Paper #4

Disaster Response Systems In Canada

by

By Kuban, R., MacKenzie-Carey, H., and Gagnon A.P

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Emergency services personnel respond and react to emergencies on a daily basis. While the emergency may be a crisis to those involved, responders are trained to deal with these situations as part of their "normal" daily functions. When emergencies escalate to disaster level, however, the response effort and the systems that guide them are also affected.

Disasters are situations, which are anything but normal. Regardless of their level of emergency preparedness, response agencies are likely to be caught off guard by the occurrence of the event or its consequences. Their response to these disasters is also "abnormal" and different from their daily operations. It demands unique roles, rarely applied procedures, specialized skills, rare and unavailable resources, or additional powers.

By their definition, disasters are events of such magnitude that the response to them is often beyond the realm of a single organization. Disaster response, therefore, often involves a multi-organizational multi-jurisdictional effort. At the municipal level, it nearly always involves a broad range of response agencies including other orders of government, industry resources, and community-based organizations.

Disaster response in Canada is the responsibility of elected officials at municipal level. They are mandated by law to prepare for and respond to disasters, which might affect their public (EPC, 1992). Within that broad jurisdiction are elements of various other jurisdictions: fire, police, emergency medical services, health officials, dangerous good specialists, members of local industry and public officials from provincial and federal government departments. However, the ultimate responsibility for disaster response lies with elected officials, not of the Fire Chief, EMS personnel or Police Chief as many assume. The rare exceptions to the rule are disasters with broad geographical impact (i.e., those affecting a number of communities), or those events, which affect areas under provincial or federal jurisdiction.

The multi-organizational and jurisdictional nature of disaster response demands cooperation among its response agencies and the coordination of their activities at the scene. Failure to achieve these two key requirements typically results in breakdown of communications, failure to effectively allocate scarce resources, disjointed operational tasking, and the inability by any single organization to effectively meet its response objective.

The multi-agency nature of municipal response necessitates an emergency management system, which is unlike that designed to meet the needs of single organizations or jurisdictions. Furthermore, because of the unique context of disasters all emergency management systems must be designed to meet an additional number of principles. These include:

- Appropriate response to unique situations
- Flexibility and adaptability
- Cooperation across organizations and jurisdictions
- Traditional supremacy of elected officials maintained
- Provincial and federal governments "in support"
- Coordination of planning and response efforts

- Enhancement of the flow and distribution of information
- An Emergency Operation Center (EOC) must be functional and
- Disaster site management through team effort

An effective emergency management system must permit a team effort from those used to responding to emergencies on the one hand, and integrate the jurisdictional needs of the municipality's elected officials on the other. The system must factor-in the involvement of elected officials, who most likely have little experience with emergency response, and must ultimately lay the responsibility for response on their shoulders.

Within Canada three basic systems could be used to manage disasters. These systems include the Incident Command System (ICS), British Columbia Emergency Response Management System (BCERMS) and Emergency Site Management System (ESM). These systems have some common elements, and some unique features.

The Incident Command System (ICS)

The ICS was conceived following a set of wildland fires, which devastated southern California in 1970. Kramer and Bahme (1992) reported the tremendous devastation of these fires. They also noted that what was even more devastating was the organizational chaos which ensured during the response efforts. This prompted the U.S. Federal Emergency Management Agency (FEMA) to fund a special project titled "Firescope" which led to the creation of the Incident Command System. In time it was rightly promoted as a way to better manage the operation at the site.

Kramer and Bahme (1992) noted that the ICS was developed to meet the advantage of combining similar resources of responding organizations under one umbrella, and to be adaptable to various scenarios from day-to-day operations to major disasters requiring the involvement of many agencies and jurisdictions. They noted that "ICS required mutual agreement and acceptance of four things: the organizational structure, common operational procedures, common terminology, and personnel qualification" (p. 68).

Carlson (1983) defined the ICS as including "operating requirements, eight interactive components and procedures for organizing and operating an on-scene management structure" (p. 3). In essence, the ICS system is an organizational structure which permits Fire departments which respond to an incident to coordinate their own resources as well as the resources and activities of those, which arrive to assist them. This system is designed to expand and contract based on the need for and availability of resources (Carlson, 1983; IFSTA, 1989; Kramer & Bahme, 1992).

