Mitigating Catastrophic Losses:

Policies and Policy-Making at Three Levels of Government in the United States and Canada

By:

Dan Henstra and Andrew Sancton

November 2002

ICLR Research
Paper Series – No. 23

ISBN 0-9732213-1-3

The Institute for Catastrophic Loss Reduction (ICLR) was established in 1998 with the mission to reduce the loss of life and property caused by severe weather and earthquakes through the identification and support of sustained actions to improve society's capacity to adapt to, anticipate, mitigate, withstand and recover from natural disasters.

For Further Information, please contact:
Institute for Catastrophic Loss Reduction
151 Yonge Street, Suite 1800
Toronto, Ontario, Canada M5C 2W7
Telephone: (416) 362-6112 ext 352
Fax: (416) 361-5952
E-mail: info@iclr.org www.iclr.org

This study was made possible through the generous support of

The Institute for Catastrophic Loss Reduction

EXECUTIVE SUMMARY

In the United States, government commitment to hazard mitigation has been steadily increasing over the past few decades. Today, American legislation empowers federal agencies to promote and encourage hazard mitigation at all levels of government. Emergency management is spearheaded by the *Federal Emergency Management Agency (FEMA)*, an autonomous federal agency under the leadership of a director who is appointed by the President. Through its various programs and initiatives, FEMA has taken an active role in promoting pre-disaster hazard mitigation and provides a central resource point for federal, state and local officials seeking information and advice in the area of emergency management. State emergency management appears to be developed and well-coordinated, incorporating mitigation principles to reduce the potential for disaster losses.

In contrast, Canada's federal emergency management organization, the *Office of Critical Infrastructure and Emergency Preparedness (OCIPEP)*, resides within the Department of National Defence under the authority of the Defence Minister. Federal policies addressing natural hazards focus mainly on preparedness and response to emergencies and the legal structure on which emergency management is based makes no mention of hazard mitigation as a government priority. Despite a relatively strong and active policy community which has promoted more proactive efforts, governments in Canada have been slow to recognize the value of mitigation and incorporate it into practice. Provincial approaches vary widely from one to the next, but the focus is generally limited to preparedness and response. At the municipal level, hazard mitigation is a low priority issue which is often shelved in favour of more visible community concerns.

Whether or not to implement hazard mitigation strategies is a policy decision, and differences in the policy environments of the United States and Canada help to explain why emergency management in the two countries is structured differently. Some of the differences illustrated in this paper include:

1. Federalism

The constitutional structure and nature of federalism in the two countries differs; in the United States, state interests are articulated to the federal government through permanent representation in Congress, which has often permitted smoother implementation of national programs. In Canada, provincial premiers act as strong representatives of regional interests, which have often restrained the ability of the federal government to play a leadership role in national programs, particularly in areas traditionally handled by the provinces.

2. Policy Actors

In the United States, Members of Congress and senators play an active role in policy-making, working through groups and committees to promote the interests of their constituents. In Canada, policy-making is dominated by the Prime Minister and cabinet and individual entrepreneurship by members of parliament is difficult, as they are expected to vote with their party.

3. Professional Associations

A significant emergency management community has developed in the United States, with a strong research network and influential advocacy groups. Emergency management has grown into a professional field, with education and certification standards and professional associations that lobby governments for greater commitment to hazard mitigation. This level of professionalization has not yet emerged in Canada and the policy community continues to evolve.

Recommendations for further development of Canada's commitment to hazard mitigation include:

1. The formation of a more cohesive and organized policy community that can take advantage of a policy window to advocate the adoption of mitigation strategies;
2. Greater efforts to raise public awareness and build constituency support at the local level;
3. Continued research of the Canadian policy environment to identify and remove barriers to the implementation of mitigation policies; and
4. Demonstrated commitment at all levels of government to include mitigation as a policy priority.

INTRODUCTION

Over the past few decades, escalating losses from disasters have prompted assessment of human vulnerability and a search for effective mitigation strategies. Through this research, it has become increasingly evident that, although extreme events often act as a trigger, human elements play a major role in determining whether or not an emergency becomes a disaster. Growing urbanization, higher population density and increasing reliance on technology in high-risk areas such as floodplains and coastal regions are contributing to a higher vulnerability to environmental hazards.

Hazard mitigation is defined as "sustained action taken to reduce or eliminate the long-term risk to people and property from hazards and their effects" (FEMA 1999, p. 1) and it is one of four elements within the larger context of *emergency management*, complementing preparedness, response and recovery (Godschalk 1991, p. 136). While this paper seeks to address policies for mitigation, in many instances it is necessary to examine other areas of emergency management in order to illustrate the presence or absence of mitigative strategies.

Since the early 1970s, emergency management and hazard mitigation have commanded a great deal of attention in the United States and an extensive interdisciplinary community has developed, involving people from government, academia and the private sector. Volumes of data have been compiled profiling natural hazards throughout the country, identifying areas of vulnerability and suggesting new strategies to minimize disaster losses; governments at all levels have recognized hazards in the physical environment and have sought to reduce community vulnerability; and private firms have played an extensive role in risk analysis and management. Despite various weaknesses that have been identified by analysts and critics, the American emergency management system is one of the most well-established and comprehensive in the world, making it a useful tool for comparison.

In Canada, federal policy suggests that hazard mitigation is a national priority to be implemented in a cooperative framework involving all levels of government (OCIPEP 2001a). Upon observation, however, there does not appear to be a comprehensive nationwide program for disaster mitigation and programs that do exist tend to address single hazards.

The purpose of this paper is to discuss the nature and scope of hazard mitigation in Canada, based on an assessment of the government policies and practices that exist to address this issue. Given the physical, demographic and governmental similarities between the two countries and in light of the advanced nature of the American emergency management system, it seems useful to thoroughly investigate mitigation policy in Canada using the United States as a basis of comparison. Once we understand the nature of Canadian mitigation policy and assess its effectiveness in a relative sense, we can begin to identify areas where improvement is possible and suggest alternatives for the future.

I. MITIGATION POLICY

Theory and practice have produced an effective set of mitigation tools that can be implemented in a community to reduce the impact of natural hazards, ranging from ambitious structural control schemes to land-use planning techniques. While these strategies can reduce vulnerability and increase community resilience to withstand environmental hazards, the political will to employ these techniques is often low and attempts to implement even the most prudent measures are often resisted by others who have conflicting interests. In this sense, the ability for a community to increase resistance to natural disasters is a highly political issue, one which thousands of at-risk communities face.

From a public administration and public policy-making perspective, disaster mitigation is a multi-faceted and complex dilemma. On the one hand, governments have an obligation to enact policies which ensure the safety and security of their peoples - this would imply that strict proactive mitigation measures should be adopted to prevent or reduce catastrophic losses. On the other hand, policy-makers are faced with a multitude of unknowns; how can a policy be created in advance when the type, timing, magnitude and duration of a disaster cannot be predicted? Many communities lack the resources and technical expertise to undertake a comprehensive assessment of hazards to which they are vulnerable, making it difficult to employ an all-hazards approach. Furthermore, the costs of undertaking mitigative actions can involve significant expenditure, a cost that is weighed against the potential benefits of the strategy which may never be realized in the absence of a major disaster.

These and other barriers stand in the way of the adoption and implementation of disaster mitigation policy in many countries, including Canada. In order to improve Canadian policy for disaster mitigation, we must first understand how policy is formulated and implemented for this particular policy field. To do this, mitigation policy must be assessed at each stage of the policy process, which can be divided into four parts: *problem identification* – how a problem becomes visible, *agenda setting* – how a problem or issue becomes a political agenda item, *policy formulation* – how an agenda is formed into a policy, and *policy implementation* – how a public policy is enacted or enforced (Howlett & Ramesh 1995).

PROBLEM IDENTIFICATION

Public policy is often formulated to address problems in communities, to correct inadequacies or unfavourable circumstances that have been brought to public attention and cannot be ignored. A problem in the public policy context is one which requires government action to correct; though it may start out as an individual routine problem, it becomes a wider problem when it is brought to light by a *triggering mechanism* (Gerston 1997, p. 23). In his influential 1984 work *Agendas, Alternatives and Public Policies*, John Kingdon suggests that most problems are discovered through *indicators*, systematic signals that come out of routine monitoring which can prompt an interest in changing policies. The changes in indicators create ammunition for political actors to infer larger problems and propose their solutions, pushing these new problems onto the policy agenda. Indicators are relevant in the context of disaster mitigation policy, as the need for mitigative strategies can become more pressing in light of hazards that are revealed through routine monitoring, such as weather forecasting or seismic activity observation.

Problems are not always self-evident and ready for use by political actors. In a 1972 article, Anthony Downs described his theory of the "issue-attention cycle", positing that problems are often latent and do not gain public attention beyond a small group of dedicated researchers or experts who seek further exposure of the issue. In order for this issue to move beyond the "pre-problem stage", a "dramatic series of events" must occur which brings attention from a wider and more influential audience. Kingdon refers to this as a *focusing event*, an incident that pulls a pre-existing problem from obscurity into the focus of public attention, stimulating demands to change conditions in order to avoid a similar occurrence in the future (Kingdon 1984, p. 100-102).

