Municipal Emergency Management
Daniel Henstra[1]

Abstract:

Municipal governments play a central role in Canadian emergency management. Although the federal and provincial governments actively engage in emergency planning, most specific, operational measures to address emergencies and their impacts must be implemented locally. Moreover, local officials are the first responders to emergencies, and are supported by higher-level governments when community response capacity is exceeded (Scanlon, 1995). This means that although they can draw upon provincial or federal support if required, municipal governments must have plans and resources in place to respond effectively to emergencies within their borders (Kuban, 1996).

This chapter focuses on emergency management as a municipal government function, including its general structure, contemporary characteristics and key objectives. It also discusses some of the challenges facing municipal emergency managers. On the one hand, their extensive knowledge of community needs and capacities equips municipal governments with critical information necessary to design effective emergency management programs. Communities face different hazards and vulnerabilities, so local officials are arguably best positioned to determine the appropriate mix of preparedness measures. On the other hand, municipal governments have a relatively weak fiscal capacity and face numerous competing priorities, so decision-makers are understandably tempted to dedicate their attention and resources to problems they perceive to be more pressing than emergency management. As a result, local emergency managers must often struggle to secure space for this issue on the municipal agenda.

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[1] University of Waterrloo, dhenstra@uwaterloo.ca

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STRUCTURE

Municipal emergency management responsibilities are largely determined by provincial policy. In Ontario, for example, the *Emergency Management and Civil Protection Act* requires each municipality to develop and implement an emergency management program which includes specific elements, such as training and public education, which are set out in regulations (Ontario, 2006). Many regard Ontario's legislation as a model for other provinces, since it mandates municipalities to maintain a current emergency plan, designate an emergency management coordinator and organize an annual simulation exercise. Similarly, Nova Scotia's *Emergency Management Act* requires municipal governments to appoint an emergency management coordinator, pass an emergency by-law and form a committee to advise the local council on the development of emergency plans (Nova Scotia, 2005). Although the scope of their responsibilities varies from one province to another, all municipal governments in Canada are expected to plan for emergencies.

Municipal governments organize the emergency management function in different ways. In smaller communities, the responsibility for coordinating emergency planning is typically assigned to an administrator with other duties, who is usually located in the police or fire department. In larger communities, an individual is often hired specifically to serve this role, and in very large cities there may be a team of emergency management officials. The municipal emergency manager typically develops policies in conjunction with a committee, which normally includes representatives of other departments and agencies that have a role to play in emergency response. Most emergency planning takes place without close scrutiny by elected officials, but political approval is generally required for significant program changes. Regardless of the institutional structure, those assigned the emergency management function must be effective

communicators and skilled problem-solvers, and must be able to engage political decision-makers (Edwards and Goodrich, 2007).

Nature and Scope

The nature and scope of municipal emergency planning have evolved significantly since the 1950s and 1960s, when local civil defence coordinators worked to prepare communities for the possibility of a nuclear attack. This narrow focus expanded significantly in the 1970s to include natural disasters such as floods, which were recognized as a significant threat to public safety. The attention of emergency planners shifted toward technological emergencies in the early 1980s, following a number of high-profile incidents, including a partial core meltdown at the Three Mile Island nuclear power plant in Pennsylvania in 1979, a serious train derailment in Mississauga, Ontario the same year, and a deadly poison gas release in Bhopal, India in 1984. In 1999, experts warned of the "Y2K bug", a programming glitch which could cause computers to malfunction, potentially disrupting power transmission and communications, and this focused attention on the vulnerability of critical infrastructure. Since 9/11, the threat of terrorism has played an increasingly prominent role in emergency planning at all levels of government. Finally, recent experiences with infectious disease outbreaks, such as the SARS crisis of 2003, have increased the salience of planning for health emergencies.

Today, municipal emergency management has a number of distinct characteristics, four of which are examined here (Waugh, 2007). First, it is comprehensive, in that it involves planning for all types of hazards and all phases of an emergency (mitigation; preparedness; response; recovery). Communities face a wide range of hazards and, though the likelihood and potential impacts of different hazards vary considerably, plans and protocols must be flexible enough to apply to any emergency or disaster, regardless of the triggering agent. Municipal emergency planning must also address the multiple stages or phases of an emergency. Early emergency measures programs emphasized preparedness and response, but devoted little attention to preventing or mitigating the impacts of emergencies, or ensuring resources were in place for effective community recovery after an emergency. Over several decades the central focus of emergency management has gradually shifted from preparedness and response to risk reduction (Henstra and McBean, 2005). Modern emergency management doctrine explicitly recognizes that, since most hazards cannot be prevented, resources must be allocated to reducing vulnerability, as a proactive means to mitigate the impacts of emergencies (McEntire, 2005).

