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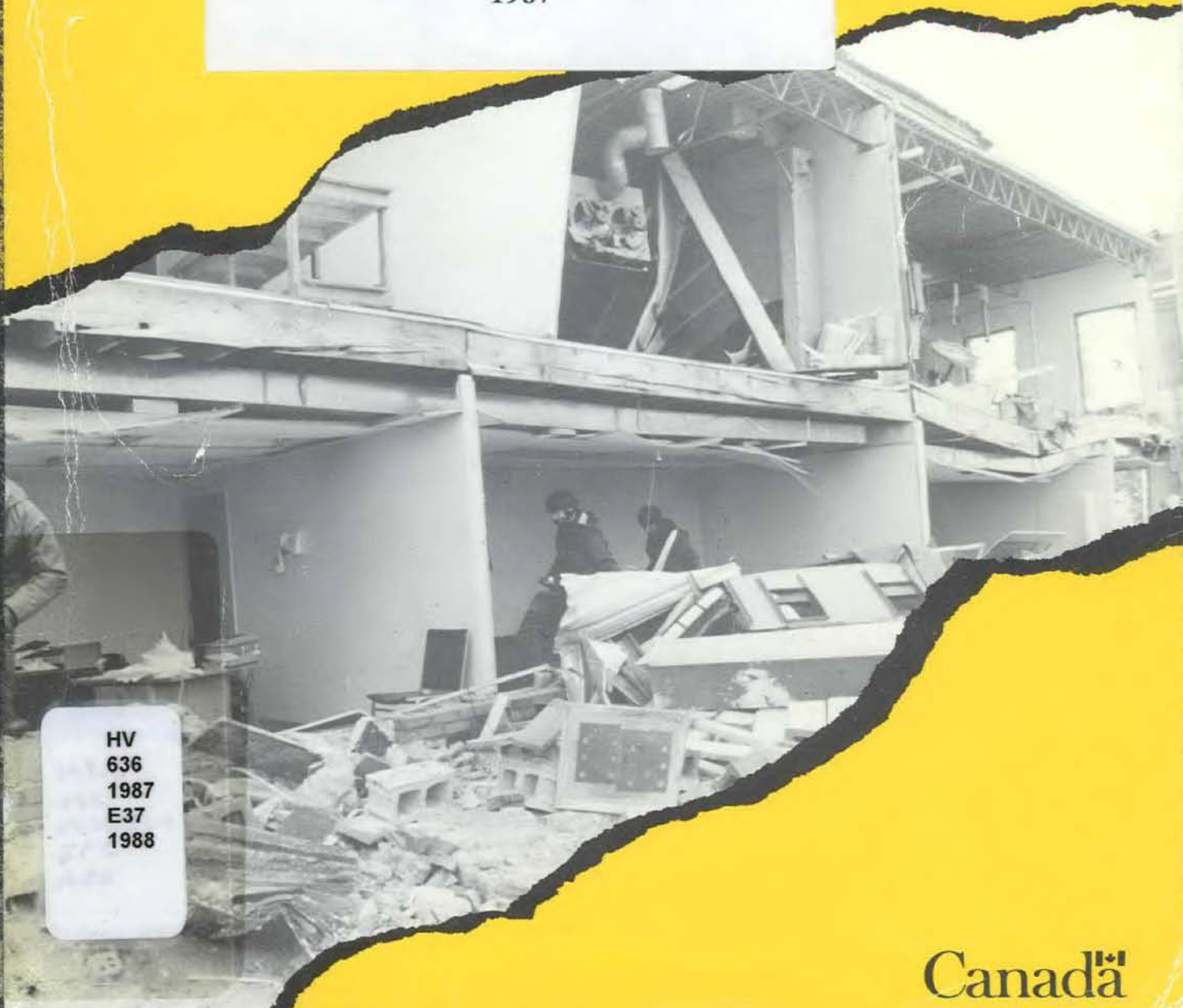
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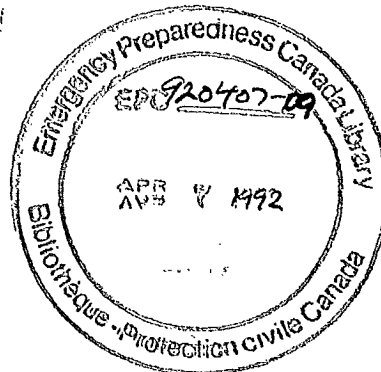
Response of the  
Government of Canada  
to the  
Alberta Tornado and Associated Flooding  
1987



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**Response of the  
Government of Canada  
to the  
Alberta Tornado and Associated Flooding  
1987**

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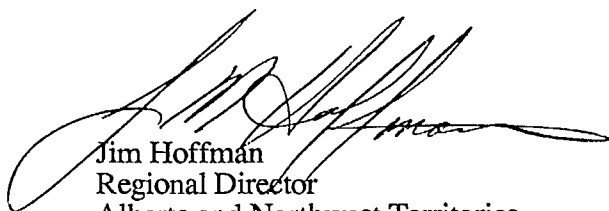


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## FOREWORD

Between 3:05 p.m. and 4:05 p.m. on Friday July 31, 1987 the eastern part of Edmonton and parts of the Counties of Strathcona, Leduc and Wetaskiwin, experienced severe winds, rain and tornadoes. Twenty-seven people were killed and approximately 350 were injured by direct or secondary effects of the storm. The tornado was the dramatic high point of a weather system that had affected Alberta since July 25, and was to continue until after August 3. Property damage would exceed \$500 million in sectors of agriculture, business, industry and private property. The weather system that caused the tornado had affected over 100,000 sq. km of Alberta with high wind storms, hail, heavy rain and flooding.



Jim Hoffman  
Regional Director  
Alberta and Northwest Territories  
Emergency Preparedness Canada  
March 1988

## INTRODUCTION

In 1980, the federal Cabinet approved a set of procedures for crisis management of federal agencies in disasters.<sup>1</sup> These procedures contemplated a number of conditions under which the federal government and its agencies would respond to emergencies. From a federal perspective this disaster was viewed as an event in which the primary jurisdiction was that of the province but within which there was a major national concern.