Consistent with Downs' pre-problem stage, mitigation is generally a low-salience issue; because the probability and frequency of disasters is low, people are often preoccupied with other, seemingly more important issues such as taxation, employment or transportation (Rossi, Wright and Weber-Burdin 1982, p. 45). During and immediately following a natural disaster, disaster policy can be easily identified as a priority for people who have been affected by the event.

AGENDA SETTING

Identification of a problem does not stimulate the policy process in itself; factors such as the time and political climate within which a problem is recognized and the commitment of political actors to its correction can determine its importance, relative to other problems. The relative significance of a problem brought to light through a focusing event is assessed by people differently and tends to be greater for policy makers who have had personal experiences related to the issue (Kingdon 1984, p. 101). When such a situation exists, the problem becomes of greater salience to the policy maker, whose personal interest in ameliorating the situation prompts a higher commitment to enacting a corresponding policy.

One way in which a problem is transferred to the political agenda is through the actions of a *policy entrepreneur*, an individual with expertise, negotiation skill and persistence that is permitted an audience to push government for action in a particular problem area (Kingdon 1984, p. 189-190). Policy entrepreneurs often do not lobby governments on a regular basis, but instead prepare strong proposals for change, which they wait to bring forward until they perceive the opening of a *policy window*, a short period of time in which policy entrepreneurs have an opportunity to promote their objective and achieve space on the political decision agenda. Different types of policy windows exist, some of which are predictable and regular occurrences, like a change in administration or a new budget, and others that are statistically rare and occur without warning, prompted by disasters or accidents that serve as focusing events (p. 195-199). Policy windows are short-lived and close quickly if entrepreneurs are not able to act promptly, if participants feel that the problem has been resolved, if the attention-focusing conditions change or if a more pressing issue steals the focus to another area (p. 177-178).

In analyzing the disaster mitigation policy process, the applicability of these elements varies. With regards to policy windows, there is evidence to suggest that focusing events such as natural disasters prompt the opening of policy windows by which hazards are recognized as a problem and mitigation of future events is added to the policy agenda. Following a disaster, many

different policy approaches may be taken to mitigate future occurrences, such as stronger building codes or zoning requirements, installation of warning systems or erection of structural protection devices (Petak & Atkisson 1982, p. 7). While greater recognition of the need for mitigation policies is positive, there are also some problems with creating policy immediately following a disaster; in many cases the new policies reflect overreaction to the problem and are drafted without rigorous scrutiny (p. 6).

There is also evidence which suggests that the opening of a policy window does not necessarily lead to a change in policy. In a study of the policy response of local governments to major natural disasters, Solecki and Michaels (1994) found that in the period immediately following a disaster there was a marked increase in public and elite interest towards hazard mitigation, but, while offering an *opportunity* for change, the windows did not lead to substantial policy changes in themselves. The study identified a number of factors to explain this, but the most significant was a lack of leadership from well-organized policy entrepreneurs who could focus the agenda on comprehensive changes beyond token improvements in preparedness and response (p. 590-592). As this study illustrates, though the limitations of existing disaster policy are illuminated in the wake of a disaster, the interest of affected residents and local officials is generally focused on relief, rather than on creating better mitigation policies in anticipation of the next disaster (Birkland 1997, p. 50). Soon after the event, the policy window often closes and the issue sinks back to its previous level of obscurity.

POLICY FORMULATION

Once a problem has been identified and added to the agenda, policy-makers must propose, consider and reject response options to find an appropriate course of action. In narrowing the options, the policy-makers must consider limitations and constraints on action and weigh the feasibility, costs, effectiveness and impact of a particular decision, making the process very complex and multi-dimensional (Howlett & Ramesh 1995, p. 122-123). Real or perceived barriers and constraints compel policy-makers to reject certain options as being unfeasible.

At the policy formulation stage, the task of proposing and evaluating different options is not necessarily limited to public officials. Often non-state actors join with public actors through a *policy network*, which facilitates discussion and incorporates a wider range of perspectives from the community (p. 127). Incorporating non-state actors into the policy formulation process is useful for governments in that the experiences and expertise of private individuals helps to assess the feasibility of certain options, but it also allows policy-makers to gauge the level of support or opposition for the policy within the community (Pal 1997, p. 187). Policy-making goes beyond problem-solving; it must also include the consideration and reconciliation of competing interests. If this can be achieved at the policy formulation stage, a great deal of conflict and opposition can be avoided once a policy is implemented.

In the formulation of disaster mitigation policy, it is almost inevitable that private actors will become involved in the process. Each response option available to a government carries different political implications and when the interests of individuals or groups are affected, they become involved in the process to oppose the policy or reshape it to better address their needs. For example, light emergency measures like improved response and recovery methods may be seen

as an adequate improvement for some, but others will remain vulnerable without a more comprehensive approach. On the other hand, if a government proposes a wide-ranging strategy of hazard mitigation to reduce vulnerability through land-use planning and stricter building codes, private developers may balk at the restrictions and seek to "soften" the policy before implementation. As such, in the formulation of mitigation policies, like in other policy areas, the struggle between competing interests restricts and shapes the policy-making process and responses that are adopted often reflect this reality.

In the area of emergency management, there is a variety of response options available which vary widely in their scope, cost and complexity. Each strategy has strengths and weakness and each carries implications for groups and individuals in a community.

The first option is not to implement a policy at all, pursuing a "free-market" approach whereby people are free to live in hazard-prone areas as long as they are prepared to accept the consequences in the event that a hazard becomes a disaster. Though this option sounds simple in theory and is advocated by many who favour minimal government intervention, it is widely rejected as being unfeasible, because hazardous areas are difficult to identify and because no local government would be willing to refuse assistance to an affected resident, for humanitarian and political reasons (Rossi et al. 1982, p. 4).

In light of this, policy-makers may opt for prudence and adopt the typically reactive policy of planning for a potential disaster through improved emergency response capabilities and greater facilities for disaster relief. Though this option often enjoys wide support, particularly immediately following a disaster, it is limited in that it fails to address the hazards or prevent a disaster from happening in the first place (Rossi et al. 1982, p. 5).

A third approach, *structural mitigation*, attempts to physically change or contain a hazard in order to remove its threat from a community. Keith Smith (1992) refers to this strategy as *event modification through environmental control*; it includes attempts to change severe weather patterns, such as cloud seeding, and elaborate containment schemes such as levees and dams that are constructed for flood control (p. 83). Though neutralization of a hazard seems attractive, there are many problems with the approach, including the sheer cost and magnitude of the undertaking, the potential negative repercussions of physically altering a natural process and the false sense of security that is stimulated when the threat is perceived to be benign; for example, a facility that is constructed to control flooding removes the threat of a flood, permitting increased habitation of floodplains (Rossi et al 1982, p. 7). This is problematic, as structural flood control facilities are engineered to a certain threshold that is assumed to be high enough to contain the threat, but eventually these limits will be exceeded, potentially resulting in a major disaster. Generally speaking, the massive cost and limited success of structural hazard reduction has made this approach unattractive to policy-makers (Burby 1998, p. 8).

In order to reduce the risk of disasters before they happen while minimizing costs, policy-makers would have to take a proactive approach based on *non-structural mitigation*. This strategy includes the creation and enforcement of a number of regulatory controls meant to strengthen the community's resilience to hazards and reduce the vulnerability of its population. Policies within this approach include stricter land-use planning to control development in vulnerable areas,

tighter building codes to increase the resistance of properties to damage from hazards (Smith 1992, p. 85) and improved fail-safe and redundancy schemes to protect the critical infrastructure of the community, such as electricity, communications and water supply (OCIPEP 2001b).

While this approach is the most comprehensive and arguably most effective, it is also very controversial and difficult to implement. Justifying restrictions on land-use requires that hazardous parcels of land must be accurately identified and designated as restricted spaces; the process of mapping these areas is difficult and expensive (Smith 1992, p. 97). Moreover, the designation of a piece of land as hazardous may hurt the interests of a private investor who wishes to develop the land. Stricter residential building code requirements may force builders to adopt different methods and utilize new materials, both of which may raise the cost of new homes, prompting protest from both builders and homebuyers (Burby 1998, p. 11).

POLICY IMPLEMENTATION

Once policy-makers have decided on a particular option in dealing with a problem, there are several other hurdles that must be addressed in order to put a policy into effect, each of which has political implications. The first step that must be taken is to identify and allocate the resources that are required to effectively implement the policy. This step becomes another restraint on policy-making, as budget funds are limited and the relative importance of policies is assessed against others that compete for scarce resources. In order to effect change, a policy must be articulated and put into practice, usually in the form of written regulations, and the execution of the regulations must be planned and organized. Details of implementation must be determined, such as methods of delivery or enforcement, and individuals responsible for the tasks must be informed (Ripley 1995, p. 160).

The implementation of disaster mitigation policies can take a variety of forms, depending on the nature of the problem and the desired policy outcome. Godschalk, Kaiser and Berke (1998) outline a number of powers that governments can employ in order to implement policy and ensure compliance with their policy objectives. In the context of emergency management, some of these approaches are more applicable than others and the best implementation strategy would be a combination of several. *Planning power* involves engaging the community in developing a plan for the future, using education and coordination to encourage participation and consensus. Hazard mitigation could be incorporated into the larger planning process to ensure that it remains a priority for the protection of a community. In Canada, hazard assessment and mitigation could be incorporated into the Official Plan of a community, integrating mitigation principles with other community development priorities.

