

# DISABILITY-INCLUSIVE DISASTER MANAGEMENT

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Flood Response and Social Vulnerability in  
Bracebridge, Ontario

**Dr. Aaida Mamuji**

**Dr. Jack Rozdilsky**

Disaster & Emergency Management

School of Administrative Studies

Faculty of Liberal Arts & Professional Studies | York University

## Table of Contents

From the Researchers	2
Background:	3
Disability-Inclusive Disaster Management in Literature	3
Bracebridge, Ontario Flooding Case Study	4
Flood Damage and Response	4
Learning from Bracebridge	6
I. A Coordinated Network of Services	6
II. Consistent Communication between Separate Service Providers	7
III. Public Awareness of Available Emergency Services	8
Recommendations	9
Works Cited	11

## Images & Diagrams

<i>Service Providers &amp; Programs Supporting Residents with Disabilities in Bracebridge</i>	3
<i>Example of low-lying homes in the Fraserburg Road Area</i>	5
<i>Flooding on River Road in Bracebridge</i>	5
<i>High-volume of flood water flow over the dam near Ecclestone Drive in Bracebridge</i>	5
<i>Figure 1. Model for Inclusive Disaster Management</i>	7

## From the Researchers



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We are pleased to present this report exploring disability-inclusive disaster management in Bracebridge, Ontario during the 2019 Spring flooding. This report was made possible through a Quick Response Grant provided by the Institute for Catastrophic Loss Reduction in Toronto, Ontario. We are grateful to our funders for their continued support of disaster social science research. We are also thankful to Kayla Forgan, a talented York University student who received the Dean's Award for Research Excellence (Faculty of Liberal Arts & Professional Studies, York University) in summer 2019, who assisted in conducting research and analysis for this project.

In disaster situations, emergency managers strive to respond to the needs of the whole community. In Canada, over 3.7 million persons report having a disability that limits their daily activity, 1.6 million of which live in Ontario. Considering this significant subset of communities in Canada, we set out to answer the following research question:

***How can the needs of residents with disabilities be effectively met in local disaster situations?***

In an attempt to address this question, we conducted field visits and interviews in Bracebridge, Ontario and the broader Muskoka region between May-July, 2019. We interviewed 13 individuals, including public officials, social service providers, and residents with disabilities. We are grateful to all those who were very generous in providing us with both time for interviews and information on which this report is based. We also reviewed almost 40 articles and reports discussing disability rights and accommodations.

We hope that this project presents tangible recommendations for how individuals with disabilities - be they physical, mental, temporary, permanent, visible, or non-visible disabilities - can be better served in emergency situations in Canada.

Sincerely,

Dr. Aaida A. Mamuji  
Assistant Professor  
[amamuji@yorku.ca](mailto:amamuji@yorku.ca)

Dr. Jack L. Rozdilsky  
Associate Professor  
[rozdilsk@yorku.ca](mailto:rozdilsk@yorku.ca)



Disaster and Emergency Management  
Faculty of Liberal Arts & Professional Studies | York University

## Background:

In Canada over 3.7 million persons report having a disability that limits their daily activity, 1.6 million of which live in Ontario. Given that natural and manmade hazards are a constant part of Canada's landscape, this research project brings these two realities together to explore the state of disability-inclusive disaster management in Canada. It uses the Spring 2019 flooding in the Town of Bracebridge, Ontario as a case-study. With a population of 16,010 and roughly 30% aged 65 years or older, almost 41% of residents in Bracebridge have physical limitations. An understanding of the framework of disability policy in Canada, as well as an overview of existing literature on disability-inclusive disaster management provides sufficient background for the case-study.



**Service Providers & Programs Supporting Residents with Disabilities in Bracebridge**  
(Signs for Alzheimer's Society and National Access Awareness Week on May 22, 2019, pictured by Aaida Mamuji)

## Disability-Inclusive Disaster Management in Literature

While meeting the needs of the whole community during disaster situations is ideal, emergency services are generally developed to serve the 'average citizen' depending on how this average is understood by decision-makers (Mamuji & Rozdilsky, 2019). This can result in the needs of certain disaster-affected groups being unmet. This can be particularly problematic given the diverse make up of most cities in Canada, which include visible minorities, faith communities, marginalized populations, persons with disabilities, and others that may have unique needs. It is most often pre-existing social conditions that play a significant role in the ability of individuals and communities to prepare for, respond to, and cope with disasters, especially in light of institutional barriers (Thomas *et al.*, 2013). This is referred to as social vulnerability.