This report is intended to identify the federal activities during the various stages of the Edmonton tornado and associated flooding, to provide an outline of federal inter-agency relationships and, to recount the federal-provincial modus operandi with particular emphasis on the interim and longer term recovery.

This document does not view the tornado and associated storms from the perspective of volunteers, hospitals, emergency services, local governments, meteorologists, provincial governments, disaster assistance, mental health and those affected. Such documentation, with input from federal and provincial agencies, is being assembled to produce a comprehensive history of the event. While this overview attempts not to duplicate much of the material that will be contained in other reports, it provides data as a means of emphasizing the reasons for making certain decisions.

Disasters can generally be divided into three to seven phases. The descriptions, whatever the number, usually involve recognition that there is a period of:

- pre-disaster warning or alerting
- followed by the onset of the event
- a period of self-help and immediate response concurrent with the period of analysis, be it by those who were at the scene or by first-line emergency services (police, fire, ambulance)
- followed by a period of rescue or search, after which there is a period of short-term sustaining care to those injured or displaced
- finally, there is the recovery phase.

For the purpose of this report the federal activities will be presented as they relate to the pre-disaster alerting period, activities in the immediate post-disaster period, activities related to the analysis of the damage and assistance to those directly affected, and lastly the development of recovery programs for the longer term.

The responsibility for responding to most peacetime emergencies is clearly within the jurisdiction of provincial and local authorities. While those authorities are normally the primary agencies involved in the initial phases of the onset and response, there are examples in which federal agencies are an important part of the infrastructure of the local community

and the province. Environment Canada's Atmospheric Environment Service (AES) is an agency continuously involved in the production of data and support utilized by individuals, industry and governments. AES therefore played the primary federal role in the alerting period that preceded the tornado on the afternoon of July 31, 1987.

The activities of the Atmospheric Environment Service - Alberta Weather Centre have been comprehensively described in a report commissioned by Environment Canada following the tornado. This report, referred to as the Hage Study <sup>2</sup> tracked the activities of the weather centre as well as agencies related to that centre in delivering information to the public before, during and after the tornado. For the purposes of this overview, suffice it to say that the Hage Study contained extensive recommendations related to improving the communication of weather information, alerting and warning the public and, on matters of public education on severe storms. On November 26, 1987, the Minister of Environment Canada announced special measures to address much of the report's findings.

### **Pre-Disaster Period**

The information fanout from the weather centre on July 31, 1987 included a warning to Emergency Preparedness Canada. EPC's regional responsibilities generally do not extend to delivering weather warnings to any other federal agency. The information is provided to EPC for use in anticipating the need to initiate federal response to emergencies. However, in this case, due to the severity of weather conditions, the EPC Regional Office initiated a fanout to all federal departments on its emergency contact list to warn them of potential conditions. (A far more effective method would be for federal departments to install moderately priced weather radio receivers that would be activated automatically by weather centre alerts and warnings.) The weather centre had issued various alerts during July 31 and conditions deteriorated to the point where an actual funnel cloud had been observed. At this time, that is 3:04 p.m., a tornado warning was issued. From 3:05 to 4:05 p.m. the tornado cut a swath 37 km long up the east edge of the Edmonton area. Subsequent analysis indicated wind speeds of up to 420 km/hr in some areas.

### **Immediate Post-Disaster Period**

In the immediate post-disaster period that commenced shortly after 3:00 p.m. in the south (to after 4:00 p.m. in the north) those directly affected began their own self-help measures by extracting themselves from the rubble, searching and caring for friends and relatives and determining what had happened.

This was followed by delivery of emergency services by the first-line services of city and county resources, as well as volunteers in the area.

This immediate post-disaster period extended until early morning of August 1 when it was concluded that the areas had been searched and all personnel who were in the devastated area had been rescued. Between 4:00 and 7:00 p.m. on July 31, while the emergency services were being provided there was an overshadowing concern of another weather alert which presaged the potential of further tornadoes. Therefore, in the early stages of the

immediate post-disaster period, the alerting process continued and public warnings were issued by the Alberta Weather Centre.

The tornado, in its advance north through Edmonton and Strathcona County, veered off to the northeast, just short of Canadian Forces Base, Edmonton. The base activated its emergency procedures and placed its medical resources on standby in case it was required to assist the city. A number of personnel who were leaving work in the late afternoon went directly to devastated sites in Clairview and the Evergreen Mobile Home Trailer Park. There, they responded in the normal humanitarian volunteer capacity as did many other people of the communities. Late in the evening the Canadian Forces Base was requested to provide two helicopters for municipal authorities from the City of Edmonton and the County of Strathcona to make a reconnaissance of the damage area.

Shortly after the onset of the tornado, EPC contacted the Alberta Government Emergency Response Centre and advised that as conditions stabilized slightly and data began to flow, EPC would establish a liaison office at the response centre. This liaison office was established at approximately 6:00 p.m. on Friday, July 31.

During this phase of operations EPC's primary role was to contact its headquarters in Ottawa to provide initial information about the event and, with the co-operation of the province, to identify potential assistance that might be needed. Because of national concern, the EPC Edmonton office was also required to provide information to Members of Parliament including the federal Cabinet.

In anticipation of the urgent needs that the disaster would create, a number of federal departments were alerted to be prepared for discussions on the morning of August 1. Concurrently, arrangements were made with the Canadian Forces to provide a reconnaissance flight for the Deputy Prime Minister early on August 1.

As emergency services personnel sprang into action, particularly in the industrial area, the scope of potential threats, including those emanating from dangerous goods, came to light. Alberta's Compliance Information Centre (CIC), as part of the provincial Dangerous Goods Transportation Control Program, dispatched their inspectors and the provincial environmental response team to the area. The CIC has an ongoing relationship with the federal dangerous goods response centre of Transport Canada (CANUTEC) in Ottawa. Therefore there were a number of instances during the evening in which the CIC requested CANUTEC to provide advice and assistance related to the treatment of dangerous goods.