Regulatory power can be used to shape the way a community is structured; tools such as building codes, zoning bylaws and subdivision agreements can be used to guide development and reduce a community's vulnerability to hazards. The most commonly cited examples of this are restriction of development in hazard-prone areas such as floodplains, and enforcement of building code standards in areas with a high-probability of extreme events like earthquakes, tornadoes and hurricanes. Development regulations and building codes in Canada are an area of municipal jurisdiction, thus local governments can play an important role in the mitigation of hazards in a community.

Related to regulatory power, *taxing power* can be used to encourage or discourage different types of land use in hazardous areas. Local governments in Canada have some taxing power delegated to them through the ability to adjust property tax levels, but the use of property tax adjustment as an incentive or disincentive for hazard mitigation is generally not common practice.

Spending power can also be used to implement emergency management policy. By using public resources to upgrade response services and improve communications and coordination infrastructure, a community can lower its vulnerability to hazards. This approach is most effective immediately following a disaster or potential disaster, but as the sense of imminent danger begins to wane and because of the relative infrequency of extreme events, support for maintaining large and expensive response facilities deteriorates with time.

Finally, a government can use *acquisition power* to take control of land that has been identified as high-risk and prevent development of the parcels. Though this would be an effective way to ensure that people and their property are not put at risk on the lands, it is a very expensive and difficult process.

II. DISASTER MITIGATION IN THE UNITED STATES AND CANADA

In light of the theoretical analysis of mitigation policy, we can take a closer look at differences in existing policies for disaster mitigation in the United States and Canada. This section will provide a comparative overview of legislation and programs related to disaster mitigation that exist at the three levels of government in either country.

A. FEDERAL – UNITED STATES

LEGISLATION

There is a significant amount of legislation for disaster mitigation at the federal level in the United States, targeted particularly at hazards of national concern such as floods and earthquakes. One of the earliest examples of comprehensive federal involvement in disaster mitigation is the *Flood Control Act* of 1936, which recognized flood damage reduction as a federal priority, authorizing containment and control strategies to be undertaken where benefits would exceed costs of construction. The Act established a federal-state-local partnership in flood control, requiring cooperation from state and local governments in providing land and legal authorization to undertake flood control projects. Federal commitment to flood loss reduction was further reflected in the *Flood Disaster Protection Act* of 1973, making flood insurance mandatory for property located within Special Flood Hazard Areas as designated in the *National Flood Insurance Act* of 1968.

The *Coastal Zone Management Act* of 1972 (amended 1996) articulated a federal commitment to the management of coastal development to balance the economic demand for these lands with protection of the marine environment and mitigation of a range of hazards which threatened coastal communities. The Act authorizes federal funds to be transferred to states for projects dedicated to these purposes.

In 1977, the *Earthquake Hazards Reduction Act* expressed a federal commitment to the reduction of losses from earthquakes, establishing the *National Earthquake Hazards Reduction Program (NEHRP)*, a cooperative effort between federal, state and local governments to better understand the nature of earthquake hazards and employ proactive measures to mitigate their effects (National Science and Technology Council 1996). Federal commitment to earthquake mitigation has been further demonstrated through Executive Order 12699 (1990), which requires incorporation of seismic safety into all new construction of federal buildings or federally funded buildings and Executive Order 12941 (1994) which requires seismic protection to be incorporated into all existing federal government buildings.

One of the most comprehensive pieces of federal legislation dealing with emergency management and disaster mitigation is the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* of 1988, which serves to clarify and enumerate the responsibilities of the federal government in the management of emergencies and disasters, such as providing assistance in the development of state and local emergency plans, coordinating multi-level disaster responses and granting disaster assistance for public and private losses.

The *Stafford Act* is unique in that it was the first federal legislation to specifically articulate hazard mitigation as a national priority, authorizing the federal government to "provide technical assistance to the States in developing comprehensive plans and practicable programs for preparation against disasters, including hazard reduction, avoidance, and mitigation" (Chapter 68, Subchapter 2). Under the Act, the *Hazard Mitigation Grant Program* was established to provide financial assistance to states and local governments for hazard mitigation programs. The funds were only available if a major disaster had been declared in the area, the logic being that mitigative strategies are more easily employed in the immediate post-disaster period (FEMA, 2002a).

In light of rising disaster assistance costs, the importance of mitigation is further emphasized in the *Disaster Mitigation Act* (2000), authorizing the federal government to "provide technical and financial assistance to States and local governments to assist in the implementation of predisaster hazard mitigation measures that are cost-effective and are designed to reduce injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities under the jurisdiction of the States or local governments (Section 203)". Probably reflecting a new understanding of the nature of local mitigation policy implementation, the Act establishes a special *National Predisaster Mitigation Fund* to provide funding for state and local mitigation activities employed *before* a major emergency.

The newest piece of legislation that has tremendous implications for American federal emergency management is the *Homeland Security Act (2002)*. Primarily centred on counterterrorism, the Act has profound impacts on the natural hazards emergency management structure. The Act creates a new *Department of Homeland Security*, tasked with "preventing terrorist attacks within the United States, reducing the vulnerability of the United States to terrorism at home, and minimizing the damage and assisting in the recovery from any attacks that may occur" (White House 2002). The new department will absorb the functions of dozens of other organizations, including the Federal Emergency Management Agency, and will coordinate

their combined efforts to detect and deter terrorism, respond to and recover from catastrophic events and reduce American vulnerability to disasters (Office of Homeland Security 2002).

IMPLEMENTATION

The federal government in the United States plays a significant leadership role in emergency management and disaster mitigation, spearheaded primarily by the Federal Emergency Management Agency (FEMA).

Prior to the creation of FEMA, many agencies were involved in emergency management functions in the federal government and the complexity of the system caused operational difficulties which were illustrated through problematic responses to emergencies in the 1970s, particularly the Three Mile Island nucleur power plant accident (Sylves 1995, p. 2). In response to this incident and to address vocal demands from the National Governors' Association for a simplification of the federal structure, Executive Order 12127 and 12148 were issued by President Carter in 1979 to create FEMA, an independent agency which would assume the lead role in emergency management functions, absorbing responsibilities from the Defence Civil Preparedness Agency and from various other departments (Mushkatel 1985, p. 49). Its purpose was to incorporate these previously disjointed agencies to strengthen the federal leadership in emergency management, embody a central point of contact for state and local agencies to coordinate their response efforts with federal officials, and to create a coordinated emergency management system, incorporating mitigation and recovery strategies to complement preparedness and response functions (McLoughlin 1985, p. 166).

Throughout the 1980s, the activities of FEMA primarily centered on civil defence, involving preparations for population evacuation and warning systems that would be needed in the event of a nucleur attack, which was seen at the time to be a credible threat. Into the 1990s, the role of FEMA was expanded to incorporate a wider emergency management focus, emphasizing risk reduction and disaster mitigation (Sylves 1995, p. 4). Today, FEMA is an independent agency of the executive branch which reports directly to the President (FEMA 2002b). It is led by a director, who is appointed by the President and confirmed by the Senate (FEMA 2002c). Administration of FEMA programs is executed through 10 regional offices which disseminate information and liaise between state emergency management agencies and the FEMA headquarters. The agency works with state and local governments, using training and exercises to develop local capabilities and providing grants for equipment purchases and preparation (Sylves 1995, p. 24).

FEMA plays an intermediary role between state governments and the federal government, a function which is most obvious in the disaster declaration process, which is an important element to note in order to fully understand the federal role in emergency management. Primary responsibility for disaster response and recovery lies with local governments, which are supported by state governments depending on the nature and magnitude of the event. In the event that the costs of an emergency or disaster are greater than the capabilities of the local and state emergency management organizations, a state governor will request federal funds through FEMA. Based on a damage assessment provided by state and local governments, the agency evaluates the request and makes a recommendation to the White House. At this point, the

President must decide whether or not to make a declaration and if it is decided that a declaration warranted, one of two disaster declarations may be issued, including (1) an emergency declaration – if an emergency declaration is issued, federal funds can be released for immediate response needs to prevent a major disaster, and (2) major disaster declaration – if a major disaster area is declared, a long-term federal recovery program is set in motion, fueled by funds from the President's *Disaster Relief Fund.* The link with mitigation in this case is in the recovery phase; the Disaster Relief Fund is administered by FEMA, so principles of mitigation are incorporated into new construction that is undertaken with federal funds following a disaster. (FEMA 2002d)

Under the Homeland Security Act (2002), FEMA will become part of the Department of Homeland Security and the functions of the FEMA director will be assumed by the Under Secretary for Emergency Preparedness and Response. How this will affect the programs and services that are currently administered by FEMA is yet to be revealed, but it is possible that the new emphasis on security and counterterrorism may redirect FEMA resources away from the progress it has been making in the area of hazard mitigation.

