



Canadian Risk & Hazards  
Network  
(Knowledge and Practice)

[www.crhnet.ca](http://www.crhnet.ca)

*HazNet*

Réseau canadien d'étude des  
des risques et dangers  
(connaissances et pratiques)

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## Welcome from the Co-Presidents

Ernie MacGillivray - CRHNet Co-president - and I extend to each of you our Board's greetings and well wishes. We at CRHNet are proud to present to you our latest "newsletter", which thanks to its editorial staff and contributors has again established new records.

Last fall, CRHNet held its 10<sup>th</sup> annual symposia in Regina, SK. Like its predecessors, this symposium provided many opportunities to explore new facets and firm-up important linkages among the many stakeholders of disaster risk reduction; the new theme this time was the introduction of an Aboriginal theme to the discussion. This theme facilitated closer connection between CRHNet and the Aboriginal community and is allowing for more meaningful dialogue on related disaster risk reduction (DRR) issues. Additionally, the symposium's continued linkage to the national Roundtable on (DRR) again provided an opportunity for cross-issues dialogue, and continued discussion on critical current topics.

The symposium provided another success story – implementation of the CRHNet new governance model. Ratified by the membership at the AGM, the model involves a smaller and more agile Board, an Executive Director in-charge of a management group to manage the day-to-day affairs of the association, and various standing committees that participate more-directly in the affairs of the Association. The changes aim to enhance membership engagement in the Association and allow for greater contribution to the growth of disaster resilience in Canada.

The new governance model is designed to advance CRHNet's mission: to promote dialogue, increase awareness, and advance collaboration towards DRR in Canada. This mission is supported by our enhanced ability to disseminate information.

CRHNet new website ([www.CRHNet.ca](http://www.CRHNet.ca)) **now has many more opportunities to communicate** and share information. It is designed to serve as a platform for discussion, engagement and collaboration; **you are invited to contribute to its content**. We are now engaged in an on-going project to develop and populate a searchable electronic library, focused on the many facets of emergency management and disaster risk reduction. This library is intended to complement our evolving E-book – the Canadian Disaster Management text, which is on our website. We invite any of you to share your publications by sending them to Ron ([rkuban@shaw.ca](mailto:rkuban@shaw.ca)) for posting to the library.

Additionally, as part of our outreach and networking initiative, we have recently reactivated our LinkedIn site ([www.linkedin.com](http://www.linkedin.com)). This site together with the CRHNet Young Professionals Facebook page provides diverse channels for dialogue, collaboration, and growth. CRHNet will continue to promote the site and publish both its own content and that which is offered by others.

On behalf of the Board, we again wish to thank all of you who belong and contribute to the Association, and welcome all others who are interested in enhancing emergency preparedness and disaster risk reduction. Success in this field of practice is based on "Team effort" and we are proud on the inclusiveness of our growing team.

**Ron Kuban and Ernie MacGillivray,**  
CRHNet Co-Presidents

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## Note from Executive Director

Greetings and a warm welcome to current and new members of the Canadian Risk and Hazards Network to the 10th edition of *HazNet*. It has been a busy time since the last edition of *HazNet* and a lot has taken place. The 10<sup>th</sup> CRHNet symposium in Regina, in November 2013 was very successful. I’m sure those of you who were lucky enough to attend will agree. It was hosted by EMO Saskatchewan and the University of Regina, and I wish to thank both organizations for their efforts. In particular, many thanks to the Organizing Committee comprised of: Mieka Torgrimson, Murray Sanders, Patty Doroshenko, Sylvia Waterer et al. for taking on the challenge of hosting the 10th CRHNet Symposium.

CRHNet was involved in partnering with the Aboriginal community and leading to strong participation of the Aboriginal community at the Symposium. A report was created by CRHNet in cooperation with the Justice Institute of British Columbia, and coordinated by CRHNet’s Brenda Murphy and her co-Chair David Diabo, Assembly of First Nations as an initiative of the Aboriginal

Resilience Sub-Working Group (AR). In 2013, the AR was struck within the Resilient Communities Working Group (RCWG). This report, thanks to Brenda, Eric Bussey and Laurie Paerce was prepared on behalf of CRHNet for Aboriginal Affairs and Northern Development Canada.

In January we were able to introduce our audience to a Special Edition of HazNet, “Blasts from the Past” which took considerable time to pull together; however, by all accounts it was very well received.

My time has been spent on a number of items – mostly assisting the Board with moving ahead with its strategic planning initiatives and working with other institutions to enhance the profile of CRHNet. In particular the Communities of Practice and specifically, the Canadian Tri-Service Emergency Management Committee (CTSEMC) made up of the three Canadian Chiefs’ Associations: Chiefs of Police, Fire Chiefs and Canadian Paramedic Chiefs who have formed a committee to represent them jointly and individually on Emergency Management matters. As of November, CRHNet has joined CTSEMC, and Jack McGee, Honorary member of CRHNet is the liaison.

The CRHNet Board under the leadership of Ernie MacGillivray has put in place a new task oriented management structure, and work plan which is being pursued for 2014. The work plan will be populated with hard working Board members as the chairs of the various sub committees. This should energize, and in many ways, revitalize the Board. In fact, we are most fortunate to have two new associate members as part of, and in support of, our Board: Lance Valcour and Steve Palmer, and a new Director John Mikler, DRDC Suffield, AB. As well, there has been a major review of the By-Laws to cater to the new management structure. The By-Laws were presented to the membership and voted upon at the AGM in November 2013 and will be posted to the CRHNet web site.

Indeed, the topic of Symposia is a segue into the upcoming 11<sup>th</sup> CRHNet Symposium to be held in Toronto October 22 to 24, 2014. Please see the first circular in this edition and the CRHNet web site <http://www.crhnet.ca/crhnet-11th-annual-symposium> for details and the call for abstracts. We anticipate a number of high quality presentations by a great mix of researchers and practitioners and, as well, many social and networking opportunities will be realized. The Symposium is being hosted by York University and EMO Ontario under the leadership of David Etkin and his organizing committee, contact Dave at [etkin@yorku.ca](mailto:etkin@yorku.ca)

Did I mention our new web site? Thanks to the efforts of Bert Struik, who coordinated its development and our host Royal Roads University in Victoria, we have a new improved site. I would be remiss if I didn’t thank Royal Roads University – both Meghan Knauf and Robin Cox for their continued support of, and for, CRHNet and for providing hard copies of our newsletter, HazNet.

By the by, I enjoy getting new articles for HazNet – as it gives me an opportunity to link up with those I get to meet at various conferences and events and touch base to find out how people are doing. This year in particular, I am so pleased we have received such a large collection of articles by researchers, practitioners and students – a proverbial feast! Keep up the good work and keep the articles coming 😊

Finally I wish to thank the CRHNet Board of Directors for their hard work and to our fearless leaders Ernie MacGillivray and Ron Kuban for their leadership. As a famous man said, “if your actions inspire others to dream more, learn more, do more and become more, you are indeed a leader.” Don’t miss out on this year’s great symposium!



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# What's Up in the Research World

## Lessons from Katrina: Recommendations for Fostering More Effective Disaster Preparedness, Response and Recovery Efforts for Children and Youth

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*and*



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recovery, and to document how they helped themselves and other children recover after Katrina.

In this brief article, we discuss some ways that children may be assisted after disaster based on what we learned from children in Katrina (the full analysis can be found in our forthcoming book, *Children of Katrina*, which will be published by the University of Texas Press in 2015).<sup>1</sup> We organize our recommendations here by the spheres of children's lives that we focused on in our research: family, housing, school, peers/friendship, extracurricular activities, and health and wellbeing. Over the years of our study, we identified a number of actions across each sphere of children's lives that would help inform better preparedness, response, or recovery for children and youth in disasters.

### **FAMILY SPHERE**

Children and youth are embedded in families. Their families of origin are critical to their experiences before, during, and after a disaster.<sup>2</sup> Families with resource depth are in a better position to protect their children from disaster effects and to help them in recovery. Conversely, when families have few resources and are not thriving, children tend to suffer various negative consequences. After a disaster, all families, and especially those at the margins, need to attain and/or regain several basic, but crucial, forms of information, support, and opportunities, including:

- Knowledge of whereabouts and safety of family

<sup>1</sup> Fothergill, Alice and Lori Peek. 2015. *Children of Katrina*. University of Texas Press.

<sup>2</sup> Bronfenbrenner, Urie. 1986. "Ecology of the Family as a Context for Human Development: Research Perspectives." *Developmental Psychology* 22(6): 723



- Connection and communication with family members
- When separated, reassurance that they will see family members again
- Recognition of all family members, including the significance of fathers (who may live separately from their children) and of siblings
- Routine and predictability in post-disaster family life
- Understanding as they may be dealing with other crises (such as divorce, death of a grandparent, or parental drug use).
- Parents, frequently mothers, take on enormous caregiving responsibilities in a disaster.<sup>3</sup> They need:
- Support from other family, friends, and advocates
- Childcare services that they can trust and that are reliable and affordable
- Resources and services that they can help mobilize and then pass on to their children
- Assistance if they are too stressed, exhausted, or overwhelmed to cope on their own.

## **SHELTER AND HOUSING SPHERE**

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Often, shelter and housing needs after disaster are conceptualized as a linear progression from emergency to temporary to permanent housing, with each new move along the way assumed to become more secure.<sup>4</sup> Our research shows that in some

cases, especially for the people in the most vulnerable pre-disaster circumstances, that housing may be much more uncertain and unstable for long periods of time, and this can have serious ramifications for children’s health and well-being.

In regards to post-disaster housing, we argue for:

- Offering free childcare and creating child-friendly spaces for children to play and study at all shelters after disaster
- Making sure that those spaces also include key people who will protect, comfort, and otherwise support children recently affected by disaster
- Ensuring that shelters have private spaces for girls and boys, men and women, so that disaster survivors can have privacy and maintain a sense of dignity
- Making temporary and transition-to-permanent-housing assistance a top policy priority and funding local, state, and federal government housing programs for families
- Offering larger, more environmentally-friendly and safe temporary housing options
- Setting up temporary housing sites that include parks, playgrounds, and other safe spaces
- Assisting families to move back into pre-storm homes if desired and/or into new, more permanent housing in areas as chosen
- Giving displaced residents as well as returnees (including children and youth) a voice in communicating and shaping post-disaster housing options
- Being cognizant of potential class and race biases in housing aid and working to overcome resultant structural disadvantages
- Investing in rapidly repairing, rebuilding, and/or creating affordable housing options for families

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<sup>3</sup> Peek, Lori and Alice Fothergill. 2008. “Displacement, Gender, and the Challenges of Parenting after Hurricane Katrina.” *National Women’s Studies Association Journal* 20(3): 69-105.

<sup>4</sup> Quarantelli, Enrico L. 1995. “Patterns of Sheltering and Housing in U.S. Disasters.” *Disaster Prevention and Management* 4(3): 43-53.

## SCHOOL SPHERE

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The school sphere is fundamental to children's recovery. It is a special sphere in that it is unique to children and youth and it has specific time parameters: when the window for schooling is gone, children cannot get it back. Children who do not return to school after disaster and/or who miss critical stages in their cognitive and social development due to the disruption caused by disaster may suffer irreparable harm in terms of their intellectual growth, development, and future educational goals.

The school sphere, as with the other spheres, is marked by inequality, with some students having more advantages than others. Some school districts, often segregated by race and class, have more resources and support than others; some families have the ability to enroll children in private schools that require tuition or arrange to be in a high-quality school district, while other families do not have those options. Keeping this in mind, and recognizing the importance of education during displacement and recovery, there are many things that can and should be done, to support disaster affected children and youth and their educational process. These include:

- Reopening schools (including childcare centers and pre-schools) as quickly as possible after a disaster; this means allocating proper resources to repair, rebuild, and/or revive schools in disaster zones
- In receiving communities that receive large numbers of displaced children and youth, providing pathways for their rapid enrollment
- Offering emotional support through optional peer-oriented and/or peer-led support groups
- Providing access to licensed professional counselors, social workers, and school therapists
- Training all school staff—from upper-level administrators, to teachers, to custodians—how to be supportive of children and youth who have been affected by disaster as well as those who are in receiving communities who are now welcoming disaster-affected youth into their classrooms
- Designing and implementing disaster preparedness, response, and recovery curriculum within classrooms
- Providing opportunities for children to help their schools' and classmates' recovery; this could, for example, come in the form of service learning, fundraising, mentoring programs, or community action activities
- Offering immediate and long-term support for teachers, who are often recovering from disaster themselves; this may include financial, professional, and emotional support
- Training school staff regarding bullying and stigma that may be attached to “disaster survivor” status for youth; reminding these professionals that bullying may be exacerbated based on region of origin, gender, age, race, or other characteristics
- Integrating displaced children in classrooms with familiar faces if possible
- Making school days as predictable as possible and re-establishing routines within classrooms and schools
- Allowing children and youth the opportunity to work on projects that help them process their disaster experience
- Funding school programs in arts, music, drama, and creative writing to encourage expression and foster healing.



Isaac

## PEERS/FRIENDSHIPS SPHERE

All of the children in our study, regardless of their recovery path, spoke of the importance of their friends and peers during the interviews. When they were separated from friends, they talked about the lengths they went to in order to find or reunite with them. Often locating, communicating with, and being able to see friends was dependent on a family's resources, such as access to computers and transportation. When children were fortunate enough to return to the same classroom or neighborhood with their pre-storm friends, they would articulate how much that meant to them.

Friends matter a lot. Limited research, however, has focused on the role of friends in children's lives in the disaster aftermath.<sup>5</sup> Yet, there are many things that could be done to help children and youth in the friendship/peer sphere during disaster recovery, such as:

<sup>5</sup> Overstreet, Stacy, Alison Salloum, Berre Burch, and Jill West. 2011. "Challenges Associated with Childhood Exposure to Severe Natural Disasters: Research Review and Clinical Implications." *Journal of Child and Adolescent Trauma* 4(1): 52-68.

- Recognizing the importance of friendships and peer support and the way these dynamics affect a child's recovery
- In displacement, having adults and other youth help children to identify the whereabouts of their friends and to reconnect displaced children with their peers
- Facilitating children's communication with old friends—through calling, texting, emailing, social media, and other mediums—so that disaster-affected children can know they are safe
- Helping children make new friends in new situations through "buddy programs" or other means
- Supporting children as they cope with separation or loss of old friends, classmates, and/or boyfriends and girlfriends who are now far away.

## EXTRACURRICULAR ACTIVITIES

The extracurricular/recreation sphere permeates many different contexts, such as religious institutions, athletic teams, or scouting or 4-H organizations. It is place where children and youth may find friends, connect to supportive adults outside their household, discover new strengths in themselves, acquire new life skills, gain access to resources, and create new social networks outside of family and school. Once again, inequality marks this sphere, and attention must be paid to how to give children from low income families the same access to these important activities. The following would help all children post-disaster:

- Create age-appropriate extra-curricular activities for children and youth of all ages
- Integrate children into community-based or faith-based groups

- Encourage children to find an in-school and/or after-school activity that interests them
- Help children to take on leadership roles in extracurricular activities
- Provide practical and financial assistance, such as transportation, fees, uniforms, paperwork, and various accommodations

## HEALTH AND WELL-BEING SPHERE

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The physical and emotional health and well-being of children and youth is a fundamental part of their recovery, which is intimately interconnected to the other spheres of their lives. When children lack stable housing, when their schools and parks remain closed, when their parents are struggling, and when they are separated from their friends, children are likely to suffer physically and emotionally. Health and well-being is not distributed equally. Lower-income children and children of color face more health challenges, such as asthma and food insecurity, and less access to high-quality, affordable health care. Focusing on the health and well-being of children—across all stages of disaster—is essential. Our recommendations for promoting health and wellbeing include:

- Recognizing the importance and interconnectedness of physical and emotional health
- Increasing preparedness efforts in order to diminish children’s exposure to disaster
- Assisting in evacuation so that children are not exposed to life-threatening, traumatizing experiences
- Supporting children in the disaster aftermath through providing immediate as well as longer-term access to quality mental and physical health care

- Teaching children about fundamental health issues and how to make healthy choices for their bodies (including around food, smoking, drugs, alcohol, romantic/sexual relationships)
- Providing safe places for children to get fresh air and exercise
- Recognizing that environmental destruction can affect children more than adults, as their bodies are growing and toxins can do more damage
- Restricting children’s access to areas where there are environmental risks such as spilled oil, sewage, asbestos, contaminated soils, etc.
- Lowering the risks to children from the effects of the damage to buildings and other structures (black mold, mildew, hazards in disaster demolition and abandoned structures, etc.)
- Decreasing the risks from the rebuilding (carpet glues, paint, cleaning solvents, etc.) which can be in a child’s life 24 hours a day if they are rebuilding their home, school, religious institution, library, community center, etc.
- Planning for and providing long term emotional assistance, such as counseling and a variety of therapies (play, art, massage, etc.), as disaster effects are enduring.<sup>6</sup>

The aforementioned recommendations for encouraging better preparedness and more rapid recovery among children and youth are not mutually exclusive, nor are they exhaustive. They are meant to promote thinking about how individuals and institutions may come together to support children and youth in the disaster aftermath. This is not meant to be a “final statement” on what children

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<sup>6</sup> McLaughlin, Katie A., John A. Fairbank, Michael J. Gruber, Russell T. Jones, Joy D. Osofsky, Betty Pfefferbaum, Nancy A. Sampson, and Ronald C. Kessler. 2010. “Trends in Serious Emotional Disturbance among Youths Exposed to Hurricane Katrina.” *Journal of the American Academy of Child and Adolescent Psychiatry* 49(10): 990-1000.



and youth need. Instead, we hope to take what we learned from children in Katrina and use that to focus attention and to promote discussion of how the youngest survivors of disaster may be properly supported during times of distress and how to reduce suffering in future disasters.

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## Use of Social Media in Response to Hurricane Sandy in Maryland's Emergency Management Organizations

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### THE EVENT

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Today, emergency managers are beginning to understand the importance of social media (SM) in communicating with citizens to be able to better prevent casualties and property loss during large scale emergencies. I conducted a research to investigate the patterns of SM usage during the Category 1 hurricane, Hurricane Sandy that impacted the East Coast of the United States fairly recently.

For two days from October 29 through October 30 2012, the U.S. East Coast was severely hampered by a Category 1 hurricane, Hurricane Sandy, which killed more than 200 in 7 countries, including 132 on the U.S. mainland, caused over 8.51 million power outages in 16 states and Washington, D.C. including New Jersey, New York, Connecticut, Virginia, and Maryland, and flooded entire coastlines in the New Jersey area and parts of

New York City (Seccombe, 2012). The actual losses are estimated to be \$71 billion for the State of New York and New Jersey, including \$9 billion in New York for preventive work, \$360 million in Connecticut, and the insured losses are estimated to be \$16 billion to \$22 billion. (Newman, 2012).

Hurricane Sandy incident is remarkable in that it was a powerful hurricane that occurred very close to the U.S. Presidential elections, so it was hyped with huge media coverage before, during, and in its aftermath. Once it started pounding the East Coast, many people who still had power followed the events as they unfolded through major SM outlets such as Facebook and Twitter through the information posted by local, state, and federal agencies, and communicated with each other and shared status updates. Even if the power went out, many people were still able to tweet, and/or send messages via Facebook to loved ones to say they were OK. According to Ngak (2012) there were nearly 3.5 million tweets with the hashtag #sandy in the last 24 hours during the hurricane.

### SOCIAL MEDIA AND CRISIS COMMUNICATION

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Let's do a quick review of SM and latest usage statistics:

Yagmurlu (2013) describes Social Media or Web 2.0 as the means of interaction among organizations and people in which they create, share, and exchange information and ideas in virtual communities and networks. SM includes Micro Blogging Services, the most commonly used application being Twitter; Social Networking Sites, most common ones in the order of popularity being Facebook and then Google+; Professional Networking sites like LinkedIn; Video, Photo, Music, Location Sharing sites such as Youtube, Instagram, Pinterest, Foursquare and Yelp. Others are Blogs and Wikis, websites that individuals or groups create and exchange information.

A cursory search on the Internet about the usage statistics of these sites as of February 2014, indicated that Facebook is the biggest SM channel that has the largest number of active users, 1.3 billion worldwide; Google+ has 1 billion users; Twitter 645 million; LinkedIn 277 million; Instagram 150 million; and Pinterest has 70 million active users. The number of individual YouTube *viewers* reached 3 billion!

In today's modern society, there are many people, including myself, who wake up and get their first sip of coffee or tea while getting their first news of the day from online news sources including social networking sites like Twitter or Facebook.

As I wrote for an earlier edition in the HazNet (see Renda-Tanali, 2012), anywhere across the populated world, wide scale emergencies and disasters require communication with the public for the purposes of informing them of the immediate and anticipated dangers of the situation, the likely causes, and the actions to be taken. Citizens need to alter and adapt their behavior to keep themselves and their property out of harm's way. Since it is the norm that local response agencies are the first responders who arrive at the scene, along with those citizens who are directly impacted, they hold the critical first hand information regarding the emergency situation. In the aforementioned paper I had covered some examples about the benefits of SM in large scale emergencies (Bruns, Burgess, Crawford, and Shaw, 2012 study crisis communications on Twitter during Queensland Floods; Crowe, 2010; Heverin, 2010; Howard, 2012; Lacey-Hall, 2011; Palen, 2008; Sutton, Palen, and Shklovski, 2008; Song and Yan, 2012; Tobias, 2012; Tyshchuk, et al. 2012; Ushahidi; and Vieweg et al. 2010)

Up until the past several years, the rest of the public used to get their information about a crisis only through broadcast media such as television, radio, or newspapers. It no longer holds true, since many of the disaster events evolve quickly by

transforming into either better or worse or complex situations where the time lag between the media reports and the delivery would make the news report obsolete and irrelevant. A study conducted by the American Red Cross concluded that about 63% of the population representing the U.S. population turned to online news to get information about an emergency such as a power outage, severe weather, flash flood, hurricane, earthquake and tornado (American Red Cross, 2011).