As is typical of all disasters of this or even lesser magnitude, the immediate response and assistance to those directly affected by the disaster was dealt with by local emergency services. The federal government has few resources to bring to bear in a contingency of this type. Notwithstanding, even those few resources available, were not generally required by local and provincial authorities.

## Analysis Period

The fundamental concept of emergency response sees those directly affected by an emergency as the first line of response; they are supported by local, and subsequently provincial, and then federal resources if needed. This concept has stood the test of time.

The escalation process provides the third level of support (federal) with some breathing space in which to assess the situation, identify what resources it might contribute and prepare strategies. For the purposes of this report, this might be considered the analysis period of the federal response.

It is emphasized that during this period there is a great deal of activity by other provincial and local governments as well as by emergency services and those immediately in the area affected by the emergency. The analysis period from the federal point of view was conducted concurrently with the immediate post-disaster emergency response and provision of immediate social needs to those affected by the disaster by local and provincial authorities.

The federal analysis period began late on the evening of July 31. Federal departments: Employment and Immigration Canada, Health and Welfare, Regional Industrial Expansion, Canada Mortgage and Housing, and the Federal Economic Development Co-ordinator were alerted to begin examining their various programs and activities to identify what contingency services they could provide to those dislocated or to businesses that had been destroyed as a result of the disaster. Simultaneously, EPC contacted the Ontario Emergency Preparedness Office to obtain any relevant material on the Barrie Tornado that could be useful. Regional offices of the above federal agencies consulted with their program managers within the region and, as required, with their national headquarters early on August 1.

At the request of EPC, the Canadian Forces provided a helicopter on the morning of August 1 for a reconnaissance carried out by the Deputy Prime Minister. He was accompanied by the Secretary of State for External Affairs and EPC and CMHC representatives. Prior to this reconnaissance, the EPC Regional Director consulted with the Alberta Government Emergency Response Centre staff to identify areas in which they required additional information. Following the reconnaissance flight the EPC Regional Director requested that the Canadian Forces conduct a photo reconnaissance to cover the areas in which additional information was required.

The Deputy Prime Minister and the Secretary of State for External Affairs indicated their desire to attend the meeting of federal officials arranged by EPC for the morning following the reconnaissance flight. Their participation was to provide federal officials with clear guidance as well as a sense of the importance with which the Government of Canada viewed the disaster. As a result, by 11:30 a.m. on August 1 the federal strategy for response to the tornado had been identified. A copy of the strategy is attached to this report. (See Annex A)

In addition to the strategy, two other important aspects had been established at this meeting. First, that the public affairs strategy for federal agencies was to be one of quiet

support related to provincial and local programs and public needs. In short, it would have a low profile.

Secondly, the co-ordinating authorities at both the political and the official levels were identified in the Deputy Prime Minister in the first instance, and in the Regional Director of Emergency Preparedness Canada in the second. This was done to provide communication between the region and the federal Cabinet for decisions related to delivery of federal support to the victims of the disaster, either directly or through other government departments.

The Alberta Public Affairs Bureau had been asked to help federal officials arrange a news conference to follow the meeting. The Deputy Prime Minister, the Secretary of State for External Affairs and the EPC Regional Director held a news conference in which the overall objective of the federal strategy was presented by the Deputy Prime Minister.

One unusual aspect of the strategy was to offer the Province of Alberta access to the Disaster Financial Assistance arrangements. The normal process is for the province to request the federal government to provide assistance through these arrangements; however, because of the dimensions of this disaster, the Deputy Prime Minister did not await this request. He offered assistance.

During the day of August 1, the immediate social needs of those affected by the disaster were being administered by volunteer agencies, local and provincial governments. Concurrently, the scope of the damage was being examined in the main areas in which the tornado had touched down. Little information or detail of the damage was available to any order of government. Throughout this period, and all subsequent phases related to the disaster, the province and the federal government maintained a single-window approach to exchanging information and delivering services.

### **Assistance Centres**

The first major intergovernmental meeting was held at approximately 4:00 p.m. on August 1. At this meeting, approximately 20 local, provincial and federal agencies, under the chairmanship of Alberta Public Safety Services, met to identify the method by which the interim needs of those affected by the disaster would be treated, and to initiate an examination of longer term recovery needs. The individual services offered through federal agencies of Employment and Immigration Canada, Health and Welfare Canada, and Canada Mortgage and Housing Corporation, were integrated into the total-service concept involving all three orders of government and the volunteer sector.

The federal strategy had included a proposal for a single-stop service centre for those affected by the disaster. It was obvious at this meeting that other provincial and local agencies were also considering this form of service. Alberta and EPC had explored the service centre approach in 1976-77. As a result, the concept was available to be applied to the tornado aftermath. Alberta Public Safety Services presented the conclusions of this meeting to the Provincial Executive for approval. Approval was provided and on August 2 a larger meeting was held under the guidance of Alberta Public Safety Services to work out the actual details of the opening and operation of the emergency services centres and to identify the primary agencies to discuss the recovery programs.

For the next 11 days the primary activities of the federal government were centred on the individual services federal agencies provided at the assistance centres by Canada Mortgage and Housing Corporation, Employment and Immigration and Health and Welfare (Income Securities). Simultaneously, at assistance centres, the Canadian Forces provided some logistical support and advice to various local and provincial agencies, including the Edmonton Relief Services, operated by a volunteer group, which had received massive quantities of clothing, food and furniture.

The federal agencies assigned to the assistance centres opened for business in the north-east area of the city on August 3 at the M.E. Lazerte School. This assistance centre was primarily oriented toward individuals and families who had lost their possessions or dwellings in the Clairview and Evergreen Mobile Home Trailer Court areas. On August 4 the second assistance centre opened in Sherwood Park in the County of Strathcona. The primary focus of this centre was for business people who had suffered direct losses and to individuals whose employment had been interrupted because of the destruction. There were also a number of residents in the Mill Woods sector who had suffered damage. Other registration centres were opened simultaneously in rural areas by provincial authorities.