According to Kingdon, changes in the structures of government can create a policy window by which policy changes can be implemented (Kingdon 1984, p. 195-199). In this case, an opportunity has emerged through the creation of a new federal office with a mandate which includes a strong emphasis on reducing vulnerability. Whether or not this opportunity will be used to promote more comprehensive hazard mitigation strategies remains to be seen.

B. FEDERAL – CANADA

LEGISLATION

Unlike in the United States, the emergency management structure in Canada is not based on a foundation of incremental, progressive legislation dealing with emergencies and disasters. Instead, the role of the federal government in emergency management has evolved out of national security priorities, shaped by executive orders which reflected the changing nature of perceived threats to the security of Canadians (OCIPEP 2002a).

Perhaps the most notable piece of legislation that was used to execute federal emergency functions was the War Measures Act, passed in 1914 to transfer powers from Parliament to the federal cabinet, which would be used to involve Canada in the First World War (Bélanger 2000). Though originally conceived as a measure to be employed in times of war, the Act gave the federal government the authority to invoke its powers in times of peace in order to suppress real or apprehended insurrection, effectively suspending all civil liberties until the emergency was resolved. This provision was used by Prime Minister Trudeau during the 1970 October Crisis to arrest hundreds of citizens and detain them without charge, sparking major concern over the potential for abuse and demands for new emergency legislation that would address more current issues and provide protection of civil rights.

Today, federal legislation for emergencies and disasters takes the form of general enabling statutes, quite different than the targeted and specific legislation seen in the United States. The

first piece of legislation is the *Emergencies Act (1988),* which distinguishes between different types of emergencies and establishes a jurisdictional basis for federal emergency response. Federal efforts are mobilized in a "national emergency"; a critical temporary situation that threatens the safety or health of Canadians and exceeds the response capabilities of the province in which it occurs, or that "threatens the ability of the Government of Canada to preserve the sovereignty, security and territorial integrity of Canada" (Government of Canada 1988a). A national emergency is declared by the federal cabinet, following consultations with the premier and cabinet of the affected province (Emergency Preparedness Canada 1999a).

Four types of national emergencies are identified in the Act: public welfare emergencies, public order emergencies, international emergencies and war emergencies. *Public welfare emergencies* are the most common, involving natural disasters or accidents that are "beyond the capacity or authority of a province or territory to handle." Less common are: *public order emergencies*, caused by domestic threats that are deemed to be of national importance; *international emergencies*, involving use of serious force that threatens the sovereignty of Canada or its allies; and *war emergencies*, declared in the event that Canada or its allies is involved in war (Emergency Preparedness Canada 2000a).

The second piece of legislation that pertains to the federal role in emergencies is the *Emergency Preparedness Act (1988),* which obligates federal ministers to ensure that the departments under their supervision are adequately prepared to act in the event of an emergency. The Act also gives the Prime Minister and cabinet the authority to define when a provincial emergency is deemed to be of national concern, whereby federal financial and other assistance can be extended to the province.

In comparison with the United States, what is strikingly absent is Canadian federal legislation that identifies disaster mitigation as a national priority. There is no Canadian counterpart to the American *Disaster Mitigation Act* and no federal funds have been allocated to predisaster mitigation projects at other levels of government.

IMPLEMENTATION

Emergency management in Canada evolved out of a civil defence network formed in the 1940s to address the perceived threat of nucleur war. For most of its history, emergency management in Canada has been shaped by military priorities such as preserving critical government functions in the event of a nucleur exchange, and the various federal emergency measures organizations that have come and gone over the last roughly fifty years have almost always been under the authority of the Department of National Defence (OCIPEP 2002a).

Preparedness for non-military emergencies such as natural disasters was incorporated into the civil defence structure in the 1970s and emergency preparedness slowly evolved towards a broader, more comprehensive approach into the 1980s. With the Cold War coming to a close and the negative memory of Canadian troops patrolling Quebec streets fresh in the minds of Canadian federal policy-makers, a movement to demilitarize emergency management and broaden its objectives to better address non-military emergencies led to the establishment of *Emergency Preparedness Canada (EPC)* as a separate federal department. In 1993, EPC was

placed back within the Department of National Defence as a cost-cutting measure and under the rationale that the organization had remained under the supervision of the Minister of National Defence (who was also the Minister Responsible for Emergency Preparedness) anyway (OCIPEP 2002a).

In February of 2001, emergency management functions were assumed by the *Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP),* which absorbed the responsibilities of Emergency Preparedness Canada and combined them with a new emphasis on how severe weather, greater urbanization and aging infrastructure increase Canadian vulnerability to extreme events (Government of Canada 2001). The new office plays a coordinating role in monitoring and analyzing information gathered from a number of different sources to assess threats to Canadian safety and disseminate warnings of potential hazards stemming from natural or human-induced events.

The degree of federal involvement in an emergency situation depends on the classification of the event and its official designation. If an emergency is deemed to be of a strictly provincial nature, the federal government does not get involved directly, but federal departments undertake support functions to assist provincial response efforts (Emergency Preparedness Canada 1999a, p. 36). If a national emergency is declared or if an emergency situation clearly affects an area of federal jurisdiction, the Minister and the department under his or her control that is most closely related to the nature of the emergency will be directed to coordinate the response and determine the required assistance, including financial support, that will be extended to the province (OCIPEP 2002b).

OCIPEP, as the federal arm of emergency management, differs significantly from FEMA. Rather than a separate department of the federal public service, OCIPEP is an office within Canada's defence establishment under the direction of the Associate Deputy Minister of National Defence. The mandate of this relatively new office includes the protection of critical infrastructure, such as energy and utilities, transportation and communications. Although this mission shares some common objectives with natural hazard mitigation, the approach that it requires reflects the traditional civil defence priority of national security.

Broadening the scope of federal emergency management to address a wider array of threats to Canadian safety is certainly a positive goal but, in observing the new organization, commitment to the mitigation of natural hazards seems to have been reduced. Though the mandate of OCIPEP professes a commitment to hazard mitigation, the operations of the organization appear to be focused more on "cyber" threats, such as malicious computer viruses or network security vulnerabilities which threaten to interrupt services and facilities.

C. STATE – UNITED STATES

Emergency management agencies at the state level are generally responsible for the development of state-wide networks, beginning with a comprehensive hazard identification, which is used to create an emergency response plan and assess resources and capabilities. State agencies are expected to coordinate with local governments in order to assist in the preparation of emergency plans and to train response personnel (McLoughlin 1985, p. 165).

In order to illustrate the state approach to emergency management and disaster mitigation, the State of Texas will be examined in detail. Texas is the second most populous state in the United States and has experienced more major disaster declarations than any other state in the period of 1976-2000, so it has had to address emergency management in a proactive and comprehensive manner (FEMA 2002e).

TEXAS

Emergency management in Texas is spearheaded by the Division of Emergency Management, which resides within the Department of Public Safety under the supervision of the department's director and is run by an appointed State Coordinator (Texas Department of Public Safety 2002). The *State of Texas Emergency Management Plan* is the operational framework for emergency management in the state, outlining responsibilities of state and local officials and addressing all aspects of emergency management. Under the plan, response to emergencies is based on the graduated approach, wherein local governments play the primary role, supported by counties and the state if required (2001, p. 4).

Local governments in Texas are required to create a comprehensive emergency plan that addresses mitigation, preparedness, response and recovery and the plan must be approved by the state (p. 5). Standardized operating procedures are ensured through the *Local Emergency Management Planning Guide*, which provides information for local governments on their jurisdictional responsibilities, the various stages of the emergency planning process and standard elements that should be included in a local emergency management program. The guide includes hazard mitigation as a standard component of a local emergency management program, based on a hazard assessment conducted at the planning stage (2000).

Mitigative strategies are deeply embedded in Texas emergency management. *Annex P* of the state emergency management plan is dedicated to hazard mitigation, committing state resources to *pre-event mitigation*, defined as "proactive measures undertaken by state and local officials to reduce or prevent costly lost of life and property" and *post-event mitigation*, defined as "reactive measures that lead to recovery and rebuilding in a constructive way that prevents future losses" (1998, p. P-1). Similar annexes are expected to be included in emergency management plans at the local level in order to facilitate a state-side mitigation strategy.

The *State of Texas Hazard Mitigation Plan* was implemented in 1999 to identify "the organization, operational concepts, administrative procedures, tasks, and responsibilities for accomplishing state-wide, natural hazard mitigation objectives", defined as the reduction or elimination of hazards which cause loss of life, inflict injury, cause property damage or degrade natural resources (1999, p. 1-2). The plan establishes a full-time *State Hazard Mitigation Officer*, who is responsible for coordinating a *State Hazard Mitigation Team*, composed of employees from various state departments, which works to:

> …identify areas of vulnerability and problems intrinsic to different types of hazards; develop strategies for preventing or reducing loss of life, injuries, damage to property, and degradation of the States' natural resources from those hazards; review and

> recommend funding for specific mitigation projects; and make specific recommendations to the Governor for changes to state regulations, plans, or laws which can reduce risk of loss to the citizens of Texas (p. 4).

