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1) Background

Demographics and economics of Quebec's Saguenay-Lac-Saint-Jean region

In surface area, Saguenay-Lac-Saint-Jean is the third largest of Quebec's official administrative regions. It has 49 municipalities, and most of its population (72.0%) is concentrated in urban areas. Over the past 20 years, the population of the rural municipalities in the outlying areas of this region has declined, while that of the more densely populated areas has increased. Settlement is concentrated around the two major bodies of water in the region: a large lake (Lake Saint-Jean) and the Saguenay River. The area around the lake is predominantly agricultural, while most major industries are located along the river. Extraction and primary processing of natural resources (forestry, agriculture, hydroelectricity and aluminum) play an important role in the economy of the region, where they provide 4.8% of all jobs, compared with 3.4% in the rest of Quebec. The tertiary sector accounted for 74.1% of all jobs in 1996. As of 1997-98, there were 353 community agencies in the region, and 17% of them provided health and social services to older persons. The unemployment rate in the Saguenay-Lac-Saint-Jean region was 14.5% in 1996, compared with 11.2% for the province of Quebec as a whole. The total population of Saguenay-Lac-Saint-Jean in 1996 was 286,649, of whom 30,080 (10.5%) were persons age 65 or older. A total of 172,345 people lived in the Saguenay portion of the region, and 18,300 (10.6%) of them were age 65 or older. The vast majority of seniors in the region live in private households, and a higher proportion of older women live alone (28% versus 11.0% of older men). As of 1995, about half (53.0%) of all persons age 65 or older had incomes below the low-income threshold, compared with 25% for all households combined. Life expectancy is lower in the Saguenay-Lac-Saint-Jean region than in Quebec as a whole (1.1 years lower for women, 1.5 years lower for men), and from 1991 to 1993, the incidence of new cancer cases was 10% higher in this region than in Quebec as a whole.

The floods of July 1996

On Thursday, July 18, 1996, a low-pressure system formed west of Hudson's Bay. A huge, comma-shaped cloud formation then developed, spiralling outward over the Atlantic, back over the continent at Nova Scotia and onward west into Quebec until it reached the Saguenay-Lac-Saint-Jean region. According to meteorologists, by this time, the formation was over 4,000 km in length. At about 1:00 a.m. on Friday, July 19, the system let loose its burden of water. Over the following 50 hours, between 150 and 279 mm of rain fell over the region, mainly in the drainage basins of the Kénogami reservoir and the Ha! Ha!, Mars, Chicoutimi, Du Moulin, Saint-Jean and Belle-Rivière rivers. When these torrential rains first assaulted the region, the levels of its reservoirs and rivers, as well as its groundwater, were already substantially higher than normal, because so much rain had already fallen in the preceding three weeks (Lemieux, 1998). As the ground became saturated, runoff into rivers, lakes, and reservoirs increased. At the height of the flooding, the volume of water entering the basin of Kénogami Lake was 2,364 cubic metres per second. Over the night of Friday, July 19 to Saturday, July 20, the situation became unexpectedly

grave in certain municipalities, where the already high river levels increased considerably, causing heavy damage in several of the area's urban and rural municipalities.

The urban and semi-urban municipalities of La Baie, Jonquière, Laterrière and Chicoutimi were especially hard-hit by the floods. (As of 2001, these municipalities have been amalgamated; they now constitute boroughs within the City of Saguenay.) Meanwhile, the rural municipalities of Ferland-et-Boilleau, L'Anse-Saint-Jean and Petit-Saguenay became isolated as roads were cut off and the power went out. The floods of July 1996 forced the evacuation, sometimes under extremely perilous conditions, of people who lived near rivers and streams, in unstable areas vulnerable to landslides or in areas that had been cut off from all access. The floods caused extensive damage, putting out roads and bridges and disrupting essential services such as drinking water, electrical power, and telecommunications in several municipalities. In the southeastern part of the region, especially around Ha! Ha! Lake, the rain's effects were dramatic. The surge of water from the Laurentides Wildlife Reserve burst the Cut-Away Dam at Ha! Ha! Lake, causing the Ha! Ha! River to rise to unprecedented levels. Ferland-et-Boilleau and the Grande-Baie area were inundated and heavily damaged. The rising levels of the Mars and Saint-Jean rivers also caused major damage in other parts of La Baie and in the rural municipality of L'Anse-Saint-Jean.

Past disasters in the region

The people of the Saguenay had experienced two major natural disasters in the past, and as a result, when the July 1996 floods struck, the region's municipalities already had emergency response plans in place for dealing with such events. The first of these earlier disasters occurred on May 4, 1971, in Saint-Jean-Vianney, then a fast-growing small town of less than 3,000 inhabitants. Heavy rain seeping through clay soil had caused a huge sinkhole to open, resulting in a gigantic mudslide that killed more than 30 people, swallowed up some 40 homes, and forced the entire population to be evacuated and the town to be permanently abandoned. When this disaster occurred, the frightened, astonished residents had to leave their communities and neighbourhoods suddenly, in total darkness and torrential rain. A multitude of dramatic stories came out of this event. Some 40 commuters barely escaped with their lives when they managed to struggle out of their bus, which had plunged into the sinkhole. Many families saw their homes disappear into this crater mere minutes after they had abandoned them. Other people, some of them elderly, had trouble escaping from their homes, either because their doors and windows had been damaged as the ground sunk, or because their verandas and the fronts of their houses had already disappeared into the crater. The survivors of this mudslide had been frightened for their own lives, and many had helplessly witnessed the deaths of the people closest to them—spouses, other members of their nuclear and extended families, friends and neighbours—without being able to come to their rescue. Residents who had heard the cries of loved ones being sucked down into the mud were left with feelings of anguish, fear and disbelief.

The second major disaster in the Saguenay region was an earthquake that occurred in Chicoutimi in 1988. Luckily, this event did not cause any deaths or injuries, but it did leave a profound mark on the public and the emergency teams who responded to it. It was after this second disaster that the municipal authorities decided to start developing their emergency response plans.

Also worth noting: just one month before the July 1996 floods, social workers from the region's community health and social services centres had received a three-day training program on

mental health response to natural disasters from Quebec's Department of Health and Social Services (MSSS).

2) Emergency preparedness

Emergency preparedness committees already existed in all of the Saguenay municipalities that were affected by the July 1996 floods. These committees were composed of emergency response representatives from various municipal, health and social services agencies. These committees' emergency response plans specified the responsibilities of the government authorities and of the governmental, paragonovernmental and community agencies that would respond if an emergency occurred. These plans included the contact information for all the people in charge of the response, as well as the planned locations for emergency co-ordination centres and evacuee shelters. Each municipality's emergency response plan also included a document, known as a "fire safety cover plan," that identified group homes whose residents were vulnerable because of physical, cognitive or mental health problems, old age (i.e., senior citizens' homes) or limited mobility. The municipalities' emergency preparedness committees had been working for several years on analyzing the potential risks of disasters and the measures that should be implemented to ensure the public's safety. In each of the municipalities that were struck by the floods, plans for responding to a flood emergency were thus already in place.

3) Damage caused by the July 1996 floods

According to the *Bureau de la reconstruction et de la relance du Saguenay-Lac-Saint-Jean* (1997) [regional bureau for the reconstruction and recovery of Saguenay-Lac-Saint-Jean], across the region as a whole, 426 primary residences were destroyed or declared total losses as a result of the floods and 2,015 primary residences were damaged. The available figures also indicate that compensation claims were made for 694 secondary residences, 575 private businesses and 267 farming operations. Three regional highways suffered major damage, either at the points where they crossed rivers or for long distances along river banks. Numerous stretches of city streets, as well as bridges and access roads, were destroyed or damaged, preventing residents from travelling freely. Various parts of individual cities and villages were completely cut off from one another. Domestic water and sewage lines were damaged or destroyed, so there was no drinking water for many people living in flooded areas or in parts of the various Saguenay municipalities that are served by water filtration plants. The Quebec Department of Municipal Affairs received 208 requests for financial assistance in dealing with damage to municipal infrastructure. Eighteen educational institutions in the region suffered losses. The power grid of the provincial public hydroelectric utility, Hydro-Québec, was also heavily damaged. When the floods struck, 13,000 customers were deprived of electricity. Many recreational facilities and tourist attractions were damaged (28 fish and game reserves and outfitters reported losses). Many major businesses in the region, including Alcan, Cascades, Abitibi-Consolidated and Hydro-Québec, also suffered damage to their infrastructure.

In 2000, the Government of Quebec produced an assessment of the impact that the torrential rains of July 1996 had had on the region and of the government response to this disaster. This report also summarized the various kinds of reconstruction and recovery work and their cost. It estimated that the total damage suffered throughout the region (including both damage that was eligible for government financial assistance and damage that was not) came to nearly \$285 million (all figures are in Canadian dollars). The Government of Quebec estimated that, as of December 31, 2002, it had paid out nearly \$135 million through various compensation and

reconstruction programs to individuals, private businesses, aid and assistance agencies, municipalities and regional county municipalities. Quebec's official statistical agency, the *Institut de la statistique du Québec*, estimates that the losses associated with the July 1996 floods topped the \$1-billion mark (Faucher, 2002). This amount includes the cost of rebuilding and restoring public assets (about \$620 million), claims paid by insurers (about \$165 million), losses absorbed by community agencies (about \$50 million) and the costs for flood management activities in the regional watershed (about \$170 million). Faucher (2002) notes that these costs do not include certain losses and expenses that are hard to measure, such as lost transportation time, uninsurable assets and work done by volunteers.