During the period when the federal agencies were at the assistance centres they provided the following services:

- Employment and Immigration Canada registered 725 claims for unemployment and provided service to another 60 clients related to replacement of Social Insurance cards and immigration records. Their counselling service under the Canada Job Strategy program was available to business people hit by the tornado.
- Health and Welfare Canada (Income Securities) served 204 clients. This service included: address changes for Old Age Security, Family Allowances and Canada Pension Plan (CPP) cheques and, counselling and arrangements for CPP survivor benefits.
- Canada Mortgage and Housing Corporation registered 104 housing requests and housed 62 families in existing CMHC units. The first month was rent free and subsequent rent changes were tailored to meet the financial conditions of each family. CMHC and Alberta Mortgage and Housing Corporation offered the same services and pooled details of the available vacant units so that clients could choose from the inventory.

### **Road to Recovery**

On the evening of August 3 the Prime Minister arrived in Edmonton on a visit that had been planned well in advance of the event; it was related to announcements on Western Diversification.

In preparation for his arrival, EPC had arranged with the Canadian Forces to provide two helicopters for the ministerial party to view the damaged area and visit the Evergreen Mobile Home Trailer Court.

The Prime Minister and the Deputy Prime Minister were accompanied by Dr. Ian Reid, the Acting Minister of Alberta Public Safety Services, and the Regional Director of Emergency Preparedness Canada. On completing the reconnaissance, the Prime Minister responded to a few questions by national media on supporting the announcement of the Premier of the Province of Alberta "to provide anything and everything to assist those affected by the tornado." The Prime Minister responded "Mr. Getty is right."

While the federal agencies were involved in the assistance centres over a 10-day period, Emergency Preparedness Canada, with the advice of the federal departments, consulted with Alberta Public Safety Services about the longer term assistance and recovery programs.

First to be considered was the program related to assistance to individuals and families directly affected by the tornado or in the other areas hit by winds and flooding. It had already been established that the provisions of the Disaster Financial Assistance arrangements (see Annex B) would be available to the province. However, the Alberta government felt that there was a need to provide some extraordinary assistance to those who had suffered catastrophic loss from the tornado. The decision on what the provincial program should incorporate was the prerogative of the Alberta government; however, to avoid any misunderstanding on what would be shareable under the Disaster Financial Assistance arrangements, Alberta officials maintained a continuous dialogue with Emergency Preparedness Canada to ensure that all factors were considered by the federal government when determining eligibility of the cost the province would incur. Major variations from the normal coverage under the Disaster Financial Assistance arrangements addressed in these discussions related to special assistance in the areas of transportation costs, assistance with insurance shortfalls, and rehabilitation assistance.

As a result of this continual exchange and consultation, Emergency Preparedness Canada was able to advise Alberta officials by August 12, prior to the Alberta ministerial announcement, that the proposed provincial policy for assistance to individuals and families was acceptable for cost sharing under Disaster Financial Assistance arrangements.

The focus of the federal officials was now beginning to shift from short-term services to those directly affected by the tornado, to the longer term needs for recovery and assistance in the entire area affected by the weather system.

Major flooding had occurred in the northwest area of the province on August 2 and 3 as a result of extraordinary rainfall earlier that week. There were reports from local and provincial officials of major damage to roads and bridges. While the focus in Edmonton was on the devastation in that immediate area, EPC was able to provide a project officer from its Ottawa headquarters and an engineer from Public Works Canada (Vancouver) to proceed to the northwest area and work with officials of Alberta Transportation to assess the nature and extent of damage to public works.

In Edmonton, the EPC Regional Director had requested the assistance of advisers from CEIC, DRIE and Agriculture Canada to help develop recovery programs. Once again these recovery programs were the prerogative of the provincial government. However, in keeping with the established process of ongoing consultation and contribution by all available sources, federal officials were to be active with provincial agencies in identifying recovery options. Federal discussions on potential recovery commenced approximately August 8 and included gathering an index of federal services that might be offered to help the agricultural and business sectors. Concurrently the EPC Regional library was searched for data and information on recovery programs. Alberta Economic Development and Trade meanwhile, had searched information banks in other areas of North America related to recovery programs in similar circumstances (the Barrie Tornado (1985), Rapid City (1972), Wichita Falls (1979), and Mobile (1979)). It was evident from the available information that the devastation in the Alberta industrial sector was greater than in any of these disasters. A "super outbreak" in a 10-state area in 1974 involved 148 reported tornadoes which collectively caused \$600 million in property loss<sup>3</sup>. As data accumulated over the next several months, in Edmonton, there were indications that this one event would come close to the total value of property losses of the 148.

On August 12 a brainstorming session was arranged in which federal and provincial officials attempted to develop a shopping bag of potential options for a recovery program. The meeting, conducted under the guidance of Alberta Economic Development and Trade, Alberta Public Safety Services and Emergency Preparedness Canada, included representation from Canada Employment and Immigration (Canada Job Strategy) and Regional Industrial Expansion.

A number of unusual factors played an important part in identifying the elements that might be included in a recovery program. First, was the social and economic damage. At the risk of duplicating this information contained in other reports, those factors are included here, as they were extremely important to the design of the recovery program and exploratory discussions.

The social costs of the disaster in the way of dead, injured and those displaced from their homes were dramatic. The economic costs were also staggering. The value of loss was estimated to exceed well over one-third of a billion dollars at this early date in the analysis period. Of those costs it was estimated that \$250 million would be covered by insurance. The information gathered on business sector damage indicated that recovery would be unlikely without significant government support.

Information available on August 12 indicated that of the small businesses affected (from one to 20 employees), most owners had less than 20% equity in their businesses. None suffering catastrophic losses had any business interruption insurance coverage; most were dramatically underinsured. For the medium-sized businesses, those with from 21 to 100 employees, the equity position was less than 30% and approximately 60% of these businesses were underinsured.

Within the small- and medium-sized business sectors, approximately 1500 jobs were jeopardized by the tornado. It was estimated that another 1500 jobs had been prejudiced in

large businesses such as Stelco and Canada Packers. The insurance status of most small- and medium-sized businesses appeared to reflect the economic downturn that had hit Alberta in 1982 and from which industry was still trying to recover. In an effort to reduce overhead costs, insurance was often cut. It is well established that insurance decisions in our society are generally based on insuring high-probability, low-cost events and against insuring low-probability, high-cost events.<sup>4</sup> Therefore, the insurance picture in the disaster area was not considered to be unusual, according to federal and provincial risk management advisers, and the insurance industry.