Texas emergency management is a truly comprehensive exercise that involves the participation of all levels of government. Great efforts have been made to enact policy that ensures a well-coordinated state-wide effort for the response to emergencies, which are frequent and severe across the state. Legislation has been established to promote a standard set of operating procedures and to facilitate intergovernmental cooperation in hazard mitigation and emergency preparedness.

INTERSTATE COOPERATION

In light of lessons learned in the wake of 1992 Hurricane Andrew, a framework for inter-state emergency management cooperation was introduced by the Southern Governors' Association in 1993 called the *Emergency Management Assistance Compact (EMAC).* Initially, the membership of the organization was restricted to the association's 19 member states, but in 1995 it was opened to other states and it was ratified by Congress in 1996 as a national model. EMAC institutionalizes the legal and logistical basis for inter-state resource sharing in the event of a disaster, standardizing the process of request and response. Though the project is still in its infancy and has not yet achieved national membership (to date, 46 states have ratified), it has already been successful in speeding up the transfer of equipment and personnel between states on several occasions (Freedberg 2002).

Beyond resource-sharing in disasters, EMAC also serves a number of other useful functions for emergency management. The agreement requires that member states cooperate in identifying hazards to which they are jointly and severally vulnerable, review their own emergency plan and those of other member states and maintain regular contact between emergency management officials in their own state and those from other member states (Government of United States 2001, Article 3).

D. PROVINCIAL – CANADA

In Canada, the federal goal of a comprehensive, Canada-wide disaster preparedness and mitigation strategy requires cooperation from each of the nation's constituent parts. All provinces in Canada have one or several pieces of legislation that outline the conditions under which a province-wide state of emergency would be declared, list the response procedure for emergencies and specify the responsibilities of municipalities regarding emergency programs, but the scope and content of this legislation varies considerably from one province to another. Implementation of emergency management also varies from one province to the next, as there is no uniform standard on which the provincial structures are based. Generally, each province and territory has an identifiable agency or department that takes a lead role in emergency management, but there are differences in the scope of their operations and the activities they undertake. Each province has its own approach to emergency management and no single province is representative of others, but as Canada's most populous province, Ontario will be used as a specific example of a provincial approach to emergency management.

ONTARIO

The *Ontario Emergency Plans Act (1999)* defines an emergency as "a situation or impending situation caused by the forces of nature, an accident, an intentional act or otherwise that constitutes a danger of major proportions to life or property"(Government of Ontario 1999). The Act sets out the conditions by which an emergency is declared, specifies the responsibilities of ministers to ensure preparedness is adequate within their departments and outlines the powers of the Premier in the event of an emergency. Most importantly, it empowers municipal governments to formulate a specific emergency plan to meet local requirements in order to implement emergency response procedures quickly and effectively.

Emergency response procedures are operationalized through the *Provincial Emergency Plan (PEP)*, a document that outlines the duties of the government in the event that a state of emergency is declared at the provincial level. Under the plan, communities are able to contact a provincial duty manager at any time in order to report an emergency and request assistance. Once the call is made, the duty manager must assess the threat level and activate the PEP accordingly. There are four levels of emergencies under the plan: *routine monitoring*, where the duty manager maintains contact with the municipality in order to determine if escalation is required; *enhanced monitoring*, when a duty team is dispatched to the *Provincial Operations Centre (POC)* in Toronto to continuously monitor the situation; *partial activation*, involving the deployment of a "provincial liaison team" to the disaster area and movement of more staff to the POC; and *full activation*, when a full staff is moved into the POC, including representatives from all relevant provincial departments as well as federal ministries in order to develop a coordinated response (Emergency Measures Ontario 2002a).

The primary organization tasked with emergency management in Ontario is *Emergency Measures Ontario (EMO)*, a branch of the Ministry of Public Safety and Security, responsible for "monitoring, coordinating and assisting in the formulation and implementation of emergency management programs in Ontario" (Emergency Measures Ontario 2002b). Its mandate includes a variety of functions including maintenance of provincial emergency preparedness programs, coordination for joint federal-provincial emergency management programs and education and training for municipal emergency response officials.

Though the mandate of EMO includes the "implementation of emergency management programs" (Emergency Measures Ontario 2002b), it remains primarily focused on emergency preparedness and response. Hazard mitigation does not appear to be a primary priority of the organization, probably because the existing provincial legislation does not require or promote local mitigation strategies. There have been some encouraging signs of change, however; since September 11, 2001, EMO has been in the process of transformation to Emergency *Management* Ontario, which may bring a more comprehensive approach, including a greater priority for hazard mitigation (Neil McKerrell, Director of EMO, Opening Address to 12th World Conference on Disaster Management, Toronto, July 9, 2002).

The disaster on September 11 served as a focusing event for policy-makers in Ontario; legislation proposed in the wake of the event would, if passed, require all Ontario municipalities

to implement comprehensive emergency management programs, including a hazard assessment, detailed emergency plan and education and training for personnel (Government of Ontario 2001). Bill 148 - the Emergency Readiness Act - was introduced in December of 2001, but remains in deliberation, most recently referred to the Committee on General Government for further analysis following Second Reading in the Ontario legislature. Debates during the second reading of the legislation reveal opposition reservations; consistent criticisms of the proposed bill include lack of an enforcement mechanism and lack of funding for municipalities to implement the proposed requirements (Government of Ontario 2002).

E. LOCAL – UNITED STATES

Under the Tenth Amendment of the United States constitution, the American states are empowered to conduct internal affairs, including the creation and enforcement of disaster mitigation policies. However, strategies for disaster mitigation such as land-use planning and building code enforcement are areas that are delegated to local government, making mitigation primarily a local responsibility (Cigler 1988, p. 46).

In most cases, local emergency management is handled by a community committee tasked with the coordination of personnel from police, fire and medical response units. This local agency is expected to identify the hazards facing the community and work with public and private organizations in order to develop an emergency plan suitable to address these risks (McLoughlin 1985, p. 165). In many cases however, local governments have not established mitigation programs, lacking the political support, financial resources or technical expertise required to create and sustain them. Moreover, local governments rarely see emergency management as a primary concern and are reluctant to dedicate personnel strictly for this purpose, focusing instead on more visible problems (Clary 1985, p. 22-23).

The Disaster Research Centre of the University of Delaware has conducted significant research on the nature, scope and effectiveness of emergency planning agencies at the local level. In their study, major variations in the structure, role, capabilities and funding of emergency management organizations were observed from one community to the next. While the overall indication was that preparedness activities have generally increased, there remains a significant gap between what is being done and an ideal approach (Quarantelli 1988).

F. LOCAL LEVEL - CANADA

Local governments in Canada exist under legislation of the provinces, which designate and limit the powers and responsibilities of municipal governments through Municipal Acts. Provincial departments supervise the actions of municipal governments and provide guidance in policy-making to ensure a provincial standard is maintained (Tindal and Nobles-Tindal 1995, p. 197). Most provinces have legislation which requires municipalities to produce an emergency plan, but this is not consistent from coast to coast. For example, Ontario, despite being Canada's most populous province, does not yet require municipalities to produce emergency plans unless they are near a nuclear power-generating station or a plan is specifically requested by the provincial government (Government of Ontario 1999). Furthermore, provincial requirements for local

emergency plans often only address emergency preparedness and response; only British Columbia and Quebec specifically encourage municipalities to engage in hazard mitigation. Because there are no strict guidelines for local governments to follow and no consistent enforcement of mitigation requirements, emergency management varies widely from one municipality to the next. Plans that do exist generally target preparedness, response and recovery, emphasizing the logistical aspects of warning systems, emergency declarations, distribution of authority, emergency plan implementation and evacuation procedures. For example, the *Peacetime Emergency Plan* of London, Ontario, which dates back to the civil defence era of the 1970s, does not include a hazard assessment or any reference to risk reduction, but instead focuses on response and recovery, specifying the roles and responsibilities of public officials and identifying the resources that are to be mobilized in the event of an emergency (City of London 2002).

The enabling legislation and spheres of responsibility that define Canadian local governments offer substantial opportunity for the employment of mitigative strategies. Municipal governments are responsible for planning, an activity which involves regulating land development, resource use, facilities and services for the efficiency, security, health and well-being of a community (Canadian Institute of Planners 2000). In creating an Official Plan, municipal governments can shape the future of a community and set guidelines for development that ensure long-term sustainability. Despite these capabilities, local emergency planning in Canada rarely includes a comprehensive hazard assessment or specific mitigative tactics designed to minimize the risks from environmental hazards. Even in light of dramatic successes in other places, such as the protection provided by the Winnipeg Floodway during the 1997 Red River flood, local governments in Canada generally seem unwilling to undertake substantial measures for mitigation (Newkirk 2001, p. 165).

III. UNDERSTANDING THE POLICY ENVIRONMENT

The previous section sought to illustrate similarities and differences in the American and Canadian approaches to hazard mitigation and identify areas in Canada where mitigation strategies have not been introduced or need to be strengthened. In order to explain the differences in mitigation polices in the two countries and identify ways to improve Canadian policies for hazard mitigation, it is important to understand the nature and dynamics of the policy environment in the United States and Canada.