The July 1996 floods in the rural municipalities of Ferland-et-Boilleau and L'Anse-Saint-Jean

On the night of Friday, July 19 to Saturday, July 20, 1996, the rural municipalities of Ferland-et-Boilleau and L'Anse-Saint-Jean activated their emergency response plans. Throughout Saturday and until noon on Sunday, emergency efforts focused on evacuating all the residents of Boilleau, who had gathered in the village church and in the nursery greenhouses of the local forestry co-operative. The evacuation of Ferland began on Sunday morning and was completed at about 4:30 Sunday afternoon. During that fateful night in Ferland, the basements of a number of homes began flooding. Residents who could no longer stay in their homes took refuge in a community centre, where a dormitory had been set up in the main hall. The residents of both Boilleau and Ferland were evacuated by Canadian Forces helicopters and taken to Canadian Forces Base (CFB) Bagotville, where the military and the Red Cross had prepared emergency camps to accommodate them. When the churning wave of water, mud, granite boulders, uprooted trees, dead animals and the remains of homes struck the evacuated village of Boilleau, some remaining residents faced extreme peril and some hazardous rescues had to be made. One elderly couple trapped in their house by the surrounding water had to be winched to safety aboard a helicopter. Twelve volunteers stayed in the village to protect property and to care for the animals remaining there. On Sunday evening, the work of assessing the damage and contacting the families who had not been evacuated, because they chose to remain in the village, began. Over the following days, clean-up efforts were organized. Three weeks later, on August 9, 1996, the people of Ferland and Boilleau returned to their villages, but returning to normal life proved fairly difficult. Electrical power was not restored until several days later. In the municipality of Ferland-et-Boilleau as a whole, 17 houses were declared total losses and 116 others suffered damage. Claims for compensation were filed for 8 secondary residences, and 13 businesses and one farm suffered losses.

In L'Anse-Saint-Jean, the first signs of impending disaster appeared on the evening of Friday, July 19, when Highway 170 was cut off at numerous points. Several stretches of the highway connecting the municipalities of the Lower Saguenay (Rivière-Éternité, L'Anse-Saint-Jean and Petit-Saguenay) were damaged or destroyed. At many points, the road was blocked by trees, branches, rocks and mud carried down by landslides from the mountains and cliffs alongside, while the shoulders were eaten away by swollen streams rushing across the road. At about 9:30 p.m. that Friday, a stream near Du Portage Street burst its banks, carrying along a mixture of rock, sand, and mud that ripped up the roadway at many spots. The shoulders of the road were torn away. Around the same time, two houses and the gatehouse at the L'Anse-Saint-Jean fish and game reserve were damaged. The families that lived in these two homes were evacuated to those of friends and relatives. Saint-Jean-Baptiste Street was also cut off at 19 separate locations,

isolating several parts of the village from one another. The evacuations continued through part of the night, and most people were sleeping when the emergency response teams knocked at their doors. Scarcely awake, the residents had just enough time to grab some personal belongings before they were whisked away to the shelter that had been set up for them at the local high school. Other residents of L'Anse-Saint-Jean took refuge at the Mont-Édouard Inn and the homes of a few village families who were ready to take them in. Early in the night, roadside public infrastructure began to suffer heavy damage. Electrical power transformers blew one after another, plunging the community into darkness. At about 11:30 p.m., the telephone lines stopped working entirely and burst water mains left the public without running water. At about 1:00 a.m. on Saturday, July 20, the stream that runs alongside Highway 170 as it enters the village burst its banks. The water rushed down Du Coin Street toward Saint-Jean-Baptiste Street, destroying many houses, damaging several others, and leaving copious amounts of water, mud and debris of all sorts in the street, in people's yards, and in the damaged houses themselves. In the space of 20 minutes, Du Coin Street was completely destroyed, as were the houses at the intersection of Du Coin and Saint-Jean-Baptiste. Because food and many other items were difficult if not impossible to obtain, a supply centre was set up in the local municipal building to meet the needs of village residents. Given the situation, food and other supplies were airlifted into L'Anse-Saint-Jean by Canadian Forces crews from CFB Bagotville. While waiting for these supplies to arrive, the emergency teams salvaged some of the provisions remaining in the damaged grocery store on Du Coin Street and prepared meals for the evacuees taking shelter in the high school. All access to La Baie and the other municipalities of the Lower Saguenay was cut off for several days. The lack of communication and information from the outside world made the situation even more difficult. According to the data compiled by the *Bureau de la reconstruction et de la relance du Saguenay-Lac-Saint-Jean* (1997), losses in L'Anse-Saint-Jean included 19 primary residences destroyed, 102 primary residences damaged, and 35 secondary residences destroyed or damaged. In addition, 33 businesses suffered major, moderate or minor losses, while two farmers filed claims for compensation.

The floods in the various boroughs of the City of Saguenay

In the boroughs of the City of Saguenay (the former municipalities of Jonquière, La Baie, Chicoutimi and Laterrière), the floods of July 1996 caused extensive damage to a number of primary and secondary private residences, as well as to businesses, community enterprises and public infrastructure.

The data for the borough of Jonquière list the following damage: 11 homes considered total losses (including one low-cost family-housing project where 9 elderly people had been living in a residential unit), 340 private houses and 10 secondary residences damaged, and 53 private businesses and 17 farms that suffered property damage. Jonquière also suffered numerous types of damage to its public infrastructure: Highway 170 was cut off at several points and a number of water mains were severed as well. Drinking water wells at several locations were contaminated; the city's hydroelectric plant was damaged; two dams suffered major damage and railway lines were cut at several points. The Government of Quebec has estimated the damage in Jonquière at over \$38 million (*Bureau de la reconstruction et de la relance du Saguenay-Lac-Saint-Jean*, 1997).

In La Baie, 190 primary residences were destroyed, while 350 others suffered damage, as did 80 secondary residences. Close to 200 businesses (164 stores and 26 farms) submitted claims for

compensation, including 20 that had been completely destroyed. Two main highways were severed at multiple locations, several bridges and sections of railway track were either destroyed or seriously damaged, and 10 schools were affected as well. The losses incurred in La Baie have been estimated at over \$93 million.

In Chicoutimi, 53 houses were considered total losses, another 163 were damaged, and compensation claims were filed for 17 secondary residences, 180 private businesses and 15 farms. The Le Bassin neighbourhood was very heavily damaged; losses were reported for a dam, an electrical power distribution network, a water-filtration plant, and a variety of recreation and tourism facilities. The amount of these losses has been estimated at nearly \$60 million.

Lastly, in Laterrière, 90 primary residences were destroyed by flooding, while 345 were damaged. A total of 156 secondary residences, 54 businesses and a number of farms filed compensation claims. Two bridges were seriously damaged, highways were severed at several locations and some tourism facilities were seriously damaged. The total damage in Laterrière has been estimated at nearly \$24 million.

4) The response to the emergency

Over the two days that the floods raged, the region's municipalities took a whole series of steps to make the population safe. All of the people and organizations involved in implementing the emergency response plans were mobilized. A list of volunteers who were available to help with emergencies was prepared, and teams were established to monitor the situation in the various parts of the municipalities. To supply electricity to areas where the power had gone out, emergency generators were set up in municipal buildings and in buildings being used as public shelters. According to some of the responders we interviewed in our research on the effects of the July 1996 floods on the health of individuals and community development in rural areas, even though municipal emergency response plans were already in place, the municipal authorities and other agencies in charge of the response were not sufficiently prepared or trained to deal with a disaster of this magnitude. From the very outset, the responders in rural areas were hard-pressed by the breakdown of their usual means of communication, as well as by the remoteness of their communities and their widely scattered populations. Also, because the floods occurred right in the middle of the summer, some employees who had physical custody of their municipalities' emergency response plans were on vacation and the authorities had difficulty reaching them to locate the plans. The work of the local volunteers and response teams was also impeded by a lack of modern conveniences (such as electricity and running water), as well as by transportation problems. Because several roads were cut at many locations, travelling both within and outside of certain communities was difficult if not impossible.

In total, 15 service centres for disaster victims were established throughout the Saguenay; some stayed open for only one day, while others remained open for 21 days. In all, 16,000 people of all ages (including at least 2,000 older persons) were evacuated. Social workers, psychologists and nurses were on hand at these service centres, at public information sessions, and at sites where financial compensation and perishable and non-perishable goods were distributed by the provincial government and by charitable organizations such as the Red Cross and the Society of Saint Vincent de Paul. According to the Quebec Department of Health and Social Services, over 150 mental health professionals trained in emergency response provided various services to the flood victims (Martel, 2005). At sites and events such as public information sessions where flood

victims of all ages were gathered, these professionals identified the persons who were the most severely affected, encouraged them to verbalize their feelings, and met with them both individually and in groups. These professionals not only accompanied the flood victims when they first returned to their homes, but also made door-to-door visits once all of them were back, regardless of whether their dwellings had been damaged. A 24/7 telephone helpline was also set up about 10 days after the floods so that anyone who felt the need to talk about their problems or feelings could do so with a social worker. This telephone service remained in operation through April 1997. It was then converted into a permanent service called *Info-social* that is open every day of the week during the hours when the local community health and social services centres (CLSCs) are closed. Support for flood victims' committees was also provided by community organizers from the various CLSCs, and a communication plan was developed to normalize the feelings that flood victims were experiencing. Public lectures were presented, a communication plan was developed and a brochure was distributed to every flood victim. In accordance with this communication plan, a year after the floods, the mental health workers from the CLSCs were still giving interviews regularly to the media (television, radio, newspapers) and producing brochures to reassure the flood victims, to let them know that it was normal to still be experiencing some after-effects from the disaster and to encourage them to take advantage of the various mental health services available to them. In most of the municipalities, it was the social workers from the CLSCs who set up these services. Flood victims identified by the social workers as showing symptoms of psychological distress were also provided with individual counselling sessions as necessary. For a period of one year, victims of the July 1996 floods were given priority if they showed the need to see a mental health professional. At some CLSCs, special attention was given to older persons who were receiving home-support services. In Ferland-et-Boilleau, one of the rural municipalities affected by the floods, a community agency took charge of providing the victims with support both during the disaster and afterward. This agency devoted special attention to people of all ages who either had already been experiencing ill health or limited mobility before the floods, or had shown signs of psychological distress after living through them. Most of these people were elderly.