Another factor in determining the dimensions of the assistance program was the need to begin restoration rapidly. Studies in other disasters had concluded that delays in restoration would compound the future recovery. There are strong pressures for a return to normalcy.<sup>5</sup>

Officials also had to deal with the expectations of both political and public audiences. Officials were extremely conscious that ministers wanted to initiate the recovery programs as quickly as possible. In the public sector there were expectations, based on statements of provincial and federal ministers, that a great deal of assistance would be provided. On the other hand, there could be audiences concerned about an overly generous assistance program.

At the time the tornado struck, a group of investors saw their savings threatened with the collapse of the Principal Group. Similarly, the agricultural sector had suffered billions of dollars in loss of revenue in recent years. Within the immediate area there were many unemployed as a result of the economic downturn that had affected Alberta over the past five years. Care had to be taken to ensure that assistance to those affected by the tornado would not be perceived by other audiences as being unduly preferential.

The prime concern of recovery programs for industry was to ensure continuity of the business operation, thereby preserving jobs. All elements of the recovery program had to be directed toward this end. A wide range of industries were affected: from a single operator with one piece of equipment to large industrial plants such as Stelco and Canada Packers. There was a need to ensure equal treatment, certainly among smaller and medium-sized businesses. The real result of the tornado, other than the terrible loss of life, was the uniform effect on the employees of all the businesses hit. Past experience had provided little guidance on how to deal with catastrophic loss of this dimension in the private sector. "Catastrophic loss" was defined as a condition in which the business had lost its assets or the continuity of business was prejudiced. In the Edmonton area there was considerable evidence of social responsibility by employers' keeping their employees on at full rates to assist in the recovery and cleanup even when there was no production to generate the revenue to pay them.

Another concern was that investment decisions that could be made by larger affected businesses could have impact on other areas of Canada. For example, a major industry might decide to reduce its capital investment in other areas in Canada to provide the recovery resources needed in Edmonton; conversely it might also decide not to re-establish in the Edmonton area if the transfer of capital assets was needed from other locations. In effect,

investment decisions might only have meant transferring the Edmonton loss to other areas of Canada with no real benefit to the nation as a whole.

These then were the factors that overshadowed the discussions that went on for several days between federal and provincial agencies and which had to be incorporated into the provincial recovery program. An outline of the options resulting from these sessions will be contained in the comprehensive history of the event currently being prepared by Alberta.

From these discussions, Alberta Economic Development and Trade officials prepared a recovery proposal for consideration by their Minister and the Executive of the Alberta government. On August 20, EPC convened a meeting of officials from the federal departments of Regional Industrial Expansion and of Agriculture to examine the proposed provincial program. The purpose of the meeting was to determine whether the industrial and agricultural assistance programs being considered by Alberta were reasonable, responsible and directed toward re-establishing business and retaining jobs.

It was agreed that the assistance program might improve the short-term equity position of some of the businesses in the industrial section. However, it was concluded that there was no assurance that this would be carried into the long term. The re-establishment grant provisions Alberta was considering were accepted as essential to continuity of business because of the general equity position of most of the small- and medium-sized businesses. The provincial approach to loan credit based on job retention was thought responsible, and EPC verified this with Canada Employment and Immigration on August 21. It was also agreed that the provincial program had been modified to ensure that loan credits were based on job retention performance rather than on ex gratia grants. The program provided the flexibility to deal with each industry individually to meet the objectives of the recovery.

The agricultural sector recovery program being considered by Alberta was accepted as equitable with that being developed with industry. It was clear that the provincial program would not cover crop damage and that any related loans would not be forgivable. The agricultural program being considered by Alberta was accepted as a reasonable and responsible approach to meeting the objectives of restoration. After discussion regarding the degree to which these special programs might be shared by the federal government the following points were agreed to:

- With the exception of the grants and loan contributions being considered by Alberta, all other elements of the assistance program had been employed in some form in other disasters.
- The grants and loan contributions were essential to the objectives of re-establishing businesses, considering the equity position of most businesses and farms suffering catastrophic loss.
- There should be recognition of the \$20-30 million benefit in job retention contained within the program being considered by Alberta.
- There was a need to credit the extraordinary long term management costs inherent in delivering this program over the next one to two years by Alberta.

- It would be inequitable to ask a region with 10% of the national population to carry a share exceeding 25% of the burden of the recovery program of this magnitude.

The recovery programs announced by Alberta were subsequently accepted as eligible for cost sharing under the Disaster Financial Assistance formula. Because of the unique business assistance program, it was considered, and agreed by Alberta, that the threshold for sharing should apply separately to the industrial recovery assistance program. This was in keeping with the recommendations of federal officials.

The need for a unique recovery program to meet a disaster of this nature is not unusual. Most government programs are designed for delivery of services based on a methodical approach to a needs analysis and accountability in normal times. Programs of this sort, while appropriate for the day-to-day conduct of public business, do not address the stressful conditions and compressed time-frames in the wake of a disaster. The approach adopted, in concert by both governments, ensured that the expertise of all federal and provincial agencies related to the agricultural and industrial sectors was incorporated into the consultation and development process. Their contributions were invaluable in identifying the elements that could contribute to a recovery program. But all of these agencies operate under strict legislative controls that do not permit them to employ their funds in a form other than that for which they were approved. As a result they lacked the flexibility to deliver short-term programs to meet unpredictable needs.

In essence, the approach employed by the federal and provincial governments was to have the experts design the program but to fund programs under the aegis of disaster assistance arrangements existing in both federal and provincial jurisdictions. These arrangements have the flexibility to provide funds in crises. One interesting note about the development of the options listed for the recovery program, was the difficulty in breaking away from traditional thinking. Officials are generally constrained to working within the boundaries of an established program. Thus, a considerable portion of the initial discussions appeared to be related to developing a mental break between the normal approach to established programs and the innovative development required to address this unpredictable circumstance in a compressed time frame.