Kramer and Bahme (1992) wrote that ICS employs five key functions: command, operations, planning, logistics, and administration (p. 69). Each one of these is further expanded as necessary during major disasters, transforming what may be a flat organization initially into a multi-functional organizational structure. As the need for resources decreased, the organization is again reduced to its initial smaller structure. Carlson (1983) observed that the ICS provides: "Common terminology, modular organization, integrated communications, unified command structure,

consolidated action plans, manageable span-of-control, predesignated incident facilities [and] comprehensive resource management" (p. 7).

Kramer and Bahme (1992) reported that the Incident Command System was built around three general principles of organization: unity of command, span of control, and delegation of authority. It is generally understood that the "command" component will be in the hands of Fire department personnel (Carlson, 1983).

Alan Brunacini, Fire Chief of Phoenix, Arizona, developed another model, similar to the ICS model. The Brunacini model, called the "Fire Ground Incident Command System" and ICS were developed at about the same time and contain many similarities. However, Kramer and Bahme (1992) noted that although the Fire Ground ICS has been accepted throughout the United States, it is "more effective for routine day-to-day emergencies, whereas the federal [ICS] model lent itself more readily to large-scale incidents" (p.70). Regardless, both systems are well known, practiced, and each has been enhanced by many modifications (Carlson, 1983; IFSTA, 1989; Kramer & Bahme, 1992).

According to the Fire Ground ICS system, to be effective, procedures must adhere to the following criteria: defined organizational structure, unity of command, proper span of control, clear division of labour, maintained discipline within the whole organization, the incorporation of fundamental group principles, and explicitly stated authority to establish and transfer the command function (Brunacini, 1985; IFSTA, 1989).

The ICS structure and application is focused on the disaster scene and generally speaking, the Fire Services. It is designed with the expectation that all of those who take part within it would become 'integrated'. That integration assumes that everyone would understand or comply with the ICS terminology, organizational structure, roles and responsibilities. The ICS system contains five basic components or "cells" of operation:

- Command (i.e., conduct the overall operation)
- Operations (i.e., perform the tactical tasks)
- Logistics (i.e., secure necessary services and support)
- Planning (i.e., map out upcoming activities)
- Finance/administration

Each of these functions is represented by an organizational cell, and is further sub-divided into a number of other roles or functions. These are filled or performed as necessary by those who arrive at the scene as the situation escalates. Consequently, the overall organizational structure enlarges to accommodate the necessary tasking as well as the added resources that are available to the disaster response effort. Conversely, as the situation stabilizes and resources begin to shift away from the disaster scene to other duties, the organizational structure begins to constrict and eventually 'disintegrate' with everyone returning to other duties.