People with disabilities are socially vulnerable, as they experience additional challenges in disaster situations. Disability refers to an impairment in bodily functions, a limitation in specific activities and/or a restriction in social participation, leading to a gap in one's capabilities and the demands of the environment (Peek & Stough, 2010). It has been found that disaster management planning and operations are developed and implemented with little regard for the needs or capacities of persons with disabilities (Kett & Twigg, 2007). As a result, the needs of people with disabilities and older people are not adequately met by response efforts. People with disabilities also experience higher rates of fatality and greater exclusion during the recovery period (HIHI, 2012). Research on adults with sensory disabilities has revealed that they are among the least likely to evacuate as they do not receive timely warning messages in a manner compatible with blindness or deafness (Phillips & Morrow, 2007). Van Willigen *et al* (2002) found evacuation rates among households with a disabled family member to be 9% to 25% lower due to inaccessible transportation and lack of accessible shelters.

## Bracebridge, Ontario Flooding Case Study

### Flood Damage and Response

In late-April 2019, an area of Ontario about 150 kilometers north of Toronto faced severe flooding. This springtime natural disaster was due to days of rain combined with the Spring snow melt. Together these factors caused the Muskoka River and other rivers and lakes in the region to swell and those persons residing in the low-lying locations of the area known as 'cottage country' faced flood hazard impacts.

During initial field visits, flood impacts that were observed included shoreline flooding along the region's lakes, riverine flooding along the Muskoka River, and widely scattered zones of high-water pockets in low-lying areas across the region. The scattered areas of high-water resulted in challenges of road washouts and culvert damages.

While in downtown Bracebridge, dramatic scenes of the high-volume of flood water flow over the dam near Ecclestone Drive captivated media attention, much of the flood's impacts were in lower lying areas outside of the city proper. These spots included the area where the mouth of the river joins Lake Muskoka and an area in close proximity to a portion of the river which meanders near Fraserburg Road.





**High-volume of flood water flow over the dam near Ecclestone Drive in Bracebridge**  
(April 29, 2019, pictured by Jack Rozdilsky)



**Example of low-lying homes in the Fraserburg Road Area**  
(August 8, 2019, pictured by Jack Rozdilsky)

While some properties were directly impacted by water infiltration, many more residences were affected by the situations of road closures which limited access to apartments and homes. These situations created circumstances of limited access to supplies and services for the households that were cut-off by flood waters.

During flood response, first responders faced difficulties in reaching many of these residents, as their dwellings were undamaged, but ingress and egress routes were blocked. Assistance from Canadian Armed Forces Reservists was requested to help with using high water capable vehicles to reach those residents and also to assist in the large-scale sandbagging efforts.



**Flooding on River Road in Bracebridge**  
(April 29, 2019, pictured by Jack Rozdilsky)



**Canadian Armed Forces at Fowler Construction**  
(April 29, 2019, pictured by Jack Rozdilsky)

To manage the flood emergency, the District Municipality of Muskoka declared a State of Emergency on April 28, 2019, under provisions of the Ontario Emergency Management & Civil Protection Act. Under the State of Emergency, the district municipality activated both its Emergency Plan and its Emergency Control Group to assist municipalities with their specific flood fighting and flood response efforts. Three of the six area municipalities in the district also declared their own States of Emergency during the flooding. Those municipalities were the Town of Bracebridge, the Town of Huntsville, and the Township of Muskoka Lakes.

## Learning from Bracebridge

Our quick response research concludes that the response to the 2019 flooding event in the Town of Bracebridge, Ontario was well-coordinated and adequately met the needs of individuals with disabilities and functional limitations. Three prevalent factors contributed to the efficacy of the disaster management efforts:

- I. a coordinated network of services
- II. consistent communication between separate service providers
- III. public awareness of available emergency services

### I. A Coordinated Network of Services

Borne out of the *Canadian Pandemic Influenza Preparedness: Planning Guidance for the Health Sector* (CPIP)<sup>1</sup>, the District of Muskoka has an interconnected network that ties together service providers and non-governmental organizations that serve vulnerable populations. In existence since the 2006 CPIP update, this network is known as the Vulnerable Populations Committee. Connected organizations include: 2-1-1, the Local Health Integration Network (LHIN), hospitals, Victim Services, the Canadian Red Cross, the Muskoka Health Unit, the Salvation Army, Ontario Disability Support Program (ODSP) case workers, Ontario Works, the Canadian Mental Health Association, and First Nations community groups amongst others, for a total of over 400 different service providers.

As depicted in Figure 2, the Vulnerable Populations Committee was able to facilitate disability-inclusive disaster management through its direct connection with the Emergency Manager/the Emergency Operations Centre on the one hand, and with affected residents on the other hand. A representative of the Vulnerable Populations Committee sits on the Control Group, both at the District and Town level.

<sup>1</sup> The CPIP is a guidance document which outlines how federal, provincial, and territorial health sectors work towards a coordinated approach to pandemic preparedness and response (PHN, 2015).