People do not necessarily disregard the traditional media outlets such as TV news and local radio stations in informing themselves about emergencies, since 90% of the general population still reportedly turn to TVs and 73% to local radio according to the same study (note that the data are not mutually exclusive). The findings imply that people augment what they learn from the broadcast media with social media. Increasingly, citizens no longer rely solely on broadcast media since the media can, more often than not, use repeated and striking imagery to sensationalize the news out of interest for high viewer ratings. This usually comes at the expense of more relevant risk communication by traditional media (Latonero & Shklovski, 2011).

With the advances of telecommunication and wireless technologies, the form of social interaction among citizens have changed and evolved significantly. Instead of waiting for breaking news or public announcements, people can now gather virtually from any location exchanging knowledge regarding a potential disaster in such a way that survival rates or evacuation efficiency could be improved.

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## **FINDINGS**

During the course of Sandy, I was actively monitoring Facebook and Twitter for Sandy related updates both from local friends and from the agencies and organizations responsible for emergency response.

Maryland Governor Martin O'Malley was immediately active via Twitter with frequent updates about the impacted jurisdictions in Maryland, informing the public about how the State was responding to mitigate damage and restore critical functions. Hurricane Sandy was a test bed for effective SM usage for public agencies in delivering their messages across the public, and interactively communicating with the public and media for situation awareness, personal protection, and loss mitigation purposes.

I surveyed the use of SM during Hurricane Sandy by local jurisdictions including the State of Maryland Emergency Management Agency, (MEMA); Howard County Office of Emergency Management; Baltimore County Public Safety; and City of Annapolis Department of Transportation. The questionnaire was sent via an e-mail to those and several other counties, and the completed forms were analyzed with respect to the research questions. (See the survey questions at the end of the paper).

The study findings revealed that at the time of Sandy, MEMA and two of the three local agencies that responded to the surveys (namely Baltimore and Howard Counties) had designated personnel for SM and had pre-established protocols for SM use. At MEMA, there was one person who was in charge of disseminating the information and one other who was solely responsible for monitoring. The other local agencies had only one person each in charge but were augmented by staff members as the storm reached its peak. Facebook and Twitter were the most popular SM outlets and in conjunction with that, public notification systems such as Livestream and FEMA's Integrated Public Alert and Warning System (IPAWS) were used. At the height of the storm, MEMA SM account received over 1,000 comments on their Facebook page which necessitated additional team members to help monitor and respond. The Annapolis City Dept. of Transportation due to their smaller size had limited

SM presence, and citizens were not inclined to contact them through SM. Instead they used the phone call system that was already in place. Both the Governor and the Howard County Executive had a Twitter feed where they were able to post updates about the situation in their jurisdiction. Howard County posted situation updates every hour on the main county page, and other departmental webpages were updated once or twice a day. In Howard County, the rather more difficult inquiries coming from SM were vetted through the Public Information Officer (PIO) who would determine the best way to present the answer back to the original person who initiated it (See also Hughes and Palen, 2012). The following advantages and challenges about the use of SM *from the point of local and state government agencies* were identified through the findings of this micro study:

## **ADVANTAGES**

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1. ***SM provides an additional outlet to reach the public*** and acts as a force multiplier through the public's sharing and re-tweeting messages coming from them. Information can spread virally. SM is fluid or essentially an ongoing conversation, thus it allows for constant revision and updates. SM also allows the instantaneous transmission of information to a broad audience, especially important during emergent situations;
2. ***Removes barriers in communicating with the public.*** It allows them to take their message and information directly to the public, without the filter of the media;
3. ***Allows efficiency in terms of reaching one key audience – the media – simultaneously.*** Disseminating a constant stream of updates drastically reduces the number of telephone inquiries from reporters.
4. ***Increases situational awareness.*** Public may provide critical information that the agency may not be aware of. Also, for smaller agencies such

as a city transportation agency, the major advantage appears to be receiving information; either about weather, or road conditions from state and federal agencies which they then would pass that info along to the public.

5. ***Helps measure the overall effectiveness of messaging going out to the public.*** The fewer questions asked means the better the information going out is being received.
6. ***Helps determine what is relevant and what is not.*** Readily monitor to see what information was being shared with others from the local government's (or response agency's) sources.

## LESSONS LEARNED

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1. ***May not predict the volume of SM public inquiries coming in during the event.*** You can never be fully prepared for the public comments that might come in and how you are going to handle them.
2. ***May not have the means to act.*** For example, one local agency attempted to set up a crowd sourcing map during the event, but learned that it may have been deployed too late causing it to not gain much traction. In the near future, they plan to set up a crowdsourcing tool or crowdmap earlier in the event for situational awareness. Currently they are in the process of doing more research and getting an understanding of best practices in crowdsourcing prior to moving forward.
3. ***Internet may be down during a large scale emergency.*** Do not rely solely on SM. Have other public notification systems in place.
4. ***Have a credible authority in place.*** From an information management perspective, the role of PIO is important to control the message and the times in which information is being shared as to not bombard the public all at once with non-emergency chatter. (See also Conneally, 2012).

5. ***Make it part of the overall communications plan for the event.*** Also have a departmental Facebook page that will come under the control during the actual emergency.
6. ***Have policies established beforehand.*** SM does take manpower. One responding agency's policy stated that they do not respond to SM inquiries, SM must be monitored for information about problems, public attitudes, and possible emergencies. As more citizens participate, additional human resources are required to monitor. They must strike a balance between how much information is enough. Some people welcome non-emergent posts about preparation, tips etc; others consider such posts a nuisance.

## CONCLUSIONS AND IMPLICATIONS FOR THE FUTURE

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SM has become indispensable in emergency management as the results of this micro study revealed. With each event, over time, these agencies have started to integrate SM into their operational missions more and more. Hurricane Sandy was a great opportunity for them to put their SM procedures into practice. They saw a drastic increase in followership on their SM accounts during the event. They expect that people will recognize their SM accounts as a trusted and reliable source of information during an emergency or disaster in the future.

All respondents indicated that they plan to use SM much more during similar events, have a plan for scheduled outgoing info, and make the public aware of the SM sites available to them. Thus they started implementing changes based on those lessons learned. They have more people and departments signed up and using SM. One agency official stated that Hurricane Sandy was the first time an organized communications plan was created for an event and it was so successful that it would be the standard that the PIO position will use for all future



events. Another stated that even though they have been using SM during emergencies for several years with each major incident, SM becomes more central to their operation. The number of “followers” and “likes” continues to grow. The number of PIOs trained in their SM policies and procedures has also grown (See also Stephens, 2013). Currently, this is the most expedient way to provide information to the media and the citizenry. See also Stephens (2012) and Cloutier (2012) for more observations and recommendations from Hurricane Sandy as a complement to this paper).

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## SURVEY QUESTIONS

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1. At the time of Sandy, who was responsible for SM (SM) broadcast and monitoring? State the position and who this person reports to.
2. What SM channels were used to communicate with affected citizens? (Twitter, Facebook, ?)
3. Did your organization use Integrated Public Alert and Warning System (IPAWS)?
4. How frequent were the updates to the public (from your organization)?
5. Were there any protocols established in terms of handling inquiries to SM postings or comments? If so, were they handled ad hoc or were previously established?
6. Were there times when the volume of (a) inquiries from public, or (b) situational information was overwhelming? If so, how did you handle it?
7. What were the major advantages of the use of SM during Sandy? (considering the preparation, response, and recovery stages) (examples include increased situational awareness, better resource mobilization, coordination etc.)
8. What were the main challenges of the use of SM? Impediments? Lessons learned? What changes did you implement to your SM use as a result of Sandy experience?

9. Going forward, do you believe SM is more integrated to the operational missions of your organization after Hurricane Sandy experience? (e.g., newly established protocols/policies, more people signed up for future alerts, increased awareness etc.). If yes, please elaborate. If not, why?

## BIOSKETCH

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## The Absent Asset of Radio in Disaster Response

### “Citizen” Responders: Ordinary Men Making Extraordinary Moves Through Radio Programming

By: Shirley Laska, University of New Orleans

*When electric power utilities have a major grid failure due to a weather-induced crisis, earthquake or possible terrorist attack--the length of which is enhanced by a national aging infrastructure, television and social media ‘blackouts’ occur that can be detrimental to response and recovery from the crisis. Commercial radio, able to be listened to on car and portable, battery-operated radios is a communication asset inadequately considered for its contribution in such challenging situations. Also when the blackout is restored, TV and social media may be inadequate alone to the communication needs if the destruction is severe and widespread, thus requiring complex actions by a myriad of residents scattered out of the area. Radio can broadcast details available to a very large listening audience concurrently. And when the programming includes live talk-show hosts ‘connected’ to the citizenry, radio offers a powerful form of collective community resiliency, as strong as and perhaps stronger than that offered by other media.*

Unfashionable, outdated, above-the-knee gym shorts, old-fashioned tank tops, knee socks, sneakers and head bands are all worn by a marching group of young-to-middle-aged “regular” men doing sidesteps, knee lifts and arm gestures in unison. Those unfamiliar with the group as they perform at football games, Mardi Gras parades and special events, are often taken aback.

The 610 Stompers, as they call themselves, are just regular ordinary, “plain vanilla,” fathers, husbands, boyfriends and sons of loving mothers. They hold auditions annually for just the right new members—“regular men” as the ads request.



610 Stompers.

*Photos: S. Laska, WVLA NBC33 Baton Rouge, Louisiana*

The group came into existence in the enthusiasm generated by the Saints and their victories, including the Super Bowl, as the city was recovering from Hurricane Katrina. The number “610” is the section of the Super Dome where the group’s founders have their game seats. Thus they named their dance group this number: 610. And the group is, of course, an example of the contribution of public culture in disaster recovery, a topic more acknowledged since Katrina than before.

Out of the same masculine regional culture from which the 610 Stompers emerged has come another equally civically supportive group of regular looking, ordinary men who also have made and continue to make a remarkable contribution to this region -- when a disaster calls them to action. They are the *talk-show hosts of a local radio station, WWL AM/FM* who are also “ordinary men who make extraordinary ‘moves’” as the Stompers’ motto declares. And like the Stompers they practice their ‘moves’ faithfully in advance of the events.





Cartoon by Rob Pudim

This article is about how these talk show hosts perform their roles and what radio stations in other cities and regions also vulnerable to natural disasters might learn from them. If this century's first decades are an indicator of the future, it is possible that many more American communities will be subject to more frequent and more powerful weather events that will require maximum involvement of all communication media available in order for there to be a successful community response. This article is about the *forgotten community asset* of commercial, live radio.<sup>7</sup>

## BACKGROUND

WWL radio has been in existence since 1922. Entercom, a large, national communication company bought it in 1999 and now owns it and four other radio stations in New Orleans as well as 100 other stations nationwide. WWL maintains a transmission capacity of 50,000 watts, a strength

<sup>7</sup> Research methods utilized to prepare this case study are: (1) listening to and documenting the regular programming of the station in non crisis times and during 2012 Hurricane Isaac, (2) review of the station's history of programming via existing Internet media documents and an interview with a 1980s station employee, (3) lengthy interview with 15-year veteran WWL news director, (4) research on FCC/FEMA emergency radio station system, (5) use of quotes from a public radio program manager after October 29<sup>th</sup> 2011 nor'easter ice storm in New England, and (6) a literature review of U.S./international radio and general crisis communication research.

fewer than 100 stations across the country are permitted to broadcast. During the day, the range covers the five Gulf States. At night the signal reaches listeners in 30 states.<sup>8</sup> This will become an important fact for the story as it unfolds.

Hurricane Betsy (1965) is remembered as the beginning of the station's current role in disaster response and recovery. An interview conducted by the author with the station's 15-year news director, Dave Cohen, provided details about the beginning of the station's crisis response role which continues to today. The most recent event, to which the station responded, as of this writing, was Hurricane Isaac, which occurred on the anniversary of Hurricane Katrina, August 29, 2012. For each hurricane and for other major community events, even those not weather related such as the police strike in 1979, Cohen said the station goes into the same mode of "providing the community with the information that the people must have."

Two major types of assets combine to achieve this feat: the human interpersonal communications skills of the ordinary/extraordinary talk show hosts and the station's pre-crisis plans for crisis response logistics. I will cover them both.

How communities function *during normal times* tell us much about how they will function *during a crisis*. Tierney and Bruneau (2007: 17) give us clear definitions of the two types of resilience: *inherent resiliency* is "an entity's ability to function well during noncrisis times," while *adaptive resiliency* is "an entity's demonstrated flexibility during and after disasters." This case study is about the linkage between the two.

## THE 'ROOTS' OF WWL'S INHERENT RESILIENCY

After its successful role in the disaster response of Hurricane Betsy in 1965, throughout the 1970s

<sup>8</sup> WWL press packet.

WWL was known for hosting an overnight country music program called ‘The Road Gang’ that broadcast to truckers all over the South to keep them entertained, informed, connected and awake. The talk show hosts for the program were always radio ‘characters,’ i.e., known personages. The first of the three who sat in the host chair was Charlie Douglas who died in 2011 at 78. In a tribute to him, Dave Nemo, the second host, said the show was not just about entertainment but also public safety.

Severe weather warnings for Interstate highways called in by truckers are an example; the truckers themselves played a major role in their own safety. “The mandate for the program was to keep truckers awake, and therefore alive,” Nemo said. “The best compliment we could get was for someone to say, ‘Man, you really helped me make it through that night.’ We took that very seriously” (Massa, 2011). Nemo said that the program also served as a lifeline between truckers and their families back home. “In those days, telephone communication with the folks back home was limited to pay phones at a truck stop” (Massa, 2011). The station’s staff was learning how to give the community support in normal times which we now would say increased resiliency for the listeners and was creating a broader reputation of the spirit of the station: *to enhance community attachment, social networking and care for the listeners*. A radio station culture was forming for the regular programming.

It was not known at the time of the creation and implementation of the Road Show that the format would be called upon to address an even broader, larger crisis than the personal and family crises experienced by the truck drivers. Hurricane Frederick struck the central Gulf Coast at Dauphin Island at the mouth of Mobile Bay in September 1979, as a powerful Category Four. “The storm flattened transmission lines and left the regional radio stations without power to operate,” recalled Kim Haddow, news editor, producer and assistant

news director of WWL from the late 1970s to mid 1980s.



The location of the storm’s landfall impacted a wide swath of rural communities: just the ones that were reached nightly by WWL radio. The station was able to play the same important role for those small communities as it did/does for the New Orleans region during weather crises. Broadcast reports included the status of the state of emergency, road conditions, location of functioning gas stations and weather reports, Kim recalled. She said that the police also called into the station to give reports that they wanted distributed – just as in Katrina and Isaac in this decade, over 25 years later. And because the owners of WWL radio also owned a television station at the time, simultaneous broadcasting was also possible.

## **WWL REGULAR PROGRAMMING TODAY IN NORMAL TIMES**

The regular weekday programming in normal times today consists of five live talk shows and one lengthy live sports show during commute time with news on the hour and half hour all day, for a total of eight hosts. During its season, which coincides with hurricane season, football consumes Friday (high school) and Saturday (college) evenings as well as Sunday morning and afternoon (professional). Saturdays include practical shows – fishing/hunting, gardening, investments, restaurants, legal questions, and house repair. Each of the practical programs also has a local host, another six hosts. Two part-time hosts and an assistant news

personality that spars with the news director from 5-6 am bring the total to 17 different personalities. In season Hornets basketball is on live. And, only the investment show and ESPN sports in the evening when the night host fills in for one of the day hosts and five hours of late night programming (midnight to 5:00 am) are national, syndicated programs.



WWL radio live, local talk show hosts.

The hosts have had varied experiences before they have become the ‘voices’ of WWL. In summary they are *local, well respected, and knowledgeable about the region*, therefore qualified to be hosts in normal times and as you will see skilled as well for crises.

All of the hosts handle calls in a polite and respectful manner. They express their own varied opinions, i.e., showing their own personalities and values -- sometimes even losing their patience according to news director Cohen. But they rarely “take on” callers in an aggressive way. Cohen firmly replied that there is no training for this style, “no guidebook, no formal instruction,” he said, “but I think there is a normalcy, an understanding about how we do things. And a lot is just their personalities.” *A station culture of respectful, trusted host-to-listener-to-host interpersonal dynamics is now well in place.*

The hosts are given wide latitude to select the daily themes of their shows and the hosts’ support staff actively ‘recruit’ carefully chosen nationally reputed experts to be interviewed on the topics. If a news item breaks just before their show, the host has an expert immediately on to talk about the topic. *This*

*format demonstrates respect for the listeners in that they are offered high quality programming, not simply the host occupying all of the time with his personal opinions.*

Each host is a member of a seven-person team, six of whom are ‘invisible’ to the listeners except when the host acknowledges them on the air. Two staff members sit facing the on-air host, a producer oversees all three, and there are also two news people and a programming and news manager as well. This comprehensive team gives the on-air host the ability to have a detailed, knowledgeable conversation because it is based on his own experience combined with the support of the other six. *Needless to say, having such a coordinated human resource commitment to normal programming prepares the station for the crisis event.*

## PRACTICAL PROGRAMMING

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The programs that offer practical advice have a very wide range of listeners – hunters, fishers, gardeners, and people who have questions about legal issues, house repair, restaurant quality and menu items (everyone in New Orleans). Hosts include:

- Don Dubuc sport hunting and fishing, [http://dontheoutdoorguy.com](http://dontheoutdoorguy.com;);
- Dan Gil, LSU Ag Center Consumer Horticulturalist, <http://www.lsuagcenter.com/en/communications/authors/DGill.htm>;
- Tom Fitzmorris, restaurant critic <http://www.nomenu.com/joomla1/>; and
- Paul LaGrange, a building contractor <http://buildwrite.blogspot.com>.

*Such programming provides the very basic “how to” advice of inherent resiliency. It is easy to appreciate the role of each of these in the recovery phase though perhaps the outdoor and restaurant*

specialists are less obviously relevant, but it will be clear below how all of them serve very useful roles.

*The everyday live radio programming with familiar, trusted, competent radio personalities becomes a part of the **inherent resiliency** that is available for the region to use in when a crisis strikes. The social capital has already been built. It is not necessary to utilize the systematic ‘drills’ that are recommended for radio stations, hospitals etc. for preparation for crises.*

## **IMPROVEMENT IN EFFORTS BY WWL**

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The news director Cohen explained that all of the live hosts are men: First, “narrowcasting” to a particular audience is the focus of most commercial radio stations today, not to the community in general. “Most radio is listened to by men, even excluding the sports programming,” Cohen said. The second reason is that few women are seeking careers in radio talk show hosting. He notes that women applicants have even been declining, especially since Katrina. This may be due to women having other employment options in the media realm focused on gender-specific broadcasting due to the growth in social medial and on-line options.<sup>9</sup>

If the proposition this article argues is correct that the WWL hosts are so valuable to the community’s residents because of the trust they have in them due to their sharing common characteristics, then the lack of women and minority hosts may fail to make an equally solid resiliency connection for these groups. It also reduces the likelihood that the special needs of women and minorities will be the focus of programming than if there were more live show time with women and minority hosts (Justin and Toupin, 2010). During the disaster events, the vulnerability of the poor and minorities warrant more coverage and accessible information. They

often experience a disaster within a disaster due to their limited resources to respond. So ‘narrowcasting’ should become robust ‘broadcasting’ during a crisis including the characteristics of the hosts. But taking that step is hindered by the normal operations “narrowcasting” approach most common in radio programming business plans today: no regular female or minority hosts.

We turn now to the station’s crisis response and how the normal resiliency converts to adaptive resiliency. The final section considers what is known about radio in crisis response, the national model, and how the experiences of one station in a crisis prone area might offer elements of a model to better use radio during crises in other regions.

## **PROGRESSION OF CRISIS PROGRAMMING SHOWN IN HURRICANES**

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Organization and logistics planning: As well as the contribution that is made to the success of the radio station by the cadre of prepared and ‘connected’ talk show hosts schooled during normal times, there are other important organizational and logistic decisions, investments, and preparations that are made in advance of a crisis. Each spring each employee of WWL is asked if they are willing to remain working at the station if a crisis event occurs; no threats against their employment happen if they say no. In many instances those who must evacuate for personal and family reasons continue to work for the station outside of the area. Additionally, a large wall-size flow chart is prepared to identify the schedule of the staff for the crisis. Similar to the challenge of filling each specialty seat in an emergency operations center over 24-hour periods of many days, often weeks, all positions must have a “depth” of assigned personnel over the event in order for the station to achieve its goals in the response and recovery. The staff sleeps in the studios to assure full staffing. “We build in

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<sup>9</sup> Personal communications with Kim Haddow.