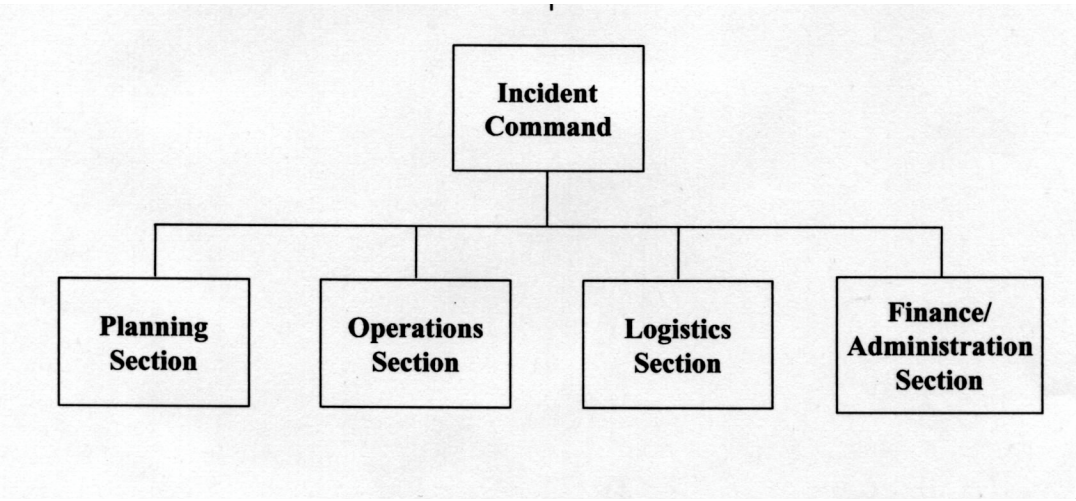

Figure # 1 The Structure of ICS

British Columbia Emergency Response Management System

McIntyre noted, "the B.C. government through its Interagency Emergency Preparedness Council (IEPC) has developed a comprehensive "all hazards" provincial emergency operations system. This British Columbia Emergency Response Management System (BCERMS) identifies the standardized approach to emergency response management to be utilized and practiced by provincial government ministries, agencies and crown corporations."

BCERMS is based upon the Incident Command System as developed and practiced throughout the United States. Since the fall of 1992, the B.C. provincial government endorsed this emergency management response system mandated its application for all its ministries (BCERMS Overview 1-1)

BCERMS defines a process for organizing and managing a response to emergencies and disasters based on a framework of five components: operations and control, qualifications, technology, training, and publications. The BCERMS is modular with four levels of operation including site, site support, Provincial Regional Coordination and Provincial Central Coordination. These four levels allow elements to be activated or deactivated as the needs of the incident/emergency change over time. The system also provides for expansion, as additional resources are required.

Site Level
At the site level, resources are utilized to manage problems presented by an emergency incident. The BC Incident Command System (ICS) is used to manage the response using responders from all levels of government and the private sector. A single command or unified command from an on-site incident command post structure is utilized.

Site Support Level
When the site level response requires off-site support, an Emergency Operations Center (EOC) may be activated at this second level of response. The EOC supports the site by providing

communication with the site level, establishingg policy guidance, managing the local multiple-agency support to the site, as well as acquiring and deploying additional resources as required at the site.

Provincial Regional Coordination Level
This third level of activation provides further support to the site level support or EOC if required by an escalation in the magnitude of emergency. The provincial regional coordination level manages the assignment of multiple-ministry and agency support to individual site support locations or multiple site support level locations. It acquires and deploys requests of the site support level, and provides emergency response services where incidents cross local authority boundaries or where local authorities are not organized to fulfill their role. This regional level does not normally communicate directly with the site level but rather communicates through the EOC or site support level.

Provincial Center Coordination Level
The fourth level exists to expand support into an overall provincial government response. Persons within this level would have the responsibility for the provision of support for the regional levels. It is within this level of activation that authority of the minister for a declaration of a provincial emergency is obtained, direction of senior elected officials is sought, and provincial policy and priority guidance is provided. This group is responsible for managing the provincial emergency public information activities as well as the acquisition and deployment of provincial, federal, inter-provincial and international resources. If required, this group would provide coordination and other support services to provincial Ministry Operation Centers (MOCs) and Crown Corporation's centers as well as Federal emergency response agencies.

The system is used not only in emergency situations but in private sector emergency response and management programs as well as for planned events such as celebrations, parades, and concerts. It thus allows more practice and familiarity with the system should it be needed in an emergency. The "all hazard" approach in B.C. includes: fires, HAZMAT, and multi-casualty incidents, search and rescue missions, oil spill response and recovery incidents, air, rain water or ground transportation accidents. It is an integral part of its earthquake preparedness and response plans.

