

# Hazard Identification and Risk Assessment Program

## Methodology Guidelines 2019 Annex B: Social Risk Factors Overview



Office of the Fire Marshal  
and Emergency Management



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# Social Risk Factors

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Numerous personal, social, political, economic, and environmental factors influence vulnerability and exposure to hazards, and therefore risk. An important consideration for emergency managers is to recognize the deeply rooted social risk factors within our society. The goal of the emergency manager should not be to solve the issue, but to acknowledge its existence and connect with those in the community who are already immersed in a given population.

Engagement with local social services agencies, community outreach organizations, and non-profit organizations (including schools and faith-based organizations) to establish a network of services that can be provided to support these and other vulnerable groups.

## Effects of Social Risk Factors on Vulnerable Groups

Safe and affordable housing, employment, physical and mental well-being, and social inclusiveness are just some of the fundamental human needs that contribute to the health of individuals, families, and communities.

There are numerous social risk factors, such as age (particularly the old and young), poverty, homelessness, unemployment, language proficiency, substance abuse, and mental health issues that are pertinent to understanding human vulnerability to hazards in Ontario. More importantly, these issues can affect specific groups of people disproportionately and exacerbate their vulnerability levels. These groups include, but are not limited to, those who are homeless, unemployed, the elderly, Indigenous peoples, ethnic minorities, and others.

**The availability of safe and affordable housing** that is built in compliance with building codes ensures that people have protection from the elements, especially during disasters, and contributes to the overall health and well-being of the community. Having this type of protection can help to decrease Ontarians' vulnerability to disasters. Accommodation is considered affordable if it requires less than 30 percent of a household's total pre-tax income.<sup>1</sup>

**The ability to afford basic and essential needs are key to reducing disaster vulnerability in a community.** Access to basic necessities such as food, child care, clothing, health care, and education, is not equally available across the population. Low-income households are more vulnerable to displacement and are least able to access safe and affordable housing after a disaster, as well as other basic human needs.<sup>2</sup>

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<sup>1</sup> Canada Mortgage and Housing Corporation (CMHC), 2018.

<sup>2</sup> Ontario Emergency Social Services, Ministry of Children, Community and Social Services

## Specific Factors, Groups and Demographics

**Anyone can be or become vulnerable.** Because disasters are, in part, products of social forces, emergency managers should examine how various social issues affect Ontarians' vulnerability to disasters, and which groups are affected disproportionately.

**Social and structural determinants** are the historical, economic, societal and political conditions that influence the overall wellbeing of people and communities. These include health, employment, education, and other inequities.<sup>3</sup> For example, colonialism and racism are recognised as critical determinants for Indigenous communities,<sup>4</sup> which experience higher rates of suicides, addictions, abuse, mental health issues, and overrepresentation in the youth justice and child welfare systems.<sup>5,6</sup> Such factors can limit the ability to cope with the impact of disasters. Similarly, income, race and ethnicity were critical determinants of higher losses and slower recovery rates in Miami, FL after Hurricane Andrew in 1992.<sup>7</sup>

**Health** influences vulnerability and exposure to hazards. Likewise, hazards can have a negative effect on health.<sup>8,9</sup> People's physical and mental health are influenced by individual attributes, as well as social circumstances and the environment in which they live, as well as genetics. Health factors can be permanent and long lasting such as a lost limb or stress injury, or temporary such as a sprained ankle.

**Older adults** can be disproportionately affected by disasters. In particular, those who have chronic disease and disabilities could require additional assistance.

**Isolation**, particularly older persons, can lead to higher mortality rates in disasters than those with similar characteristics in more socially-connected communities.<sup>10</sup> This includes those who are socially, culturally or geographically isolated.

**Marginalization** can significantly affect the vulnerability and exposure of people to hazards. Commonly marginalized groups include lesbian, gay, bisexual, trans, queer and two-spirited (LGBTQ2S) people, persons with disabilities, Indigenous peoples, seniors, and new immigrants, to name a few.

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<sup>3</sup> Reading, C. (2015). Structural determinants of Aboriginal Peoples' health. In M. Greenwood, S. de Leeuw, N.M. Lindsay, & C. Reading (Eds.), *Determinants of Indigenous peoples' health in Canada: Beyond social*. Toronto, ON: Canadian Scholars' Press Inc.