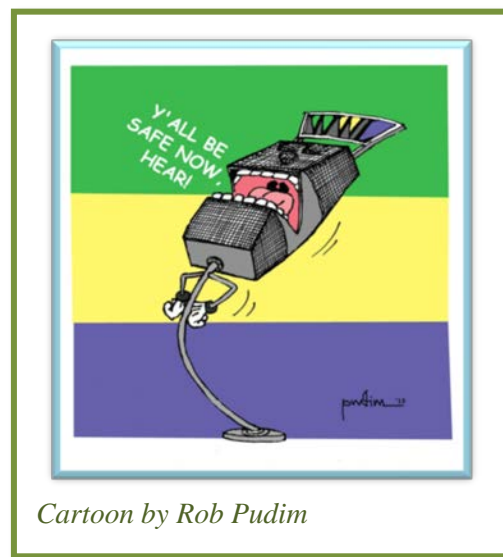
many redundancies,” Cohen states, “in order to stay on the air. Everyone has a back up and a backup.”

The station has also acquired improved assets such as additional boats for gathering news and back up, placement of equipment all around the area, satellite studio facilities including one each at the three largest parish (county) emergency operation centers. Locating a studio in each emergency operations center permits the news about the crisis to be gathered quickly and without interruption directly from those most knowledgeable about the conditions and official responses. Cohen described how for Katrina, parish officials had to drive to Baton Rouge to the WWL temporary studios to communicate with the citizens because there was no other means of communications as they were scattered in the diaspora over a very wide region. Much of this communication occurred after dark when WWL is granted the 50,000-watt transmission capacity that could reach residents scattered afar. “Often listeners were sitting in their cars outside of motels listening,” Cohen said.

In addition, MOU’s are signed with the federal agencies and an assistance agreement is made with the National Guard to keep the studios and transmitters up, running and protected during the event. This occurs because WWL is designated as an Emergency Alert System (EAS) Primary Entry Point (PEP) station for the region. A more detailed description of this program will follow.

On air programming: As a storm approaches the Louisiana coast each of the talk show hosts begins to include it as a theme in their program. Of course the first few days the storm is discussed on the news and weather portions of the programming. Then the hosts begin to talk about preparations. In the case of Isaac it was the first time that no evacuation had been called for the parishes (counties) with the highest population concentrations for such a large storm because it was “only” a category One. This decision by local governments put a different responsibility onto the station.

The talk was now about sheltering-in-place rather than evacuation routes and “contra flow” traffic management (reversal of roadway lane direction for more capacity away from the storm) as had been done in Katrina. Just some of the topics that the hosts raised were: Supplies, preparation of homes, the purchase or checking on generators, whether homes were strong enough or elevated enough in case the forecast did not warn adequately. Then as the storm stalled, the topic turned to the flooding of low-lying areas and the need to evacuate them. As the prospect of a recreational dam breaking in Mississippi threatened 50,000 people in its inundation zone in Mississippi and Louisiana, attention of the newscasters and hosts turned to that with full coverage of the press conferences that informed the residents of the pending threat and evacuation orders.



Cartoon by Rob Pudim

Throughout the duration of the Isaac event each press conference held by one of the local parish or community governments was aired live on the shows. This was critical to *keep the residents informed of what the government was doing and wanted them to do*. Expecting the press conference to be covered also keeps the local officials ‘on their toes’ because they know they will be regularly reporting directly to the citizens. The government head and the head of each department relevant to the crisis reported during each press conference. If

only TV coverage had occurred, when the power went out, such detailed reporting of the communities' responses would probably not have happened because there would have been no media to cover it.

After the storm struck, much of the conversation was about the slowness of the return of power. Different hosts took different positions on whether the public utility companies were doing a good job. It was a *time to vent* and the hosts let the community do so, not stressing any single interpretation. The station also tried to get as much news about the utility situation as possible to learn what the case really was and relied on residents texting, emailing and calling in their observations. In effect the hosts were trying to achieve *sense making*.<sup>10</sup>

As in the case of Hurricane Sandy, utility trucks were parked in shopping mall parking lots for duration considered way too long. In addition, the radio station (and of course the others that were operating) gave vitally needed psychological relief to those who were without power in extreme summer heat, some for over a week (August 29<sup>th</sup>). The broadcasts permitted *'isolated' residents in their darkened homes to be more connected* with the rest of the community. And those in need of special assistance did call in just as they had to the Road Gang in the 70s and during and after Katrina in 2005.

Practical programming also contributed directly to recovery during the days following Isaac's onslaught. Instead of halting it and replacing it with 'special' programming for the hurricane, the programs are used fully to contribute to disaster recovery. The Master Gardener gave advice on tree cutting, yard repair, replanting, everything homeowners needed to know to put their yards back together. Similarly the building contractor

addressed the myriad of repair questions that residents had as they dealt with damage to their homes (see his current blog <http://buildwrite.blogspot.com> for examples).

The hunting/fishing specialist helped the recreational businesses to recover by calling each of the 'regulars' with whom he speaks weekly to see what damage they had sustained and what their timeline was for being back open for business. The businesses reported parts of their operations and services were available while repairing other parts, thus giving them some income. He also talked with marina owners about boat security and repair and even included the regular reports about what fish were being caught to encourage anglers to go fishing and thus support the businesses who support them: bait shops, marinas, boat launches, gas stations, restaurants as they returned to operation. While outsiders have criticized local anglers for going into badly damaged areas while they are recovering, their presence actually provides income to the hardest hit businesses. The restaurant critic served a similar role of support by promoting visits to one of the most important types of businesses in the region. He talked about any restaurant closures, and when they reopened, informed the public including locals and visitors.

The lawyers offered legal advice on the legal questions that arise with a disaster. While the program is not offered during the football season, it was brought back for the Isaac recovery and questions were also asked during the live programs about the continuing issues about BP oil spill damage and residents' legal rights about that damage. All of these specialists are equally as respected as the regular show hosts. In fact, the person who hosts the fishing/hunting program also hosts one of the daily talk shows when the regular host does not. *All are seasoned professionals*.

Another important aspect of using the regulars for the disaster response programming other than the reasons already mentioned is that the tone never

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<sup>10</sup> Personal communications with Robert Ulmer, Department of Speech Communication, University of Arkansas at Little Rock

shifts from ‘normal’ to ‘official’ except for the press conferences. While research confirms that government officials are important in communicating during a disaster because of interpersonal influence (Garnett and Kouzmin, 2007), it may be that familiar hosts communicating continually with the listeners (except when news conferences are held) will keep listeners’ attention longer than will continual official reports such as ones experienced during the news segment. While the official draws initial attention, the listener might not continue to pay attention if the information is not considered extremely urgent to them personally. In other words, the prospect of continuing to *hold the attention of the listener* is possibly greater for hosts with whom the listeners have a relationship than if the station morphed to ‘official programming.’

And, the mediating role of the local hosts means that they are free to add opinions and local information; their ability to do that comes in large measure from their credibility as sources of information who carefully distinguish between their sources and what is passed on from whom. They are thus able to filter for relevancy, and to demonstrate credibility and legitimacy<sup>11</sup> without being constrained by factors that inhibit government representatives.

## **WHEN THE ‘BIG ONE’ STRUCK, THE STRUGGLE TO STAY ON AND TO STAY USEFUL**

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The hosts recalled during the programming for Hurricane Isaac how they had tried to assist residents during Katrina who had called in from rooftops with water rising around them and how they had attempted to connect separated family members via the radio. This strategy was very similar to what Douglas and his colleagues had

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<sup>11</sup> Personal communication with John Wiener, University of Colorado.

done on the Road Gang for truckers 30 years earlier! And as the ‘diaspora’ moved increasingly away from the catastrophe site, connection with what was happening back home could be partly restored by listening to WWL, especially at night when the signal was so powerful. I ended each evening in the quiet of my evacuation bedroom (in Lafayette, LA) listening to WWL despite the fact that I was able to view almost continually what was occurring on regional and national TV.

The WWL broadcasters remained at the station within the interior of a high-rise building that experienced dramatic damage and was right next to the Super Dome. When it became evident that the station could not continue broadcasting from their regular offices in New Orleans, they established a broadcasting center in Baton Rouge. To have sufficient staff to continue broadcasting as the length of time extended out, Entercom combined its five-station resources—personnel and equipment -- with the seven-station resources of Clear Channel Radio to do one broadcast for the two broadcast companies’ radio stations in the area. Cohen described, “We invited some of their staff [Clear Channel]. We used some of their facilities as well. It was the ‘United Broadcasters’.” Other stations in New Orleans, Baton Rouge and around the state also tied into the broadcast, in other words a regional ‘simulcast’. While an important partnership, the arrangement was not without personnel and broadcast content challenges emanating likely from the blending of ‘narrow casted’ programming and listenerships [this article’s author’s use of the phrase] of each individual station (Moody, 2006).

## **SOURCES OF COMMUNITY RESILIENCY IN A DISASTER**

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Research findings about the resilience of communities to weather-related disasters (and others) often emphasize the near-event actions that a community takes both while the event is happening

and after that make the community resilient, i.e., able to recover quickly to a functional state. However, it is becoming increasingly evident that the best resilience includes well-honed, practiced relationships and activities, “common” in the community’s culture and interpersonal dynamics and thus able to be called upon when they are needed “without a second thought” (Laska, 2011). This is the *inherent resiliency* to which Tierney and Bruneau refer, the basic capacity of a community to function well on a daily basis – *trust, solid social capital, the residents feeling part of a community cohesiveness*.

The station’s programming reinforces these qualities. It is not the changes in programming or personnel to disaster “status” that makes this radio station’s contribution so remarkable but how the regular, everyday programming is undertaken that gives the community the gift of a robustly prepared disaster communication radio station, self-named ‘Hurricane Central.’ Another possible way of phrasing that analysis is to say that the inherent resiliency enables an adaptive resiliency that contains more *community renewal*<sup>12</sup> in the process with the emphasis on ‘community,’ i.e., collective efforts than if the communication were more impersonal.

## **THE BEST CRISIS COMMUNICATION**

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Recommendations for how live radio hosts should behave in a crisis are discussed in the international literature, but not for Western societies. Chhetri and Narayan (2010) praise radio for “deliver(ing) information that is suited to the needs of the community packaged in their own language.” They also recommend that the broadcasts about a crisis should begin as early as possible and in a reassuring and calm manner. “People relate to the voice on the radio and in times of crisis hearing a familiar voice renders some peace and calmness to the victims.”

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<sup>12</sup> Robert Ulmer, *ibid*.

To substitute for this absence of such literature for developed society I turned to the literature on crisis communication in general. George and Kim Haddow (2009: 60), in their recent work about disaster communication for organizations, urge communicators to “create an emotional connection with your audience.”

Reynolds et al. (2002) focus on four positive qualities of good crisis communication: accuracy of information, speed of release of information, empathy and openness. The first two lead to credibility and the second two to trust. Taken together they equal successful communication. When asked to comment whether these qualities applied to the WWL talk show hosts, news director Cohen explained how committed the station was to all four traits. He pointed out how much effort goes into acquiring accurate information quickly – the satellite studios, sending reporters to news conferences, receiving and verifying news items from listeners through all the variety of social media and getting it onto the airways as quickly as possible. “We bring in a ridiculous amount of information,” he said.

His concurrence about the hosts showing empathy and openness is evident with his comment: “What I advise people to say while broadcasting during a disaster is to imagine that you are talking to your neighbors, your friends, your family. Think of what you would want to know if you were in their position.

He continues with a personal story to make a similar point:

We hope to achieve all four [of the qualities of good crisis communication] and particularly during disasters we see our role changing. Normally we are disseminators of information, [with] entertainment value. I recall vividly when we confirmed and then broke the news to the community about the levees breaking [in Katrina]. Rather than just



say the levees have broken, I was on the air when we did that, and I felt that I had no choice at that point, begging people to leave the city if they had not left yet.

It is not the role of a radio broadcaster. But we knew the direness of the situation. We knew the levees had broken and the city was filled with water and parts of the city would be under 15 feet of water and as it ended up 80% of the city went under water. And having that understanding of what was happening we just became advocates of life. We said, “You’ve got to go. Make your way, any way right now out of the city or to an elevated expressway,” because in two hours, four hours they wouldn’t be able to go. We do it [the broadcasting during crises] out of a sense of responsibility. We have no choice.

The summation from an expert panel by another communication researcher, Matthew Seeger (2006), of the ten best communication practices in times of crisis include creating partnerships with the public; listening to the public’s concerns; understanding the audience; showing honesty, candor and openness; collaboration and coordination of credible sources; communicating with compassion, concern and empathy; accepting uncertainty and ambiguity, and communicating messages of self-efficacy. The 14 regular, ordinary men who serve as the WWL talk show hosts steadily demonstrate all of these traits throughout disasters.

## THE ROLE OF RADIO IN DISASTER RESPONSE

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The Federal Communications Commission in conjunction with the Federal Emergency Management Agency (FEMA) has created and manages a group of radio stations spread across the nation, originally numbering 32 and now 77 to participate in crisis communication when needed (<http://www.fcc.gov/guides/emergency-alert-system-eas>). Called the Emergency Alert System (EAS) Primary Entry Point (PEP) stations, most of the

stations have at least the 50,000 watts that WWL has. The stations broadcast emergency information produced by the government including communications directly from the president. To be an EAS PEP station, certain requirements must be met for continuing functioning during a crisis, as we have reviewed above for WWL – generator with fuel for 30 days, and specific communication connectivity and encoding. The station must be able to stay on the air at all times.

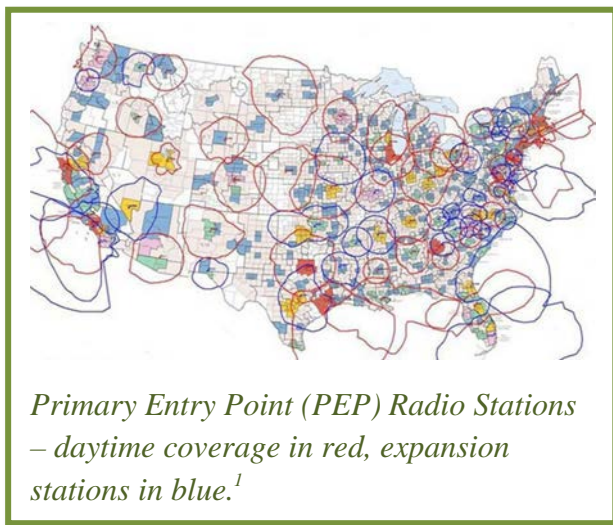
Research by the Congressional Research Service (CRS) for Congress has expressed concern that despite the effort described above to achieve technical improvements, “inadequate attention has been given to getting vital information from the top level of emergency managers and first responders to disaster victims” (Moore, 2010). A contribution to this challenge is likely the lack of commitment to “broadcast localism,” a commitment to serving the needs of their communities, that the FCC attempts to foster despite opposition from local broadcasters (Laser, 2008).

While the names of the stations are not revealed by FEMA for security reasons, Internet sites do list the earlier 32. A limited sampling of the stations’ websites by the author of this article reveals programming qualities that constrain their role in adaptive resiliency, constraints also described by WWL news director Dave Cohen in his interview. The stations are often news/sports and some talk. Many have limited **local** live talk show hosts not doing sports or news. One station having Saturday practical programming like WWL is WTAM 1100 in Cleveland but the ‘localness’ of the hosts was not determined.

A systematic analysis of all of the EAS/PEP stations to identify their qualities of inherent and adaptive resilience is a strong recommendation from this research about one hosted local station, given that FEMA believes these stations to be the most useful in times of crisis. Of course, it would be important to try to ascertain the criteria used by FEMA to

select the 30 new stations. It is evident that one criterion was to increase the national geographic coverage. Did the criteria include an evaluation of the station's social capital ability to work with the other stations in the region and to offer live-hosted programming in a serious crisis? Recent research about the preparedness of stations across the country (127 stations responding) had findings that "radio stations are not well prepared to serve the public during a crisis. Over half of the sample indicat[ing] that they did not have a plan to respond to a local emergency" (Spence et al., 2009).

Dissertation research specifically about the United Broadcasters blending of Entercom and Clear Channel stations by WWL and the other stations in Baton Rouge post Hurricane Katrina focuses on the tensions among the multiple staffs. *Pre-planning and pre-meetings between the different radio stations appears to be a critical crisis preparation activity for such a blending to work.* David Cohen indicated that to his knowledge no such meetings have occurred since Katrina among the stations that participated in United Broadcasting.



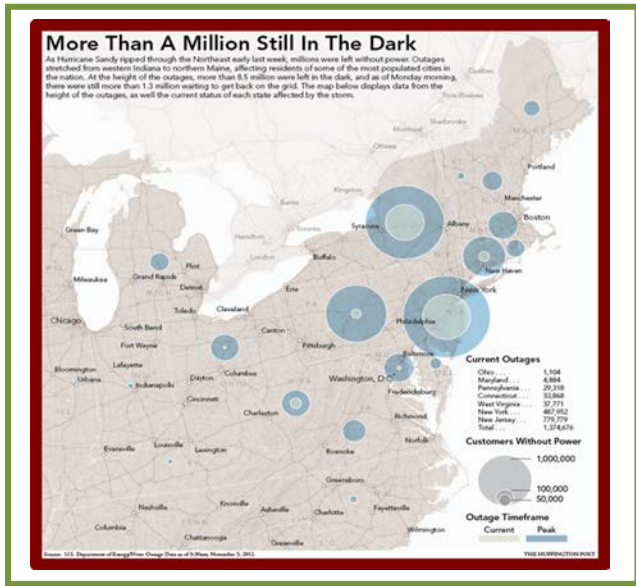
Finally, another finding from the Spence et al. (2009, 2011) research, this one about the general impact of local radio on the number of citizens, also warrants attention: Those stations in larger markets were found to be less likely to have a crisis-

broadcasting plan and to show civic responsibility to do crisis programming than those in smaller markets.

A search of the literature about commercial and public radio reveals a limited amount of research over the last few decades, the Spence et al. (2009, 2011) being an exception. What does exist reinforces the importance of radio during a crisis. Following the Mount St. Helens eruption in Washington state, researchers conducted a comprehensive survey of area residents and found radio was the important media for keeping the residents apprised of the evolving situation (Dillman, et al, 1982). In the aftermath of the Loma Prieta earthquake, radio was assessed as communicating very well (Katayama, 1992).

Television is the medium of choice with the Weather Channel and local television following the creation and progress of the storms. Recently much has been discussed about the role of social media (Sutton, 2010). The TV programs frequently use much of their broadcast time to show what people are writing on Twitter and photos taken with iPhones. It is as if radio does not exist.

Contrary to this depiction, radio in coastal Louisiana takes over when power fails and the only means of communication are battery-operated radios. Cell phones require charging which becomes problematic and the cell towers are often damaged or over taxed. With the possibility of increasing numbers of tropical cyclones up and down the East Coast and the more likely impact of storms of a lower severity (Isaac and Sandy were both only category One), it seems that radio has been overlooked as a vital and very effective means of communicating. The challenge is, as we say about so many things related to disaster response, that the *preparation must begin now*, and in surprising ways – establishing the kind of daily programming with the kind of local talk show hosts so that everything is 'in place' when the storm hits.



Hurricane Sandy utility outages. Huffington Post Posted 11-5-12.<sup>13</sup>

It may not be possible for communities with much less frequent disaster encounters to have such a comprehensive approach to using radio for recovery. The business model currently practiced for most stations does not include investment in the number of personnel needed. And the syndicated national programs are too readily available and popular. WWL news director Cohen describes a common radio-programming pattern of part-time employees with prerecorded programming, some even initiated by computers with no human presence at the station needed. The FCC Localism Task Force expressed concern about such automation because it inhibits timely production of emergency messages (Hilliard & Keith, 2005 in Spence et al., 2009).

But the ‘philosophy’ of this programming – *think about what is needed, consider the importance of having certain programming qualities and content be regularly present during normal times so as to be prepared for crises*, might be achievable and

might be very important ‘when the big one hits’, whatever the big one is, in that particular region of the country. And to staff the live programming 24/7 there might have to be a combining of staffs as was done by Entercom and Clear Channel Louisiana after Hurricane Katrina. This blended staffing is done for every disaster by multiple government agencies and utilities that fill the necessary “seats” in Emergency Operation Centers. It might be reasonable to imagine the FCC and FEMA actually expecting a radio response plan for the region with Primary Entry Point regional stations required to solicit participation in tabletop exercises from all of the stations where the logistics and staffing of on-air live talk is planned in advance of a crisis. These efforts should be practiced in the individual stations so that when collaboration occurs, the ‘pieces’ provided are of excellent quality. It is no different than thinking about all of the other ways that communities can find to achieve collectively that very important quality for their own circumstances – community resiliency.

Following the October 29, 2011 Halloween nor'easter ice storm that caused power outages in 12 Northeast states and five Canadian provinces, citizens questioned the paucity of adequate crisis reporting on the region’s radio stations once electrical power was lost. The season of the event put residents at risk due to the temperature. Propane gas was at a shortage and elderly, infirmed, disabled were unable to seek public shelters due to limbs strewn over the roadways. And the shelters themselves were often unheated. Those in need of heat were frantically trying to determine their options for obtaining propane with no media assistance being offered in western Massachusetts, an area particularly hard hit. A disabled resident of the area<sup>14</sup> in need of propane wrote a letter of concern about the inadequacy of the various regional radio stations’ programming to the station

<sup>13</sup> [http://www.huffingtonpost.com/2012/11/05/hurricane-sandy-power-outages\\_n\\_2077407.html](http://www.huffingtonpost.com/2012/11/05/hurricane-sandy-power-outages_n_2077407.html)

<sup>14</sup> Thanks to the letter writer, Annette Berube, for sharing the program director’s response.

director of the public radio station in Western Massachusetts (WFCR & WNNZ), which has a range of coverage from mid Massachusetts to the New York border and from southern Vermont to mid Connecticut.