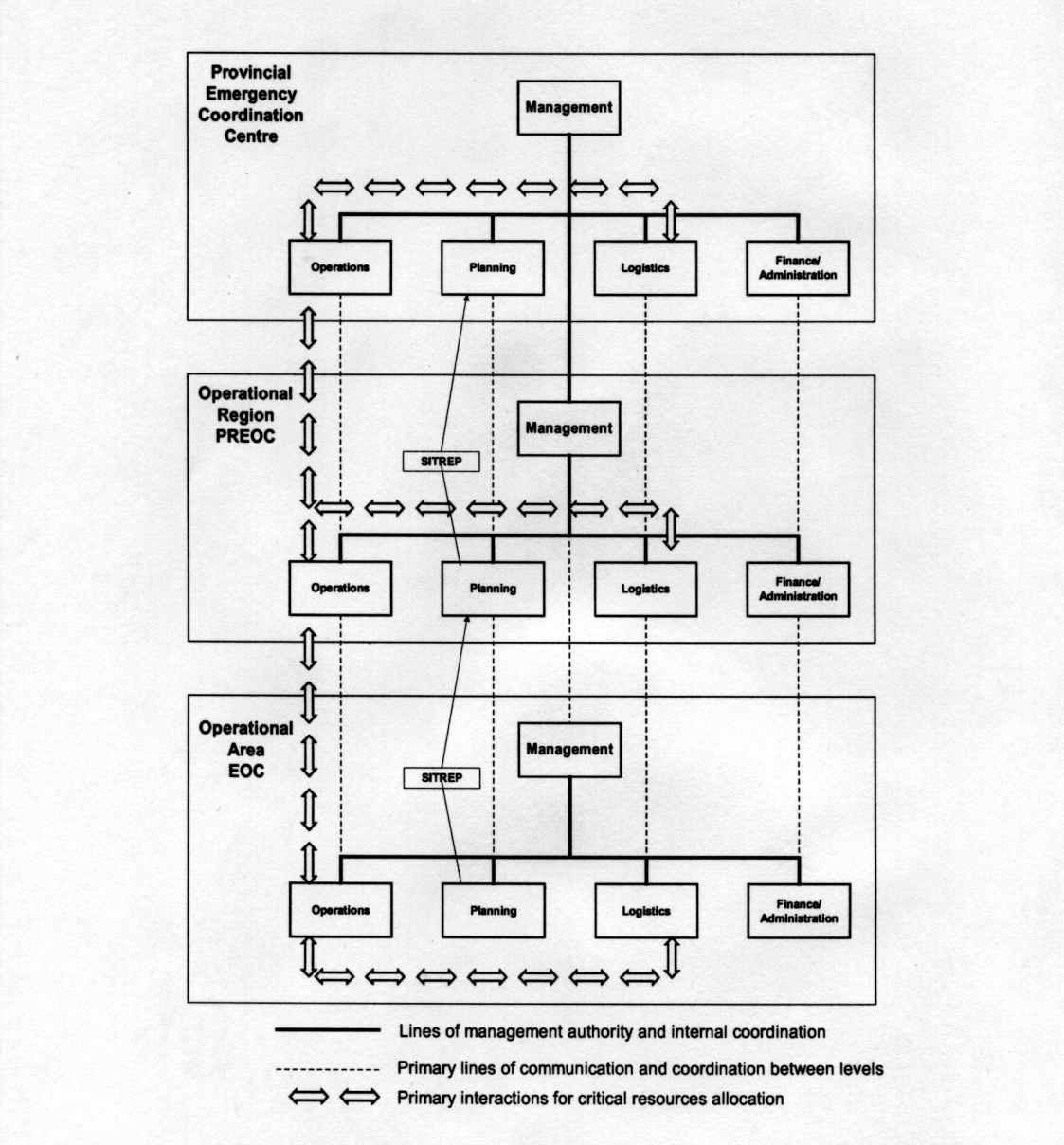

Figure 2 Primary BCERMS Support Levels, British Columbia Emergency Response Management System Overview

Emergency Site Management

Canadian emergency services tend to receive training manuals and reading material from the United States where the pool of resources is significantly larger. Therefore, most services are aware of and practice some form of the ICS system. Although not as widely used or known as the ICS system, another approach called Emergency Site Management (ESM) has been documented for Canadian communities as a guide during community-wide disasters or emergencies.

Emergency Preparedness Canada (EPC) initially formulated the Emergency Site Management (ESM) system in the early 1980's. The ESM system started by being a replica of the ICS approach, yet another permutation. However, over time it developed its own structure, mandate, roles and responsibilities to the point that it is now an independent and unique approach to the management of disasters both at the scene as well as at the local Emergency Operations Center, away from the site.