The response plan implemented by the government and its partner agencies rolled out in three main phases. Each phase was carried out within a specific time frame and consisted of specific steps to rebuild infrastructure and provide support to the public.

Phase 1 consisted of the emergency response measures taken during the floods and in the days immediately afterward, with the goal of ensuring that everyone was safe. The three main objectives of this phase were to co-ordinate all response activities, to make effective use of reliable experts, and to inform the public about the measures being taken and the assistance programs being put in place. The main emergency activities carried out in Phase 1 consisted of rescuing people and moving them to safe locations; restoring drinking water and electrical power to areas where these utilities had gone out; checking the integrity of dikes, dams, bridges and other structures that had to hold back water; and re-establishing telephone communications and road connections. During Phase 1, regional organizations were also put in place to receive and process compensation claims, to estimate the losses and the needs of municipalities and individuals, to plan reconstruction activities and to establish subsequent response priorities. During the first few weeks after the floods, another priority consisted in stabilizing the beds and banks of rivers and streams, which involved work such as dredging and building dams and dikes.

To help get the regional economy going again, steps were also taken to restore water supply and sewage disposal services for major industries.

Phase 2 began in fall 1996 and continued until the onset of winter. In this phase, the priority was to re-establish the economic and social lives of the Saguenay region's population, with a focus on public safety and the municipalities' economic development and tourism initiatives. The two main objectives of this phase were to facilitate the re-establishment of sufficient water reserves for the boroughs of Chicoutimi and Jonquière, for major employers and for the numerous flood victims, and to ensure that any infrastructure that was indispensable to the region's economy was rebuilt before winter arrived. Thus the main activities carried out in Phase 2 involved assessing the devastating effects of the floods, getting the economy going again, consolidating the initial emergency work done in Phase 1 and conducting analyses of areas that were subject to or at risk of flooding.

Phase 3 of the government response took place before spring. The priorities of this phase were to minimize the risk of additional damage, to make adequate preparations for the cyclical spring floods and to make the population secure. No effort was spared to ensure that the work of stabilizing embankments and rebuilding roads was completed before the spring floods. The main activities in Phase 3 were as follows: seeking solutions that required very specific kinds of knowledge and expertise, minimizing the government rules and procedures that had to be followed, carrying out part of the work under freezing conditions, forecasting the likely behaviour of the rivers during the coming spring floods, and co-ordinating efforts with the Regional Health and Social Services Board to facilitate appropriate mental health support for the people most severely affected by the July floods.

Organizations involved in the response

Given the extent of the losses and damage suffered in the floods, the Government of Quebec decided, on August 7, 1996, to create the *Bureau de la reconstruction et de la relance du Saguenay-Lac-Saint-Jean* (1997), under the direction of the Assistant Deputy Minister of the Regional Development Secretariat. This new agency's mandate was to co-ordinate all reconstruction work and to keep abreast of community needs so as to help resolve outstanding issues as quickly as possible. Other departments and agencies of the Quebec government also were active in the various communities affected by the floods. In particular, the Department of Public Security, through its regional office, co-ordinated the distribution of purchase vouchers and the settlement of claims for financial assistance. This department also monitored the municipalities' emergency response plans to ensure that they met regional and provincial requirements. When the emergency response first began, the Department of Public Security's regional office, in collaboration with the local authorities and CFB Bagotville, also provided the municipalities with technical support for planning and carrying out the operations to evacuate flood victims. Other public and parapublic bodies directly involved in providing support for flood victims and rebuilding infrastructure included the *Sûreté du Québec* (SQ) [Quebec provincial police], Hydro-Québec, the Quebec departments of transportation, environment, natural resources, finance, and health and social services, and the Regional Health and Social Services Board of Saguenay-Lac-Saint-Jean.

Some federal departments also were involved in rebuilding infrastructure, supporting flood victims and helping the affected communities recover economically. Through an

interdepartmental committee, these federal departments took steps to help the provincial government in a variety of ways, such as ensuring flood victims' health and safety, maintaining food and drinking water supplies, supporting evacuees and isolated persons, re-establishing key infrastructure, assessing the damage suffered by the agri-food industry, patrolling evacuated areas to protect property and providing financial assistance to flood victims. The Government of Canada contributed funds to the provincial government, and its activities were co-ordinated by the *Bureau de la protection civile* [Quebec emergency preparedness agency] and an interdepartmental committee established for this purpose. There was also the Canada Customs and Revenue Agency, which provided information on taxation of compensation payments, and Emergency Preparedness, whose mandate was to provide the necessary support for the provincial departments and agencies to deal with the disaster and to set the process of financial assistance in motion. This agency also conducted a subsequent review of the emergency response plans.

On the national scene, another of the key players involved was Canada Economic Development (CED). Starting in September 1996, CED assumed responsibility for federal reconstruction efforts. It opened a liaison office to co-ordinate the activities of the various federal departments and agencies involved in these efforts, as well as to provide flood victims with better access to the services offered by the federal government. Human Resources Development Canada (HRDC) also expedited the processing of flood victims' employment insurance claims, facilitated the hiring of additional workers to assist with community clean-up and reconstruction and conducted a study to determine the long-term impact that the floods would have on the local labour market. Many other organizations also were involved in assisting the communities affected by the floods. Table 1 shows the roles of the provincial and regional organizations mentioned in the preceding paragraphs, as well as the military presence.

Table 1
Roles of the main provincial and regional agencies
involved and of the military during and after the emergency response

Agency	Role
<i>Bureau de la reconstruction et de la relance du Saguenay–Lac-Saint-Jean (1997)</i>	<ul style="list-style-type: none"> • Co-ordinated all rebuilding of destroyed and damaged infrastructure • Monitored implementation of government and regional decisions
Quebec Department of Public Security	<ul style="list-style-type: none"> • Distributed purchase vouchers • Analyzed financial claims • Evacuated flood victims
SQ	<ul style="list-style-type: none"> • Evacuated flood victims • Kept watch over flood victims' property
Quebec Department of Health and Social Services	<ul style="list-style-type: none"> • Implemented emergency measures
Community health and social services centres (CLSCs)	<ul style="list-style-type: none"> • Evaluated flood victims • Provided mental health support to flood victims • Provided physical health care to flood victims • Provided support to paid and volunteer workers from community agencies • Provided telephone support service • Accompanied flood victims on first visit back to their

	<ul style="list-style-type: none"> damaged or destroyed homes • Paid home visits to frail persons • Made regular telephone calls to people showing signs of psychological distress • Identified people in distress at flood victims' shelters, at information sessions for flood victims, at donated-item distribution centres and anywhere else that groups of flood victims gathered
Society of Saint Vincent de Paul	<ul style="list-style-type: none"> • Distributed perishable and non-perishable items to flood victims
Red Cross	<ul style="list-style-type: none"> • Distributed donated items and purchase vouchers to flood victims • Provided mental health support to flood victims • Organized shelters for flood victims • Co-ordinated distribution of vouchers for psychological support sessions with mental health professionals
Municipalities (police, firefighters and other municipal employees responsible for public safety and security)	<ul style="list-style-type: none"> • Evacuated flood victims • Managed emergency response measures • Provided local co-ordination for reconstruction efforts • Provided information to the public • Organized shelters for flood victims
Soldiers from CFB Bagotville	<ul style="list-style-type: none"> • Evacuated flood victims • Set up a shelter for flood victims • Did volunteer clean-up and road repair work

Mental health and social support provided by mental health professionals and volunteers to the public in general and to older persons in particular

From the very start of the emergency response, the Regional Health and Social Services Board of Saguenay–Lac-Saint-Jean and the region's CLSCs deployed a variety of professionals into the field, including ambulance attendants, psychologists, social workers, nurses and public health physicians, among others. The main public health concerns of the health and social services professionals were to ensure proper sanitation and provide flood victims with clean living conditions and a safe food supply so as to prevent outbreaks of gastroenteritis and other infectious diseases. These professionals also had to implement strategies to manage post-traumatic stress among members of the public and provide them with appropriate mental health services. According to these professionals, the mental health interventions required by the emergency situation in the region during and after the floods involved three components: a global component, a community component and a preventive component. The global component involved considering all aspects of the individual and his or her cultural context. The community component involved helping to maintain and strengthen the social fabric. The preventive component focused on preserving individuals' autonomy, maintaining their ability to act quickly to avoid or diminish the repercussions of their experiences and encouraging them to take responsibility for themselves by developing their skills. The objectives of these interventions were to restore and enhance people's feelings of security, confidence, competence, self-esteem, independence and assertiveness, so as to help them absorb and process the events that occurred during and after the floods.