Second, contemporary emergency management is risk-based. It embraces the principles of risk management, which offer a logical and systematic

framework for decision-making. Risk-based emergency planning begins with a hazard and risk assessment, which identifies risks the community is likely to face, assesses physical and social vulnerability to environmental hazards, and estimates the probable impacts associated with these hazards over a specific period of time (Deyle et al., 1998; Ferrier and Haque, 2003). This process of identifying, analyzing and prioritizing risks is increasingly regarded as the optimal means to allocate scarce emergency management resources. It is notable, however, that risk assessment can also be a controversial process, fraught with uncertainty and disagreement among stakeholders.

Third, contemporary municipal emergency management is collaborative. Unlike the command-and-control approach of the early civil defence era, present-day planning and organization for emergency response requires significant horizontal and vertical collaboration. To be effective, local emergency planning must involve actors with other functional responsibilities, such as water and wastewater management, transportation, public health, land-use planning and social services, who may be called upon to play a role in an emergency. Municipal emergency managers must spend considerable time building collaborative networks which include other public sector actors and agencies, nonprofit organizations and private sector firms. Partnerships allow municipal emergency planners, who generally operate with very limited budgets, to draw upon a broader pool of expertise and resources. Partnerships also raise the profile of emergency planning in the community.

However, collaborative networks require relationships of trust and ongoing dialogue, and thus demand significant effort to maintain. It can also be challenging for local emergency managers to surmount parochial interests in order to design an effective course of action to deal with emergencies. That is, while individual participants in a planning dialogue frequently emphasize specific hazards or particular aspects of emergency response, the emergency manager must adopt a broader perspective in order to formulate a comprehensive strategy which directs the efforts of the various local stakeholders toward a common purpose.

Emergency Management and Land-Use Planning

Most provinces require local governments to prepare official community plans, which set out policies concerning the use of land within the community's borders, project future growth and anticipate infrastructure and other service needs to support this growth. The planning function offers local governments a powerful set of tools for reducing community vulnerability to hazards (Burby et al., 1999). Land use plans identify optimal uses of land within a community, and zoning bylaws and regulations are used to control the location, type and density of development. Land use plans can be used to prohibit or restrict development in hazard-prone areas such as floodplains and hillsides. Zoning regulations can be used to prohibit risky land uses—residential construction, for example—and to instead designate hazard-prone land for low-risk uses, such as recreation. Collaboration between municipal emergency managers and land-use planners can ensure that decisions made today do not expose people and property to future hazards.

Effective municipal emergency management involves vertical collaboration with other levels of government. Some important public services, such as public health and social services, are administered by regional governments such as counties or districts. Municipal emergency planners must ensure regional officials are aware of emergency plans and policies and that services will be available during and after an emergency. Furthermore, local emergency managers must frequently engage with provincial officials. All provinces have a department or agency responsible for emergency management. In Ontario, for instance, policies are developed by Emergency Management Ontario, a branch of the Ministry of Community Safety and Correctional Services. Regional field officers monitor and support municipal emergency planning, distributing materials produced by the province and encouraging elected decision-makers to prioritize emergency planning. Provincial emergency management policies sometimes shift dramatically, meaning that local authorities must be adaptive and flexible.

> **Coping with Shifts in Provincial Policy**
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> In the 1980s, the City of Sarnia, Ontario entered a Reciprocal Aid Agreement with Port Huron, Michigan, its American counterpart across the St. Clair River. The agreement obligates the two cities to support each other in emergencies, by supplying equipment and personnel to assist with functions such as firefighting, policing, emergency medical services, social services and transit services. Emergency responders from the two cities have a long history of cooperation and regularly participate in joint exercises. In 2004, however, officials in Sarnia and other border communities were notified by the Government of Ontario that municipalities no longer had the legal authority to enter such agreements, and that a provincial template would be created to replace any existing compacts. Although the issue was eventually dropped after a heated exchange between municipal and provincial politicians, this case illustrates how changes in provincial policy can affect the operational environment municipal managers work within.