The Executive Director for Programming, New England Public Radio, Helen Barrington quickly responded and included a detailed discussion of some of the challenges: including transmitter not functional due to utility outages, no back up generator due to funding limitations, small staff. She wrote,

If we could have *gone live* once power was restored . . .we would have. We will find a way to do this in the future . . . .*We will be prepared to go live for as long as is necessary*, to get critical information out . . . We are working on solutions.

Finally she wrote:

The size of the region makes this coverage complex, figuring out the best way to get information to people. ***But we now know more than ever before – the radio is the thing just about everyone can access in such situations.***<sup>15</sup>

### **The Role of the Private Sector in Disaster Response and Recovery**

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February marks the two-year anniversary of the first World Radio Day in honor of the role of community radio (February 7, 2011). Both public and commercial radio can make important contributions and both will benefit themselves from doing so: supporting a more resilient community and increasing the loyalty of the listeners for both types of stations through listenership and financial benefits – support of the advertisers of the commercial stations and through enhanced sponsorship and donations to the public stations.

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<sup>15</sup> <sup>8</sup> Italics and bold added by author of this article.

Creating a successful business plan to achieve this might take effort and thinking through questions such as “How to broadcast content exclusively related to collective events in lieu of profitable programming?” (Love, 1969). But the answers appear to be in loyalty and identification with the community’s resiliency.

An interesting postscript to the linkage of inherent resiliency to adaptive resiliency is that it comes full circle: adaptive also supports inherent. WWL radio went total sports coverage for the 2013 Super Bowl with sites all around the city’s CBD and a range of programming that paralleled if only for a couple of days the complexity of the coverage for Hurricane Isaac. “No sweat.” They had just done that in August for the hurricane. (And ironically the issue that arose in both events was the loss of electrical power, throughout the city for the storm, in the Super Dome for the game. And questions about the quality of the system and the slow speed of recovery were the same.)

WWL news director Dave Cohen explained that they do not have any advertising during the beginning of a crisis. But when the events are stabilizing they advertise for very relevant businesses by means of contracts already signed with the businesses before the event. Insurance companies wanting to instruct their policyholders as to how to begin the claims process is an example of the type of advertising broadcast. He also noted that the listenership after a crisis always increases, i.e. remains higher than in normal times. In fact he stated that when most of the areas stations were playing their (WWL’s) programming during Katrina, the station managers wished that Arbitron could have done a listener survey: “It would have been 100%” he said. This loyalty is likely to have occurred also for the Clear Channel stations as their listeners became aware of their contribution to the joint ‘United Broadcasters’ effort after Katrina.

Recently there has been an increase in consideration and promotion of a greater *role of the private sector*



in preparation, response and recovery from crises. (For example, see the National Research Council Committee on Private-Public Collaboration to Enhance Disaster Resilience, 2011.) The role of commercial radio is an excellent example of one that the private sector can and should robustly play, both in areas of the country with regular occurrences of natural hazard crises as well as those that have not yet had such frequent experiences but may come to do so in the future, and in areas with larger population concentrations as well as smaller.

We speak often in disaster research about the fact that the real heroes of a crisis are frequently not the formally trained, neither National Guard nor even the local emergency responders, but just the regular *engaged citizens* – neighbors, residents (Laska and Peterson 2010, 2011; Marks, 2005). In this case of local live talk-show hosts forming the core of the remarkable response by WWL radio in New Orleans, it is indeed “*ordinary men making extraordinary ‘moves,’*” celebrating the same local ‘community’ building as do the 610 Stompers. This clear example of that truism may have some utility for radio stations in other communities who unfortunately may find themselves in need of the same useful means of communication – radio and “engaged citizens” to deliver it live – as has New Orleans and its environs.

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## Colorado Task Force on Wildfire Insurance and Forest Health



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In response to Colorado’s catastrophic wildfires of 2012, the state’s governor, John Hickenlooper, issued executive orders to establish two entities in January, 2013. One was the Task Force on Wildfire Insurance and Forest Health (Task Force), created by Executive Order B 2013-002. The Governor charged the Task Force to identify and reach agreement on ways to encourage activities, practices, and policies that would reduce the risk of loss in wildland-urban interface (WUI) areas and provide greater customer choice and knowledge of insurance options. The other was the Advisory Committee to the Director of the Division of Fire Protection and Control on Wildland Fire and Prescribed Fire Matters (Executive Order B 2013-001). Governor Hickenlooper tasked the advisory committee to work to improve the state’s approach to forest health and develop a long-term strategy for sustaining vital resources (State of Colorado, 2013).

This article provides an overview of the Task Force actions and recommendations.

Task Force members represented the public and private sectors. Public agency membership included the state’s Department of Natural Resources, Division of Fire Protection and Control, Division of Homeland Security and Emergency Management, Forest Service, local government representatives, and other agencies. Private sector representatives

came from the insurance and banking industries, and a non-governmental conservation organization, among others. The Task Force chair was the Executive Director of the Colorado Department of Regulatory Agencies (Task Force, 2013b).

To successfully complete its mandate, the Task Force stated that it had to first, identify the scope of the problem in Colorado and determine how to quantify the magnitude of the wildfire risks in the WUI and second, then identify and consider a variety of ways to address the problems. Recognizing that there is no single solution to wildfires in the WUI, the Task Force developed a series of findings and recommendations which can make a “significant and sustainable difference” in reducing the risk of loss of life and property in future WUI wildfires. The Task Force also recognized that the recommendations would be “debated, developed, adapted, and implemented” through legislation, rulemaking, and public discourse at all levels of government (Task Force, 2013c).

Convening in February, 2013, the Task Force conducted hearings and working group meetings, often at locations within the WUI. One of the Task Force’s guiding references was the National Cohesive Wildland Fire Management Strategy (Colorado Department of Regulatory Agencies, 2013). In accordance with the national strategy’s philosophy, the Task Force placed an emphasis on a science-based approach to carrying out its mandate. This included an extensive reference set of peer-reviewed, professional, and technical publications, lessons learned reports from previous wildfire incidents, and presentations from a variety of subject matter experts. The Task Force presented its findings and recommendations on September 30, 2013 (Colorado Department of Regulatory Agencies, 2013; Task Force, 2013c).

One focus area was the reduction of loss within the WUI. The Task Force examined the state of Colorado’s forests, noting the challenges resulting

from the increase of fuels, drought, pests, and the effects of recent, severe wildfires in the state. This analysis then considered the values at risk from wildfire. Those identified by the Task Force were recreation, wildlife habitat, air and water quality, and homes and infrastructure. In examining the risk to homes and infrastructure, the Task Force framed the subject identical to the national strategy. To increase safety in fire-adapted communities, the goal would be to withstand a wildfire without the loss of life and property (Task Force, 2013a). The Task Force examined four general areas. These were 1) defensible space, including the adoption of building codes and participation in the “Firewise Communities” and “Fire Adapted Communities” programs, 2) land use zoning and planning at the county, municipal, and homeowner association level, 3) implementation of community wildfire protection plans, and 4) emergency management, such as residential egress and the use of reverse emergency notification (telephone and texts) for residents. The Task Force also looked to other states in the regional states to gain a better understanding of how they addressed issues such as WUI development and the implementation of specific building codes and fire protection fees (Burton, 2013; Task Force, 2013a).

Task Force recommendations covered a number of key themes, including risk assessment mapping, improving forest health, building codes and zoning activities, and insurance. The following recommendations were submitted to the Governor and legislative leaders:

1. In coordination with stakeholders, further develop the on-line Colorado Wildfire Risk Assessment Portal (CO-WRAP) to create a mapping tool with the capability to identify and quantify wildfire risks to specific WUI properties. The Colorado State Forest Service developed the CO-WRAP in 2012.
2. Disclose CO-WRAP results to relevant stakeholders.



3. Create a process to handle appeals and updates for CO-WRAP scores.
4. Continue and enhance state-supported grant funding for wildfire risk mitigation.
5. Create a pilot program for prescribed fire and more flexible air quality permitting options from the appropriate state regulatory agencies.
6. Work with stakeholders to identify and disseminate consistent information about WUI best management practices (BMPs) and watershed impacts.
7. Adopt a state-wide model ordinance for WUI properties.
8. Assess a fee on WUI properties to help fund mitigation activities.
9. Prohibit community building or land-use requirements that are inconsistent with science-based, “Firewise” principles.
10. Amend the standard real estate contract to include a WUI disclosure, including the CO-WRAP score.
11. Increase homeowner and stakeholder awareness of financial and technical assistance in Colorado to support wildfire risk mitigation.
12. Develop and require a Wildfire Mitigation Audit for WUI high-risk properties.
13. Disseminate information about pending legislative changes dealing with homeowner’s insurance laws. In essence, reinforce the need to for homeowners to protect themselves with adequate insurance.

Release of the Task Force recommendations resulted in an immediate discussion among the public, agencies, and elected officials. Several of the recommendations were viewed as being a radical departure from the status quo. This was especially true of recommendations seen as putting

restrictions on building in the WUI or establishing risk-based fees. The Task Force’s chair noted that the recommendations were holistic and that she expected homeowners, firefighters, governments, and insurance companies to work together to ensure beneficial changes are made.

Legislation resulting from the recommendations and associated discussion was quickly proposed. The state legislature convened on January 8, 2014. A proposed bill for mandating building codes in the WUI, based on a Task Force recommendation, didn’t advance out of legislative committee (Colorado Legislative Council, 2014). There is currently no overarching political support for this initiative. Legislation based on less-contentious Task Force recommendations were introduced and advanced from committee. Currently making their way through the legislative process, these bills would establish a wildfire information and resource center, create a wildfire mitigation tax credit, and create a local firefighter safety grant program (Colorado General Assembly, 2014).

Colorado has seen significant wildland fire-related impacts on lives, property, and landscapes over the past several years. The Task Force dealt with a complex subject and made some far-reaching and innovative recommendations. At this time, the political process is focusing on actions which are not seen as being contentious or politically risky. The major factor within the state shaping pending legislation and potential management initiatives is political will. Only time will tell whether perspectives change and a new thought process develops regarding how to prepare for, and manage, wildfires in the state.

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## #YYCflood: The role of social media during the 2013 Calgary flood

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### BACKGROUND

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In late June 2013, Alberta experienced heavy rainfall which led to catastrophic flooding in the City of Calgary and the surrounding area. On June 20, the City of Calgary declared a State of Local Emergency and issued a mandatory evacuation order that affected 75,000 people living in the vicinity of the of the Bow and Elbow rivers and included a large area in Calgary's downtown core. [1] Overnight from June 20 to the 21, the flood waters spilled over to Calgary's central business district, flooded thousands of homes and commercial buildings, inundated the Calgary Zoo, threatening the lives of the animals, and reportedly filled the city's largest arena, Scotiabank Saddledome, up to the first ten rows. [2][3][4]

Media outlets, relief organizations, City services, politicians but most of all Calgary's citizens used social media extensively during the response to and recovery from the floods. The Calgary Emergency Management Agency (CEMA), Calgary Police, a number of City officials, chief among those the Mayor, Naheed Nenshi, deliberately included social media in their regular public communications. [1][5][6]

### PEOPLE

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It has been generally recognized that social media communication between City officials and the public during the flood was very effective, with success being attributed in large part to maintaining a constant and consistent flow of information.

Calgary’s Mayor, Naheed Nenshi, who is a well-known avid user of social media, played a significant role in setting the tone for an effective flow of information by continuously engaging with citizens via Twitter and participating in daily media briefings. He once explained his motivation as follows: “My philosophy is that everything we know should also be known by citizens as soon as safely possible. I am an advocate of sharing accurate information quickly, especially in an emergency, and City communications worked well to do exactly that.” [7] That said, social media use by the crisis communications team of the City of Calgary was primarily focused on pushing out information and leading the conversation, with less emphasis on monitoring and public engagement.

The Canadian Red Cross (CRC) used social media for fundraising, information sharing, reputation management, and responding to questions from people affected by the floods. Given the volume of social media traffic, the national office of the CRC relied on their own volunteers as well as organizations like CanVOST and the American Red Cross to help monitor and filter social media traffic related to the floods, address questions from the public, and decide how to respond to calls for help. They also engaged celebrity tweeters, including Canadian singer Bif Naked, to amplify messages. [8]

Finally, the citizens of Calgary embraced social media and used a variety of platforms (Facebook, Twitter, Instagram) to share information, organize community groups and offer support and resources if they had a room to spare or food to share. [9] Once the flood-waters receded and the full scale of the damage was revealed, Calgarians used social media to mobilize clean-up efforts. Notably, a local group of tech-savvy citizens launched a Facebook group that, within a day, acquired over 2,100 members indicating willingness to help. Shortly thereafter, that same group of citizens went on to

launch a volunteer registration site<sup>16</sup> as well as a Twitter profile<sup>17</sup>, which ultimately led to the mobilization of over 15,000 volunteers. [10]

## GOVERNANCE

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The social media unit within the Calgary Emergency Operations Centre (EOC) consisted of one dedicated staff member working around the clock during the crisis with additional support as necessary. The unit was part of the crisis communications team and as such social media was used primarily to manage public affairs and provide information to citizens rather than for operational purposes. Operational staff coordinating the response on the ground had limited time to monitor or engage in social media, however there was some exchange of information that benefited incident management. [5][6]

During the floods, the Municipal Emergency Plan was activated, and the reporting chain was re-configured such that messaging didn’t have to be approved centrally by city officials and instead approval was led by the EOC, which made the information flow more efficient. Co-location of the crisis communication social media staff within the central EOC environment allowed for rapid verbal verification of information, such as road closures, and timely dissemination of information via the city’s official social media channels. Furthermore, a significant amount of more general information was pre-approved for release by the EOC leadership. [6]

Once operations moved into the recovery phase and the clean-up effort began, the city’s social media channels became inundated with people volunteering to help in the clean-up effort. City officials quickly realized that they did not have the capacity, tools or capability to manage the large volume of volunteers. CEMA officials approached

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<sup>16</sup> [www.yychelps.ca](http://www.yychelps.ca)

<sup>17</sup> @yycHelps

the volunteer group YYC Helps, who by then had already developed a strong social media presence as well as a volunteer management platform. The City developed a volunteer waiver form and provided it to YYC Helps to assist in the management of volunteers. The official City social media channels directed all interested volunteers to YYC Helps. This partnership resulted in a well-organized and effective flood clean-up. [11]

## TECHNOLOGY

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Since the first day of the flood, Twitter became the primary social media tool used by those seeking information updates. #YYCflood emerged as the primary hashtag, being featured an average of 32 times every minute over a 10 day period. City officials also used Twitter, with Calgary Police initially leading the way since they already had a strong pre-established social media presence. Calgary Police actually got locked out of their Twitter account at one point, when they exceeded the maximum number of allowable Tweets. It was only due to help from a member of the public that the police account got unlocked. The city's official Twitter account followers increased by 50% (to 84,000) during the floods and the mayor's personal Twitter account gained over 28,000 followers. [6][12][13]

City officials also used YouTube to share content of press briefings. The Crisis Communication team found this to be beneficial to strengthen the City's reputation and to give citizens confidence in the decisions and actions that were taken to deal with the situation. For example, CEMA produced short videos to show citizens what it was doing on the ground and how its work benefitted the recovery. The official City website<sup>18</sup> was quickly overwhelmed due the huge volume of traffic to the site. A quick solution was developed which redirected people to the city's Wordpress site,

where official updates were subsequently posted to the City's blog. The blog had 1.1 million visits in the immediate aftermath of the flood. [37] Similarly, the Canadian Red Cross used a blog to share updates, photos, videos, dispatched and stories to illustrate their efforts. [14]

While free tools like Twitter, Facebook, YouTube and Wordpress were used extensively, custom-developed platforms utilized in the EOC environment, including the Esri-based Emergency Management Common Operating Picture (EM-COP) and MASAS<sup>19</sup> proved less useful for social media monitoring. While EM-COP can accommodate Twitter data, it can only do so on an individual basis resulting in Tweets completely overwhelming the picture. As a result, commercial tools like HootSuite and TweetDeck were used instead. In the case of MASAS, which is designed for inter-agency situational awareness information sharing within the wider EM community, EOC staff found that the process of data input was too onerous in order for it to be used effectively. Another issue identified with the EM-COP platform was the inability to produce live mobile maps. Some EOC staff members expressed frustration at the situation, since maps that were meant to be used in the field had to be first generated via the EM-COP and then printed in a large format. The large physical maps were cumbersome to handle and quickly became outdated, given the fast evolving situation. In some instances, city officials relied on a comprehensive mobile map put out by the local branch of the car sharing service car2go<sup>20</sup>. Interestingly, the car2go map was populated with information obtained from the city's own blog and social media feeds. [5]

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<sup>19</sup> Multi-Agency Situational Awareness System, <https://www.masas-x.ca/>

<sup>20</sup> <https://www.car2go.com/en/calgary/>

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<sup>18</sup> [Calgary.ca](http://Calgary.ca)



## IMPLEMENTATION

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At the time the flood hit, City officials were in the process of developing a new crisis communications plan. The City of Calgary did have a defined objective with respect to the use of social media, and it was to lead the conversation through establishing the City's corporate accounts as the authoritative and trusted source of information. The City officials realized that being active and engaged on social media allows greater control of the message. In that respect, the City officials were largely successful. Their messages were frequently shared by the public and often quoted by the media. In addition, they were quickly able to invalidate a rumour on social media that a boil water advisory had been put into effect. The EOC social media monitoring team caught the rumour and corrected the misinformation by sending out strong messages about Calgary's water being safe for consumption. This action arguably prevented people from panicking and stockpiling water. [37]

## CONCLUSION

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Emergency management and first responder organizations around the world are trying to exploit the use of social technologies to prepare for, respond to and recover from crisis. Social media offers the opportunity to connect and cooperate with the networked public and to reach people quickly with alerts, warnings and preparedness messages. Canada's emergency management community has not yet fully embraced social media. Analysis of the people, governance, technology, and implementation aspects of the use of social media during the 2013 Calgary flood indicates that it was a useful tool for augmenting traditional emergency capabilities. At the same time, there is room for growth and improvement through further exploiting social media in for situational awareness, engagement of the public, stakeholder coordination and collaboration, as well as intelligence and crowd-sourcing.

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## “Move over Sammy Prince: Is Daniel Defoe the First Disaster Scholar?”

By:

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The Canadian Anglican priest, Samuel Henry Prince, who published his doctoral dissertation on the December 6, 1917, Halifax explosion in 1920 (1,963 killed, 9,000 injured when a munitions ship exploded in Halifax harbour) is generally acknowledged to have been the first disaster scholar.<sup>i</sup> Recently, John Twigg has suggested someone else deserves that title. In a section in his blog titled, “Move over Samuel Prince,” Twigg suggests the first disaster scholar was British author and pamphleteer, Daniel Defoe because in MDCCIV (1704) – more than two centuries before Prince published *Catastrophe and Social Change* -- Defoe published an account of a Hurricane which struck England on November 26-27, 1703:

There had been writing on disasters before, usually personal accounts or short works, but nothing as comprehensive, systematic and analytical as *The Storm*. Move over, Samuel Prince: Daniel Defoe is the father of disaster studies!<sup>ii</sup>

Twigg is not the first to praise Defoe as a chronicler of disasters. In 1999, G. A. Starr contributed a chapter titled, “Defoe and Disasters” to a book edited by Alessa Johns which includes chapters on such incidents as the 1693 Sicilian earthquake, the 1770 famine in Bengal as well as earthquakes in South America in 1746, 1783 and 1797.<sup>iii</sup> But Twigg is the first to place Defoe as first in line in this field. This article reviews the evidence to see if Twigg is correct.

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## THE STORM

Daniel Defoe is undoubtedly best known for his fiction, books such as *Robinson Crusoe* and *Moll Flanders* and for what might be called a docu-drama, a fictional but compelling accurate account of the 1664 plague, *A Journal of the Plague Year*. Naphy and Spicer say the novel “is probably accurate with regard to the spirit of the event...”<sup>iv</sup> Bastian goes further:

Dafoe, in the *Journal*...strives towards the factual. The *Journal* thus stands closer to our idea of history than to that of fiction. It contains in it much genuine historical material that would otherwise have been lost.<sup>v</sup>

Unlike *A Journal of the Plague Year*, *The Storm* is presented not as fiction disguised as fact but as fact. Dafoe says in his introduction that his account is truthful – “if a man tells a lie in print, he abuses mankind”<sup>vi</sup> *The Storm* consists not only of Defoe’s own work but scores of letters that he says he has received from others:

Others speak for themselves, and being write by Men of Letters as well as Men of Principles, I have not Arrogance enough to attempt a

Correction either of the Sense or Stile, and if I had gone about it, should have injur'd both Author and Reader (p. 8).