The activities carried out during and after the floods to achieve these objectives were divided into three phases representing three distinct time periods: the immediate phase, the transitional phase and the phase of return to normal life. The activities carried out in the immediate phase consisted in contacting flood victims wherever they were, taking care of dependent persons (children, elderly persons with loss of autonomy, sick people, handicapped people, invalids, etc.), preparing information brochures, providing information to the public, setting up telephone hotlines, organizing information sessions and holding meetings where people could verbalize what they were experiencing. In the transitional phase (that is, from the time that the flood victims gradually began to resume their daily lives), the interventions consisted in supporting people in stressful situations, keeping the available information up to date by holding conferences and continuing the verbalization meetings. The basic goal of the activities carried out in this phase was to reduce the shock that people experienced upon returning to their neighbourhoods and communities and to make it easier for them to pick up their lives once they had done so. In the region's rural municipalities, several mental health teams criss-crossed the countryside. In all of the municipalities affected by the floods, all evacuated families, including those composed of older persons, were accompanied by mental health professionals when they first returned to their homes, to help reduce the shock of this experience. These professionals also went door to door to assess the needs of formerly evacuated families who had returned to their homes. A follow-up telephone call was also made to each of these families in order to detect any problems and meet any specific needs. Those flood victims who had lost everything received special attention. The goal was to alleviate their distress while channelling their emotions. During the months following the floods, the victims received technical and emotional support and were guided by paid or volunteer workers in the many initiatives that they had to take. Social workers also participated in public meetings, including information sessions organized by the various municipalities and meetings where financial compensation payments were made by the Department of Public Security or the Red Cross.

In the phase of return to normal life, a number of measures taken during the first two phases were continued. The public was informed of the services offered by the CLSCs. The mental health professionals responded to requests for assessments, consultations and individual help. Verbalization sessions were held for operations staff at the various organizations involved in managing the disaster. Community workers also helped people to form self-help groups and supported some such groups that were already in existence. Non-profit organizations also were involved in providing support for flood victims. The Red Cross, for instance, provided direct assistance by distributing purchase vouchers, while also raising \$27 million in early November 1996 for a solidarity fund to assist all flood victims throughout the Saguenay-Lac-Saint-Jean region. While the emergency response was in progress, Red Cross volunteers also set up various centres to help the public. They accommodated evacuated families in shelters and provided them with technical and moral support throughout their long stays there. The various conferences of the Society of Saint Vincent de Paul collected donated items of all kinds from all corners of the country, including clothing, used furniture, non-perishable food items, household appliances, toys and various other useful articles, then sorted, classified and stored them and distributed them to flood victims.

A system for distributing vouchers for food, clothing and shelter was set up to meet essential needs and to give people put out of work by the floods a minimum income until they began receiving their employment insurance benefits. Society of Saint Vincent de Paul workers

distributed food, clothing, blankets and various other essential items to people who had lost everything in the floods. CLSC health and social services professionals also adopted a proactive response strategy. They went to where the flood victims were, providing a presence in the shelters, monitoring the evolving situation continuously, and assessing the services that needed to be put in place, and the human and material resources that needed to be deployed. In co-operation with volunteers from the Red Cross and other community organizations, CLSC professionals also provided moral support to evacuated families during their stays in the shelters and, in particular, to people in crisis or emotional distress. CLSC professionals and volunteer workers also helped flood victims reorganize their lives on a temporary basis, obtain adequate health care services and get access to information, while dispelling the rumours that were circulating about the disappearance of their communities. These professionals also took steps to detect signs of post-traumatic stress, to identify people whose condition might deteriorate and to provide the necessary support to keep that from happening.

During the 20 or so days that the evacuated families remained in some of the shelters, various committees were established to improve their quality of life. CFB Bagotville, for example, was housing families from the rural municipality of Ferland-et-Boilleau. Starting on Monday, July 22, the managers of various institutions from that municipality set up replacement operations in the temporary village that the base had become, including a city hall, a post office, a community centre, an information centre and a volunteer fire department. A social worker also recruited evacuees, including some older persons, to volunteer at a daycare service established in co-operation with the CLSC. This initiative gave children a place to play while their parents were seeing to their many chores, such as securing clothing and hygiene products and filling out requests for assistance from the Red Cross and from the government. The municipal authorities regularly held information sessions in which representatives of all of the other organizations involved in the response participated, along with the physical and mental health professionals from the CLSCs. In one rural community, workers from a community organization and the CLSC also developed activities to provide mental health support to individuals and groups and to help reweave the social fabric. Some volunteers also provided help, support, listening, follow-up and referral services to the local population. They also provided a number of basic health and social services to older flood victims, such as taking them to doctor's appointments, monitoring their blood pressure and blood sugar, and making sure they took their prescribed medications. Volunteers working with CLSC professionals also provided various other kinds of psychological and social support: they accompanied flood victims on various flood-related errands; provided support to flood victims whose houses had been destroyed; intervened in crises; and provided logistical assistance and technical support to help elderly, socially marginalized, illiterate and disabled people to complete the necessary procedures to obtain compensation for their flood losses. Home visits were also made to all senior citizens in the two rural communities and to certain families in need. Donations were solicited for the most destitute flood victims. All of these initiatives were carried out in collaboration with the CLSC after grants had been obtained from the Regional Health and Social Services Board of Saguenay-Lac-Saint-Jean and the Berthiaume du Tremblay Foundation for the specific purpose of hiring social workers to support the older citizens of Ferland-et-Boilleau.

In Ferland-et-Boilleau, in addition to developing and providing mental health and social support services for the flood victims of their village, community agencies also supervised the activities of Red Cross volunteers and organized various activities to counter isolation among older

persons, such as crafts, painting and pottery, and pairing them up with children from the Saint Gabriel school. This organization also exerted pressure on managers and civil servants to expedite the processes of providing financial assistance to rebuild homes and reimbursing losses suffered by seniors. Because of the gravity of the situation, the Red Cross went beyond its usual mandate of providing shelter, blankets, and basic essentials to people in distress as a result of natural disasters. In addition, through the donations that it received, the Red Cross also funded purchases of home furnishings, construction materials, school supplies and recreational items for children, as well as counselling sessions with psychologists and social workers, and dozens of hours of in-home support for older persons, invalids, handicapped persons and people with mental disorders. To facilitate access to these services, the Red Cross opened offices in various locations to distribute vouchers that could be redeemed for them and kept these offices open two days per week for the ensuing year. For their part, the volunteer and charitable organizations met the most urgent and essential material needs (food, clothing, toys, furniture, common household items, etc.). They focused more on direct material assistance to families affected by the floods (donations of food, clothing, construction materials and household items). The Society of Saint Vincent de Paul, for example, managed the collection, sorting and redistribution of donations received from outside the region. To distribute all these items, the Society set up food banks and clothing banks; it also distributed furniture, toys and dishes.

Types of assistance that older persons especially appreciated

The seniors interviewed in our various studies especially appreciated a number of the measures taken by mental health workers with the CLSCs and community agencies, by the volunteers at the Red Cross and Saint Vincent de Paul, and by employees of the various municipalities affected by the floods. Seniors appreciated the presence of mental health workers at the information meetings and their eagerness to go talk with people who were experiencing emotional problems. Seniors also appreciated these professionals' help in preparing to evacuate their homes, the company of these professionals upon first returning to their homes and the follow-up visits made by these professionals during the months after the floods to find out how the seniors were managing. Regarding the community organization volunteers who accompanied them to meetings with the authorities about their claims for compensation, seniors said that they found this form of assistance especially useful and that it helped to reduce their stress. In one of the rural communities, volunteers also did clean-up work and helped to restore people's yards, both of which seniors considered very helpful. Seniors who stayed in housing shelters appreciated the social activities and the regular information sessions, as well as the fact that people were assigned to dormitories according to specific criteria: families together, single people together and older people together.

5) Problems experienced by older persons and their physical and psychological health during and after the floods

Older persons' problems as perceived by physical and mental health professionals

No seniors were reported to have died in the floods of July 1996 in the Saguenay. But the professionals whom we met with in our various studies of the effects of these floods on adults in general and older adults in particular believed that these floods had numerous impacts on the older persons concerned. These impacts included the emergence of new health problems; physical, social and economic losses; uncertainties; fears; high stress levels; and feelings of

vulnerability and disorientation. Table 2 summarizes the consequences that these professionals said the floods had had on the physical and psychological health and living conditions of the older people who were affected by them. Some professionals also noted that, more than three years after the floods, fears of a recurrence were still widespread among older people and these fears seemed to become worse when it rained. These professionals believed that the extent to which older flood victims displayed such reactions varied according to factors such as how stable they were previously and what support networks they had available to help them. In many cases, the professionals noted that the flood victims' social support networks were also affected, which aggravated the situation—couples and families were destabilized and many were uprooted when they could not rebuild at the same location. Other factors that added to the negative impacts of the disaster on the physical and psychological health and social condition of older flood victims included financial losses, uncertainty about the future, mistrust of the authorities and dissatisfaction about the assistance provided, as well as the coverage in the media.