There are some general differences between Canada and the United States that could have a bearing on the nature of hazard mitigation policy. Population statistics stand out as some of the most obvious differences; according to 2001 figures, the Canadian population is approximately 30 million, with a population density of 3.3 persons per square kilometer (Statistics Canada 2002). By contrast, the American population is almost ten times larger, estimated at about 284 million, with a population density of approximately 30 persons per square kilometer (U.S. Census Bureau 2002). Canada's population is geographically concentrated, with most of the population living along the Canada-United States border and in major urban areas - the three largest Canadian cities (Toronto, Montreal and Vancouver) account for approximately 30 percent of the total population.

Each of Canada's ten provinces encompasses a larger proportion of the nation's land and population than individual American states, the most populous of which contains only about 10% of the United States population (Gibbins 1982, p. 100). Moreover, the boundaries of the provinces correspond well with different geographical regions; the Great Plains in Canada are encompassed by only three provinces as opposed to ten American states, and in Canada, only one province borders the Pacific Ocean as opposed to five states in the U.S. (Gibbins 1982, p. 101).

Based on these statistics, a natural disaster in one or several American states would have a larger impact than if a similar event were to occur in Canada. Relative to Canadian provinces, American state borders enclose a smaller geographical area and natural hazards often span between several neighboring states. Disasters rarely affect only a single state, making almost every disaster a multi-state emergency and of national concern. In Canada, natural hazards are generally contained within provincial borders and disasters that occur rarely affect more than one province.

FEDERALISM

Though the United States and Canada both evolved as federal democracies, there are significant differences in the nature of their political structures. The Constitution of the United States, written with the fresh memory of a revolution, embodied a vision of checks and balances that would diffuse power among a number of authorities to prevent domination by any one part. As such, the political structure was established as a presidential-congressional system, distributing power among the president, Congress and the Supreme Court (Watts 1987, p. 769). In determining jurisdictional responsibilities, powers that were prescribed to the national government were kept to a minimum and any residual powers not specifically articulated were to be reserved by the state governments.

Unlike the United States, Canada's political structure evolved based more on the British model, developing as an executive-centered parliamentary system with a fused executive and legislative branch (Simeon and Willis 1997, p. 153). Instead of incorporating principles of separated government, it focused more on responsible government and majority rule. In contrast to the experience in the United States, the federal-provincial division of powers in Canada resulted in a higher degree of centralization and included a provision that any responsibilities not specifically assigned at Confederation would be assumed to be the jurisdiction of the federal government (Watts 1987, p. 782).

In comparing the constitutional framework of the two countries, political power in Canada should be more centralized than in the United States, but in practice, the opposite has evolved; relative to the American states, Canadian provinces exercise significantly more influence in national policy and the actions of the federal government (Simeon and Willis 1997, p. 153). Unlike in the United States, where mechanisms for state and local government representation in Congress have kept federal-regional confrontation to a minimum, territorial interests in Canada have often been underrepresented in national institutions (Gibbins 1982, p. 80). The lack of formal representation and the nature of the Canadian political structure which centres power at the executive level have led to a substantial role for the provincial premiers, who act as the

representatives of regional interests (Watts 1987, p. 784). Though this has helped to ensure the interests of the provinces are represented, it has also often generated a confrontational atmosphere and a protectionist sentiment among the provinces which has inhibited the implementation of national priorities in areas of provincial jurisdiction (p. 785). This may help to explain the federal role in emergency management in Canada – where the implementation of a national leadership role has been largely successful in the United States, regional interests and differences demand that the federal role be less dominant in Canada.

The formal structure of federal-territorial relations in Canada has not extended to federal-local relations; unlike in the United States, where there are many linkages between the federal government and local governments in financial aid and program delivery, the amount of federal-municipal contact in Canada is low (Gibbins 1982, p. 107). Despite blurring divisions of responsibility, certain jurisdictional lines remain clear; municipal issues fall within the purview of provincial governments and, as such, transfer payments to the provinces are used more often than cost-sharing strategies and conditional grants in implementing national policies at a regional and local level (Simeon and Willis 1997, p. 175). While this is helpful in eliminating a potential source of intergovernmental conflict, it also explains why the federal-local links in emergency management seen in the United States have not developed in Canada, leaving the creation and local implementation of emergency management programs solely under provincial supervision.

POLICY ACTORS

Federal policies are particularly important because they can have a substantial impact on policies adopted at other levels of government. According to Mittler (1988), even in the absence of a local focusing event, a policy window can be created by federal legislation which is enacted to encourage mitigation or enable other levels of government to enact laws for hazard mitigation (p. 91). In the American context, federal laws such as the National Flood Insurance Act (1968) and the Coastal Zone Management Act (1972) led to the adoption of state and local laws which ensured compliance and brought policy in line with federal priorities.

At the legislative level, individual members exercise greater influence in the United States than in Canada. Directly elected by the public, United States senators and Members of Congress play key roles in formulating, assessing and promoting policy (Simeon 1995, p. 251). In Canada, by contrast, the political traditions of party discipline, the threat of sanctions that coerces members of parliament to vote *en masse* along party lines, and cabinet dominance, the preeminence of the Prime Minister and cabinet in forming and implementing the policy agenda restrict the ability of individual members of parliament to propose or pursue policy initiatives autonomous of their party (Simeon and Willis 1997, p. 157).

The role of the executive level in policy-making is perhaps the most fundamental difference in the Canadian and American policy environments. In the United States, the executive branch is characterized by a network of agencies and departments that develop policy within their particular area of responsibility, forming networks with other levels of government. State and local interests are communicated to the federal executive branch through governors, mayors and Members of Congress, as well as through collective interest groups (Radin and Boase 2000, p. 77). In Canada, the prime minister and cabinet play the most important roles in federal policy-

making, controlling the legislative agenda and directing the bureaucracy (Bakvis and MacDonald 1993, p. 47).

EMERGENCY MANAGEMENT AGENCIES

The structure of the federal organization for emergency management in either country may also play a significant part in the nature of mitigation policy. In the United States, FEMA was established as a separate agency and was given significant autonomy in consolidating and redirecting responsibilities of other federal departments. As such, it has been able to evolve and become influential among other departments and other levels of government, tweaking its mission objectives according to changes in the nature of hazards. Its autonomy has allowed it to move beyond civil defence priorities to address wider issues including natural hazards, and through the implementation of its programs, it is able to broaden its influence and promote mitigation strategies. The office of FEMA Director has evolved significantly since the agency's inception and FEMA directors have played a significant role in proposing and shaping federal hazard mitigation policy. A notable example of this is the tenure of James Lee Witt, director of FEMA from 1993 to 2001, who spearheaded the "reinvention" of the agency and revitalized its mission and purpose (Daniels and Clark-Daniels 2000). Through his close ties with the Office of the President, Witt was able to act as a policy entrepreneur, widening the scope of the agency to incorporate all aspects of emergency management, which significantly increased the federal role in hazard mitigation.

By contrast, Canada's federal emergency management organization has almost always been a branch within another department, particularly the Department of National Defence. The Minister Responsible for Emergency Preparedness is also the Minister of National Defence, a double-duty that likely does not facilitate the policy entrepreneurship seen in the American context. It is not surprising that the mission objectives of OCIPEP, while incorporating environmental hazards, emphasize safety and security, both priorities of national defence. While the close affiliation with the Department of National Defence may be useful for resources such as infrastructure, intelligence and transport, it may be detrimental if security becomes the dominant priority, displacing mitigation. As the organization is still in its infancy and is rapidly changing, this remains to be seen.

Another difference is the extent to which the federal emergency management organization in either country promotes mitigation. In the United States, local government officials can devise forward-thinking strategies for reducing community vulnerability and apply directly to FEMA for funding through the Hazard Mitigation Grant Program and the Pre-disaster Mitigation Program (FEMA 2002a). In Canada, there is no such formal mechanism to encourage local mitigation initiatives; existing federal-local cost sharing arrangements are designed to provide funding for either preparedness needs or disaster recovery assistance.

POLICY NETWORKS

In both countries, the relative infrequency of natural disasters makes mitigation a lower priority issue for many people, thus direct public participation and pressure in the design of disaster mitigation policy is generally low. Instead, public involvement usually takes the form of

professional communities or pressure groups that seek attention for particular issues (Birkland 1997, p. 41).

Despite a growing and increasingly comprehensive body of literature on hazards and disasters in Canada, research in these areas in the United States enjoys greater recognition and funding, which has helped to create a professional network which promotes and guides policies for emergency management and mitigation. Several schools in the United States have research institutes dedicated to the study of natural hazards, the human response to emergencies and disasters and other related topics. Two that are very prominent in this regard are the Natural Hazards Centre at the University of Colorado and the Disaster Research Centre at the University of Delaware.

In the United States, there is a strong and coherent policy network composed of individuals and groups from many different areas of natural and social science that are dedicated to influencing government policies, improving building practices and changing human behaviour to reduce vulnerability to catastrophic disasters. While there are many who have similar interests in Canada, poor communication and collaboration among the various actors, insufficient research funding and lack of public interest serve as barriers to the formation of a comprehensive network which can promote common interests and stimulate change.

PROFESSIONAL ASSOCIATIONS

In the United States, emergency management has become a professional distinction, with standards of education and certification to distinguish individuals in the field. Training programs have been built into many colleges and universities in conjunction with related fields like planning and public administration.