## II. Consistent Communication between Separate Service Providers

The efficacy of the disaster response network relies heavily on collaboration and communication between emergency management authorities and service providers, who are in turn connected with residents. As depicted in Figure 2, three important pathways of communication<sup>2</sup> helped to facilitate disability-inclusive disaster management:

- ✓ **Emergency Management Authorities → Service Providers and First Responders**
- ✓ **Service Providers → Emergency Management Authorities and Affected Residents**
- ✓ **Affected Residents → Service Providers**

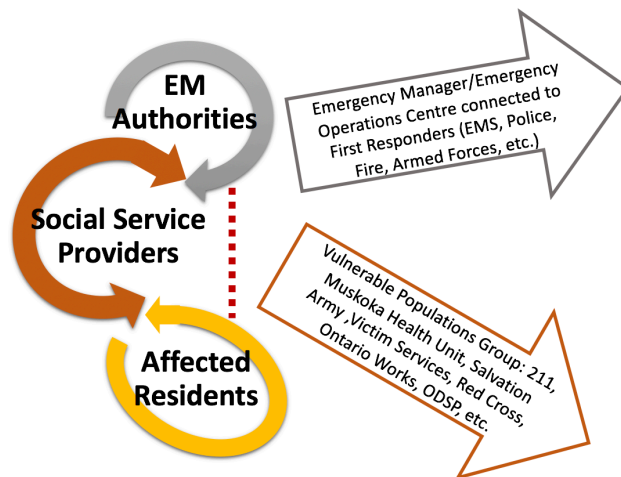


Figure 2. Model for Inclusive Disaster Management

For example, during the response effort in the Town of Bracebridge, when important messages needed to be delivered to vulnerable residents, members of the Emergency Operations Centre (EOC) were able to rely on a) services providers at the table, and b) the Vulnerable Populations Committee, to disseminate the messages to those residents. Describing the Vulnerable Populations Committee process, one participant explained, “different service providers [are] activated by eight network hubs whose job it is to pass along disaster information to the necessary available agencies” (Interview 8). Network hubs can relay the information to service providers not at the table, and those service providers can then communicate the message out directly to residents (network hub representative in EOC → service providers → residents).

Service providers were also able to help members of the EOC with needs assessment. With regards to the Bracebridge flooding response, one network hub representative explained:

<sup>2</sup> In the response to the 2019 Spring flooding, those affected residents that had pre-existing relationships with the emergency manager or members of the Emergency Operations Centre Control Group also had a direct connection between affected residents, as depicted by the red dotted line in Figure 2.



*We were able to connect directly with the LHIN [Local Health Integration Network], to say, ‘Hey, do you have any identified vulnerable populations within this specific community’. We were really looking at the Fraserburg community that was blocked for so long. So, just through that direct, really quick [link], it was easy to get the information. They did a quick search of their data and they said ‘No we don't have anybody. We're not providing services in that area’. And so now...we know we have eliminated that possibility. (Interview 8)*

In some cases, wellness checks were requested by service providers. Upon receipt of the request, the emergency manager was able to inform first responders such as the Fire Department or the Canadian Armed Forces to conduct the checks.

Similarly, individual residents were also able to communicate their needs directly to service providers that they are connected to. Regarding individuals requiring oxygen or dialysis machines, one emergency management authority explained, “We did identify [these] individuals and we made sure provisions were in place for them” (Interview 3). Residents requiring oxygen or dialysis machines are registered with local power companies who are part of the LHIN. While these residents did not have their power cut during the flooding event, “it was good we did have them on our radar” (Interview 3).

### III. Public Awareness of Available Emergency Services

The efficacy of this model for disability-inclusive disaster management relies on efficient public awareness of the disaster circumstances and available supports. Bracebridge Mayor Graydon Smith was praised for his regular Facebook Live updates on the disaster situation throughout the declared state of emergency. Residents were constantly requested to self-register with 2-1-1, a public inquiry information and referral service provider available to 74% of the country. 268 Bracebridge residents called the hotline during the response. As explained by one research participant:

*The town was really pushing residents to self-report. So, call into 2-1-1, register that you're still in your home. Do you need medications? What is your current situation? Are you going to need supplies? Do you have enough water? Do you have enough food? (Interview 9)*

Several residents with functional limitations called 2-1-1 requesting assistance with the creation of sandbag barriers. Emergency management authorities were able to assist these residents once informed.

## Recommendations

One of the explicit purposes of this research is to improve inclusivity of disaster management by drawing lessons from the emergency response in Bracebridge, Ontario. There are three main recommendations.

***Recommendation 1:** Establish an integrated network where social service agencies are the bridge between emergency management authorities and residents with disabilities.*

Similar to the model observed in the District of Muskoka, the establishment of a relationship between emergency management authorities and local/regional social service providers has proven to be the key to disability-inclusive disaster management.