Table 2
Effects of the floods on the physical and psychological health and living conditions of older persons, as perceived by health professionals

Type of Problem	Effects
Physical health	<ul style="list-style-type: none"> • High blood pressure • Physical exhaustion • Stomach problems • Respiratory problems
Psychological health	<ul style="list-style-type: none"> • Psychological distress • Stress • Psychological exhaustion • Post-traumatic stress symptoms
Financial	<ul style="list-style-type: none"> • Debt
Personal, family and social	<ul style="list-style-type: none"> • Postponement of life plans (for pre-retirees, postponing retirement for a few years) • Marital tension • Family conflict • Separation and divorce • Giving up leisure activities

Older persons' problems as perceived by older persons themselves

According to the older persons (age 50 and over) interviewed in our various studies, in addition to the strains associated with changing their place of residence frequently, they experienced other difficulties. Some of the other things that made life hard for these older people were: the complex procedures involved in applying for financial compensation; frequent moves; fatigue; accumulating worries; difficulties in getting to sleep; being forbidden to enter their homes; the fear of theft and vandalism; and the fear of being flooded again. Some of these older flood victims said that it was especially upsetting to have lost all their clothes or to have been unable to recover them quickly, as well as to have seen members of their families scattered into a variety of settings. They reported having experienced many problems in the relocation process, including problems with their temporary accommodations. For example, some older people who were

evacuated from their homes said that they had been obliged to move several times subsequently, in order to stay in the homes of relatives or in housing that they had rented while their homes were being rebuilt. For some of these flood victims, these many moves caused anxiety and insecurity—among other reasons, because of the way their daily routines were upset. Other flood victims mentioned having experienced logistical problems in the course of their relocation, in particular, problems in travelling, due to bad road conditions and the distance of their temporary housing from their usual places of residence. Table 3 shows the main difficulties experienced by the older persons from rural areas interviewed in one of our studies.

Following the floods, older persons had to adapt to special, unusual events and settings at the very height of the disaster. The floods also had undesirable consequences over the longer term and many older persons were still experiencing them more than three years afterward. Most of these consequences were economic, social, contextual or instrumental, familial, personal, or related to physical or psychological health. Among the older persons interviewed, the main changes in living patterns that most affected them centered on a general deterioration in the quality of life. In this connection, many of our interviewees mentioned that the disaster had made them less financially secure than they had been before, because it had forced them to incur new debt, including new mortgages. The increased cost of housing and municipal taxes were further sources of stress. For some of the flood victims, the need to go into debt to cover the costs of repairing their damaged homes and yards was also hard to accept.

Table 3

Difficulties encountered by older rural residents during their relocation and when they moved back into their damaged homes or into their new homes after the floods of July 1996

During relocation	<ul style="list-style-type: none"> • Frequent travel • Multiple moves • Difficulties in accessing their villages because the floods had damaged so many roads • Fatigue, exhaustion • Trouble sleeping • Lack of information • Isolation • Various worries (family members, homes, animals, etc.) • Difficulties regarding temporary accommodations (lack of privacy, water, electricity, etc.)
Upon moving into new homes	<ul style="list-style-type: none"> • Feeling of not really being at home • Trouble in adapting to new facilities and new environment (neighbourhood, city, etc.) • Various problems related to the homes themselves (mould, mildew, mice, etc.)

The older persons also described the reduction in their quality of life in terms of having lost an environment that they had enjoyed. Along these lines, some older people said that they experienced strong feelings of loss and nostalgia over their old homes (which in many cases had

been in the family for generations) and the environment in which they had lived. Their ability to adapt was sorely tested by such changes as having to leave their villages, move into the city, find an apartment, witness the environmental damage done by the floods, change neighbourhoods and live far from friends and relatives. In this regard, the break with the past and with their old way of living went beyond mere physical changes and altered their entire sense of the meaning of life. Some of the older persons interviewed said that the changes that had had the greatest impact on them included emotional upheavals, which lasted over a year in some cases; the feeling of having lost months or even years of their lives because of the floods; and problems in getting back into a routine or adapting to a new way of life. Other older persons said that the changes that upset them the most were having to cope with the irresponsibility of certain companies with regard to the events, their neighbours' jealousy or prejudices with regard to the financial aid that they had received as flood victims and the climate of conflict that reigned in their communities. Physical and psychological health problems were another aspect of reduced quality of life. For example, some of the factors that older flood victims cited as having disturbed them the most included the illness of a spouse, persistent emotional or physical fatigue, and a diminished ability to cope with life's setbacks. Several other older persons interviewed said that the changes that had disturbed them the most were the ones that they had had to make in their leisure activities because of their strained financial circumstances or in their longer-range plans for their lives, such as their plans for retirement. A number of retirees also confirmed that having had to use all their savings to rebuild their homes had placed them in a fairly precarious financial position. Tables 4 and 5 show the main difficulties reported by these respondents.

To determine the medium-term impacts of the July 1996 floods on the biopsychosocial health of older persons, we conducted a quantitative study in an urban setting. Our sample was composed of 132 persons who were age 50 or older two years after these floods, of whom 75 were flood victims and 57 were not. We selected the flood victims at random from a list of the property owners in the three boroughs of the City of Saguenay that were affected by the floods: Chicoutimi, Jonquière and La Baie. We selected the non-victims from municipal property assessment records for neighbourhoods that had not been flooded but whose socio-economic characteristics were similar to those of the areas that were flooded. The respondents' ages ranged from 50 to 88. The mean age for the two groups was 60.1 (SD = 7.75). The majority of the victims and non-victims (90.2%) lived with a spouse, and 92.4% could count on the presence of children, 40.2% of whom lived at home. Half (50.8%) of the respondents had annual family incomes exceeding \$45,000, and 40.8% of them had completed college or university. This study revealed several significant differences between the victims and the non-victims as regards physical health and living conditions. (The differences between the two groups with regard to their social lives were less pronounced.) Among other differences, significantly more flood victims considered their current health to be only fair or poor and reported that it had become worse since July 1996. The data also showed more victims than non-victims reporting that, since the floods, they had experienced the onset of new health problems or the worsening of existing ones and an increase in their use of prescription or non-prescription medication (Table 6). As for the respondents' financial circumstances, the data indicate that regardless of gender a higher proportion of the victims than of the non-victims had experienced financial difficulties during the two weeks preceding the survey and had taken out loans from financial institutions since July 1996 (Table 7). As regards the respondents' social lives, more victims than non-victims had reduced the number of times they went out on social occasions. Exposure to the floods did not, however, seem to alter the frequency or quality of the flood victims' contacts with the main

members of their social networks (spouses, children, extended family, other significant persons) or the frequency of their leisure activities. In terms of their psychological health (Table 8), the flood victims age 50 and older displayed more symptoms of depression, anxiety, social dysfunction, insomnia and post-traumatic stress than the non-victims, which indicates that the victims' psychological health was more precarious. Their level of psychological well-being was also lower than that of the non-victims.

Three years after the July 1996 floods, we conducted a similar comparative study of persons age 50 and older, this time in a rural setting. In this study, our sample consisted of 49 flood victims and 50 non-victims, and our conclusions regarding the respondents' psychological health proved just about the same as in the urban study just described. Our analyses showed that the victims and non-victims scored differently on most of the instruments that we used to measure their psychological health—the Impact of Event Scale (IES), the General Health Questionnaire (GHQ) and Beck's Depression Index (BDI)—except for the severe depression and somatic symptoms subscales on the GHQ. Table 9 also shows that the victims scored higher than the non-victims on the IES, the BDI, and the anxiety/insomnia and social dysfunction subscales on the GHQ, thus displaying more fragile psychological health. The results of this second study did not, however, demonstrate any significant differences between flood victims and non-victims as regards their perceptions of their current physical health and of certain changes that had occurred since the floods.

In yet another study, conducted two years after the floods, we attempted to determine the effects of the floods on the health of older persons according to their degree of satisfaction with the assistance that they had received. In this study, we administered questionnaires to 75 flood victims and 57 non-victims, all age 50 or older. Our analysis of their responses indicates that, two years after the floods, the victims who felt that they had received less help than they had hoped for were struggling with more difficult life conditions than the non-victims, or than victims who were satisfied with the help that they had received. In addition, these dissatisfied older flood victims had more negative perceptions of their physical health than the two other groups of respondents and displayed more fragile mental health; also, more of them had reduced the frequency of their social outings. The number of dissatisfied older flood victims who perceived their health as fair or poor was also greater than the number of older non-victims who did so. Compared with the non-victims, a greater number of dissatisfied flood victims also reported the appearance of new illnesses among family members and increased use of prescription and non-prescription medications. The dissatisfied victims did not differ significantly from the satisfied victims, however, on these variables. Also, compared with the two other groups, more of the pre-retired and retired flood victims who had received less help than they had hoped for reported that their health had deteriorated since the floods. Lastly, compared with the non-victims in this study, more of the victims reported the appearance of new health problems or the worsening of existing ones since the floods, with no significant difference in this case between those victims who were satisfied with the assistance that they had received and those who were not. As regards psychological health, it is interesting to note that the two groups of flood victims displayed more symptoms of post-traumatic stress than the non-victims. Next, compared with the older non-victims and with the older flood victims who were satisfied with the help that they had received, significantly more of the dissatisfied older flood victims presented symptoms of depression, anxiety and insomnia, and social dysfunction, as well as somatic symptoms. On the severe depression subscale of the GHQ, the dissatisfied flood victims scored higher than the satisfied

flood victims, but the difference compared with the non-victims did not pass the significance test until Bonferroni's correction was applied. The flood victims' feelings about the assistance that they received were probably attributable to the various sources to which they turned for such help. Interestingly, those victims who gave lower satisfaction ratings had received help mainly from the members of their own nuclear families, while among those victims who reported themselves satisfied with the help that they had received, the sources of help also included friends and government authorities. Victims of natural disasters generally expect more from their family members than they do from their friends or from official sources (Kaniasty et al., 1990; Kaniasty and Norris, 1993; Norris and Kaniasty, 1996). Thus, in the present study, those respondents who said that they had received less help than they had hoped for may have set their expectations higher than their relatives could actually manage, even though these relatives seem to have been fairly closely involved throughout the various difficulties and stages of getting the flood victims resettled (evacuation, relocation, administrative procedures, clean-up, and repair or reconstruction of their homes).