Along with these developments, professional associations have evolved that lobby for more extensive government involvement and seek more proactive policies for emergency management and hazard mitigation. Some of these organizations include:

National Emergency Management Association (NEMA) – A professional association of state emergency management directors, NEMA conducts research on emergency management practices including mitigation, evaluates existing policies for emergency management, advises government officials on new proposals and provides a forum for information exchange between states (NEMA 2002).

International Association of Emergency Managers (IAEM) – Through its Committee on Government Information, the IAEG monitors proposed emergency management legislation at all levels and provides policy advice to communities regarding the impact and significance of legislation. It has produced position statements on a number of government issues impacting emergency management, ranging from commentary on the Stafford Act to the impact of budget reductions to the National Weather Service (IAEM 2002).

On this front, when compared with the United States, the field of emergency management in Canada has not evolved to the same level of influence. Though Canadian emergency managers

are well-trained and effective, what has not developed is a strong advocacy organization that can consolidate and articulate their concerns and suggestions to government. Notably, there has been an effort by organizations such as the *Canadian Centre for Emergency Preparedness* to promote professional certification standards for emergency management personnel and create a strong members association, but this has been a slow process and has not attained the same level of recognition that can be found in the United States. Some emergency management associations do exist, such as the *Canadian Emergency Preparedness Association*, but their membership and influence are dwarfed by those in the United States.

IV. CONCLUSIONS AND RECOMMENDATIONS

On both sides of the border, evidence suggests that losses from disasters are escalating. In order for these losses to be reduced, mitigation must be adopted as a policy priority at all levels of government and transformed into strategies that can reduce vulnerability to hazards.

In Canada, there are many barriers to the creation and implementation of effective mitigation policy. At the local and provincial level, a lack of interest among the public and a lack of will among policy-makers make disaster mitigation a low priority issue, so it rarely appears as a policy agenda item. At the national level, the dynamics of cabinet dominance and party discipline make policy entrepreneurship difficult, and a lack of cohesion hinders the hazard mitigation policy community from seizing a policy window and pursuing substantial changes even immediately following a focusing event.

The American federal approach to emergency management, with federal legislation specifically targeted at disaster mitigation and a strong, independent agency dedicated to the coordination of a national emergency management capability, seems to be an attractive model for Canada, but as this paper has indicated, the dynamics of federalism in Canada are quite different than in the United States. Any national strategy in Canada must account for regional differences and build on provincial initiatives to ensure compatibility and minimize conflict. The autonomy and regional interests of the provinces should not be regarded as a barrier, but instead should be used to guide targeted strategies for mitigation of hazards, recognizing the regional expertise of provincial officials and building on programs developed by the provinces.

In order to move towards a national program of hazard mitigation, a number of areas require improvement. First, interested parties in Canada must seek to form a more cohesive and organized policy community in order to influence current thinking and promote constructive approaches to reduce Canadian vulnerability and prevent catastrophic losses. A starting point for this objective is to establish a synergy among natural and social scientists, public and private sector actors, and national and local organizations. Second, further research must be conducted to better understand the policy environment in Canada and seek ways to remove some of the barriers to the implementation of mitigation policies. Third, efforts should be made to raise public awareness of the benefits of hazard mitigation and local governments should be encouraged to incorporate mitigative strategies into the planning process. Fourth, a greater commitment to mitigation must be made at all levels of government through legislation, which can help to stimulate local action before a disaster.

REFERENCES

Bakvis, Herman and David MacDonald. (1993). The Canadian Cabinet: Organization, Decision-Rules, and Policy Impact. In Michael M. Atkinson (Ed.), Governing Canada: Institutions and Public Policy. (p. 47-80). Toronto: Harcourt Brace Jovanovich Canada Inc.

Bélanger, Claude. 2000. Readings in Quebec History - War Measures Act. *Marianopolis College, Department of History*. Retrieved June 21, 2002 from World Wide Web: http://www2.marianopolis.edu/quebechistory/readings/warmeas.htm.

Birkland, Thomas A. (1997). After Disaster: Agenda Setting, Public Policy and Focusing Events. Washington: Georgetown University Press.

Burby, Raymond J. (1998). Natural Hazards and Land Use: An Introduction. In Raymond J. Burby (Ed.), Cooperating with Nature (pp 1-26). Washington: Joseph Henry Press.

Canadian Institute of Planners. (2000). What Planners Do. Retrieved February 20, 2002 from World Wide Web: http://www.cip-icu.ca/English/aboutplan/what.htm.

Cigler, Beverley A. (1988). Current Policy Issues in Mitigation. In Louise K. Comfort (Ed.), Managing Disaster: Strategies and Policy Perspectives. (p. 39-52). Durham, NC: Duke University Press.

City of London, Ontario. (2002). London Peacetime Emergency Plan. Revised 02 January 2002. Retrieved February 13, 2002 from World Wide Web: http://www.city.london.on.ca/cityhall/corpservices/cityclerks/emergencyplan.htm.

Clary, Bruce B. (1985). The Evolution and Structure of Natural Hazard Policies. Public Administration Review, Volume 45, January Special Issue, 20-28.

Daniels, R. Steven and Carolyn L. Clark-Daniels. (2000, April). Transforming Government: The Renewal and Revitalization of the Federal Emergency Management Agency. PricewaterhouseCoopers Endowment for the Business of Government, 2000 Presidential Transition Series.

Downs, Anthony. (1972). Up and Down with Ecology - the Issue Attention Cycle. The Public Interest, Volume 28, 38-50.

Emergency Measures Ontario. (2002a) The Provincial Emergency Plan – A Backgrounder. Retrieved February 12, 2002 from World Wide Web: http://www.sgcs.gov.on.ca/english/public/pep4.html.

Emergency Measures Ontario. (2002b) Emergency Measures Ontario. Retrieved February 12, 2002 from World Wide Web: http://www.sgcs.gov.on.ca/english/public/emo.html.

Emergency Preparedness Canada. (1999a). National Support Plan – Part I. *Public Communications – Fact Sheets*. Retrieved June 19, 2002 from World Wide Web: http://www.ocipep.gc.ca/publicinfo/fact_sheets/nati_supp_plan/index_e.html.

Emergency Preparedness Canada. (2000a) Highlights of the Emergencies Act. *Public Information – Fact Sheets*. Retrieved February 20, 2002 from World Wide Web: http://www.epc-pcc.gc.ca/publicinfo/fact_sheets/high_emer.html.

Federal Emergency Management Agency. (1999). Report on Costs and Benefits of Natural Hazard Mitigation. *Virtual Library and Electronic Reading Room.* Retrieved from World Wide Web: http://www.fema.gov/pdf/library/haz_cost.pdf.

Federal Emergency Management Agency. (2002a). Mitigation Grant Programs. *Federal Insurance and Mitigation Administration Mitigation Grant Programs*. Retrieved July 2, 2002 from World Wide Web: http://www.fema.gov/fima/mitgrant.shtm.

Federal Emergency Management Agency. (2002b). About FEMA: Helping People Before, During and After Disasters. Retrieved July 8, 2002 from World Wide Web: http://www.fema.gov/about/.

Federal Emergency Management Agency. (2002c). FEMA: Just the Facts. *Virtual Library and Electronic Reading Room.* Retrieved July 8, 2002 from World Wide Web: http://www.fema.gov/library/fff02.shtm.

Federal Emergency Management Agency. (2002d). The Disaster Process and Disaster Aid Agencies. *Virtual Library and Electronic Reading Room.* Retrieved July 8, 2002 from World Wide Web: http://www.fema.gov/library/dproc.shtm.

Federal Emergency Management Agency. (2002e). Major Disaster Declarations: January 1, 1972 to December 31, 2000. *Virtual Library and Electronic Reading Room.* Retrieved June 26, 2002 from World Wide Web: http://www.fema.gov/library/diz72-98.shtm.

Freedberg Jr., Sydney J. (2002, March). EMAC: No Disaster This Compact Can't Handle. National Journal, 1002-1003.

Gerston, Larry N. (1997). Public Policy Making: Processes and Principles. New York: M.E. Sharpe Inc..

Gibbins, Roger. (1982). Regionalism: Territorial Politics in Canada and the United States. Toronto: Butterworth and Co. (Publishers) Ltd.

Godschalk, David R. (1991). Disaster Mitigation and Hazard Management. In Thomas E. Drabek and Gerard J. Hoetmer, (Eds.), Emergency Management: Principles and Practice for Local Government. (p. 131-160). Washington, D.C.: International City Management Association.

Godschalk, David, Edward J. Kaiser and Philip R. Berke. (1998). Integrating Hazard Mitigation and Local Land Use Planning. In Raymond J. Burby (Ed.), Cooperating with Nature (pp 85-118). Washington: Joseph Henry Press.

Government of Canada, Department of Justice. (1988a) Emergencies Act. R.S. 1985, c. 22, 4th Supplement. Retrieved February 21, 2002 from World Wide Web: http://laws.justice.gc.ca/en/E-4.5/text.html.