Some of those letters – for example one from Reverend William Derham – are genuine. Derham's for example was first published elsewhere. But in his introduction to his 2005 reprint of Defoe's book, Hamblyn questions whether that is true of all the letters. He notes that Defoe often invented letters to the editor for one of his publications and that some of the supposed contributions to *The Storm* reflect Defoe's style.<sup>vii</sup> While it is impossible now to verify if those named as authors – and the names apparently are of real people – it is perhaps worth noting that Defoe did place an advertisement in the *London Gazette* “appealing to readers to send in accounts of how the storm affected different parts of the country and coast.”<sup>viii</sup> While Starr says the letters “appear to be genuine submissions” and credits Defoe with being “among the first to recognize that involving the public as contributors would help attract readers,”<sup>ix</sup> he is not impressed with the result;

But most of the letter writers, especially the clerical ones, approach their task with a sense of its dignity, and of their own, that is artistically fatal. Lofty moralizing often threatens to crowd out mere narrative, and much of the local material, besides being on tiptoes stylistically, is second hand reportage, rather than firsthand observation.<sup>x</sup>

Which this is to some extent fair comment, it ignores that the most compelling anecdotes, the ones about what happened in London itself were based on Defoe's own observations: the morning after the hurricane Defoe left his house in Hackney and – like the curious people he mentions – walked around London looking at the damage and talking to people about their experiences.<sup>xi</sup>

## OBSERVATIONS

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Hamblyn reports that Defoe's tutor, Charles Morton at the Newington Green Academy (p. 218) introduced his students to “an impressive array of equipment” and that Defoe owned and occasionally consulted an indoor barometer. Defoe says he consulted his barometer during the 1703 hurricane but could not believe what he saw:

On *Friday* Morning [November 26] it continued to blow exceedingly hard but not so much that it have any Apprehensions of Danger within Doors; towards night it encreased; and about 10 a Clock our Barometers inform'd is that the Night would be very tempestuous; the Mercury sank lower than ever I had observ'd it on any Occasion whatsoever, which made me suppose the Tube had been handled and disturb'd by the Children (p. 26).

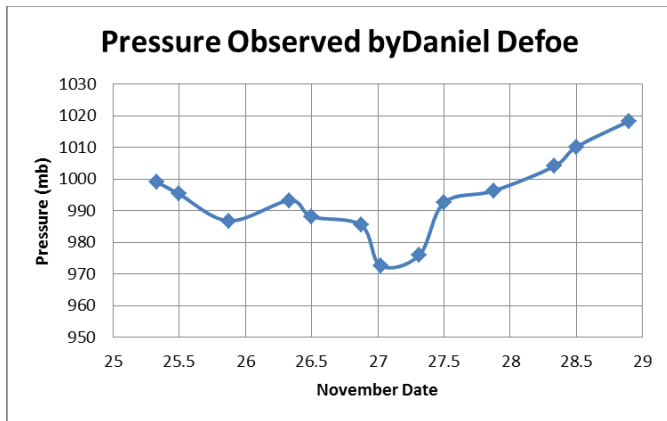
Rather than report his own observations, he reproduces a letter by Derham, a theologian and Fellow of the Royal Society. Derham states:

About 12 that Night [November 26] the Storm awaken'd me, which gradually increas'd till near 3 that Morning; and from thence until near 7 it continued in the greatest excess; and then began slowly to abate, and the Mercury to rise swiftly. The Barometer I found at 12 h. ½ P.M. at 28, 72 where it continued until about 6 the next morning, or 6 ¼, and then hastily rose, so that it has gotten to 82 about 8 of the clock (p. 28).

Defoe then printed a table showing the barometer readings:<sup>21</sup>

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<sup>21</sup> Defoe's readings were based on measuring atmospheric pressure in inches of mercury. Today we use millibars. I am indebted to David Etkin, who is both an associate professor of Disaster and Emergency Management at York University in Toronto and a meteorologist, for taking Defoe's readings and converting them to current usage and producing the chart below. He says there have been stronger storms but the last one with that low a reading happened in 1981.



Defoe doesn't stop there. He also introduces his own categories for wind, starting at "Stark Calm," continuing through "Calm Weather, Little Wind, A Fine Breeze, A small Gale, A fresh Gale, A Top-Sail Gale, Blows fresh, A hard Gale of wind, A Fret of Wind, A Storm" ending with "A Tempest" (p. 24). This categorization is a forerunner of the Beaufort table of wind force which was developed in 1806. In a table in the introduction to his book on the storm, Brayne compares Defoe's categories to the Beaufort scale. He shows both used the term "storm" to wind which caused widespread damage and that Defoe's Tempest is the equivalent of what Beaufort called a hurricane.<sup>xii</sup>

## DESCRIPTION OF THE STORM

According to Defoe, the November 26-27 Hurricane did not occur suddenly after a spell of relative calm but struck after weeks of severe weather:

It had blown exceedingly hard...for about fourteen Days past; and that so hard that we thought it terrible Weather...and the nearer it came to the fatal 26<sup>th</sup> of November, the Tempestuous of the Weather increas'd...on the Wednesday morning before being the 24<sup>th</sup> of *November* it was fair weather and blew hard... till about 4 a Clock in the Afternoon the Wind increased and with Squals of Rain and terrible Gusts blew very furiously...the Wind continued with unusual Violence all the next Day and Night and had not the Great Storm follow'd so soon, this had pass'd for a Great Wind (p. 26).

There was then a slight lull on the evening of the 26<sup>th</sup> until shortly after midnight:

It did not blow so hard till Twelve a Clock at Night...But about One or at least by Two a Clock...the Fury of the Tempest to such a degree...most people expected the Fall of their Houses (p. 30).

The wind was strong enough that it carried sea water inland to the point people and animals could taste the salt:

The Grass on the Downs...was so salt that the Sheep in the Morning would not feed until hunger compelled them, and afterwards drank like Fishes (p. 111).

The wind also forced some flooding:

But the Wind throwing the Tyde very strongly into the Severn and so into the Wye, on which Chepstow is situated. And the Fresh in Wye meeting with a Rampart Tyde, overflowed the lower part of our Town. It came into several Houses about 4 foot high, rather more; the greatest damage sustained in Houses, was by the makers of salt, perhaps their loss might amount to 200 l [pounds] (p. 117).

Chepstow is a town in Monmouthshire, Wales close to the English border. It is on the river Wye, just 3.2 kilometres from the Wye's junction with the Severn. In that same area – according to letter from William Frith, a church warden, the flooding downed sheep and cows and knocked down part of the Chepstow Bridge over the Wye (p. 72).

The storm also developed in some places into a tornado. On page 67 Defoe describes what he calls a "Pillar" or "Spout" [but which may, have been a tornado]:

...found it to be a Spout marching directly with the Wind; and I can think of nothing I can compare it to better than the Trunk of an Elephant, which it



resembled only much bigger.... Afterward crossing a Road, it sucked up water than was in the Cart-ruts; and then coming to an old Barn, it tumbled it down, and the Thatch that was on top was carried about by the wind (p. 68).

Defoe says he will not enter into a dissertation on the causes of spouts but does so anyway:

.., by what I can understand they are caused by nothing but the Circumgyration of the Clouds made by two contrary Winds meeting in a Point, and condensing the Cloud till it falls in the shape that we see it, which by the twisting Motion sucks up Water, and doth much Mischief to Ships at Sea, where they happen oftner than at Land, whichever of the two winds prevails, as in the above mentioned was the S.W. at last dissolves and dissipates the Cloud, and then the Spout disappears (p. 68).

Finally in the wake of the storm there was a delayed storm surge:

Another unhappy Circumstance which this disaster was join'd, was a prodigious Tide, which happen'd the next day but one...that in some Parts of England 'twas incredible, the Water rising Six or Eight foot higher than it was ever known to do in Memory of Man; by which ships were fleted up upon the firm Land several Rods off from the Banks, and an incredible Number of Cattle and People drown'd (p. 35).

## **FACTUAL DETAIL**

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The Storm contains what are presented as eyewitness accounts from scores of communities – from Margate, Hastings, Grimsby, Swanzy [presumably Swansea] – and from counties along the coasts – such as Norfolk and Somerset – and inland – such as Hertfordshire [he spells it both as Hartfordshire and Hertfordshire] and Hampshire. These accounts contain very detailed descriptions of

aspects of the storm as well as detailed records of its impact.

Defoe reports there were trees down everywhere, so many that he provides only a few examples:

In the Counties of Gloucester, Hereford and Worcester several persons have lost whole orchards of fruit trees.... Several were blown down at Hampton Court. And three thousand brave Oaks at least but in one principal part of the Forest of Dean.... In a little grove at Ipswich...are blown down at least two hundred goodly Trees, one of which was an Ash...there are now few Trees left there (p. 45).

However, the most serious problem – and the main causes of death – was tiles that were blown off roofs and flew about like missiles and roofs that collapsed and buried people in the debris:

A Distiller in a *Duke-Street* with his Wife and Maid-servant were all buried in the Rubbish of a Stack of Chimneys, which forced all the floors, and broke down to the Bottom of the House; the Wife was taken out alive, though very much bruised, but her Husband and the Maid lost their lives....

Two Boys at one Mr. Purefoy's in Cross-Street Hatton-Garden were both kill'd and buri'd in the Rubbish of a stack of Chimneys....

A Woman in *Jewin-Street*, and two persons more near *Aldersgate-Street*, were kill'd, the first, as it is reported, by venturing to run out of the house and into the street, and the other Two by the Fall of a House (p. 59).

It might seem surprising that people did not flee from their homes but – as Defoe explains – that, too, would have been extremely risky:

...opening the Door to arrange an Escape into a Garden, the danger was so apparent that they all thought to surrender to the Disposal of the

Almighty Providence, and expect their Graves in the Ruins of the House, rather than to meet almost certain Destruction in the open Garden for unless they cou'd have gone above two hundred Yards from any Building, there had been no security for the Force of the Wind blew the Tiles.... Tiles blown from a House above thirty or forty Yards, and stuck from five to eight inches into the solid earth. Pieces of Timber, Iron and Sheets of Lead have been blown much further (p. 31).

## WARNING IGNORED

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Of course, there were some deaths that resulted from an unwillingness to believe the storm could be that bad, even if there were specific warnings. Defoe provides two accounts of men who died because they declined to listen to warnings from other, one from family members, and the other from a spouse:

In Threadneedle-Street, one Mr., Simpson...being in bed and fast a-sleep, heard nothing of the Storm; but the rest of the Family being more sensible of Danger, some of them went up and wak'd him, and telling him of their own Apprehensions press'd him to rise but he...did not apprehend any Thing and so, notwithstanding all their Persuasions, could not be prevailed with to rise: they had not been gone many Minutes out of his Chamber,, before the Chimneys fell in, broke through the Roof over him, and kill'd him in his Bed (p. 59).

A Carpenter in White-Cross-Street was kill'd almost in the same Manner.... That his Wife earnestly desir'd him not to go to Bed, and had prevail 'd on him to sit up near two a Clock, but then finding himself very heavy, he would go to Bed against all his Wife's Intreaties; after which she wak'd him and desir'd him to rise, which he refus'd, being something angry for being disturb'd, and going to sleep again was kill'd in his Bed and his Wife who would not go to Bed, escap'd (p. 59).

This is not the only gender issue arising from *The Storm*: as Brayne notes, “the overwhelming majority of Defoe’s correspondents were male”<sup>xii</sup> There were just three women: Edith Conyers from Wells in Somersetshire – she reports the Bishop’s wife as well as the Bishop being killed and a woman drowning because of the storm surge (pp; 71-72); Elizabeth Luck from Tunbridge who describes trees blown down and horses being killed (p. 101); and Anne Watts from Hereford who reports the death of a man and his son – no names – and of trees including elms and fruit trees being blown down (p. 103). The letters by Luck and Watts are two of the shortest letters cited.

Given the wooden and thatch construction of many homes, it was quite possible a fire could have started. That did not happen in London but Defoe states fire did break out in a town near Norfolk on the east coast; strangely he does not mention the town, perhaps the only time he is not specific:

...almost ruin'd by a furious Fire, which burnt with such Vehemence, and was so fann'd by the Tempest, that the Inhabitants had no Power to concern themselves with the extinguishing it; ...if People came to Windward they were in danger of being blown into the Flames; and if to Leeward the Flames were so blown up into their Faces, they could not bear to come near it (p. 33).

Although much of the book consists of anecdotal accounts, on pages 146 and 147, Defoe meticulously lists 12 warships that were driven ashore by the storm: *Reserve, Northumberland, Restoration, Sterling Castle, Mary, Vigo, Mortar, Eagle, Resolution, Newcastle, Canterbury and Portsmouth*. The entire crews were lost of two of them: the 70-gun *Northumberland* with a crew of 253; and the 70 gun *Restoration* with a crew of 286. However, he reports that 70 members of the crew of the 70-gun *Sterling Castle* including the third lieutenant, chaplain and Chyrurgeon’s Mate were saved (pp. 146-147). Although 26 of the crew of the

31 crew of *Canterbury* were drowned, the ship itself was recovered (p. 147).

## HUMAN BEHAVIOUR

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Defoe also describes aspects of human behaviour which are still common today, for example, curiosity or convergence, people anxious to see what had happened:

The next Day or Two was almost entirely spent in the Curiosity of the People, in viewing the Havock the Storm had made, which was so universal in London, and especially in the |Out-Parts that nothing can be said sufficient to describe it (p. 34).

Defoe seems to imply there was something close to role abandonment:

Several women in the City of *London* who were in Travail, or who fell into Travail by the Fright of the Storm, were oblig'd to run the risque of being delivered of such help as they had; and Midwives found their own Lives in such Danger, that few of them thought themselves oblig'd to show any Concern for the Lives of Others (pp: 34-35).

This may well have been true but – given the risks of going outside – it seems reasonable to suggest midwives, like anyone else, would have found it too dangerous to venture out of their homes until the storm passed.

He is more convincing when he reports that there were so many tile roofs damaged and so few tiles available that this led to price gouging:

The Streets lay so covered with Tiles and Slates, from the Tops of the Houses, that the quantity is incredible.... Something may be guest at on this Head, from the Sudden rise of the Price of Tiles, which rise from 2.1 s [shillings] per Thousand to

6.1 for plain Tiles and from 50s per Thousand for Pantiles,<sup>22</sup> to 10 l. [pounds Sterling] (p. 57).

Dafoe may have winced when he reported this because before he was imprisoned for writing *The Shortest Way with the Dissenters*, he was in the tile business, making brick and pantile tiles in a factory at Tilbury. He had been bankrupt before that but had started the business with funds provided by William III and was making a tidy profit of about 600 pounds a year; but when William was replaced by Queen Anne, Defoe found himself out of royal favour. He was first pilloried and then – after a reward was posted for his arrest – imprisoned. He was released from prison not long before the storm but by the time he got out his business had collapsed.<sup>xiii</sup> Defoe does note that a disaster can be good for some and bad for others especially in economic terms, something others have also noticed.<sup>xiv</sup>

## LOOTING AND A DRAMATIC RESCUE

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Dafoe provides one anecdote which tells of looting – or at least the intent to do so – but also actions that normally would have broken the law but, under the circumstances, would appear as appropriate. The incident happened at Deal where shipwrecked sailors had made it part-way to safety:

And here I cannot omit that great Notice has been taken of the Towns-People of Deal who are blam'd, and I doubt not with too much reason for their great Barbarity in neglecting to save the Lives of Abundance of poor Wretches who having hung upon the Masts and Rigging of the ships had gotten a Shore upon the Goodwin Sands when the tide was out. Here they had but a few Hours of Reprieve, but they had neither present Refreshment nor any hopes of Life, for they were sure to be all wash'd into another World at the Reflux of the Tide. Some Boats are said to come

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<sup>22</sup> A pantile tile is a type of fired roof tile, normally made from clay. It is S-shaped in appearance.

very near them in search of Booty, and in search of Plunder, and to carry off what they could get, but no Body concern'd themselves for the Lives of these miserable Creatures (p. 134).

Although most were not inclined to help, the Mayor of Deal, Thomas Powell decided something must be done. At first he tried to get Custom officers to launch a rescue attempt:

...the first Thing he did, he made application to the Custom-House Officers for the Assistance of their Boats and Men, to save the Lives of as many as they could come at, the Custom House Men rudely refus'd, either to send their Men, or part with their Boats (p. 135).

When that failed, Powell then called for volunteers offering to pay five shillings for every person saved and found some who said they would help if he could find some boats

...he with their assistance took away the Custom House Boats by Force; and tho' he knew he could not justify it, and might be brought into trouble for it, and particularly if it were lost, might be oblig'd to pay for it, yet he resolv'd to venture that, rather than hazard the loss of his design for the saving of so many poor Men's Lives, and having Mann'd their Boat with a Crew of stout honest Fellows, he with them took away several other Boats from other Persons, who made use of them only to Plunder and to Rob, not regarding the Distresses of the poor Men (p. 135).

The rescue efforts were successful: 200 sailors were brought to safety.

## THE EARTHQUAKE

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According to two accounts published by Defoe, on December 28, almost exactly one month after the November 26-17 storm, parts of England were struck by an earthquake: both accounts come from north-east England, one from Hull, one from Boston.

The Earthquake, which Publick Accounts mention to have happen'd at *Hull* and *Lincoln* on the 28<sup>th</sup> ult. was felt here by some people about 6 in the evening about the same time that People there, as well as at *Grantham* and other Places, perceived it. We have some flying stories about it which look fabulous, whose Credit I would therefore not be answerable for, as, that upon *Lincoln-Heath*, the ground was seen to open, and Flashes of Fire to issue out of the Chasm p. 150).

It came with a Noise like that of a Coach in the Streets, and mightily shak'd both the Glass Windows, Pewter, China Pots and Dishes and in some places threw them down off the Shelves on which they stood.... They felt but one shake here but a gentleman in *Nottinghamshire* told me that being lame upon his Bed, he felt three Shakes, like the Three Rocks of a Cradle, to and again (p. 153).

## HISTORICAL REFERENCES

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In Defoe's time, there were still those who saw disasters as brought by God as punishment. Defoe was not convinced: as Starr points out Defoe felt those who chose this explanation might be good Christians but are not scientists.<sup>xv</sup> He dismisses that idea in the poem he also wrote about the November storm:

They say this was a High-Church Storm,  
Sent out the Nation to Reform,  
But th' Emblem left the Moral in the Lurch,  
For't blew the Steeple down upon the Church,  
From whence we now inform the People,  
The danger of the Church is from the Steeple (p. 211).

The references to a "High-Church Storm" is to the favourable winds which assisted the Protestant William of Orange to land safely at Torbay on November 5, 1688, and kept the ships of the Roman Catholic James II stranded in the Thames. That was not the only time favourable winds were seen as an asset. On August 14-15, 1588, the Spanish Armada



was broken up and largely destroyed not just by Sir Francis Drake but by a storm (p. 25).

## SUMMARY AND CONCLUSIONS

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Defoe provides enough detail about a little known disaster to make *The Storm* a worthwhile addition to a reading list for serious disaster scholars. He also describes a number of patterns of behaviour with which we are now familiar – including the unwillingness, especially of men, to listen to warnings, the willingness to take risks to save others, the post impact curiosity, even price gouging. And his techniques – participant observation, gathering of data and the use of informants – are ones disaster scholars use today. He also shows the value of a quick response and no one can be quicker than someone involved in an incident.

It also seems fair to suggest that while Americans are made aware of their country's disaster history – events such as the hurricane storm surge that led to thousands of deaths in Galveston, Texas on September 8, 1906 or the devastation from fires caused by the April 18 San Francisco earthquake, that is not so much the case in Europe. The British for example may recall recent crowd-crush incidents after a soccer stadium fire in Bradford on May 11, 1985 (56 dead, 285 injured) or at Hillsborough (Sheffield) on April 15, 1989 (96 dead, 766 injured) but they forget earlier similar incidents such as the crowd crush at Ibrox soccer stadium in Glasgow January 2, 1971 (66 dead, 200 injured) and even more tragic incidents such as the coal tip slide in Aberfan, Wales (144 dead, 114 of those, children) or the Summerland fire on the Isle of Wight (50 dead) or the Canvey Island floods of January 31, 1953 (307 dead).<sup>xvi</sup> Defoe's account of the November, 1703 storm makes clear that there were disasters in England long before those events and that we can still learn from them.

Martin Brayne, who wrote a book about the storm in 2002, states that his account is “heavily

dependent” on Defoe.<sup>xvii</sup> But Brayne agrees with Hamblyn that *The Storm* is not to be “relied on absolutely” then adds:

It is journalism and its...author was doubtless more concerned with getting his work into print than checking his facts (Brayne, p. 17).

Brayne goes on to quote Richard West's book *The Life and Strange Surprising Adventures of Daniel Defoe*<sup>xviii</sup> who states that *The Storm* “is a masterpiece which puts to shame all modern accounts of disaster, whether in books, newspapers, radio and television.”<sup>xix</sup> Even if this is true but it obscures the fact that *The Storm*, even if it is the first thorough description of a disaster, is reportage not scholarship. West admits that in the very next sentence:

In most respects the factual *Storm* is even more gripping than the fictional *Journal of the Plague Year* and fully deserves to be published again if only for students of journalism.”<sup>xx</sup>

Unlike Prince who draws a lesson from his data – that catastrophe inevitably leads to social change – Defoe offers no conclusions that can be tested by examination of other events. In short, while his observations are incredibly detailed and he documents things which we would now recognize as normal disaster behaviour it is possible to question whether his work – as Twigg states -- is analytical. It is a tour de force of disaster research but while it may be very, very good journalism it is not scholarship. Prince may have to make way for someone who was a better reporter; he does not have to concede -- at least to Defoe -- his claim as the original disaster scholar.

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## Assessing Social Impacts of Energy Development on the Gitga'at First Nation



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British Columbia's Hartley Bay is one of Canada's "hotspots" when it comes to energy development and export. Located at the mouth of the Douglas Channel, every major marine transport vessel must pass through Gitga'at First Nation territorial waters and by the village on its way to Kitimat. Kitimat is the designated terminal for proposed energy development projects such as the Enbridge Northern Gateway Pipeline (ENGP), LNG Canada, BC LNG, and Kitimat LNG (see [www.kitimat.ca](http://www.kitimat.ca) for a list of major projects). We recently completed an assessment of potential sociocultural and psychosocial impacts from the ENGP project for the Gitga'at First Nation and have gained insights into some of the perplexing issues that arise with large scale energy development.