Eight years after the floods of July 1996, we re-contacted respondents from both the urban and rural studies for a follow-up study to determine whether any differences between the victims and the non-victims persisted. In this follow-up study, we conducted in-depth interviews with 16 older persons who had been victims of the floods. We also took a questionnaire containing the same scales used in the 1998 study of older persons in urban areas and the 1999 study of older persons in rural areas and administered it to 62 former flood victims age 55 or older (19 living in rural settings and 43 in urban settings) and to 44 older persons who had not been victims of the floods (17 in rural settings and 27 in urban settings). The data from this follow-up study show that, over the 8 years since the floods, the psychological health of the former flood victims living in both urban and rural settings had improved (their scores on the scales tended to decrease), but that differences still persisted between the psychological health of victims and that of non-victims. For example, in urban areas, compared with older persons who had not been victims of the floods, older persons who had been flood victims still displayed significant differences, 8 years on, in the presence of symptoms of post-traumatic stress and social dysfunction. These flood victims also received significantly higher overall scores on the 28-item GHQ scale, which shows that the overall psychological health of the older flood victims was poorer than that of the older non-victims. In rural areas, 8 years after the floods, the older persons who had been in the floods still showed significantly more signs of post-traumatic stress and depression than those who had not, and significantly more of them (78.9%, compared with 41.2% of older non-victims) felt that their physical health had deteriorated over the 8 years since the floods. The 16 older persons interviewed individually in depth were asked to identify the negative or positive consequences that the July 1996 floods had had on various aspects of their lives. Table 10 shows what emerged from these interviews. It shows that, having had 8 years to develop perspective, some of these older people felt that the floods had brought about some positive changes in their personal, family or social lives and had helped them to adopt new values to live by.

Table 4
Difficulties that older persons living in rural areas
experienced immediately after the July 1996 floods and in the 6 months following the floods

Category	Short and Medium-term Difficulties
Financial	<ul style="list-style-type: none"> • Going into debt • Financial losses • Difficulties in recovering economically (for example, lack of money to meet basic needs)
Social	<ul style="list-style-type: none"> • Conflicts and tensions with other people • Deterioration in relationships • Less frequent contact with friends • Less frequent outings and leisure activities
Contextual or instrumental	<ul style="list-style-type: none"> • Multiple relocations • Difficulty in finding temporary housing • Having to make decisions quickly • Lack of privacy • Being forced to demolish your home • Loss of sense of home • Returning to old home (smells, dirt, mildew, etc.) • Failure of contractors to meet commitments • Lack of information • Communication problems • Identifying and hiring competent contractors • The time and energy you have to devote to repairs and reconstruction • Complex administrative procedures • Slow processing of claims • Having to demolish your home because of contamination, after having moved back into it • Having all conversations revolve around the floods and their consequences • Voyeurism on the part of tourists and the media • The decision on a new place to live • Negotiations with representatives of the authorities
Familial	<ul style="list-style-type: none"> • Deterioration of family ties • Tensions and conflict with family members • Less frequent contact with family members
Personal	<ul style="list-style-type: none"> • Feeling uncertain and insecure • Feeling desolate about facing a void • Having to oversee the work all alone in the absence of a spouse • Being continuously exposed to the devastation and to the inconveniences of reconstruction work (wife who stays at home) • Concern for friends, relatives and neighbours who are more exposed • The feeling that you have been treated unfairly or that the losses that you have suffered have been underestimated • The constant struggle not to feel discouraged • Accepting your losses
Physical or psychological health problems	<ul style="list-style-type: none"> • Stress • Fatigue, exhaustion • Anxiety, anguish • Depression

Category	Short and Medium-term Difficulties
	<ul style="list-style-type: none"> • Health problems related to contamination in the home (headaches, nausea, respiratory problems, skin problems, etc.) • Sleep problems (problems in falling asleep or staying asleep, nightmares) • Pre-existing health problems becoming worse after the floods

Table 5
Difficulties that older persons who lived in rural areas and were exposed to the July 1996 floods experienced in the long term (3 years afterward)

Category	Long -term Difficulties
Financial	<ul style="list-style-type: none"> • Tax increases • Indebtedness • Having to take out new mortgages or add to their old ones • New expenses that keep cropping up
Social	<ul style="list-style-type: none"> • Seeing friends less often • Reduced social and recreational activities • Inability to adapt to a new environment or neighbourhood
Contextual or instrumental	<ul style="list-style-type: none"> • Endless repair work on house or yard
Personal	<ul style="list-style-type: none"> • Loss of or changes in plans for the future • Regret at having had to leave village or neighbourhood

6) How older persons helped in the crisis

Interviews with some seniors and heads of community agencies involved in managing the crisis showed that a number of older persons helped to support the victims of the July 1996 floods in various ways. For example, many older persons provided shelter for periods ranging from a few days to several weeks for their children and grandchildren who had been evacuated from their homes. Some older persons also worked as volunteers for community agencies such as Saint Vincent de Paul and the Red Cross. Also, in one of the flooded villages, a group of seniors who were flood victims themselves established and ran a committee that provided technical and moral support to flood victims and defended their interests in dealings with various levels of government. Some seniors who were not flood victims worked as volunteers in the evacuee shelters.

7) Role of older persons as beneficiaries of and partners in recovery operations

In Quebec, emergency response measures are managed by the provincial and municipal authorities. The usual role of volunteers from community agencies is to provide support for the paid workers employed by these government bodies. In this crisis, older flood victims were seen more as beneficiaries of recovery operations than as partners in carrying them out, but some older persons who belonged to community agencies involved in managing the crisis did contribute to these operations.

Table 6
Perception of health and changes in physical health among older persons
2 years after the floods

Variable	Males		Females		Likelihood Ratio		
	Non-victims (<u>n</u> = 24)	Victims (<u>n</u> = 42)	Non-victims (<u>n</u> = 33)	Victims (<u>n</u> = 33)	S X G	Sex	Group
Perception of current health							
Good/excellent	95.8%	69.0%	84.8%	54.5%	0.46	3.18	14.89 ***
Fair/poor	4.2%	31.0%	15.2%	45.5%			
<u>Changes since the floods</u>							
Health							
Worse	4.2%	35.7%	6.1%	51.5%	0.04	1.96	28.44 ***
Improved/unchanged	95.8%	64.3%	93.9%	48.5%			
Appearance of new health problems							
Yes	4.3%	38.1%	9.4%	65.6%	0.06	6.06 ^a	34.19 ***
No	95.7%	61.9%	90.6%	34.4%			
New illness in a family member							
Yes	12.5%	23.8%	12.1%	30.3%	0.14	0.26	4.51 ^a
No	87.5%	76.2%	87.9%	69.7%			
Worsening of existing health problems							
Yes	0.0%	28.6%	6.1%	36.4%	1.59	1.16	20.59 ***
No	100.0%	71.4%	93.9%	63.6%			
Amount of prescription medication							
Increased	4.2%	31.0%	9.1%	39.4%	0.14	0.99	16.54 ***
Unchanged/decreased	95.8%	69.0%	90.9%	60.6%			
Amount of non-prescription medication							
Increased	0.0%	23.8%	6.1%	30.3%	1.62	1.02	15.43 ***
Unchanged/decreased	100.0%	76.2%	93.9%	69.7%			

*** $p < .001$ after applying Bonferroni's correction.

^a After Bonferroni's correction is applied, the value for this test is no longer significant.

Table 7

Perception of changes in the financial circumstances and social lives of older persons living in urban areas 2 years after the floods

Variable	Males		Females		Likelihood Ratio		
	Non-victims (<u>n</u> = 24)	Victims (<u>n</u> = 42)	Non-victims (<u>n</u> = 33)	Victims (<u>n</u> = 33)	S X G	Sex	Group
Financial difficulties in the previous two weeks							
Yes	4.3%	33.3%	6.1%	42.4%	0.001	0.73	21.56 ***
No	95.7%	66.7%	93.9%	57.6%			
Incurred debt							
Yes	0.0%	28.6%	6.1%	30.3%	1.95	0.31	17.39 ***
No	100.0%	71.4%	93.9%	69.7%			
Relations with spouse							
Improved/same	95.8%	89.7%	96.7%	88.9%	0.04	0.00	2.15
Worsened	4.2%	10.3%	3.3%	11.1%			
Relations with children							
Improved/same	100.0%	97.2%	96.8%	96.7%	0.79	0.39	0.25
Worsened	0.0%	2.8%	3.2%	3.3%			
Relations with family							
Improved/same	95.8%	100.0%	100.0%	96.9%	3.29	0.00	0.04
Worsened	4.2%	0.0%	0.0%	3.1%			
Frequency of contacts with significant persons							
Increased/same	100.0%	85.7%	93.9%	93.9%	3.42	0.21	2.35
Decreased	0.0%	14.3%	6.1%	6.1%			
Quality of relationships with significant persons							
Increased/same	100.0%	90.5%	97.0%	100.0%	4.27 ^a	1.65	0.89
Decreased	0.0%	9.5%	3.0%	0.0%			
Frequency of leisure activities with at least one other person							
Increased/same	95.8%	78.6%	90.9%	78.8%	0.44	0.75	5.67 ^a
Decreased	4.2%	21.4%	9.1%	21.2%			
Number of outings							
Increased/same	100.0%	78.6%	93.9%	81.8%	2.34	0.02	8.96 **
Decreased	0.0%	21.4%	6.1%	18.2%			

** $p < .01$. *** $p < .001$ after applying Bonferroni's correction.

^a After Bonferroni's correction is applied, the value for this test is no longer significant.