It is arguable that most all individuals with disabilities in Canadian communities are connected to some sort of social support. Efforts should first be made to connect local and regional social service providers to one another through a formal network. Community Emergency Management Coordinators (CEMC) are encouraged to take the lead in establishing such a network if it does not yet exist in their jurisdictions.

Once the network is created, a relationship should be established between the local emergency manager and representatives of the social service network (what is referred to as the 'network hub' in Muskoka). During emergencies, the representatives should be invited to the EOC. In this way, messages from the EOC can be delivered from the representatives to social service organizations not directly at the table, and finally to vulnerable residents. Similarly, service providers can also share the needs of their clients directly with emergency management authorities through this structure. This relationship provides the emergency management office with awareness of the unique needs of residents in their locality in the face of a disaster.

Bearing the network in mind, one can argue that disability-inclusive disaster management is *inclusive* disaster management - inclusive of all social services that serve vulnerable residents, no matter how diverse their needs may be.

***Recommendation 2:** For inclusive emergency management, authorities must broaden their understanding of disability by inviting 'non-traditional' social service agency representatives into the integrated network.*

In order to ensure that all people with functional limitations are provided the necessary assistance during emergencies, traditional understandings of 'disability' must be challenged.

For example, an elderly person who is frail might not be considered to have a defined disability. As such, while the equivalent of the Vulnerable Populations Committee might include service providers for specific conditions, e.g. Alzheimer's, autism, blindness, etc., there might not be adequate representation for those that are not served by a social service provider directly. In this case, it is recommended that a broader understanding of disability be adopted. Depending on the available resources in a locality, this might include inviting 'non-traditional' social service agency representatives into the integrated network, e.g. retirement homes, pharmacies, senior bingo halls, etc.

***Recommendation 3: Establish a single point of contact for residents to express their needs in emergency situations.***

Another key lesson learned is the importance of effective emergency communication. As expressed by one research participant, the public can experience "confusion" when several social service agencies are activated in emergency situations (Interview 7). During the Bracebridge response, while residents were officially advised to communicate their needs to 2-1-1, when seeking assistance others contacted Victim Services, the Canadian Red Cross, the municipality, or their ODSP case workers directly. It is advisable that official communications advertise a single point of contact in order to reduce social service overlap during emergencies, and to improve overall system consistency. Once needs are known, emergency management authorities are best placed to contact first responders and front-line workers to provide aid as necessary.

Despite advertising a single point of contact, however, it can be expected that residents will contact those service providers that they are most familiar with. A streamlined process to ensure that the needs of residents expressed to *any* social service provider are communicated to emergency management authorities, is integral. The suggested integrated network would facilitate this.

## Works Cited

- HelpAge International and Handicap International, HIHI. (2012). *A study of humanitarian financing for older people and people with disabilities, 2010-2011*. Published by HelpAge International, London, and Handicap International, Lyon.
- Kett, M. and J. Twigg (2007) 'Disability and disasters: towards an inclusive approach'. In IFRC (ed.) *World Disasters Report 2007: Focus on Discrimination*. IFRC, Geneva. Pp. 87-109
- Mamuji, A. and Rozdilsky, J. L. (2019). Canada's 2016 Fort McMurray Wildfire Evacuation: Experiences of the Muslim Community. *International Journal of Emergency Management*. Vol 15-2, 125-146.
- Thomas, D., Phillips, B., Lovekamp, W. and Fothergill, A. (Eds.) (2013) *Social Vulnerability to Disasters*, CRC Press, Boca Raton, FL, ISBN 9781466516403.
- Peek, L. and Stough, L. (2010) 'Children with disabilities in the context of disaster: a social vulnerability perspective', *Child Development*, Vol. 81, No. 4, pp.1260-1270.
- Phillips, B.D., & Morrow, B.H. (2007). Social science research needs: Focus on vulnerable populations, forecasting, and warnings. *Natural Hazards Review*, 8(3), 61-68.
- Pan-Canadian Public Health Network, PHN. (2015). Canadian Pandemic Influenza Preparedness: Planning Guidance for the Health Sector. Retrieved online at <http://www.phac-aspc.gc.ca/cpip-pclcpi/assets/pdf/report-rapport-2015-eng.pdf>
- Homeland Security. (2006). *Nationwide Plan Review Phase 2 Report*. Retrieved online at <https://www.npr.org/documents/2006/jun/dhs/preparedness.pdf>
- Van Willigen, M., Edwards, T., Edwards, B., & Hesse, S. (2002). Riding out the storm: Experiences of the physically disabled during Hurricanes Bonnie, Dennis, and Floyd. *Natural Hazards Review*, 3(3), 98-106.