## BACKGROUND

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Like many First Nations, the Gitga'at are situated in a bioregional context in which “the wellbeing of their people is intricately related to the health of their lands, waters, and resources” (<http://gitgaat.net/>). Historically, these bioregional connections produced a deeply resilient culture that endured and thrived for at least 7000 years prior to Western contact. Ways of dealing with natural hazards such as meteorological and geological events as well as harvest fluctuations became embedded in sociocultural structures and processes—particularly through social capital and local knowledge. In our contemporary ‘World Risk Society’ (Beck 1999), technological hazards such as oil spills threaten bioregional integrity and pose new types of risks for which few communities—First Nation or First World—are prepared.



Many of these new risks are apparent to the Hartley Bay community, which maintains many ‘subsistence’ cultural practices. Village residents rely on traditional foods gathered in their ancestral waters and lands for much of their diet and they share these resources and opportunities to harvest with other Gitga'at People who live in Prince Rupert and other ‘off reserve’ locations.

As Kitimat becomes a major marine port, traditional lands and waters of the Gitga'at will be exposed to a

high volume of marine traffic—as many as 240 tankers per year for Enbridge, about twice as many LNG transport vessels, and a significant increase in cargo ships to supply the Kitimat terminals. As a result, the community becomes highly vulnerable to routine operations of maritime vessels. It becomes particularly vulnerable to oil spills and other toxic releases that would damage or contaminate ecosystem resources. Given these potential risks, to what extent can energy development and the traditional culture of the Gitga'at First Nation co-exist?

## METHODS AND FINDINGS

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In 2011, we were contracted to conduct a study to identify, describe, and measure potential sociocultural and psychosocial impacts of the ENGP project for the Gitga'at First Nation (Gill & Ritchie 2011). Given our experience documenting human impacts of oil spills, we were asked to focus attention on potential impacts of an oil spill in Gitga'at waters. We used a mixed methods approach that included document review, a site visit to Hartley Bay, qualitative interviews, and a quantitative survey.

Our assessment can be briefly summarized as follows:

- The sociocultural existence of the Gitga'at is based on an interrelationship with their bioregion. The “natural capital” of the bioregion has been the pillar of sociocultural resilience of the Gitga'at and other coastal First Nations. Through cumulative adverse impacts of events experienced since Western contact—e.g., colonization, disease epidemics, residential schools, and discrimination—the one “thing” Gitga'at People could rely on to sustain them and their core way of life was their natural capital—the renewable resources their bioregion provided.





- Traditional foods and activities are very important to contemporary Gitga'at identity. Gitga'at self-identity (collectively and individually) is defined by harvesting and sharing traditional foods and resources and maintaining Tsimshian place names and ceremonial naming. These activities form a foundation for sociocultural processes that are tied to their bioregion.



- The ENGP project poses two general threats to the bioregion's natural capital and the Gitga'at way of life: routine operations and marine oil spills.
- Routine operations and tanker traffic will have some adverse impacts on the environment and disrupt some traditional harvesting activities. Routine tanker traffic will likely be viewed by some groups and individuals as a constant reminder of threat of an accident, and

these perceptions will contribute to psychosocial disruption and stress.

- The possibility of an oil spill and ensuing short-term and long-term environmental damage is viewed as a major threat by the Gitga'at First Nation. They believe a major oil spill is inevitable—it's not a question of if, it's a question of when. Nine out of ten Gitga'at survey respondents expected a marine oil spill would occur during their lifetime.

- A worst case scenario of an Exxon Valdez size oil spill near Hartley Bay would cause severe adverse sociocultural and psychosocial impacts. Mitigation measures for impacts of this magnitude require more than financial reparations and substitution of resources because some adverse effects go beyond financial capital.

- Shipwrecks such as the Queen of the North and the USAT Brigadier General M.G. Zalinski are part of the collective conscious of the Gitga'at People. These events are understood as risks and threats to bioregional resources and provide a powerful context for evaluating proposed energy development projects. One outcome from these events is a lack of confidence in the ability and willingness of industry and government to prevent and respond to marine oil spills. There is a related lack of confidence that the Canadian government will honourably protect their Aboriginal title, rights, and interests.

- Gitga'at are concerned that the ENGP project will threaten or destroy their way of life. The perceived threat has already contributed to levels of psychosocial stress and disruption that are comparable to Alaska Natives who actually experienced the Exxon Valdez disaster in 1989.

In December 2013, the Joint Review Panel (JRP) for the ENGP project issued a report recommending



approval with conditions (JRP 2013a; 2013b). Although the JRP purported to make recommendations based on scientific analysis, we contend that social science in general and our social impact assessment in particular were not seriously considered and are not apparent in JRP decision-making processes. Instead, the JRP repeatedly relied on what “Northern Gateway said.” An examination of Northern Gateway’s ‘social science’ reveals that it systematically ignored or dismissed the preponderance of social science literature on oil spills (ENGP 2012:C1-C19). For the sources they used, the proponent highlighted particular passages that fit their position of no ‘lasting negative effects,’ while ignoring contradictory findings in the same article. The proponent did not conduct a proper social impact assessment. By relying on Northern Gateway ‘statements’ instead of social science evidence, likely adverse impacts facing First Nations such as the Gitga’at were not appropriately considered by the JRP.



The final argument process required the Gitga’at to include ‘conditions’ to be considered should the project be recommended by the JRP. Among these conditions were protection of Gitga’at culture, economic interests, and community well-being. The Gitga’at proposed a Social Health and Community Well-Being Protection Plan that asked for

development of measures to protect their sociocultural well-being during construction and routine operations and in the event of an oil spill. It included provisions to quickly and effectively mitigate social impacts once realized. Unfortunately, the JRP did not include these recommendations in their report (JRP 2013b).

## DISCUSSION

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History presents a poor record when it comes to First Nations’ experiences with Western environmental laws, regulations, and procedures. Booth and Skelton identified “significant failings in the Canadian and British Columbia environmental processes” and highlighted “fundamental philosophical differences between assessment processes and indigenous worldviews” (2011:367). Some of these failings resulted from First Nations’ lack of resources and capacity, insufficient understanding of the environmental assessment process, poor governmental relations, and inadequate industry consultation. Weakness identified in regulatory processes included lack of procedural fairness, inappropriate time lines, use of inappropriate methods and inaccurate information, and including First Nations too late in the process.

Unfortunately, many of these ‘failings’ appear to have been repeated in the ENGP process—particularly from the Gitga’at perspective. Moreover, these failings are poised to reoccur as provincial energy projects develop in Kitimat. The resulting increase in marine vessel traffic in Gitga’at waters raises legitimate concerns about cumulative adverse environmental and sociocultural effects. An environmental assessment process that disadvantages Indigenous people and ignores their Aboriginal title, rights, and interests will not likely improve when cumulative impacts are considered.

Regrettably, some adverse sociocultural and psychosocial effects are an inevitable outcome of large-scale development projects, particularly those imposing unwanted technological threats and risks. These impacts are exacerbated in Indigenous societies, partly because Western society does not understand or appreciate their bioregional worldview. Social science, particularly when integrating Indigenous research approaches into their designs (Mertens, Cram, and Chilisa 2013), can help to facilitate greater understanding and assist in mitigating the impacts. In the final analysis, however, the issues go beyond science and politics—they are moral issues regarding how contemporary society values the traditional cultures of Indigenous people. When faced with the possible loss of a traditional culture, is there such a thing as adequate compensation?



## BIOSKETCH

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## Building the Bridge between Long term Risk Reduction and Emergency Response

By: *Harvey Hill, Ph.D.*<sup>23</sup>

The Canadian Risk and Hazards Network (CRHNet) plays a unique role in Canadian disaster risk reduction. Because of its openness to those with varying expertise and hazard interests, it provides a forum to exchange ideas regarding disaster risk reduction that is quite remarkable. This openness has its own challenges. A key challenge is how to reconcile the objectives of the responders of the CRHNet community with those focused on proactive and pre-disaster risk reduction.

These two sets of members have contrasting primary missions. Responders focus on dealing with the event once it has occurred. Critical objectives include: human safety, protection of property and return of the community and economy to a

functioning state. Conversely, the pre-disaster risk reduction members focus on understanding how to proactively reduce vulnerability to hazardous events.

Visualization and valuation of risks and risk reduction actions may serve as tools to support an integration of the two conceptual differences. Simulation tools and accompanying methodologies and integrated land management applications are examples of such tools.

Simulation gaming for hazard management decision making and decision-making requiring integration of many skill sets and disciplines is a rapidly evolving field (Ahmed, Bencala, and Schultz, 2012; Hill et. al. 2013; McNeil, 2013; Trybus, 2014).

How can these tools support improved disaster response and proactive risk reduction?

Some of the advantages of traditional games and more recently video games are

1. They provide a “vehicle” for different members of the CHRNet community to contribute to a simulation of the consequences of a hazardous event with, and without, alternative risk reduction investments, policies, and technologies,
2. They allow for the integration of economics, physical sciences, geographic information systems and traditional emergency response processes.

The VFIRE gaming tool developed by at the Desert Research Institute, University of Nevada, Reno (Pennick, 2007; Hoang et. al., 2010) is an example of a fire-fighting simulation educational tool that can improve awareness of the need for adoption of risk reduction strategies. The tool trains fire fighters in tactical and strategic issues related to forest fire fighting and has the potential to support proactive disaster risk reduction. Use of VFIRE can also help identify proactive ways to reduce forest-fire risk while enhancing forest-fire fighting capacity.

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<sup>23</sup> The views expressed are strictly those of the author. They do not represent the official position of any non-Government or Government agency. The purpose of the article is to foster discussion as to how to increase the ability to reduce disaster risk in Canada.



Figure 1: Example of a Fire simulation tool. Mapping tools allows the team or individual to explore the implications of the fire on the landscape. This would allow for risk reduction analysis of land use practices in the context of a fire.

An advantage of hazard gaming is that it builds on simulation skills already developed within the CRHNet community and allows expansion to better integrate innovation and training. Simulations have been demonstrated to have a greater impact on learning and engagement than classroom and laboratory studies (see Table 1).

	Traditional Training (lectures, online tutorials)	Hands-on Training	Game-based Learning
Cost-effective	X		X
Low physical risk/liability	X		X
Standardized assessments allowing student-to-student comparisons	X		X
Highly engaging		X	X
Learning pace tailored to individual student		X	X
Immediate feedback in response to student mistakes		X	X
Student can easily transfer learning to real-world environment		X	X
Learner is actively engaged		X	X

Table 1: Comparison of Traditional Training, Hands-on, and Game-based Learning (Trybus, 2014).

Disaster loss estimation tools are another approach. These tools provide a disaster scenario to measure

the risks imposed by land-use decisions and support integrated land management tools (ILM).

Tools such as HAZUS-MH have been applied to urban settings (Hastings and Journey, 2011) can be used to evaluate how to mitigate hazard risks and can be used by disaster responders.

The Central American Probabilistic Risk Assessment loss-estimation methodology (CAPRA) has been used by the World Bank for areas which do not have much data on assets that could be impacted by hazard events; using remote sensing to gather that data (World Bank, 2013). Here the opportunity is to potentially build on such tools and others in development for low data rural environments to better understand vulnerabilities on the landscape from floods and other hazards. Such tools require hazard scenarios to estimate disaster losses and have those scenarios for use in other applications. For instance, these tools would use flood maps and flood scenarios prior to flooding events occurring.

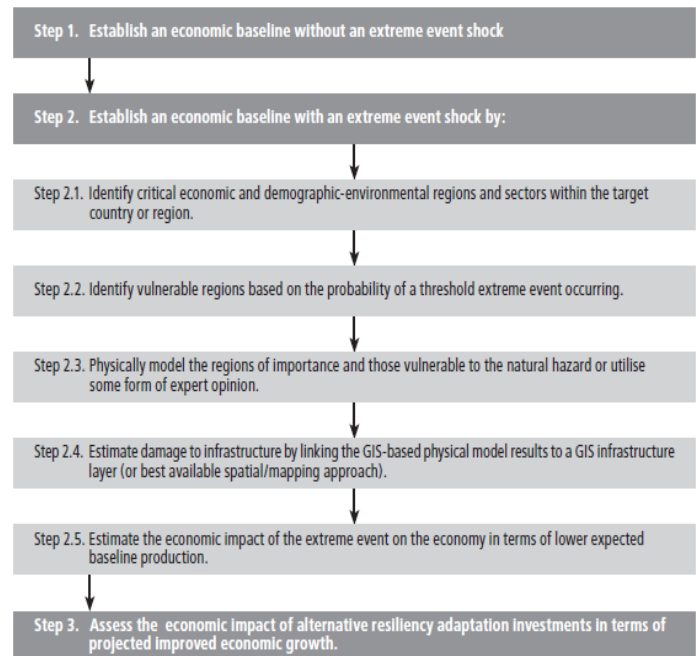


Figure 2: Generic steps to identify vulnerability and resiliency to natural disasters, (Hill, Weiner, and Warner, 2012).



A pre-run library of such information can serve as reference material during an emergency response. The same information when combined with socio-economic data can support cost benefit analysis; a systematic way to compare actions to understand their feasibility *vis à vis* alternatives (Figure 2).

CRHNet plays a significant role in Canadian natural hazard risk reduction. Tremendous potential exists to capture the synergies of CRHNet's diverse membership through the use of emerging technologies and methodologies. Capturing these synergies will not only benefit Canadian communities but will contribute to the national economy and national security.

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## Advancing Communications Interoperability for Responders



By: *Eric Torunski* Executive Director

The inability of responders to communicate across disciplines or jurisdictions can put lives at risk. While much good work is being accomplished across the nation, sadly there is much left to do. CITIG has

been leading this charge in Canada. Created in 2007 and now led by the Canadian Association of Chiefs of Police (CACP), Canadian Association of Fire Chiefs (CAFC) and Paramedic Chiefs of Canada, CITIG's mission is to improve Canadian public safety interoperability at home and abroad through collaborative efforts, innovation and leadership.

For the coming year, CITIG will be focussing on raising awareness and facilitating participation on key issues related to responder communications interoperability, including:

- 700 MHz Broadband for Mission Critical Public Safety DATA
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- Cross-border interoperability
- Location based services

In addition to acting as the voice of responders and representing responder interests on public safety interoperability issues, CITIG will continue to facilitate information sharing through the CITIG portal ([www.citig.ca](http://www.citig.ca)), news updates, social media, etc. to raise awareness about interoperability issues and best practices. Of course, CITIG will also carry on its hallmark annual workshop program (the Eighth Canadian Public Safety Interoperability Workshop will be held November 30 to December 4, 2014 in Ottawa) as well as cross-border, regional and issue-specific events.

**To learn more about CITIG, and for a complete listing of CITIG events, please visit [www.citig.ca](http://www.citig.ca).**





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What is the NHMA?

The Natural Hazard Mitigation Association (NHMA) was founded in 2008 to bring together individuals and organizations working in the field of hazard mitigation. NHMA serves as a respected voice in hazard mitigation policy both in the United States and throughout the world. We represent the interests of communities, governments, the research community, the insurance industry, and the fields of engineering, emergency response, water resources, planning and many other mitigation related fields.

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-



## CALL FOR PARTICIPANTS

### EASA DISASTER AND CRISIS ANTHROPOLOGY NETWORK (DICAN)

For quite some time now, disasters and crises have been the object of study of the social sciences at large, proving that such events are not “natural” or random, but rather the outcome of multiple and interacting social, cultural, political, economic and environmental processes. In order to understand the causes, effects and the ways of coping with risk, uncertainty and loss, it is necessary to go beyond the short time and “mediatized” perspective that always dominate when a disaster strikes or a crisis sets in. Anthropology seems to provide particularly suitable analytical tools to achieve this task.

Historically speaking, anthropology has, with a few albeit notable exceptions, been rather modest in focusing analytically on crises and disasters as social phenomena, despite of the subject’s holistic approach. A possible reason for the relative historical scarcity of ethnography of crises and disasters was the traditional focus of the discipline on “states of equilibrium” or “everyday life.” For a long time, this focus precluded more elaborated interest in the disruptions of the “normal” flow of social life. In the 21<sup>st</sup> century, the studies of the critical and the extraordinary have multiplied at a quick pace.

It has been argued that this has to do with the proper empirical expansion of the discipline and increased transdisciplinary communication, as much as with the understanding that classical anthropological problems can be found in contemporary societies. Whatever the reasons are, at the turn of the 21<sup>st</sup> century, the anthropology of disasters and crises is an expanding field worldwide, judging from the number of recently published ethnographic studies and others underway.

From the substantial work produced hitherto, it is clear that the discipline of anthropology is particularly well suited to think about the many dimensions of crises and disasters, given both its established and thriving new research into the processes of sociality, subjectivity, temporality, spatiality and materiality that forge social life. Disasters and crises, as moments of rupture, are worthy objects of analyses in themselves. Taking stock of the fruitfulness and the promises of this emerging field of study, it seems timely to reinforce and consolidate the anthropology of disasters and crises within the larger subject of anthropology, by engaging all European anthropologists interested in this area in a network.

The Disaster and Crisis Anthropology Network (DICAN) has been launched within the *European Association of Social Anthropologists*, (EASA). EASA is a society founded on January 14th, 1989 at the “Inaugural General Assembly” in Italy of twenty-one founder members from thirteen European countries and one from the US and supported by the Wenner-Gren Foundation for Anthropological Research.

In 1996 EASA began to establish permanent networks of scholars from all over Europe to cooperate on fields of special interest. These networks are constantly growing and provide excellent opportunities for collaboration and exchange in areas of special interest. DICAN in particular has the aim to facilitate contacts between anthropologists in order to enable exchange, communication and focused discussions about the anthropological contributions to the study of crises and disasters.

Among the possible network activities are to arrange themed sessions at the EASA conferences and organise regular network meetings in the non-biennial conference years, to initiate joint publications and to establish a platform of interactive communication. We invite expressions of interest in joining the network and we also encourage you to propose initiatives and particular topics of discussion.

## Conveners:

**Susann Ullberg** is a social anthropologist working as a researcher and teacher at CRISMART at the Swedish National Defence College ([www.crismart.org](http://www.crismart.org)). She defended her doctoral thesis *Watermarks: Urban Flooding and Memoryscape in Argentina* at Stockholm University in 2013. Her research interests involve disaster, environmental and medical anthropology; social memory and oblivion; and material culture, with a regional focus on Latin America, especially Argentina. Her teaching areas include the politics of risk, disaster management and ethnographic methodology.

**Sandrine Revet** is an anthropologist. She is a research fellow at the Centre d'Études et de Recherches Internationales (CERI, Sciences Po/CNRS) in Paris. She holds a Ph.D. in anthropology (2006) from the Institut des Hautes Etudes de l'Amérique latine (University of Paris 3 – Sorbonne Nouvelle) on Venezuelan 1999's floods, *"Anthropologie d'une catastrophe"* (Presses de la Sorbonne Nouvelle, 2007). Her work proposes an anthropological approach to "natural" disasters, analyzing how these events are socially and culturally elaborated. She also works on the political and humanitarian aspects of disasters, and on how institutional and humanitarian cultures encounter local cultures at the scenes of natural disasters. She is one of the founders of the Association pour la Recherche sur les Risques et les Catastrophes en Anthropologie (ARCRA). She is a member of the editorial boards of *Critique Internationale*, *Cahiers des Amériques latines*, *Papeles del CEIC* and *Disaster Prevention and Management*.

**Mara Benadusi** is an anthropologist working as researcher and lecturer at the Department of Political and Social Sciences at the University of Catania in Italy. She is also member of the Ph.D. program in Anthropology at the University of Messina, where she supervises doctoral thesis on post-disaster emergency response. She has

extensively worked in Sri Lanka during the reconstruction phase that followed the 2004 Indian Ocean tsunami. She is currently part of the EC-founded *ReSHAPE Program*, which involves researchers and professionals concerned with the EU response capabilities towards natural disasters, humanitarian crises and systemic risks. In 2013 she received the *Mary Fran Myers Scholarship* by the Natural Hazards Center (University of Colorado, Boulder) for her commitment to disaster research. Her work focuses on the political and educational aspects of post-catastrophe interventions, including how individuals and social groups learn to protect themselves in disasters. She co-edited *Disasters, Development and Humanitarian Aid. New Challenges for Anthropology* (Guaraldi, 2011).

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## 2014 Conference on Disaster Prevention and Mitigation (DPM 2014) September 12-14, 2014 Wuhan, China

The 2014 Conference will be held from **September 12 to 14, 2014** in Wuhan, China. This conference will cover issues on Disaster Prevention and Mitigation. The manuscript submission deadline is **May 26, 2014**, we would like to cordially invite you to submit or recommend papers to our conference through *paper submission system*.

### Related Topics

- Buildings and constructions
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- Disaster Prevention and Disaster Recovery
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- Social aspects and education

Yours sincerely,

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## Academic Corner

### JUSTICE INSTITUTE OF BRITISH COLUMBIA

#### JIBC supports Aga Khan Development Network (AKDN) to Mitigate Disaster Risk in Developing Countries

JIBC is a leader in Emergency Management education, training people throughout BC, across Canada and around the world in best practices for preparing for and responding to major emergencies and disasters. And for more than five years, the JIBC's Emergency Management Division has been supporting AKDN agencies to build emergency and disaster management capacity.

The agencies of the AKDN are private, international, non-denominational development organizations. They work to improve the welfare and prospects of people in the developing world, particularly in Asia and Africa, without regard to faith, origin or gender. AKDN programs are designed to bring a

critical mass of economic, social and cultural activities into a given area.

Last year, the JIBC's Pete Learoyd and Darren Blackburn led Workplace Safety courses for AKDN's Disaster Risk Management Initiative in Pakistan and Tajikistan.

