or people with disabilities, while 57% did not know the proportion of people with disabilities who were residing within their jurisdictions (Fox et al, 2005).

The solution, however, is not as straightforward as enhancing the knowledge and skills of emergency managers. Cahill (in Heller, 2007: 1) has observed that "one of the most amazing things that's been found is just how little personal disaster planning there is among people with disabilities. And it's not because the materials aren't there but too few people with disabilities use it". As an example, one year after Hurricane Katrina and Rita, only 3,000 people in Houston (an area also prone to severe storms) living with disabilities signed up with a special needs registry for services targeting people with disabilities during emergencies. After two years, this figure dropped to only 500 (Heller, 2007).

The failure of individuals to prepare for emergencies, unfortunately, is often viewed by emergency managers as acts of denial or irresponsibility. This is neither an accurate nor helpful explanation. Rather, the focus of emergency managers should be on how best to engage and *motivate* individuals and communities in activities which will enhance their capacity to adjust to unpredictable but potentially disastrous events. In fact, it is now acknowledged that simple awareness or even understanding of a possible risk is not a sufficient condition for behavioural change. Ronan and Johnston (2005: 7) have observed that *motivation*, as opposed to information and education, may be the *sine qua non* of community preparedness. "Despite the fact that people may be aware of both risk as well as strategies that can mitigate that risk, it does not follow directly that they will take the necessary action … Motivation is the psychological factor that fuels interest, concern, and action".

A significant challenge for emergency managers, then, is how best to *motivate* and *engage* individuals and communities in activities which will enhance their capacity to adjust to unpredictable but potentially disastrous events. To this end, Conklin (2008) has emphasized the importance of involving people in finding solutions, rather than simply

telling them what to do. "To put it more starkly, without being included in the thinking and decision-making processes, members of the social network may seek to undermine or even sabotage the projects if their needs are not considered" (3). Moreover, when information is not forthcoming, or from sources that are not fully trusted, invites negative stakeholder reaction. "Failure to adequately and in a timely fashion address a crisis situation gives stakeholders the opportunity to 'fill in the blanks'. In the absence of information, or the presence of poor or inadequate information, people tend to assume the worst and then base their subsequent behaviour on those negative assumptions" (James, 2004: 4). Perhaps among the more illustrative examples of this is the 1979 Three Mile Island nuclear accident, when 140,000 people evacuated the area within days as a result of conflicting and confusing messaging and communication from public officials. "What made these significant was a series of misunderstandings caused, in part, by problems of communication within various state and federal agencies. Garbled communications reported by the media generated a debate over evacuation. Whether or not there were evacuation plans soon became academic. What happened on Friday was not a planned evacuation but a weekend exodus based not on what was actually happening at Three Mile Island but on what government officials and the media imagined might happen. On Friday confused communications created the politics of fear". (Cantelon & Williams, 1982: 50)

As such, emergency managers must recognize disasters as social constructs and see people as *part of the solution* rather than *part of problem* to be solved or managed during an emergency. This requires 'people-focused' (rather than technical) planning methodologies that move beyond *planning for* to *planning with* all segments of society, including the most vulnerable and marginalized groups that are more readily overlooked. This not only begins to ensure that emergency planning and response capacities can more effectively address the diverse needs of people, but can be an important step to *engaging* and *empowering* people to better prepare themselves for emergencies and other critical events.

To achieve this, there must ultimately be a willingness to study the underlying causes of human behavior. Devitt and Borodzicz (2008: 212) have argued that "crisis leaders need to be able to put themselves in the position of all stakeholders, including the victims, and need to be able to recognize their diverse needs and feelings". As such, emergency managers must move away from a *command and control* philosophy and recognize the criticality of human behavior in shaping how both people and organizations respond to crises and emergencies. From a lessons learned perspective, this will require that managers challenge themselves to examine how their own attitudes and beliefs impact on planning and response. At the core of this, as it is at the core of enhancing organizational response capacity, is the ability to perceive the needs of others, engage in meaningful social dialogue, and motivate people to undertake activities and changes that they might otherwise not. These are essentially the hallmarks of leadership and emotional intelligence.

This is also at the core of moving towards a more coherent approach to identifying and implementing lessons that promote real change and adaptation of organizations and emergency management practices. As observed by Gerstein (2008), overtly defensive organizations and governments may be prone to *anti-learning* as a way to avoid blame and findings of faulty decision-making. As such, leaders and senior managers may also draw upon lessons learned from elsewhere, such as the Toyota *kaizen* philosophy which

encourages and expects managers to continually identify problems (without fear or threat) as tool for continuous improvement (Shook, 2010). This also speaks to a basic choice in human behavior, that of a "[willingness and] ability to focus on solving problems without pointing fingers and looking to place the blame on someone" (68). This, perhaps above all else, is the most essential lesson to be learned should the field begin to fully address the human elements that contribute to lessons being unlearnt.

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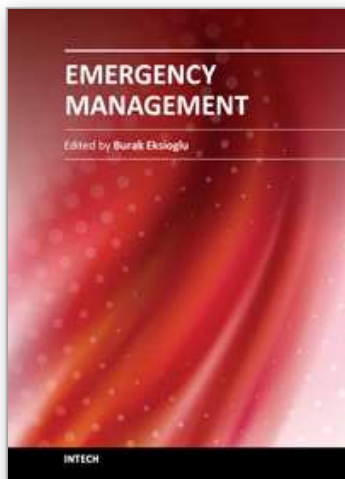
Emergency Management

Edited by Dr. Burak Eksioglu

After the large-scale disasters that we have witnessed in the recent past, it has become apparent that complex and coordinated emergency management systems are required for efficient and effective relief efforts. Such management systems can only be developed by involving many scientists and practitioners from multiple fields. Thus, this book on emergency management discusses various issues, such as the impact of human behavior, development of hardware and software architectures, cyber security concerns, dynamic process of guiding evacuees and routing vehicles, supply allocation, and vehicle routing problems in preparing for, and responding to large scale emergencies. The book is designed to be useful to students, researchers and engineers in all academic areas, but particularly for those in the fields of computer science, operations research, and human factor. We also hope that this book will become a useful reference for practitioners.

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