Table 8
Univariate analysis of variance for psychological health variables, by sex and group of older persons living in urban areas, 2 years after the floods

Variable	Males				Females				F (1;127) S X G	F (1;127) Sex	F (1;127) Group
	Non-victims (n=24)		Victims (n=42)		Non-victims (n=33)		Victims (n=33)				
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>			
Symptoms of post-traumatic stress ^a	5.50	7.50	15.12	14.32	5.00	5.48	16.72	18.14	0.01	0.00	14.44 ***
Beck's Depression Index ^a	2.54	2.43	6.79	7.11	3.15	3.55	7.25	5.78	0.32	0.61	12.72 **
GHQ – Anxiety and Insomnia ^a	6.67	1.66	7.83	2.43	6.61	1.46	8.38	3.28	0.22	0.20	11.61 **
GHQ – Severe Depression ^a	0.88	2.44	1.24	2.45	0.70	1.57	1.66	3.18	0.35	0.01	2.54
GHQ – Social Dysfunction ^a	3.75	3.52	4.74	4.49	3.42	3.47	5.78	4.49	0.75	0.38	5.00 *
GHQ – Somatic Symptoms ^a	2.79	1.93	4.17	4.14	3.52	2.37	5.81	4.22	0.67	5.36 *	6.61 *
Psychological well-being	5.00	2.86	4.12	3.85	5.52	2.24	3.63	3.93	0.71	0.00	5.35 *

^aThe raw data are presented even if the scores were subjected to an algebraic transformation to induce homogeneity of variances.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9
Univariate analysis of variance for psychological health variables for flood victims and non-victims, age 55 and older, living in rural areas, 3 years after the floods

Variable	Victims (n=49)		Non-victims (n=50)		Total (n=99)		F (1;96)
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	
	Symptoms of post-traumatic stress ^a	17.64	17.54	6.4	11.35	11.91	
Beck's Depression Index ^a	7.63	5.31	4.86	4.53	6.21	5.09	7.72**
GHQ – Total Score ^a	22.67	6.45	18.6	6.17	20.59	6.6	10.67**
Symptoms of post-traumatic stress ^a	17.64	17.54	6.4	11.35	11.91	15.69	15.73***
Beck's Depression Index ^a	7.63	5.31	4.86	4.53	6.21	5.09	8.89**
GHQ – Anxiety and Insomnia ^a	7.83	1.43	7.20	1.39	7.50	1.44	4.73*
GHQ – Severe Depression	1.74	1.76	1.52	1.97	1.63	1.87	0.33
GHQ – Social Dysfunction ^a	7.24	2.81	4.88	3.29	6.01	3.28	14.15***
GHQ – Somatic Symptoms ^a	6.7	3.26	5.00	2.74	5.51	3.03	3.03

^aThe raw data are presented even if the scores were subjected to an algebraic transformation to induce homogeneity of variances.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Table 10
Perceptions of persons age 55 and over regarding the negative and positive impacts of the July 1996 floods on their lives, when interviewed 8 years later

	Negative Impacts	Positive Impacts
Physical health	<ul style="list-style-type: none"> - Hypertension - Amenorrhea - Insomnia - Loss of appetite - Migraines - Fatigue and exhaustion - Stomach ulcers - Sedentariness - Digestive problems - Various health problems due to the presence of mould and mildew 	No positive impacts reported
Psychological health	<ul style="list-style-type: none"> - Depressed - Anxious - Loss of interest - Depression - Increased sensitivity to noise - Anxiety - Feeling of fragility 	No positive impacts reported
Personal life	<ul style="list-style-type: none"> - Presence of new fears - Changes in lifestyle habits and behaviours - Increased consumption of alcohol - Altered perception of water and nature - General loss of motivation - Regrets 	<ul style="list-style-type: none"> - Increased solidarity - Reordered priorities - Changes in values - Changes in behaviours - Greater awareness of own abilities - Changes in lifestyle habits - Changes in ways of seeing life - Increased self-confidence - More organized physically and financially (insurance, preparedness)
Family and conjugal life	<ul style="list-style-type: none"> - Conflicts with spouse - Distancing - Greater dependence on spouse 	<ul style="list-style-type: none"> - Renewed closeness - More attentive to others - Give priority to family - Stronger ties with spouse and other family members
Work life	<ul style="list-style-type: none"> - Trouble concentrating - Exhaustion - Loss of motivation - Sudden desire to cry - Forced return to the labour market - Establishments affected - Return to work delayed - Early retirement due to illness - Job losses 	<ul style="list-style-type: none"> - Priority to family rather than work - Temporarily stopped working overtime - Work considered a respite

	Negative Impacts	Positive Impacts
	<ul style="list-style-type: none"> - Withdrawal from the labour market - Taking sick leave - Compensation by work 	
Social life and recreational activities	<ul style="list-style-type: none"> - Loss of equipment used in certain recreational activities - Reduction or interruption of recreational activities - Temporary interruption of certain recreational activities - Interruption of water-related recreational activities - Reduced interest in recreational activities - Conflicts with neighbours - Withdrawal from social life 	<ul style="list-style-type: none"> - Greater awareness of the quality of friendly relationships - Closer ties with family, friends and neighbours - Friends and neighbours help one another more - Engage in new kinds of recreational activities - New acquaintances - Deeper friendships

8) Summary of major findings

Our various studies of older people who were victims of the July 1996 floods in the Saguenay–Lac-Saint-Jean region have shown that a disaster like this one can continue to have negative repercussions on older people’s physical and psychological health in the medium and long term but can also entail some positive changes for them. Our data on the older flood victims’ perceptions of the social support that they received show the same connections that several other researchers have found between such perceptions among victims of natural disasters and their psychological health following these disasters (Green, Grace and Gleser, 1985; Kaniasty, Norris and Murrel, 1990; Norris and Kaniasty, 1996). In this respect, Kaniasty and Norris (1995) say that disaster victims who regard the help that they have received as inadequate also expect not to be able to obtain necessary support if they need it in future, and so continue to experience high levels of psychological distress. Disaster victims’ feelings about the help that they have received thus represent an important factor to consider in studying the psychological impact of disasters on people’s biopsychosocial health and in deciding what assistance to offer older persons following disasters. For example, if the authorities managing an emergency response have better information about the risk factors involved when older people have a negative view of the social support that they receive, these authorities can devote special attention to older people who are at risk of being dissatisfied with that assistance.

9) Improvements to be made and factors to consider, based on the recommendations made by the physical and mental health professionals who responded to the July 1996 floods and by older persons who were victims of those floods

Despite the efforts of social workers and various other paid and volunteer workers, and even though the emergency response operations proceeded smoothly, the professionals and the older persons interviewed in our various studies identified a broad range of preventive steps that should be taken before, during and after the implementation of emergency response measures. Tables 11 and 12 list the recommendations made by paid professionals and volunteer workers, while Table 13 presents the recommendations made by the older persons themselves. Note that the older persons’ recommendations for individuals who might find themselves victims of a flood in future

are based on their own experiences and the lessons that they drew from them. Some of these recommendations concern steps that older people can take preventively or proactively, others concern behaviours and attitudes that they can adopt once disaster has struck, and still others concern steps that must be taken by the response teams, the municipalities and higher levels of government.

Table 11
Professionals' recommendations on preventive steps to take
when implementing emergency response measures

Category	Recommendations
Planning	<ul style="list-style-type: none"> • Develop emergency response plans comprising various scenarios for natural disasters, technological disasters and disasters caused by human despair • Regularly update the emergency response plans of the municipalities and the other levels of government that will have to respond if an emergency does occur • Train paid and volunteer workers • Put back-up communication systems in place • Procure back-up means of transportation (such as ATVs or boats) that can be used if bridges or roads are out • Regularly hold emergency drills involving all of the organizations that would have to respond if an emergency did occur • Develop programs to train mental health workers in how to help disaster victims resume their normal lives • Provide paid and volunteer workers with extensive training in dealing with victims of post-traumatic stress • Provide volunteers from charitable organizations with training in how to manage and distribute donations • Issue clear, specific directives on how private dams must be maintained
Management	<ul style="list-style-type: none"> • Clearly and precisely define the roles and responsibilities of the persons and organizations that will be required to implement the emergency response measures • Use a language common to all of the persons who will be involved in the response • Co-ordinate the efforts of the persons and organizations working to achieve common goals and objectives • Deploy back-up communication systems • Recognize the expertise developed by local organizations • Assign the right tasks to the right organizations and individuals • Improve the mechanisms for liaising and co-ordinating with the Department of Public Security • Put effective communication systems in place within the municipality and on the response sites • Provide appropriate office space for the persons co-ordinating the emergency response • Ensure that large numbers of helicopters are deployed, and use them to evacuate disaster victims quickly