Government of Canada, Department of Justice. (1988b) Emergency Preparedness Act. R.S. 1985, c. 6, 4th Supplement. Retrieved February 21, 2002 from World Wide Web: http://laws.justice.gc.ca/en/E-4.6/text.html.

Government of Canada, Office of the Prime Minister. (2001). Prime Minister Announces Office of Critical Infrastructure Protection and Emergency Preparedness. *Hot Topics*. Retrieved February 19, 2002 from World Wide Web: http://pm.gc.ca/default.asp?Language=E&Page=newsroom&Sub=newsreleases&Doc=emergency.20010205_e.htm.

Government of Ontario. (1999). Ontario Emergency Plans Act. R.S.O. 1999, c. 12. Retrieved February 12, 2002 from World Wide Web: http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90e09_e.htm.

Government of Ontario. (2001) Bill 148: Emergency Readiness Act. 2nd Session, 37th Legislature, Ontario. First Reading 6 December 2001. Retrieved March 5, 2002 from World Wide Web: http://www.ontla.on.ca/library/bills/148372.htm.

Government of Ontario. Legislative Assembly of Ontario. (2002). Orders of the Day – The Emergency Readiness Act, 2002. Debates of the Legislative Assembly of Ontario, June 27, 2002. Retrieved July 30, 2002 from World Wide Web: http://www.ontla.on.ca/hansard/house_debates/37_parl/Session3/L028B.htm#TopOfPage.

Government of the United States. (1988). Robert T. Stafford Disaster Relief and Emergency Assistance Act. P.L. 93-288 as amended, 42nd Congress.

Government of the United States. (2000). Disaster Mitigation Act of 2000. P.L. 106-390, 106th Congress.

Government of the United States. (2001). Certification of Enrollment – Emergency Management Assistance Compact. Senate Bill 5256, Chapter 288, 57th Legislature.

Government of the United States. (2002). Analysis for the Homeland Security Act of 2002. White House – Policies in Focus. Retrieved July 29, 2002 from World Wide Web: http://www.whitehouse.gov/deptofhomeland/analysis/index.html.

Howlett, Michael and M. Ramesh. (1995). Studying Public Policy: Policy Cycles and Policy Subsystems. Don Mills, Ontario: Oxford University Press.

International Association of Emergency Managers. (2002). Position Statements. Retrieved July 3, 2002 from World Wide Web: http://www.iaem.com/iaem_positions.html.

Kingdon, John W. (1984). Agendas, Alternatives and Public Policies. Boston: Little, Brown and Company Ltd.

McLoughlin, David. (1985). A Framework for Integrated Emergency Management. Public Administration Review, Volume 45, January Special Issue, 165-172.

Mittler, Elliott. (1988). Agenda-setting in Nonstructural Hazard Mitigation Policy. In Louise K. Comfort, (Ed.), Managing Disaster: Strategies and Policy Perspectives. (p. 87-107). Durham: Duke University Press.

Mushkatel, Alvin H. and Louis F. Weschler. (1985). Emergency Management and the Intergovernmental System. Public Administration Review, Volume 45, January Special Issue, 49-56.

National Emergency Managers Association. (2002). Who We Are. Retrieved July 3, 2002 from World Wide Web: http://www.nemaweb.org/index.cfm.

National Science and Technology Council. (1996). A Strategy for National Earthquake Loss Reduction. *National Earthquake Strategy Working Group*. Retrieved June 26, 2002 from World Wide Web: http://www.ostp.gov/NSTC/html/USGS/.

Newkirk, Ross T. (2001). The Increasing Cost of Disasters in Developed Countries: A Challenge to Local Planning and Government. Journal of Contingencies and Crisis Management, Volume 9, Number 3, 159-170.

OCIPEP - Office of Critical Infrastructure Protection and Emergency Preparedness. (2001a) Towards a National Disaster Mitigation Strategy. Retrieved March 5, 2002 from World Wide Web: http://www.ocipep.gc.ca/publicinfo/NDMS/index_e.html.

OCIPEP - Office of Critical Infrastructure Protection and Emergency Preparedness. (2001b) A New Approach to Disaster Management in Canada. Retrieved March 5, 2002 from World Wide Web: http://www.ocipep.gc.ca/publicinfo/ep_digest/js_2001/js_2001_fea1_e.html.

OCIPEP - Office of Critical Infrastructure Protection and Emergency Preparedness. (2002a). The Story of Emergency Preparedness Canada 1948-1998. *Public Communications – Guides and Reports*. Retrieved June 15, 2002 from World Wide Web: http://www.ocipep.gc.ca/publicinfo/guides_reports/history/index_e.html.

OCIPEP - Office of Critical Infrastructure Protection and Emergency Preparedness. (2002b). Policy – How the System Works. *Public Communications – Policy*. Retrieved February 27, 2002 from World Wide Web: http://www.ocipep.gc.ca/publicinfo/policy/syswork_e.html.

Office of Homeland Security (United States). (2002). National Strategy for Homeland Security. Retrieved July 30, 2002 from World Wide Web: http://www.whitehouse.gov/homeland/book/index.html.

Pal, Leslie A. (1997). Beyond Policy Analysis: Public Issue Management in Turbulent Times. Scarborough, Ontario: International Thompson Publishing.

Petak, William J. and Arthur A. Atkisson. (1982). Natural Hazard Risk Assessment and Public Policy: Anticipating the Unexpected. New York: Springer-Verlag New York Inc.

Quarantelli, E.L. (1988). Local Emergency Management Agencies: Research Findings on their Progress and Problems in the Last Two Decades. Preliminary Paper No. 126, Disaster Research Center, University of Delaware.

Radin, Beryl A. and Joan Price Boase. (2000). Federalism, Political Structure, and Public Policy in the United States and Canada. Journal of Comparative Policy Analysis: Research and Practice, Volume 2, 65-89.

Ripley, Randall B. (1995). Stages of the Policy Process. In Daniel C. McCool (Ed.), Public Policy Theories, Models and Concepts. (p. 157-162). New Jersey: Prentice-Hall Inc.

Rossi, Peter H., James D. Wright and Eleanor Weber-Burdin. (1982). Natural Hazards and Public Choice: The State and Local Politics of Hazard Mitigation. New York: Academic Press Inc.

Simeon, Richard. (1995). Canada and the United States: Lessons from the North American Experience. In Karen Knop, Sylvia Ostry, Richard Simeon and Katherine Swinton (Eds.), Rethinking Federalism: Citizens, Markets, and Governments in a Changing World. (p. 250-272). Vancouver: UBC Press.

Simeon, Richard and Elaine Willis. (1997). Democracy and Performance: Governance in Canada and the United States. In Keith Banting, George Hoberg and Richard Simeon (Eds.), Degrees of Freedom: Canada and the United States in a Changing World. (p. 150-186). Montreal: McGill-Queen's University Press.

Smith, Keith. (1992). Environmental Hazards: Assessing the Risk and Reducing Disaster. London: Routledge.

Solecki, William D and Sarah Michaels. (1994). Looking Through the Post-disaster Policy Window. Environmental Management, Volume 18, Number 4, 587-595.

Statistics Canada. (2002). 2001 Census – Population Counts, Land Area and Population Density. Retrieved June 21, 2002 from World Wide Web: http://www12.statcan.ca/english/census01/.

Sylves, Richard T. (1995). Renewing FEMA: Remaking Emergency Management. Working Paper # 93, Natural Hazards Research and Applications Information Center, Institute for Behavioural Science, University of Colorado.

Texas Department of Public Safety, Governor's Division of Emergency Management. (1998). State of Texas Emergency Management Plan – Annex : Hazard Mitigation. Retrieved July 2, 2002 from World Wide Web: ftp://ftp.txdps.state.tx.us/dem/plan_state/state_annex_p_hazard_mitigation.pdf.

Texas Department of Public Safety, Governor's Division of Emergency Management. (1999). State of Texas Hazard Mitigation Plan. Retrieved July 2, 2002 from World Wide Web: ftp://ftp.txdps.state.tx.us/dem/mitigation/mit_plan.pdf.

Texas Department of Public Safety, Governor's Division of Emergency Management. (2000). Local Emergency Management Planning Guide. Retrieved July 2, 2002 from World Wide Web: ftp://ftp.txdps.state.tx.us/dem/dem-10.pdf.

Texas Department of Public Safety, Governor's Division of Emergency Management. (2001). State of Texas Emergency Management Plan. Retrieved July 2, 2002 from World Wide Web: ftp://ftp.txdps.state.tx.us/dem/plan_state/state_plan_20010515.pdf.

Texas Department of Public Safety, Governor's Division of Emergency Management. (2002). General Information. Retrieved July 2, 2002 from World Wide Web: http://www.txdps.state.tx.us/dem/.

Tindal, C. Richard and Susan Nobles-Tindal. (1995). Local Government in Canada (4th Ed.). Toronto: McGraw-Hill Ryerson Limited.

United States Census Bureau. (2002). State and Country QuickFacts – Population Statistics. Retrieved June 20, 2002 from World Wide Web: http://quickfacts.census.gov/qfd/states/00000.html.

Watts, Ronald L. (1987). The American Constitution in Comparative Perspective: A Comparison of Federalism in the United States and Canada. The Journal of American History, Volume 74, Issue 3, 769-792.