Consideration of the cost of the recovery program naturally focused on the money that would have to be re-allocated from existing federal and provincial resources. It became evident that there was an obvious benefit to retaining jobs when looking at the overall cost of an assistance program. The question was how to identify what this benefit might be? The benefit was considered in terms of the value that economic development and job creation agencies were prepared to put into the creation of a job. Similarly, there was the value of Unemployment Assistance payments for an average position. As well, if the job were lost there would be a social cost in various services that would have to be delivered to those affected. As a result, a general figure was adopted for the assistance program. The value of the job, created or retained, was somewhere between \$15,000-\$20,000 each, based on average input costs for job creation or retraining. A value of \$10,000 per job was accepted by provincial and federal officials as a factor in determining performance of industry related to forgiveness on loans.

A further factor to be considered was the loss of tax revenue that would occur if the jobs were lost. Alternatively, revenue would accrue if jobs were retained or if restoration of those jobs could be accelerated. This in turn would create a benefit to be considered in the overall value of the investment in disaster assistance.

From a federal perspective it was projected that federal investment would be in the neighbourhood of \$6,000 per job based on the provincial assistance program. This was considerably less than the cost of job creation or retraining support used by other federal or provincial agencies by a factor of 2.5 to 3 for each position.

The recovery programs agreed to by the federal authorities for sharing under the Disaster Financial Assistance arrangements, managed by Emergency Preparedness Canada, included the normal elements of disaster assistance, plus those extraordinary support elements required to deal with catastrophic loss in the family, agricultural and business sectors. The table below outlines the enhanced support program agreed to for sharing.

### CATASTROPHIC LOSS

	Re-establishment Assistance \$	Transportation Assistance \$	Loans \$
Individual/ Family	2000/adult 500/minor Max. 5000	\$500	0
Business (including Agriculture)	15,000 max	0	<ul style="list-style-type: none"> <li>. For insurance shortfalls</li> <li>. For cost of recovery 2 years' interest free forgivable, based on performance established in a business plan, to a maximum of 80%</li> </ul>

#### Status - March 1988

The recovery program for individuals and families directly affected by the tornado is well under way. Most of the residential areas that suffered catastrophic losses are on the road to physical recovery and re-establishment. The recovery programs related to the agricultural sector and industry are far from complete. Within the agricultural sector somewhat less than

a dozen farms suffered catastrophic loss. In the industrial sector more than 250 industries suffered catastrophic loss; the assistance programs will continue for some time. It would be inappropriate to reach any conclusions about the success and adequacy of the program at this time. Early indications are that not only is industry on the road to re-establishing itself, but some industries have used the re-organization that they had to undergo as an opportunity to become more efficient.

Based on estimates collected by mid-February 1988, government assistance and recovery programs are projected to cost \$60.3 million. Based on the Federal Disaster Financial Assistance arrangements formula, the federal contribution to this amount would be \$44.9 million.

### **For Future Consideration**

Observations have been made in some government sectors that the relationship of the Deputy Prime Minister to a regional official, while proving to be expeditious, was too unusual to be conclusive. To casually discard this would be an error.

The role of Regional Ministers in major events of concern to the federal government, while being primarily within provincial jurisdiction, is not new. Regional Ministers have provided active leadership in previous events.

The Barrie Tornado of 1985 and the response to the drought in 1977 saw Regional Ministers providing federal leadership.

While the role of Regional Ministers is not integrated into the formal crisis management procedures of the government, it is a reality that has occurred three times in recent history and will likely occur again. The result is to create almost a quasi-department to treat the immediate needs arising from the emergency but one that disappears once the services have been delivered.

This treatment of emergency needs by a special organization is not unusual. Where the needs are regional in nature this appears to be an appropriate mechanism. The federal strategy can be determined based on the regional needs identified by Ministers and officials most familiar with the conditions in the area. Delivery of services is the responsibility of federal regional officials. This is not meant to lessen the ultimate authority of central agencies to override any recommendations or strategies presented by the regional lead agency; however, experience suggests that this system works well and responds to needs expeditiously and responsibly.

This report would be remiss if it did not identify concurrent studies sponsored or supported in some form by federal agencies. At the time of drafting, several have been identified.

EPC sponsors some research by the Emergency Communications Research Unit of the School of Journalism, Carleton University, Ottawa. This unit deployed a team to the Edmonton area on August 1 and began the first of two communications research projects. The first related to a review of emergency services communications; the second to

information on mass casualty handling and distribution. Mention was made earlier to the Hage report commissioned by Environment Canada. It deals with technical matters related to forecasting, the communication of alerts and warnings through the media to the public, and public attitudes.

Health and Welfare Canada has been requested by the City of Edmonton and the Province of Alberta to support a project that will correlate injuries and the type of accommodation in which people were located. This report may subsequently assist in modifying building construction and design standards.

## Lessons Revisited

A wealth of material is available on disaster studies and research in which the human and organizational response has been examined in depth. Little can be identified in this event that differed from the conclusions of existing studies. However, a number of conclusions might bear reinforcing related to the federal response:

- The crisis management procedures approved by Cabinet in 1980 envisaged emergencies of this scope, that were of provincial jurisdiction, but in which there was a major national concern. The procedures provide for Emergency Preparedness Canada to be the primary agency to co-ordinate the federal response in a disaster such as this. The guidance contained in those procedures appears to be adequate.
- Within the regional/federal area, no particular planning or consideration had been given to events such as occurred in Edmonton. Over the past 15 years, activities of regional/federal officials have been based on a generic response to emergencies. On many occasions where an actual causal agent could be clearly established and related to the infrastructure or economic situation in the region, federal planning was dedicated and detailed to those needs; e.g. the potential for foreign animal disease outbreaks in Alberta.