The Government of Canada also has a number of programs and initiatives which support local emergency management. First, under the Joint Emergency Preparedness Program (JEPP), federal funds are made available to support provincial and municipal investments in emergency preparedness (Canada, 2008). Examples of eligible projects include training and exercises, or the purchase of emergency response equipment. Second, the Canadian Emergency Management College is a training facility in Ottawa, which offers courses for municipal emergency planners. Third, Ottawa produces a variety of printed materials, such as guides to household preparedness and pamphlets with information about hazards, which are available for municipal governments to distribute to citizens. Thus although emergency planning is primarily local, it involves significant collaboration with officials located at other levels of the state.

Finally, municipal emergency management is increasingly professionalized. Active communication networks have developed among local practitioners and numerous national and regional events targeted at emergency managers are organized annually. Emergency management education programs offering knowledge and skills development have been established at a number of academic institutions, such as York University, Royal Roads University and Fleming College. In response to lobbying by Canadian emergency managers, in 2007 the International Association of Emergency Managers began offering a Canadian variant of the Certified Emergency Manager Program, a credential developed in the 1990s to designate those meeting professional criteria in this field. Professional associations, such as the Ontario Association of Emergency

Managers and the British Columbia Association of Emergency Managers, have formed to represent the interests of practitioners and to define and formalize the area of professional competence.

Objectives and Program Elements

The principal goals of local emergency management are to protect people and property from hazards, to minimize losses associated with emergencies, and to ensure a swift and effective recovery from disasters. There are many specific measures that municipal governments can take to achieve these goals. For instance, information generated through a hazard and risk assessment can be integrated into local land-use planning and regulation in order to direct development away from hazard-prone areas (Burby et al., 2000). Training for responders and decision-makers is also important, as it prepares them for the roles they might be expected to play during an emergency and the difficulties they are likely to encounter (Daines, 1991). Exercises, which involve realistic simulations of emergency events, provide valuable operational experience for responders and help to diagnose weaknesses in planned procedures (Perry, 2004). Beyond these specific actions, two broad priorities—business continuity and critical infrastructure protection—have received special attention from emergency management professionals.

In addition to the many other challenges municipal governments face in the recovery phase of an emergency, citizen demand for services, such as waste collection, public transit and social services, can increase dramatically (Perry and Mankin, 2005: 176-177). Local business continuity planning involves developing strategies to ensure the continuation of critical municipal functions and quick restoration of important services disrupted in an emergency. Local emergency managers can plan for business continuity by assessing and ranking the relative importance of municipal functions, evaluating risks to these functions and determining priorities for protection and restoration. The threat of an influenza pandemic, which could kill or incapacitate a large number of municipal employees, has underscored the importance of local business continuity planning in recent years.

Every community is supported by a complex network of infrastructure which supports economic activity and delivers important services to residents. Of particular concern for local emergency managers are "critical" infrastructure systems—electrical power transmission, telecommunications, food distribution networks, and so on—which, if disrupted or destroyed, could seriously threaten the health, safety and security of citizens (Canada, 2003; Hellström, 2007). Infrastructure systems are normally dependable, but are subject to many stresses, which occasionally trigger system failures. For instance, heavy rainstorms

overwhelm stormwater drainage infrastructure, causing flooding. Ice storms cause electrical transmission lines to sag and hydro towers to collapse. Moreover, increasing interdependence of infrastructure systems creates the potential for complex failures (Chang et al., 2007), as evidenced in the massive electrical power blackout experienced by Ontario and large portions of the Midwest and Northeast United States on August 14, 2003 (Murphy, 2003). The failure of power transmission infrastructure has direct negative impacts on end users, but also diminishes the capacity of other infrastructure systems to deliver the services they normally provide. The vulnerability of critical infrastructure systems demands strategies to strengthen their robustness and resilience, and plans to ensure a swift recovery in the event of a system failure (Boin and McConnell, 2007).

Challenges

In pursuing their responsibilities, local emergency managers must contend with some formidable political hurdles. First, because emergencies are rare and unpredictable, local residents normally show little interest in emergency planning. Although they expect public officials to be prepared, they generally do not regard emergencies as a pressing public problem requiring sustained government intervention. This general apathy among constituents gives elected officials little incentive to prioritize emergency management, particularly since they are faced with many seemingly more pressing problems, such as aging infrastructure, and expensive investments, such as public transportation systems. As a result, it can be difficult for emergency planners to secure the resources necessary to design and implement high-quality programs (Labadie, 1984; McEntire and Dawson, 2007).