"The course will better prepare people within South and Central Asia to respond to emergencies and disasters, and it allows JIBC to learn from the challenges of developing countries and integrate this learning into what we teach," says Learoyd, who oversees the project.

Learoyd says working in developing countries has broadened his appreciation for the complexity of emergency response in those regions. He says it serves to remind him of the fundamental assumptions so often held in North America that may not be valid within these contexts.

**For more information, visit  
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**Building community disaster resilience through engagement**

In the face of the mounting costs – human, social, and financial – of disasters and climate-change, the global community is increasingly interested in understanding how to help communities and nations become more disaster resilient. In this, Canada is no exception, and Royal Roads University (RRU) Master of Arts in Disaster and Emergency Management (DEM) faculty, students and alumni are helping lead the way.

For several years now, DEM students have been working with RRU Associate Faculty, Dr. Laurie Pearce to help communities in the Greater Victoria Regional District assess and improve their resilience as part of the United Nations International Strategy for Disaster Reduction (UN ISDR). The UN ISDR developed a checklist of 10 essentials for making cities resilient, and the students’ project have involved assisting multiple communities in assessing their progress to achieving each of these 10 essentials and developing a comprehensive plan to become a UN ISDR-designated “Role Model City.”

(Full story <http://www.royalroads.ca/news/metchosin-benefits-student-work>)

Recently, alumnus Eric Bussey helped the small, remote Tłıchǫ community of Whati, Northwest Territories to assess and identify ways they might improve their resilience. The community’s Chief and Council invited Bussey, and DEM Program Head, Dr. Robin Cox and the Conference Board of Canada to do a whole-of-community assessment using new ‘made in Canada’ resilience assessment tools. Working with Bussey, they identified community-level actions to improve their resilience and played a leadership role in improving the resilience of other northern communities.

“DEM alumni are changing the face of disaster management in Canada” says Cox. “They represent a new wave of scholar-practitioners who are addressing compelling issues in this field and working with communities, governments, and businesses throughout Canada and the world to improve our ability to meet an increasingly complex, uncertain, and challenging future.”

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The Program attracts students from across Canada and abroad, offering additional opportunities to learn from peers actively involved in disaster response or recovery operations in other jurisdictions. It also encourages "networking" as a valuable tool or resource, and many of the courses expect the students to establish contact with other emergency management practitioners or organizations. The program aims to provide its students with sound and comprehensive emergency management education, which along with practical tools and skills would help the students assume emergency management roles.

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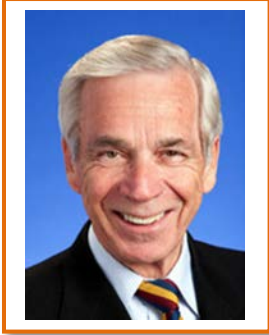
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# From the Practitioner's Desk

## THE MYTHS OF PANIC



By:  
*Jim Stanton,*  
*Communications*  
*Consultant*

Let's look at the myths of panic. Before World War II, the British Ministry of War predicted "mass outbreaks of hysterical neurosis" would occur when bombing started. What happened in reality was the exact opposite. People banded together to save fellow human beings and showed remarkable acts of kindness. Time and time again, volunteers went into bombed out buildings to rescue people they didn't know.



In April 1912, RMS Titanic sank in the icy waters off Newfoundland with the loss of more than 1,500 lives.

With rare exception, the crew and passengers responded to the disaster in a calm and orderly manner. The "women and children first" protocol



was generally followed when loading the lifeboats and most of the male passengers and crew were left aboard.

The Titanic's Chaplain, Father Thomas Byles, spent his final moments alive reciting the rosary and other prayers, hearing confessions, and giving absolution to the dozens of people who huddled around him. As a "man of the cloth" he would have been entitled to a seat in the lifeboat but he chose to stay and minister to the passengers.

The band of Titanic is one of the most mysterious and legendary tales that comes from the ill-fated ocean liner. Titanic's eight-member band, led by Wallace Hartley, assembled and played in the first-class lounge in an effort to keep everyone calm. As the ship continued to plunge, the band moved to the forward half of the boat deck, and continued playing even when their doom became apparent.

However, despite historical evidence to the contrary, the myths of panic still persist and go like this:

1. People will become blank slates and roam aimlessly around in a state of shock.



2. In the face of personal danger, people only think of themselves.
3. People will revert to a barbaric state.
4. People will cause mass hysteria with panic flight.
5. Too much information will scare people and add to a sense of panic.
6. Communities affected by a disaster will fall apart and never recover.
7. Trained professionals will be first on the scene and are trained to manage chaos.
8. People do not want to hear from elected officials due to mistrust.

Why do they persist? The source of creating these myths lies directly in the hands of popular videos, comic books, and movies. Hollywood loves nothing better than creating a gory zombie movie. Comic books and television networks outbid each other in producing fanciful series about “The Walking Dead,” “Night of the Living Dead,” “Zombieland,” and “Red Neck Zombies,” to name a few.



When looked at closely in real world situations none of these myths are true.

Let’s examine each one. First, **people will become blank slates and roam aimlessly around in a state of shock.** The fact is most people become innovative problem-solvers in a crisis. A few examples include: The Great San Francisco Earthquake of 1906 in which citizens formed bucket-brigades to attempt to quell the fires; travellers on the nearby highway rushed to the aid of survivors as they poured out of their crashed Air France plane at the Toronto airport in 2005; footage

from the 1995 Oklahoma bomb explosion shows ordinary citizens helping the injured.



The myth that **people are inherently selfish and will abandon others to take care of themselves** has been proven to be false time and again. In fact, most people are altruistic and organize spontaneously to save their fellow human beings. This was demonstrated recently at the Boston Marathon bombing in 2013 where citizens can be seen in social media clips administering tourniquets, carrying the wounded, and comforting the injured. All of this was happening when no one knew if another bomb might explode.



When the New York World Trade Center was attacked in September 2001, rumours circulated that office workers died because they



panicked and jammed the stairways. The reality was that, once again, people acted unselfishly and stopped to help others to evacuate to safety. Wheelchair-confined personnel waiting in refuge areas for firefighters to assist them were carried down 50 and more floors by ordinary citizens who refused to abandon them.

To address the myth that **people revert to a barbaric state** in times of crisis, consider what transpired during and after Hurricane Katrina, the deadliest and most destructive tropical cyclone of the 2005 Atlantic hurricane season. Stories emerged that people became “primal” and vicious and that gangs marauded, raped, and cannibalized folks in the Superdome. No evidence exists to show this happened. Yes, some looting did occur but it was mostly by hungry, desperate people. The overwhelming evidence shows that citizens helped each other in the days and hours before official first responders arrived.

A similar myth circulated about the danger of looting during the 2013 Alberta and Ontario floods. In fact, crime rates dropped and citizens formed community patrol groups to protect the evacuated and flooded areas.

A myth persists that **people will panic if told too much**. In 1861 Abraham Lincoln said, “I am a firm believer in the people. If given the truth, they can be depended upon to meet any crisis. The important point is to bring them the real facts.” What Lincoln said a century and a half ago, holds true today. People respond calmly when they know the facts.

In the 1979 Three Mile Island, New York, nuclear meltdown, agencies were afraid to release information because they thought the public would panic. The facts show that 150,000 people self-evacuated spontaneously without incident. However, Hollywood produced a movie portraying chaos, rioting and panic – none of which was based in fact.

In speaking about the 2013 wild land fire in Labrador West, Labrador City Mayor Karen Oldford said, “I appreciated the constant communications updates via conventional media, as well as social media, and the use of the local HAM radio operators. Due to our quick communications people were kept up-to-date with what was happening with the fire.”

When the cruise ship “Grandeur of the Seas” caught fire in May 2013, passengers commented, “The crew was in total control, told us what to do and there was no chaos. All passengers stayed calm.”



A myth also exists among many emergency managers and politicians who believe **chaos will occur if they don't have rigid control over the messaging** that goes out to the public. The facts support that crises and disasters enhance solidarity and actually suppress conflict, especially in this age of social media.

These same officials are afraid that social media will spread fear and panic. Evidence shows the contrary. Social media allows people to see in real time what is really happening and, thereby, lessens

uncertainty. Facebook and Twitter, in particular, become the “go-to places” for information in times of crisis.

During the Calgary floods in 2013, the number of Tweets and Facebook posts were staggering. The most-shared stories focused on community support, volunteerism and philanthropy.

The myth about **trained professionals always being first on the scene** is completely inaccurate. In the overwhelming majority of cases, ordinary citizens are the true first responders. They are the ones who do the initial triage and first aid, before police, paramedics and firefighters arrive.

The final myth I want to examine is the one that **people do not want to hear from elected officials** because of lack of trust. This is flat out wrong.

Calgary Mayor Naheed Nenshi used social media, in particular Twitter, to reach out to Calgarians. Folks called him “Supermayor.” His Twitter account was the most popular site during the Calgary floods and he was re-elected Mayor with an overwhelming majority.



During the Labrador West fires in the summer of 2013 and serious power outages in 2014, the then-Premier Kathy Dunderdale failed to reach out to citizens early. In January 2014, she resigned.

What does all this myth-busting tell us?

First, we need to be aware of these myths and have a commitment to overcome them. Secondly, it is

critical to remember that in times of uncertainty people want information about eight fundamentals, which I call the **Stanton Method**:

1. What is really happening?
2. How will this affect me?
3. What are you doing?
4. What do I need to do?
5. Specific and detailed instructions.
6. When will things get back to normal?
7. Reassurance.
8. Voices of authority they can trust.

What does this tell us as communicators? Do **NOT** play the blame game! We need to make our stories about people – our audiences. We need to engage traditional and social media to reach those audiences, quickly and consistently. Remember, whoever connects with the new and traditional media **first** sets the news template. Everyone else is reacting to what you have said.

In times of stress one of the first things to go, when people face a crisis, is their short-term memory. They don’t know that they don’t know. As communicators we need to make sure our messages are brief, uncomplicated, and succinct.

Finally, it’s critical to understand when things go wrong, you only have one chance to get it right. There is no such thing as over-communicating.

### Comforting Accommodations – A Shelter Operations Functional Exercise

The possibility of having to open a shelter in your community is a real one. For additional information and to sign your community up to participate in this unique exercise, you will need to access the following web site and submit an “Information Request Form”.

[www.drc-group.com/project/ca.html](http://www.drc-group.com/project/ca.html)

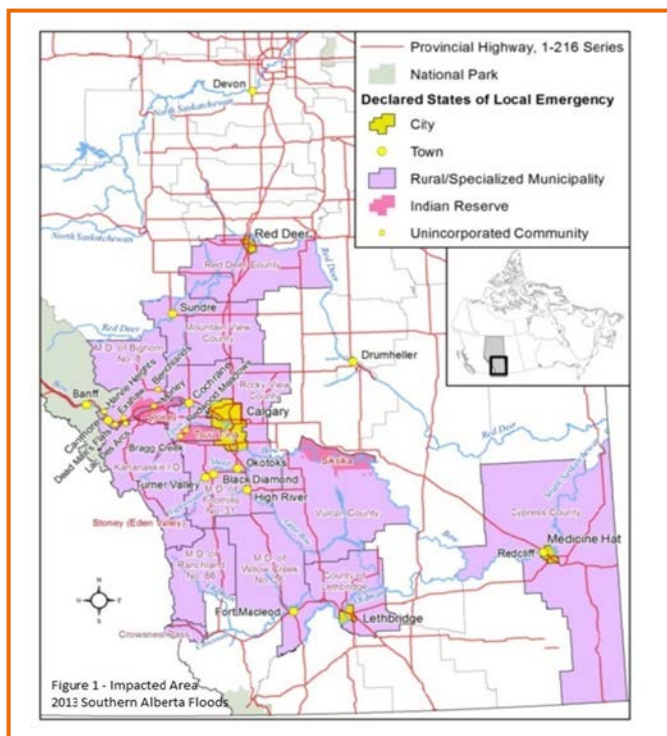


**COME HELL OR HIGH WATER –  
HOW ALBERTA'S BEST  
RESPONDED TO ITS WORST  
EVER DISASTER**

By *Dave Galea, Executive Director Public Safety Initiatives, Alberta Emergency Management Agency*

The 2013 Southern Alberta Floods will likely be the costliest disaster in Canadian history. The provincial and federal governments estimate they will fund \$5 billion for recovery. In addition, the Insurance Bureau of Canada estimates insurable damage at \$1.74 billion.

On the evening of June 18, 2013, a slow moving, intense low pressure system began moving across Southern Alberta, and over the next two days brought between 80 and 360 mm of rainfall. The rain, combined with high elevation snow melt, resulted in extreme flood conditions for the Red Deer, Bow, Sheep, Elbow, Highwood and Oldman River basins. Rising water levels continued to June 24, 2013 when the flood crest for the South Saskatchewan River passed through the City of Medicine Hat.



**Figure 1** shows the 55,000 km<sup>2</sup> area affected by the floods. The flood, which for many streams was the largest on record, resulted in 985 kilometers of washed-out roads and impacted 300 bridges and culverts. Over 30 communities and First Nations were impacted, all declaring states of local emergency. For the first time ever, a provincial state of emergency was declared for High River, with the province taking over emergency management for the town for a 14 day period. Approximately 14,500 homes and 1,380 small businesses were impacted. Almost 2,700 displaced Albertans required longer term accommodations assistance. Over 10,500 Disaster Recovery Program applications have been received.



During the event over 125,000 residents had to be evacuated, including all 13,000 residents of High River and over 100,000 Calgarians. The management of the disaster was complex impacting urban and rural areas and involving federal, provincial, and municipal jurisdictions. To further complicate matters the event unfolded in two stages, initially in the West near the mountains, and then two days later as the river systems peaked in the East. This meant that the Provincial Operations Centre (POC) was required to simultaneously coordinate mitigation, preparation, response, and stabilization operations.





Calgary under Flood Waters 2013

The POC elevated to its highest level (Level 4) for 24 days from June 20 to July 23, 2013. At Level 4 all government ministries, key agencies and partners are represented in the POC. We were able to keep this tempo due to a POC augmentation program that had been established that identified and trained GoA employees from areas not usually involved in emergency management.

While their initial predictions did not call for severe flooding, the Alberta River Forecasting Centre (RFC) was monitoring the situation and updated their forecasts as the event unfolded. The Alberta Emergency Alert system (AEA) was used by the RFC and communities to warn residents with alerts broadcast over radio, television, RSS feeds, social media, and highway signs. Despite extremely heavy usage rates (15 critical alerts and 33 information alerts issued) the system proved highly effective passing timely information to Albertans.

The Alberta framework for emergency management, referred to as Public Safety Governance (PSG), proved very effective. Under this system there are three roles: a lead organization identified for each hazard, supporting organizations that assist, and a coordinating organization to coordinates the efforts of all public safety partners. The POC, which is staffed 24/7, is responsible for coordinating an all-of-government response and for developing a common operating picture based on

verified information that ensures situational awareness and common messaging for all of government.



Siksika Nation June 2013

Alberta mandates the use of the Incident Command System (ICS) for government in the POC and by ministries and agencies. All other public safety partners are encouraged to use ICS. During this disaster the widespread use of ICS enabled us to reinforce municipal EOCs with incident management teams (IMT). This use of IMTs proved very effective. For example, High River was reinforced with a Provincial Type 1 Wildfire IMT and municipal IMTs from Lethbridge and Strathcona County. When no longer required in Calgary, the CAN-TF2 Heavy Urban Search and Rescue (HUSAR) Team successfully switched roles and also provided an IMT to assist High River.

The early involvement of our Federal partners, for the most part exercising regional level contacts we had established and exercised in advance, worked exceptionally well. This included getting the CF in early – a game changer that enabled us to get ahead of managing issues early in response. Throughout the event we had Public Safety Canada, the Royal Canadian Mounted Police, Aboriginal and Northern Development Canada, Industry Canada, Health Canada, and the CF physically located with us in our POC.

We initiated our recovery planning early by establishing a Recovery Unit within the POC Planning Section. The primary task for this team was to develop a solution to house up to 10,000 displaced residents. The result was new temporary neighbourhoods (modified industrial camps tailored to families) with first occupancy in 34 days. This enabled the province to provide critically needed accommodation that also helped residents to stay in their community to rebuild.

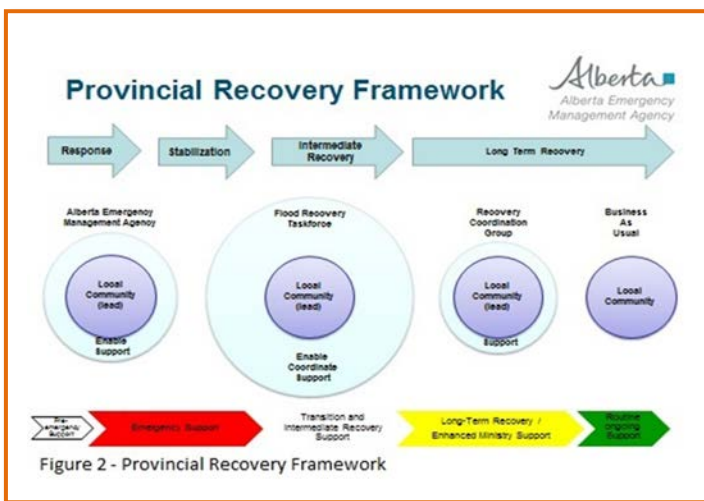
The province advocates the regionalization of emergency management and mutual aid amongst neighbouring communities. During the floods we leveraged mutual aid agreements to get the required support in place for communities quickly. These included existing agreements between communities and regions within the province and leveraging Canadian Council of Emergency Management Organizations (CCEMO) mutual aid agreement. We are extremely thankful for the offers of support we received from almost all provinces and territories, and the State of Montana. In the end we only needed to access support from neighbouring provinces, e.g. CAN-TF1 from British Columbia, building inspectors from Saskatchewan, etc.

technical and access specialists who completed damage assessments and filed reports for each home from the field via the Internet using I-PADS. This enabled the province and communities to build damage assessment maps, and have data that supported planning for re-entry and housing.

**Figure 2** shows the provincial framework for recovery. Under this framework the POC leads and coordinates response and stabilization to a point where the emergency situation is under control, public safety is restored, and routine processes can be employed. As a best practice learned from the 2011 Slave Lake Wildfires, the province inserts an intermediate step for larger disasters and establishes a Recovery Task Force to lead Intermediate Recovery.

This framework has again proven very effective. Flood Recovery Task Forces (FRTF) were established at Ministerial, and Assistant Deputy Minister level very early in the event to provide provincial oversight and support to community recovery. These task forces were provided significant authority to approve policy and financial expenditures using abbreviated processes that enabled timely decision making. In coordination with the FRTF the Alberta Emergency Management Agency (AEMA) is delivering financial support to via the Disaster Recovery Program. In every decision with respect to recovery the elements of people; the environment, the economy, and reconstruction are considered in the context of the local population.

The 2013 floods were devastating in the amount of damage caused. To prevent this in the future, the Government of Alberta is undertaking a comprehensive Provincial Flood Mitigation Strategy. Key elements of the strategy will be overall watershed management, flood risk management policies, updated flood hazard mapping, legislated floodway development restrictions, erosion control, local and provincial



Throughout the incident we leveraged technology to assist in response and recovery. Most notably we deployed Rapid Assessment Structural Safety Teams (RASST) to assess damage and support municipalities. These teams were made up of

mitigation initiatives and individual mitigation measures for homes.

The projects being considered are comprised of upstream flood diversion measures complemented with municipal flood hazard reduction with an estimated cost of between \$830 million to \$1 billion. Together these mitigation initiatives will greatly decrease the likelihood of Alberta ever undergoing an event like the 2013 Floods in the future.

## BIOSKETCH

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*Dave Galea was born and raised in Toronto, ON. He received his BA (Economics/Political Studies) from the University of Manitoba. Dave spent 33 years in the regular Army as an Infantry Officer and served in command, training and staff appointments with the military in various locations across Canada, and in Germany, Australia, Israel and Lebanon. For 12 years of his service he was responsible for domestic operations in various locations in Canada organizing military support to territorial and provincial governments and their Emergency Measures Organizations.*

*Since retiring from the Regular Army in 2006, Dave has worked as a Risk Analyst with Emergency Management Alberta, as the lead planner for the Army contribution to support security and consequence management during the Vancouver 2010 Olympic and Paralympic Games, and as the Director Office of Emergency Preparedness for the City of Edmonton.*

*Dave is currently the Executive Director Public Safety Initiatives in the Alberta Emergency Management Agency responsible for strategic planning, policy, emergency management training and the Alberta 911 program. During responses to emergencies and business continuity events Dave acts as an Executive Director in the Provincial Operations Centre.*

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## SIMTEC: CBRNE AND HAZARDOUS MATERIALS SELF-CARE DECONTAMINATION WORKSHOP

By: *Jennifer Pinette, SIMTEC Research Project, [jpINETTE@jIBC.ca](mailto:jpINETTE@jIBC.ca)*

The Simulation Training and Exercise Collaboratory (SIMTEC) held a CBRNE and Hazardous Materials Self-Care Decontamination Workshop at the Justice Institute of British Columbia in New Westminster, British Columbia on January 13 & 14, 2014. Funding was provided by the Canadian Safety and Security Program in partnership with Emergency Management British Columbia.

The goal of the workshop was to strengthen the Self-Care Decontamination protocols, kits and associated training material that were developed during the second phase of the SIMTEC project, Exercise Green Cloud, by taking it to a national and international audience for peer review.