This approach to generic planning and focusing on specific, clearly identified conditions, provided a blueprint for application in other events such as this tornado. It has been established in research and studies of other events that a significant legacy to generic or focused preparedness can be transferred to unenvisaged events and conditions.<sup>6</sup>

- The widely held view that disasters are qualitatively different from emergencies has been reinforced in this event.<sup>7</sup>

In a disaster the social and infrastructural systems break down and fail. They are in that sense much different from emergencies. The great complexity of disasters under these conditions requires co-ordination by feedback and not by plan.<sup>8</sup> Federal arrangements within the overall delivery

of services by various government agencies was effected through a continuous process of feedback between the line agencies that were leading in their traditional area of expertise. The federal co-ordinator, EPC, acted as a broker to ensure consistent application of the federal strategy and to assign emergent tasks.

- It has been shown <sup>9</sup> in previous events that the success of any agency within the preparedness or response field is determined by its experience, whether its function is recognized by other agencies, whether its credibility has been established through proven performance in the preparedness and response field or other areas of endeavour with fellow agencies, and whether it has had a well-established pre-disaster relationship. These conditions did prevail between the federal and provincial emergency agencies in this event as well as between the federal co-ordinator and the federal agencies contributing to the assistance and recovery program.
- The mythical perceptions of the Canadian Forces' capabilities to muster large numbers of personnel on short notice to assume any and all tasks, still seems to exist in the civilian community. As late as January 1988 some senior emergency services officers of local government commented to the effect that the military should have been called in to direct the search and rescue operations. In fact there was no apparent shortcoming in the conduct of the civil search and rescue and security operations. Some observations by officials of local government during the immediate tornado aftermath, indicate a perception of the "major resource sitting in the wings." There is a continued need for provincial authorities to disavow local officials of this view.
- Preparedness for emergencies should be an unending process of planning between agencies and governments, in a mutually reinforcing way, to provide the flexibility to adapt to unpredictable circumstances; this includes continuous communication supported by the stamp of authority of the governments involved. The latter is needed for conducting activities in the response to emergencies.

Examination of the provincial disaster services program should lead to the conclusion that those conditions have prevailed since at least the mid-'70s. The manner in which the City of Edmonton placed its disaster services program in the Executive Branch and the method with which the Alberta government treated disaster services as a fully fledged program of government, augered well for preparedness for disasters of this sort.

- When an event draws national and international attention, a mass of resources often pours onto the scene. Often these resources are loaded upon volunteers or emergency agencies not designed to cope with a mass assault. This proved to be so in this response. As a result, some of the volunteer agencies had to be reinforced by government support rather than vice-versa.

- One of the major factors contributing to the federal government's ability to respond to the needs of the province in mustering its disaster recovery program was the flexibility inherent in the guidelines for the Disaster Financial Assistance arrangements. This flexibility is its major strength. It means the federal government can deal with unforeseen needs. Any attempt to redirect the arrangement into a more structured form should be strongly resisted.
- The role of the Regional Minister, while not specified in the crisis management procedures of the federal government, has on three occasions in the past decade proven to be extremely effective. This influence should be seen as a positive contribution responding expeditiously to regional needs.

### **Co-ordination**

Co-ordination is "the essence of good planning and operations" in disaster response. In the federal sphere, emergency preparedness co-ordination is the domain of EPC. In disaster response involving a number of federal departments the co-ordination function falls naturally to EPC.

The lead department concept began to develop following the Dare study on crisis management.<sup>10</sup> It came into full force with Cabinet decisions on new initiatives for emergency preparedness in 1980.<sup>11</sup> The concept is based on employing departments and agencies in tasks in which they have traditional or latent capability. This is a sound principle of disaster management. In effect, the department leads in its own area of expertise. Concurrently there is a requirement to ensure co-ordination between operations, federal agencies and between governments in complex situations, i.e. disasters.

Co-ordination is an essential element for successful action in disaster management. It requires a dynamic system to deal with complex relationships, treat emergent needs and assign non-traditional activities. The co-ordination process:

- identifies the strategic focus for multidisciplinary groups or organizations
- provides a common understanding and dedication to objectives, priorities and divisions of activity
- ensures concurrent and related activities are properly blended
- eliminates duplication
- incorporates and assigns emergent tasks
- measures progress and corrects deviations from the overall plan or strategy.

If it be granted that knowledge of past performance is a major indicator of future performance, the co-ordination system adopted should recognize that while organizations have competence in their traditional duties, their capacity for undertaking contingency tasks is limited. Their relationships are usually based on patterned interactions that recognize "domains" extending from pre-disaster relationships.<sup>12</sup> Co-ordination is EPC's domain. Therefore, caution is the byword in universal application of the lead department concept in complex situations.

EPC is responsible for co-ordinating the preparedness of the federal government. Co-ordination in emergency or disaster response is a traditional task to EPC. In ensuring co-ordinated activity, the essence of preparedness, there is also an imperative requirement to do so without interfering with responsibilities of individual Ministers. It can be done. The federal response to the tornado and flooding demonstrated that this balance can be achieved.

In this event, as in many others, agencies with special technical competence or knowledge in traditional program areas provide that leadership within the overall response system. Studies have unanimously identified co-ordination as the essence of planning and response to emergencies. This co-ordination does not result in the prerogatives of specialist agencies being subsumed. Rather the converse is true: the co-ordination process ensures that the traditional capabilities of government agencies are effectively employed in each of their areas or competence. As one provincial executive put it: "Every agency led in its area of special competence, but did so under a general strategy established by the co-ordinating agencies."

## **Conclusion**

This report of the federal involvement in the tornado and associated storms that affected Alberta in July of 1987 was not meant to be an analysis of the effectiveness of the response nor of the effectiveness of assistance and recovery programs. It did not include the activities of many federal agencies which in the course of normal duties had to face some of the effects or demands of their clients as the result of the tornado, e.g. Revenue Canada Taxation's need to address the re-establishment of essential corporate records as well as to consider assistance to businesses and industry under tax law. It is interesting that the Halifax explosion of 1917, to this very day, continues to be the subject of examination and review or observation by students of disaster services or human response to stress or emergencies.

This report forms only a small part of the material that will be collected in detailing and examining not only the human and organizational response in dealing with this emergency, but as well, the long-term social and economical effects of a disaster of this magnitude.