Finding resources for mitigation is particularly challenging for local emergency managers. There is strong evidence that even modest investments to mitigate physical and social vulnerability to hazards can substantially reduce the scope of damage and injuries in an emergency and the costs of recovery in the post-disaster period. However, it is difficult to convince decision-makers to allocate resources to mitigation, the costs of which are visible and immediate, whereas the benefits of these efforts cannot be reaped until some time in the future, if ever (Waugh, 1990).

Operating under these conditions, municipal emergency managers must find creative ways to raise the salience of emergency management on the local agenda, in order to generate political support and get the resources they require. One popular technique is to connect the importance of emergency management to other community objectives. For instance, emergency management overlaps with sustainable development in its attention to policy choices concerning settlement,

the management of environmental risks and the importance of considering the long-term impacts of decisions (Dovers, 2004; Schneider, 2002). Emergency management also dovetails with climate change adaptation, an objective of which is to reduce community vulnerability to climate hazards such as extreme weather events, which are expected to become more frequent and intense as the climate changes (Bruce, 1999; Thomalla, 2006).

Another tactic used by local emergency managers is to frame emergency planning as a matter of due diligence. A primary responsibility of municipal governments is to protect residents from threats to public safety, and this arguably confers on them a duty to take reasonable measures to prevent foreseeable hazards and to respond effectively to emergencies. In addition to provincial laws which set out legal responsibilities, emergency management standards are evolving and becoming more formalized, raising expectations concerning the quality of local emergency planning.

A final, and perhaps most effective, means by which local emergency managers can generate support for their work is to seize the brief "window of opportunity" which follows a major emergency or disaster, when public and political attention is temporarily focused on hazards and vulnerabilities (Solecki and Michaels, 1994). These emergencies need not affect the community directly, as disasters in other places can also raise questions about local preparedness for a similar event. Attention shifts quickly as other problems arise, however, so emergency managers must have proposals ready in order to effectively take advantage of these opportunities.

Emergency Management in Brantford, Ontario[2]

Brantford is located in southern Ontario, roughly 100 kilometres southwest of Toronto. It is a mid-sized city, with a population of about 90,000. Brantford's emergency management program is maintained and developed by a full-time emergency manager, who works collaboratively with an Emergency Management Working Group, the membership of which includes senior administrators from departments such as police, fire, emergency medical services, social services and public works. One of the primary tasks of the Working Group is to identify hazards and assess risks to public safety. According to the city's *Community Risk Profile*, the hazards which pose the greatest risk include transportation emergencies, particularly those involving hazardous materials; an infectious disease outbreak, such as pandemic influenza; and natural hazards, particularly flooding and tornadoes. These hazards have been prioritized in the city's emergency planning.

Brantford has a comprehensive emergency management program. There

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[2] This brief account is adapted from documentary research and interviews conducted by the author in 2006.

is a detailed emergency response plan which is reviewed annually, as well as plans for specific risks, such as an emergency involving radioactive material. Training is provided for municipal staff, and periodic simulation exercises test response capabilities. A mutual aid agreement with Brant County ensures that equipment and personnel can be mobilized quickly to supplement the city's response resources. Procedures have been drafted to guide community evacuation and a public information officer has been designated to ensure effective emergency communication with the public. A thorough recovery plan assigns responsibilities to various officials and sets out procedures to restore the city to its pre-emergency state. These and other measures have been implemented to ensure that the city is ready to respond to any emergency, regardless of the hazard that triggers it.

Although residents in Brantford are at least marginally aware that hazards exist in their community, they generally regard major emergencies as events that only happen in remote, faraway places. They show little interest in emergency management and there is no explicit public demand for more comprehensive planning. Meanwhile, though city councilors are generally positive toward emergency planning, there are many competing priorities which command political attention and resources. In light of these political conditions, the quality of Brantford's emergency management program is no doubt the result of persistence and perseverance on the part of the city's emergency manager, whose mandate is dedicated exclusively to emergency planning and whose position is permanent in the local administration.

Conclusion

Municipal governments are key actors in Canada's emergency management system. The comprehensiveness and quality of local emergency planning largely determines the effectiveness of response efforts when disaster strikes. Effective local emergency management is comprehensive in scope, risk-based and involves collaboration with other officials and agencies within the community and located at other levels of government. Despite the importance and complexity of emergency management, those assigned this responsibility often face an uninformed political leadership and disinterested public, and must compete for scarce resources with other officials who appear to have more immediate and pressing needs. Within this political environment, local emergency managers must be creative and persistent, in order to raise general awareness of the importance of emergency planning and to secure space for their proposals on the municipal agenda.

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