The ESM unique approach is based on the Canadian system of emergency management. More often than not that approach places the focus of emergency planning and disaster response squarely on the shoulders of municipal elected officials. They, and NOT their representatives at the various agencies, are ultimately responsible for the effectiveness of their municipal plans and response effort.

The ESM approach considers and addresses two areas of operation: the Site, and the Municipal EOC. The EOC is intended to contain all key decision makers whose input may be of significance to the operation as a whole. Their role is to support the operational effort at the scene, as well as to carry on the day-to-day business of the rest of the community. While removed from the scene (or Site), the members of the EOC are nevertheless of great value because they are the formal link between the Site and the rest of the world.

Disaster situations involve many organizations from diverse jurisdictions. By the time that a community realizes that it is confronting a disaster, rather than a day-to-day emergency that is manageable by emergency services alone, a number of things have happened. Various agencies have begun their individual response to the incident. Those at the site have tried to work together. Someone assumed the role of a Site Manager coordinating efforts at the scene, and a call may have gone out to activate the EOC.

Once activated, the EOC personnel formally appoint a Site Manager and advise all responding agencies of his/her identity. (This person is typically recruited or appointed from the ranks of the local fire, police or EMS services, depending on the nature of the disaster.) From that point on, all key functions at the site are typically coordinated through the Site Manager. This appointment allows incoming resource agencies to have a contact person.

The Site Manager has a challenging role. He or she must accept that every key agency at the Site will maintain its own chain of command, mandate, and roles. But, at the same time, the Site Manager must create the operational structure at the scene that would provide an effective process to manage information, delegate responsibilities or resources, and coordinate action among the diverse agencies on site. Additionally, the Site Manager must maintain a link between the scene and the municipal EOC. This allows communication to flow from those involved in tasks at the scene to their lead officer, from that lead officer to the overall site manager, and from the site manager to the municipal EOC. The flow of communication also works in reverse when being initiated from the EOC to the site.

In essence, everything within the perimeter boundary of the Site is the responsibility of the Site Manager and the Site Team. This 'team' includes the senior representatives of the key agencies as well as the Incident Commander, who commands the Fire Services resources at the scene.

This group, under the guidance and coordination of the Site Manager, manage the response to the disaster event at the site.

The EOC team is responsible for everything outside the outer boundary of the Site. The EOC team must also be available to support the operation within that Site boundary, if and when requested. Roles and responsibilities for the EOC team include media contacts, resource allocation, integration and communication with other communities and government, and public information access. Such responsibilities are not far from the daily responsibilities of these elected officials and allow for a smooth transition from daily operational to disaster mode.

The ESM system allows each organization to employ the process, which best fits its needs, while still maintaining operational coordination and communication both at the site as well as between the site and the EOC. For example, Fire personnel could continue to use the Incident Command System, without detracting from the ESM process. Similarly, Municipal officials are encouraged to employ their own operational system and to make strategic decisions away from the chaos of the site.

The EOC and the site team are disbanded when their respective services are no longer required. While it varies from situation to situation, this action typically signals the end of the disaster response operation. However, recovery operations may continue for a much longer period.

Like any other management system, the ESM (disaster management) system requires senior management commitment. It also requires broad multi-organizational involvement and on-going planning effort.

Two key elements exist in effective disaster response: the presence of response networks and planning. Disaster networks, which are based on contact between individuals from different agencies, have a number of important benefits. They help bridge organizational boundaries, enhance cooperation, and facilitate resource acquisition These networks need time to be developed and should be part of the disaster planning process (Kuban, 1993).

The planning process is also critically important (Auf der Heide, 1989; Drabek and Hoetmer, 1991; Dynes, 1979). Each municipality should have its own ‘Municipal Emergency Plan’ (MEP). This plan, and the planning process leading to it, should naturally include representatives from all key potential response organizations.