## Annex A

# EDMONTON AREA DISASTER FEDERAL RESPONSE STRATEGY AUGUST 1, 1987

### General Situation

At approximately 15:00 on July 31, 1987, Environment Canada Atmospheric Environment Services in Edmonton issued a tornado warning for the Edmonton area and counties to the east. Between 15:45 and 16:30, the eastern edge of Edmonton was subjected to severe winds, rain and tornadoes.

The major damage occurred in the areas of Sherwood Industrial Park, Clairview and Evergreen Trailer Park. As of 12:00, August 1, 1987 there were 24 confirmed dead. Nineteen deaths occurred in the City of Edmonton and five in the County of Strathcona. Over 190 persons were reported admitted to hospitals.

The City of Edmonton conducted rescue operations. Clean-up and damage assessment continues today. It is estimated that over 100 trailers and 60 homes were destroyed with numerous others damaged. Assessment and clean-up will continue for some time. Long term requirements have not been defined yet.

### Federal Assistance

During the disaster period, AES continued to provide weather information to the public and governments even though their offices had to be evacuated because of tornadoes. DND placed helicopters and ambulances on stand-by. They provided reconnaissance flights for the City of Edmonton and the Deputy Prime Minister. EPC established and maintained contact with Alberta emergency agencies from the onset of the storm.

The Deputy Prime Minister, Minister of External Affairs, MP Bill Lesick and the Regional Directors of CMHC and EPC conducted an airborne inspection of the damaged area. This was followed by a meeting which additional federal representatives of FEDC, CEIC and DRIE attended. The potential areas of federal involvement were discussed. The following strategy was accepted for presentation during discussions with Alberta:

- a) continued co-operation would be offered, to be concurrent and co-operative with Alberta's recovery program;
- b) CMHC will offer assistance with utilization of vacant units, initially rent free, and assessment of damaged property;

- c) DRIE and CEIC will meet with affected industry to identify their needs;
- d) CEIC will apply its Canadian Job Strategy Program and expedite UIC benefits for those entitled;
- e) a one-stop, drop-in-centre will be recommended for federal and provincial social programs to disaster victims;
- f) in the event that (e) is not agreed to, EIC, CMHC and HWC Income Security will open a service centre in NE Edmonton; and
- g) requests for DFAA will be responded to positively with the widest possible interpretation of eligibility.

The Deputy Prime Minister advised that he would co-ordinate Ministerial activities and that J. Hoffman, EPC will be the federal co-ordinator in the region. FEDC will assist EPC with communications support.

Federal officials will attend Alberta's recovery program discussion late on August 1, 1987.

# FACT SHEET

# FEUILLET DE DOCUMENTATION



Emergency Preparedness  
Canada

Protection civile  
Canada

## DISASTER FINANCIAL ASSISTANCE ARRANGEMENTS

Emergency Preparedness Canada administers the Disaster Financial Assistance arrangements on behalf of the Government of Canada.

The program was established to assist the provincial governments where the cost of dealing with a disaster would place an undue burden on the provincial economy.

Under the arrangements, the federal government provides, at the request of the province, financial assistance in accordance with a formula based on provincial population. Generally, payments are made to restore public works to their pre-disaster condition and to facilitate the restoration of basic, essential, personal property of private citizens, farmsteads, and small businesses.

Under the formula, no sharing occurs unless provincial expenditures exceed an amount equal to \$1 per capita of the provincial population. When a province's expenditures exceed this level, the amount of federal financial assistance payable to a province is determined as follows:

50 per cent of the next \$2 per capita of provincial expenditures eligible for cost sharing; 75 per cent of the next \$2 per capita and 90% of the remainder.

When cost-sharing is arranged with a province, the EPC regional director is usually designated as the representative of the federal government. As such, he

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is responsible for arrangements for damage assessment, detailed interpretation of the guidelines, a general surveillance of private damage claims and the development of joint federal-provincial teams to review claims for agricultural and public sector damage.

Since the inception of the program in 1970, the federal government has paid about \$100 million in post-disaster assistance to the provinces.

The following table indicates how the program works.

Federal Post-Disaster Financial Assistance  
(per capita sharing)

<u>Provincial Eligible Expenditures</u>	<u>Federal Share</u>
First \$1	Nil
Next \$2	50%
Next \$2	75%
Remainder	90%

Example: population 800,000. Eligible expenses: \$24,000,000.

		<u>Provincial</u>	<u>Federal</u>	<u>Federal Portion</u>
1st \$1 per capita	\$ 800,000	\$ 800,000	\$	Nil
Next \$2 per capita	1,600,000	800,000	800,000	50%
Next \$2 per capita	1,600,000	400,000	1,200,000	75%
Remainder	<u>20,000,000</u>	<u>2,000,000</u>	<u>18,000,000</u>	90%
	\$24,000,000	\$4,000,000	\$20,000,000	

January 1988

## BIBLIOGRAPHY

1. Emergency Preparedness Canada. (1981) *Procedures for the Co-ordination of Crisis Management Operations* EPC 21/81.
2. Hage, Keith D. (1987). *Review of the Weather Warning System Associated with the Edmonton Tornado on July 31, 1987* Environment Canada.
3. Chartrand, Robert Lee. *Information Technology for Emergency Management: The Many Potentials* CRS Review.
4. Slovic, Paul et al (1977). *Preference for Insurance Against Probable Small Loss: Implications for Theory and Practice of Insurance* Journal of Risk and Insurance 44 (June).
5. Drabek, Thomas E. (1986). *Human System Responses to Disaster: An Inventory of Sociological Findings* Springer-Verlog P. 234-237.
6. Ibid P.45
7. Ibid P. 47
8. Ibid P. 29-30
9. Ibid P. 31-33
10. Dare, M.R. (1972). *Report of the Crisis Management Study Group: The Enhancement of Crisis Handling Capability Within the Canadian Federal Structure*
11. Emergency Preparedness Canada, *Procedures for the Co-ordination of Crisis Management Operations*
12. Dynes R. Quarantelli E.L., and Kreps G.A., (1972) *A Perspective on Disaster Planning* Disaster Research Centre Report Series No. 11.