<sup>4</sup> Reading, C.L, & Wien, F. (2009). *Health inequalities and social determinants of Aboriginal peoples' health*. Prince George, BC: National Collaborating Centre for Aboriginal Health.

<sup>5</sup> Breaking point: the suicide crisis in indigenous communities. Report of the Standing Committee on Indigenous and Northern Affairs, 2017. <http://www.ourcommons.ca/Content/Committee/421/INAN/Reports/RP8977643/inanrp09/inanrp09-e.pdf>

<sup>6</sup> Ministry of Children, Community and Social Services, 2016. <http://www.children.gov.on.ca/htdocs/English/professionals/childwelfare/residential/residential-review-panel-report/11over.aspx>

<sup>7</sup> Peacock W.G. et al (2014). Inequities in Long-Term Housing Recovery After Disasters, *Journal of the American Planning Association*, 80:4, 356-371.

<sup>8</sup> Zahran et al. Economics of Disaster Risk, Social Vulnerability, and Mental Health Resilience. *Risk Analysis*, 2011.

<sup>9</sup> The Determinants of Disaster Vulnerability: Achieving Sustainable Mitigation through Population Health; *Natural Hazards*. March 2003, Volume 28, Issue 2–3, pp 291–304.

<sup>10</sup> Michael K. Gusmano and Victor G. Rodwin. Urban Aging, Social Isolation, and Emergency Preparedness, *ifa global aging 2010 VOL. 6 No 2*. <https://www.ifa-fiv.org/wp-content/uploads/global-ageing/6.2/6.2.gusmano.rodwin.pdf>

# Case Study

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## Hurricane Katrina 2005

Event Overview:<sup>11</sup>

*“Hurricane Katrina made landfall on August 29, 2005, in southeastern Louisiana, with maximum sustained winds of 140 mph... Coastal storm surge flooding of 20 to 30 feet above normal tide levels... occurred near and to the east of where the center of the storm made landfall. Widespread damage occurred, including beach erosion and damage and/or destruction of homes and infrastructure.”*

The aftermath of hurricane Katrina clearly demonstrates that social vulnerability is partially a product of social inequalities, including poverty, home ownership, language proficiency, ethnicity, immigrant status, and housing status.<sup>12,13</sup> Impacts clearly differed according to pre-disaster socioeconomic conditions.<sup>14</sup>

Social vulnerability considers an individual perspective as well as household, family, and community social connections. For example, in a recent study, RAND Corporation found that high prevalence of extended-family households in New Orleans increased the incidence of household breakup after Hurricane Katrina. This led to severe consequences, including homelessness, especially for both single-parent families and single adults.<sup>15</sup>

In the aftermath of devastating events such as hurricane Katrina, it has been found that forms of anxiety and stress disorders including Post-traumatic stress disorder (PTSD) are prevalent and disproportionately affect the population based on social risk factors.<sup>16</sup> For example, in one study of those affected by hurricane Katrina, the odds for screening positive for depression were 86% higher for African Americans than for Caucasians.<sup>17</sup> Other recent studies have revealed higher rates of mental illness among Hurricane Katrina survivors who were single, African American, low-income, Hurricane-exposed, female, or between the ages of 18 and 34.<sup>18</sup>

While the effects of disaster are not always so clear-cut, it is clear that social vulnerability should play a key role in understanding risk and preparing for emergencies.

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<sup>11</sup> FEMA (2015). Hurricane Katrina Overview. Retrieved from <https://www.fema.gov/hurricane-katrina-overview>. Accessed December 05, 2018.

<sup>12</sup> Zoraster, Richard. (2010). Vulnerable Populations: Hurricane Katrina as a Case Study. Pre-hospital and disaster medicine. 25. 74-8.

<sup>13</sup> Cutter, s. (2006). The Geography of Social Vulnerability: Race, Class, and Catastrophe. Retrieved from <http://understandingkatrina.ssrc.org/Cutter/>. Accessed December 05, 2018.

<sup>14</sup> SAMHSA (2017). Disaster Technical Assistance Center Supplemental Research Bulletin Greater Impact: How Disasters Affect People of Low Socioeconomic Status.

<sup>15</sup> Rendall, M. S. (2011), Breakup of New Orleans Households After Hurricane Katrina. Journal of Marriage and Family, 73: 654-668.