	<ul style="list-style-type: none"> • Put mechanisms in place to communicate information to the public regularly
Follow-up	<ul style="list-style-type: none"> • Manage reconstruction and economic recovery work locally • Recognize the expertise of local organizations • Foster close collaborative ties between organizations • Recognize the special characteristics of rural communities • Ensure that both professionals and the public participate in planning the work of restoring and redeveloping the area affected by the disaster • Conduct rigorous inspections of dams and all other water-containment structures • Publicly recognize the work of the persons and organizations providing support to the disaster victims

Table 12
Recommendations by professionals

Recommendations to disaster victims	
Before a disaster happens	<ul style="list-style-type: none"> • Keep copies of notarized contracts, insurance policies and all other important documents in a safe place other than your own home • Make an inventory of all your property • Keep photos of your residence and all your main pieces of property in a safe place
While an emergency response is in progress	<ul style="list-style-type: none"> • Comply with evacuation orders • Keep alert to the information being provided by the local authorities • Force the municipal authorities to set up a committee to assist disaster victims
After the emergency response is over	<ul style="list-style-type: none"> • Express your feelings • Seek professional help • Avoid isolation • Don't give up • Take care of yourself
Recommendations to individuals not directly affected by the disaster	
While an emergency response is in progress	<ul style="list-style-type: none"> • Help those who need it and show your support for them • Show compassion • Be attentive to the victims' distress and to their needs
After the emergency response is over	<ul style="list-style-type: none"> • Be attentive to the victims' distress and to their needs • Show tolerance
Recommendations to municipal authorities	
While an emergency response is in progress	<ul style="list-style-type: none"> • Collaborate with the other agencies in the community • Bring in mental health professionals from the CLSCs promptly • Keep the public informed regularly • Put the community's major strengths to good use • Deploy effective means of communication
After the emergency response is over	<ul style="list-style-type: none"> • Put the community's major strengths to good use • Quickly identify the government resources involved in

	rebuilding the community and helping its economy to recover <ul style="list-style-type: none"> • Work closely with community agencies and mental health professionals
Recommendations to community agencies	
Before a disaster happens	<ul style="list-style-type: none"> • Provide your volunteers with training in emergency response operations
After the emergency response is over	<ul style="list-style-type: none"> • Play an active role in rebuilding the community and helping its economy to recover, in accordance with your particular agency's mission and mandate • To handle the distribution of donations, recruit people who are empathetic, neutral and objective • Know your limitations and respect them
Recommendations to CLSCs	
While an emergency response is in progress	<ul style="list-style-type: none"> • Deploy more staff in the rural municipalities affected by the disaster • Provide all of your mental health staff with training in emergency response • Ensure continuity in the availability of personnel
After the emergency response is over	<ul style="list-style-type: none"> • Make more mental health professionals available in rural communities • Quickly put programs in place to provide psychological and social support for families affected by the disaster • Work closely with the key persons and organizations in the community
Recommendations to government departments and agencies	
Before a disaster happens	<ul style="list-style-type: none"> • Issue clear, specific directives to the owners of dams and other water containment structures
While an emergency response is in progress	<ul style="list-style-type: none"> • Implement the emergency response plan rapidly • Work closely with local agencies
After the emergency response is over	<ul style="list-style-type: none"> • Assess the extent of the damage quickly • Streamline the mechanisms and programs for compensating disaster victims • Simplify the forms used to apply for compensation • Shorten the time taken to process compensation claims • Carry out reconstruction work more quickly • Respect local expertise • Delegate departmental/agency representatives to work in the communities
Recommendations to charitable organizations	
While an emergency response is in progress	<ul style="list-style-type: none"> • Strengthen the spirit of solidarity, mutual assistance, sharing and generosity among the public
After the emergency response is over	<ul style="list-style-type: none"> • Distribute purchase vouchers and donated items in an equitable manner • Work closely with the Red Cross

Recommendations to the media	
While an emergency response is in progress	<ul style="list-style-type: none">• Avoid sensationalism• Accurately report what is actually happening• Avoid propagating rumours• Keep rural areas in mind when disseminating information

Table 13
Recommendations from Older Persons

	Recommendations to disaster victims	Recommendations to responders and community organizations	Recommendations to municipalities	Recommendations to governments
Before a disaster occurs	<ul style="list-style-type: none"> - Make a plan for what you will do in an emergency. -Make sure that your environment is safe. -Take training courses on how to react in difficult situations, such as natural disasters. - Take courses in rescue and first aid. - Purchase emergency equipment. - Keep your most expensive and precious items on the second storey of your home. 	<ul style="list-style-type: none"> - Take training so that you know how to respond in a natural disaster or other emergency. 	<ul style="list-style-type: none"> - Provide your employees with training courses on crisis intervention. - Have plans ready for dealing with various kinds of disasters and other emergencies. - Make sure you have emergency communication systems that always work (satellite-based). - Make sure that public infrastructures and at-risk facilities are in good condition and properly maintained. 	<ul style="list-style-type: none"> -Review your methods for assessing the damage sustained. - Train your administrative staff in how to distribute financial compensation fairly. -Simplify claim filing, administrative and file management procedures. - Shorten the time taken to process files. - Ensure that dams are properly managed. -Defray the costs of effective communication systems (satellite telephones) for small municipalities
While an emergency response is in progress	<ul style="list-style-type: none"> - Contact the emergency response committees to find out what to do. - When a situation becomes dangerous, evacuate immediately; don't take any chances. - Save your own life, and don't worry about your belongings. - Follow emergency workers' instructions and don't give them a hard time. 	<ul style="list-style-type: none"> - Set up a "single window:" identify key responders who always help the same people in all activities. - Provide a range of help and support services; responders should be warm, welcoming, generous and eager to help. - Give priority to providing emotional support for older persons, sick people and small children. 	<ul style="list-style-type: none"> - Cut red tape; fewer referrals to other people, fewer intermediaries. - CLSCs should have a physician on hand at all times, as well as social workers and psychologists. - Provide disaster victims with a list of available professionals. 	<ul style="list-style-type: none"> - Make sure that the media convey the right information. - Tell the truth; give people clear answers so that they don't harbour any illusions. - Delegate some actions to the municipalities, because they are closer to the people. - Be sensitive to disaster victims' demands.

	Recommendations to disaster victims	Recommendations to responders and community organizations	Recommendations to municipalities	Recommendations to governments
	<ul style="list-style-type: none"> - Find a safe place where the family can reassemble. - Don't get discouraged, don't panic and do stay calm. - Help one another: the youngest, most resourceful people should help older people, small children and people who have been hit harder by the disaster and are reacting to it worse. - Don't exaggerate the seriousness of events; don't get other people frightened. - Don't try to solve all your problems at once. - Don't feel ashamed to ask for help. 	<ul style="list-style-type: none"> - Listen attentively and show understanding when disaster victims express their feelings. - Be available to provide first aid and initial advice to disaster victims. - Distribute assistance fairly, in accordance with needs. - Help people who want to remain in their homes (provide services, food, other commodities). - Act respectfully and discreetly. - Make sure you're well informed, so that you can pass information on accurately. - Don't make false promises; keep your commitments. - Don't make people wait. - Avoid making inconsistent, contradictory decisions. - Give people enough time to make their purchases with their vouchers. - Volunteers should expect to receive some abuse from disaster victims who are tired, very irritable and very demanding. - Arrange some social and recreational activities to recharge your batteries and keep busy. - Know your personal limits; don't burn yourself out on the job. 	<ul style="list-style-type: none"> - Organize verbalization sessions. - Use schools as public assembly places. - Use school classrooms to house evacuees in small groups, for greater privacy and comfort. - Try to set up service points at several locations, because some villages are spread out over many kilometres. - Use school cafeterias to prepare meals for evacuees. 	

	Recommendations to disaster victims	Recommendations to responders and community organizations	Recommendations to municipalities	Recommendations to governments
After the emergency response is over	<ul style="list-style-type: none"> - Get help from people who can provide support, psychological comfort, and practical advice on legal and financial matters. - Be patient; don't make hasty decisions. - Assert your rights. - Don't become isolated; talk to and confide in someone. - Learn to accept the situation; show courage, determination and energy. - If possible, stay in the same neighbourhood, as close as you can to the people you know. - Follow the process for getting assistance and be persistent about it. - Don't lose hope, and don't look back. - Don't rush the decisions you have to make; think carefully about your needs. - Seek advice and talk about your situation before making decisions. - Don't be isolated: seek help and support from your CLSC, friends and family members. 	<ul style="list-style-type: none"> - Extend the period for psychological assistance programs to provide better support for people who are having trouble adjusting or have developed psychological problems. - Contact the disaster victims a year or two later to determine their ongoing needs for support. 	<ul style="list-style-type: none"> - Enable people to return to their homes as quickly as possible. - Support the creation of committees of volunteers to support the disaster victims. 	<ul style="list-style-type: none"> - Get out into the field to better assess the extent of the damage. - Provide disaster victims with information about the help and resources available. - Be fair in distributing the financial assistance granted by the government authorities. - Cover 100% of the losses and/or damages suffered. - In determining how much compensation to pay disaster victims for losses of property, consider its actual value and not just its municipally assessed value. - Shorten the time taken to process compensation claims. - Inform the public when there are adjustments in the amount of compensation. - Set up multiple service points in villages and municipalities affected by the disaster, so as to limit travel and additional expenses for victims. - Make secondary residences eligible for financial compensation.

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