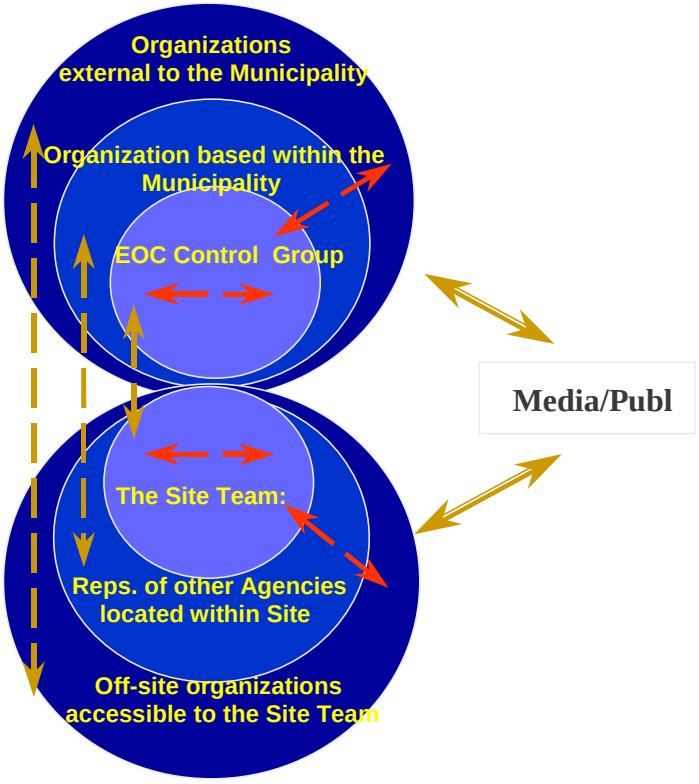

Figure # 3 The Flow of Communications in ESM

Summary

There are essentially three systems being utilized within Canada to manage disasters at community or municipal level. Within these systems there are variations reflecting provincial standards, organizational culture, and to a lesser degree the preference of those who employ these systems.

The ICS system is well known by most first responders in Canada, particularly those from the fire services. Responders at site level who wish to manage emergencies and follow an existing chain of command, frequently use the ICS system. Because of their prior knowledge of this system and its application ICS often becomes the preferred or default system for large scale emergencies. Unfortunately, many municipal officials may not have experience with the ICS system or be aware of the terminology and intricate command structure or reporting procedures. Their lack of understanding combined with their overall responsibility for an effective disaster management could lead to confusion, awkward shifts of command and control, and ultimately an uncoordinated response.

The ESM model was designed, to address this concern and clearly indicates the roles and responsibilities of municipal officials. The problem with this system however, is the lack of regular exposure to the process. Many communities and their diverse agencies do not regularly plan or train for disasters. Their three key response agencies (i.e., Fire, EMS, and Police) plan

and regularly train their personnel. They also have regular exposure to emergencies and typically use the structure (i.e., ICS), which suits their respective professional needs during 'normal' emergencies. When these emergencies expand to require more agencies to work together, the three response agencies may be reluctant to switch to the ESM model. This reluctance may occur because the ESM system has not been properly practiced, or due to an initial commitment at the site to the ICS approach.

In times of stress, and most disasters are stressful, people revert to what they know or are comfortable with rather than try new methods. Consequently, the ESM system, which otherwise would assist in coordination and communication, is left untried. This may be particularly confusing and frustrating for municipal officials who are not familiar with any of the existing roles and responsibilities.

British Columbia may have developed a solution to the problem by customizing the ICS system to incorporate Municipal leaders and government officials with the intention of providing harmony. Although the system should provide effective emergency management practices within the province in which is was designed, it may cause significant conflicts in cross-border disaster situations when other provinces or states respond by using other systems. The BC system also requires fairly extensive training by all those who would perform a role in the various levels of activation.

In the final analysis, any system will work if there is an agreed upon plan among all responding agencies and officials to use it. If everyone agrees before a disaster occurs on which process will be used, and is trained in its application, the system is very likely to work. Conversely, no system, no matter how well designed will work during a disaster if those who are responsible for overall management are unaware or unwilling to use the system.

Education and practice involving all those who would respond to disaster is essential. Effective models exist but are not useful if they are not practiced and understood by responders and municipal leaders. Training in disaster response at the community level is essential to ensure smooth transition from 'normal' emergencies to disaster response with its multi-agency effort. The good news is that these systems could assist in the management of events that are considered … disasters.

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