<sup>16</sup> Neria, Y., Nandi, A., & Galea, S. (2007). Post-traumatic stress disorder following disasters: a systematic review. Psychological medicine, 38(4), 467-80.

<sup>17</sup> Ali, J. S., Farrell, A. S., Alexander, A. C., Forde, D. R., Stockton, M., & Ward, K. D. (2017). Race differences in depression vulnerability following Hurricane Katrina. Psychological Trauma: Theory, Research, Practice, and Policy, 9(3), 317-324.

<sup>18</sup> Rhodes, J., Chan, C., Paxson, C., Rouse, C. E., Waters, M., & Fussell, E. (2010). The impact of hurricane Katrina on the mental and physical health of low-income parents in New Orleans. The American journal of orthopsychiatry, 80(2), 237-247.

# Assessing Vulnerability of People

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Vulnerability can be complex and extremely difficult to evaluate and address.

The key to understanding vulnerability is the idea that certain individuals are more susceptible to hazard effects. Vulnerability creates **barriers** for those individuals to obtain or understand information, or to react as the general population would. This means they may need assistance due to any condition (temporary or permanent) that limits their ability to take action.

Individuals experiencing these conditions are also said to have 'Access and Functional needs'. For example, a **need** for assistance to get to a safe place.

During risk assessment, one approach to assessing vulnerability is to identify such needs that may exist. Then consider if barriers are addressed through existing resources or plans. If there is a gap between the need and the planned capacity, this represents a residual risk.

**For example:** What barriers may prevent individuals from managing psychosocial consequences linked to the occurrence of a hazard?

A barrier such as lack of access to emotional support could be partly addressed with an Emergency Social Services program.

Considerable work has been done to address the challenge of vulnerability. Healthcare, social services and other specialists can offer subject matter expertise to inform appropriate mitigation, preparedness, response and recovery activities specific to community vulnerability.

One framework proposed by such experts, widely used to help identify and proactively address vulnerability, is called C-MIST. It was originally developed by June Isaacson Kailes and adapted by the United States Federal Emergency Management Agency (FEMA) to help identify individuals with 'access and functional needs'.<sup>19 20</sup> The framework is based on the concept that such individuals can be assisted to maintain their health, safety, and independence during and after an emergency.

This example framework is summarized on the next page.

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<sup>19</sup> Kailes, J., Enders, A., (2007) Moving Beyond "Special Needs": A function-based framework for emergency management and planning. JDPS, 2007. 17: p. 230-237.

<sup>20</sup> FEMA, 2012. IS-0368 - Including People With Disabilities and Others With Access and Functional Needs in Disaster Operations.

# C-MIST Framework

## COMMUNICATION

Individuals who have limitations that interfere with the receipt of and response to information will need that information provided in methods they can understand and use. Some may not be able to hear verbal announcements, see directional signs, or understand how to get assistance due to hearing, vision, speech, cognitive, or intellectual limitations, and/or have limited English proficiency.



## MEDICAL CARE

Individuals who are not self-sufficient or who do not have adequate support from caregivers, family, or friends may need assistance with: managing unstable, terminal or contagious conditions that require observation and ongoing treatment; managing intravenous therapy, tube feeding, and vital signs; receiving dialysis, oxygen, and suction administration; managing wounds; and operating power-dependant equipment to sustain life. These individuals require support of trained medical professionals.



## MAINTAINING INDEPENDENCE

Individuals requiring support to be independent in daily activities may lose this support during an Emergency. Such support may include consumable medical supplies (diapers, formula, bandages, ostomy supplies, etc.), durable medical equipment (wheelchairs, walkers, scooters, etc.), service animals, and/or attendants or caregivers. Providing the necessary support to these individuals will enable them to maintain their pre-disaster level of independence.



## SUPERVISION

Before, during, and after an emergency individuals may lose the support of caregivers, family, or friends or may be unable to cope in a new environment (particularly if they have dementia, Alzheimer's or psychiatric conditions such as schizophrenia or intense anxiety). If separated from their caregivers, young children may be unable to identify themselves; and when in danger, they may lack the cognitive ability to assess the situation and react appropriately.



## TRANSPORTATION

Individuals who cannot drive or who do not have a vehicle may require transportation support for successful evacuation. This support may include accessible vehicles (e.g., lift equipped or vehicles suitable for transporting individuals who use oxygen) or information about how and where to access mass transportation during an evacuation.





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