Twenty-two local, national and international experts across a range of organizations in the world of decontamination attended the workshop. Police, ambulance, fire, army and navy HazMat experts were in attendance along with lead researchers in the field and representatives from health and emergency management agencies. In total 22 people attended; 2 from the UK, 3 from the US, 3 from Ottawa; 4 from Victoria and 10 from across the Lower Mainland. An invitation was extended to the experts at Suffield Canadian Forces Base who were unable to attend but kindly agreed to review SIMTEC's materials and lend their expertise on future avenues of research.

Once all materials are finalized, the revised materials along with Exercise Green Cloud will be available as an online forum at <http://simtec.jIBC.ca/>; where first responders will be able to learn about and test their knowledge of the protocols, kits and their uses.

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## CLIMATE CHANGE REPETITION ≠ PERFECTION

By: *Ilan Kelman*

<http://www.ilankelman.org>

Here we go again. The IPCC (Intergovernmental Panel on Climate Change) is yet again publishing a report, as usual in three Working Groups with the reports spaced several months apart. The one perhaps most relevant to disaster scholars was released in Japan at the end of March.

This happens every 5-6 years. 2013-2014 represents the IPCC's Fifth assessment, with the first one dating back to 1990. This year's report tells us that climate change is happening, that humans are to blame for a significant proportion of the observed climate change, that there are ways that we can deal with climate change, and that we are not doing what needs to be done.

Does that sound exciting? No, of course not.

Because that is exactly what was said previously in the Fourth Assessment Report, released in 2007. Five years of effort involving hundreds of scientists, requiring tens of thousands of hours of writing, reviewing, and editing alongside thousands of hours of travelling and meetings at an immense environmental and carbon cost (and carbon offsets do not help).

All to tell us what we know already. So why does the IPCC continue? That is indeed a good question.

As a model for science, the IPCC (similarly to all models of science) has advantages and disadvantages. The IPCC brings scientists together, assesses and synthesises the science available, and reaches consensus-based conclusions. Those

consensus-based conclusions are then reviewed by scientists and governments to reach summaries and overall conclusions acceptable to all, usually involving multiple compromises.

Amongst the advantages of the IPCC process are the consensus and the compromises. Amongst the disadvantages are the consensus and the compromises. Amongst the advantages are the interactions amongst and influence of scientists and governments. Amongst the disadvantages are the interactions amongst and influence of scientists and governments. The level and scope of the IPCC's peer review is impressively thorough and intense. Nonetheless, glaring errors and misconceptions nonetheless get through to the final reports, representing a tiny fraction of the entire text yet tarnishing the whole.

Naturally, we all make mistakes. The importance is learning from them and improving.

How could the IPCC be improved? The fundamental problem is the self-perpetuating bureaucracy. The IPCC has become an institution, but it is not clear that institutionalised science, consensus-based science, or government-reviewed science produces the best science. As an experiment and as a start for the field of climate change science, the IPCC did amazingly well and is to be admired and commended. As the co-winner of the 2007 Nobel Peace Prize, the IPCC has demonstrated its significant political power and has earned deserved respect from society. Neither is a statement of scientific quality.

When nothing fundamentally new is presented; when so much time, effort, energy, and travel is taken away from new, original, innovative science; when an institution becomes a lightning rod for



critics, is it time to recognise that senescence does not always represent betterment?

Has the time come to thank the IPCC for its needed service and then to move on from it?

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## EXECUTIVE SUMMARY: PROMOTING CANADIAN ABORIGINAL DISASTER RESILIENCE IN FIRST NATIONS, MÉTIS AND INUIT COMMUNITIES

By: *Eric Bussey, Brenda L. Murphy and Laurie Pearce, March 2014*

This report is an initiative of the Aboriginal Resilience Sub-Working Group (AR). In 2013, the AR was struck within the Resilient Communities Working Group (RCWG). The RCWG is one of the four national working groups established under Canada's Platform for Disaster Risk Reduction. This report was prepared on behalf of the Canadian Risks and Hazards Network for Aboriginal Affairs and Northern Development Canada.

The paper summarizes the key themes about Aboriginal disaster resilience that arose from two events held in November 2013 in Regina, Saskatchewan: the Canadian Platform's annual meeting and the Canadian Risks and Hazards (CRHNet) annual symposium. It also references key literature about resilience to contextualize the discussion.

A resilience approach is often portrayed as one that builds on current strengths, effectively manages and creatively adapts to all types of change, including disasters. Resilience requires knowledge about local hazards and vulnerabilities as well as information about what resources are available. While there is overlap between the disaster resilience issues facing rural/urban non-Aboriginal populations and Aboriginal communities, information about disaster resilience in Aboriginal contexts is quite slim.

The concept of Aboriginal resilience is linked to the idea of community resilience since each community has its own history, culture, traditions, language, family ties, and relationships to its landscape. In a Canadian context, Aboriginal resilience also needs to be differentiated and understood within First Nations, Métis and Inuit traditions. A key advantage of community resilience is that it fosters a proactive rather than a reactive approach to emergency management. Many Aboriginal communities have a history of self-reliance and resilience upon which to draw. Aboriginal resilience is tied to Traditional Knowledge such as local knowledge about hunting and country foods, natural resources, travel routes, and weather, snow and ice conditions. The capacity of each Aboriginal community is often dependent on the level of resources and/or economic development within that community. To become more disaster resilient, communities need access to formal networks, systems and arrangements and local, informal arrangements to deal with immediate community needs after a disaster. Strong cultural traditions and close relations between family and neighbours were noted strengths of small First Nations, Inuit and Métis communities. Communities also need support from higher levels of government, non-government organizations and private corporations to bolster resilience.

Based on the discussions and presentations which were a part of the 2013 Platform and Symposium, several important themes emerged:

### ENHANCING ABORIGINAL DISASTER RESILIENCE

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Since the scholarly literature and Aboriginal perspectives on the tenets of disaster resilience are quite slim, it is critical to consider the unique circumstances of First Nations, Métis and Inuit communities and to engage Aboriginal knowledge holders to further define the resilience concept. Support from higher levels of government, non-government organizations and private corporations

is critical for supporting and developing local-level resilience.

## CONNECTIONS TO THE RESILIENCE LITERATURE

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Comprehensive definitions of community disaster resilience are increasingly common where disaster resilience refers to a community's ability not only to survive and absorb a disruption but also to anticipate risk and creatively adapt to the changes and losses that result from disasters and other catastrophic change. Traditional Knowledge will be a cornerstone of Aboriginal disaster resilience concepts and approaches.

## PRIVATE SECTOR AND INSURANCE

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Disaster risk reduction is not solely a government responsibility; the private sector also plays an important role and has a social responsibility to support community resilience and recovery after a disaster.

## ENGAGING WITH FIRST NATIONS, MÉTIS AND INUIT COMMUNITIES

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The RCWG and the AR are examples of opportunities for engaging Aboriginal communities in disaster risk reduction. A common theme from Aboriginal community leaders is that it is important for them to engage external stakeholders as well as local individuals and groups in resilience enhancement work.

## IMPORTANCE OF SOCIAL CAPITAL IN FIRST NATIONS, INUIT AND METIS COMMUNITIES

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Disaster resilient communities are communities with strong linkages and communications between its members, as well as local and mutual support networks. Vibrant local connections with broader webs of resources and support are essential to the development of community resilience.

## RISK AND CLIMATE CHANGE

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As risk is localized, disaster risk reduction efforts need to be a pillar of community planning. Risk reduction efforts are even more urgent when considering that the severity and frequency of extreme weather events seems to be increasing through the effects of climate change, and that smaller events causing damage, injury and/or death can occur at any time. It is clear that we need to mitigate risk better, but we also need to make communities more resilient without significantly impacting the economy and people.

### PUBLIC WORKS & EMERGENCY MANAGEMENT: A CANADIAN PERSPECTIVE

By: *Valérie Céré, RN, M.A., Disaster Anthropologist, Ottawa, Ontario;* and

*Bruce Kerr, M.A., Kerr & Associates Consulting, Victoria, British Columbia*

When a disaster strikes, first responders play a crucial role in saving lives. Who are the first responders—police, firefighters, or medical services? If there are trees or debris on the road which prevent these first responders from accessing the site, who would you call? The role of public works professionals during an emergency may sound obvious, but they are rarely referred to as first responders.

Valérie Céré gave a presentation to the delegates of the 2013 Canadian Risk & Hazards Network (CRHNet) Symposium in Regina, Saskatchewan, in November. The CRHNet is an interdisciplinary and cross-sectorial network of researchers, academics and practitioners working to enhance the understanding of emergency management in all dimensions and to help build Canadian capacity to deal effectively with threats and consequences from

all hazards. The purpose of her presentation was to explore how we can involve public works professionals more in emergency management planning and recognize their vital role as first responders.

Public works is not just about picking up garbage, cleaning up the roads, and maintaining the waterworks. It is also about public safety and prevention. The role of public works is to maintain and ensure the security of waterworks systems, water treatment plants, sewage treatment plants, the removal of debris and waste, the maintenance of roads and bridges, deicing and snow removal in order to avoid pile-ups and accidents. They need to keep tabs on and know weather patterns in order to do a timely job, but most importantly it is to ensure a safe route for emergency vehicles. If they fail in these activities, the community's physical infrastructure and public safety are negatively impacted. Public works professionals' strength in emergency management is that they know their community by heart.

One comment imagined by the audience was that, "The people doing the overall planning for the community, perhaps should not be with the first responders. Quite often the community's land use planning rests with the planning and public works departments. Because of their planning, it is possible that a lot of disasters will have disappeared because they were avoided ahead of time. First responders, on the other hand, focus their planning on response activities, and have very little to do with land use planning. I am not saying that first response does not belong, but right now first response is prime when you look around at most emergency managers, so maybe it would make more sense to bring some of your emergency management people right from the public works side or the planning side as opposed to just first response side."

Valérie's response to this was that she felt that first responders have to be at the table before or while

the community is doing the planning. She pointed out that she was not advocating a shift of emergency management responsibility from one department to another but to be inclusive in emergency management preparations and have many departments involved in the community's preparation, with each addressing what they are best at: to be more collaborative, to try to break down the silos and have a general team of disciplines that think about emergencies or disasters, establish networks, and have the conversations ahead of time. "You have to know who your partners are before a disaster; you have to train together; and you have to exercise together. What I'm talking about is multidisciplinary meetings trying to figure it out together, not just public works, not just firefighters, policemen or emergency medical technicians, but everybody together. It's more of a partnership and trying to have a team of people where one of the persons on the team is from public works."

Some of the issues that came to light from the presentation and the discussion that followed include:

Networks have to be formed between agencies before a disaster strikes.

Training needs to be available for everyone involved in emergencies. Most of the problems lie in small rural and remote communities where training opportunities are not readily available to those who need it. Another aspect of the training is that we must move away from a response-based focus on emergency management to one of resilience based.

The Québec public works association is trying to get the knowledge to rural communities and to do emergency management training specifically for public works, but not all Canadian provincial chapters of APWA are approaching this issue in a uniform manner. Some chapters have emergency management subcommittees, others don't.

Provincial engineering societies and associations would be good partners for public works departments.

Associations like the American Public Works Association where there is an Emergency Management Committee are a great resource, but the issues in Canada are different than those in the United States. APWA is in the process of developing a Canadian Emergency Management Subcommittee to address Canadian issues.

Also, different groups with different strengths need different training to build on those strengths. Public works professionals practice the four pillars of emergency management on a day-to-day basis but typically only has response-based training to draw on (ICS, etc.). What they don't have is training on setting up programs for resilience for their areas of responsibility.

Public works directors are concerned about emergency management and are trying figure out what their role is and how they can get more involved in their community's emergency management planning and preparedness.

BIOSKETCH

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*<http://ca.linkedin.com/in/valeriecere>.*

*Bruce Kerr has a Master of Arts in Disaster and Emergency Management and is now an emergency management consultant after working for 35 years in public works. He can be reached at [bruce.kerr@shaw.ca](mailto:bruce.kerr@shaw.ca).*

By: **Nicolas Meunier**, Field Coordination Support Section (FCSS - INSARAG Secretariat)

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Over the last 60 years, a number of changing factors have contributed to an increase in the complexity and degree of impacts with regard to responding to disasters in and around communities. These factors include: urbanization, population growth, environmental degradation and technological changes. One in three people worldwide are affected by disasters (see Figure 1).

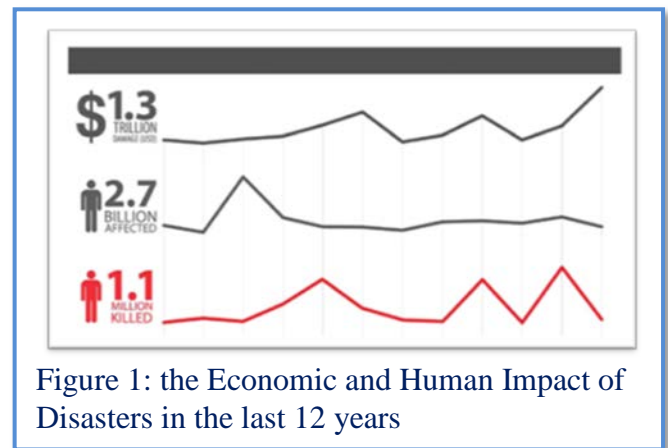


Figure 1: the Economic and Human Impact of Disasters in the last 12 years

Also more than 75% of the world's population now lives within major disaster risk areas, with floods, extreme weather, wild fires, oil spills and epidemic flu being only a few examples of the hazards to which people are exposed (Coppola 2007). People's safety, economies and lifestyles are more vulnerable now than ever before.

The economic losses for the last three years have exceeded \$100 billion annually due to an enormous increase in the exposure of industrial assets and private property to extreme disaster events. This is the first time in history the world has experienced such losses (UNISDR, 2013).



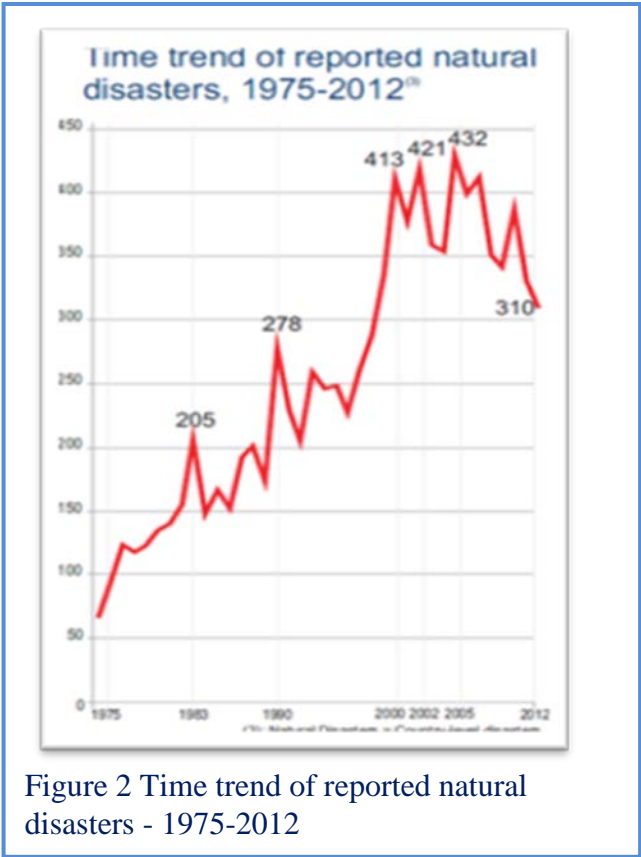


Figure 2 Time trend of reported natural disasters - 1975-2012

While the number of lives lost to natural disasters has declined over the last 30 years, thanks to better disaster preparedness and prevention programmes, the number of people affected by natural disasters through injury, homelessness or hunger increased significantly to average over 211 million people per year (Red Cross, 2006). The largest rises in impacts occurred in developing countries.

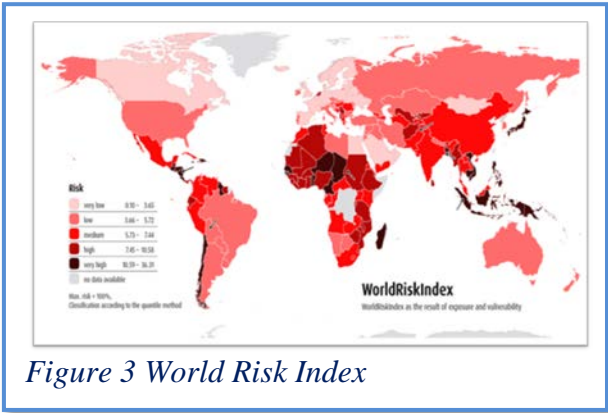


Figure 3 World Risk Index

In most countries, natural hazard policies traditionally focus on crisis management actions (i.e. emergency preparedness) that minimize the impacts during a disaster and provide immediate

relief and support to victims. Although disaster response is important, it can fail to address the causes of a disaster’s impacts. The World Bank has conservatively estimated that every dollar spent in disaster preparedness seven in response is saved (World Bank, 2004).

Due to this increase in the number of people living in high disaster risk areas, as well as the increased incidence and magnitude of disasters, there is a greater need to collaborate and coordinate more efficiently and more quickly the relief planning and aid between organizations so as to improve community resilience through better preparedness.

In 2012, 357 natural triggered disasters were registered. This was both less than the average annual disaster frequency observed from 2002 to 2011 (394), and represented a decrease in associated human impacts of disasters in 2012, which were at their lowest level compared to previous years – “However, natural disasters still killed a significant number, a total of 9,655 people were killed (annual average 2002-2011: 107,000) and 124.5 million people become victims worldwide (annual average 2002-2011: 268 million). (CRED, 2012).

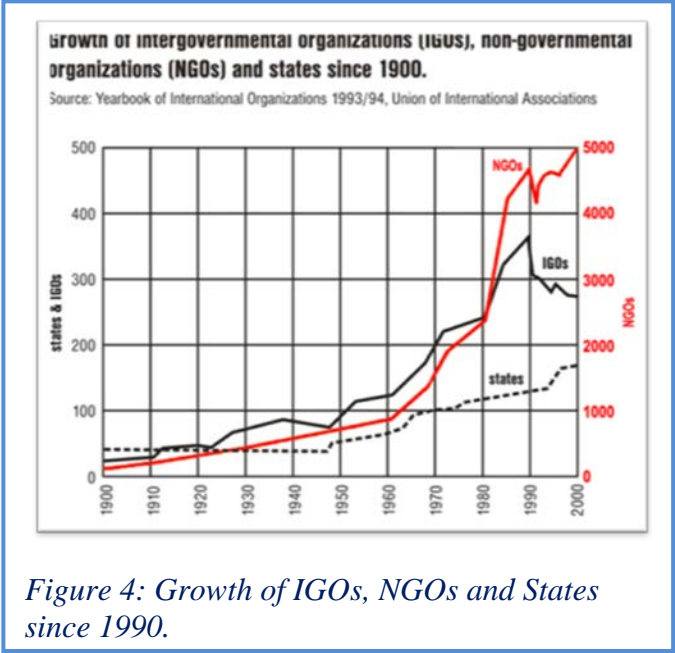


Figure 4: Growth of IGOs, NGOs and States since 1900.

It is clear that the frequency of disaster is not the issue for new disaster managers; it is how fast we recover and prepare for the next one. Disasters will keep occurring but the impacts generated by these events are the key considerations.

Mitigation plans for many communities and countries are based on the initiatives of a great number of caring people; people voluntarily creating organizations to support their communities. Before the International Committee of the Red Cross (ICRC), the role of humanitarian aid was done by churches or other religious organizations and, to some extent, by various branches of government. The United Nations (UN) itself was not formed until after the Second World War, in 1945. The main goal of the UN was to keep peace between nations and resolve conflicts. Over the past 65 years, it has expanded into 93 different committees, agencies, programs, and subsidiary bodies (CBC News, 2011).

As of December 2011, the USA alone has 440,040 registered non-profit organizations with NCCS Core Files and IRS Business Master Files, as well as 93,349 private organizations, and 635,924 public charities (Sina, 2010). Many of these organizations are involved in international humanitarian work and (some organizations are listed multiple times as they may be registered in various states).

But do you think that by increasing the number of organisations is the best way to save lives and increase recovery from disasters? Some may agree, but others would disagree – there is considerable cost to manage, train, create standards and coordinate all of these organizations. Perhaps these organizations are in fact the new impacts of disasters we need to be concerned about?

An effective preparedness and response system requires people skilled in disaster management to be in place at all levels of the system. These participants must have a clear understanding of their roles within that system. This capacity and

development should include community members and should create dialogue and learning between all actors who form part of the disaster management system (UNCHA 2008). Disaster and emergency managers use simulation and training to plan their development strategies and the implementation of them (Meunier, 2013). It is now appropriate to focus on expanding and improving these areas through similar standards and classifications to not only save lives, but to support communities and their capacity to get prepared and recover from disasters.

To conclude, without training standards and coordination of the various capacities that communities can access, communities will remain vulnerable to the impacts of any disaster. It is extremely difficult for any country, without strong standards and coordination capacities, to recover from a disaster without expending major financial and human resources. Here only as example, I could clearly look at Haiti; Haiti has been continually hit by disasters and its communities are now extremely vulnerable to any disaster because the country is still struggling with recovering, re-building, reinforcing disaster and emergency plans and training to standards.

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## The Canadian Safety and Security Program

*The Government of Canada provides science and technology support and services to help the Emergency Response Community make Canada a safer place in which to live*

**By: Katherine Cornick**

A flood devastates a Canadian community, wiping out streets and forcing its residents to evacuate; a suspect forcibly takes a hostage during a robbery; a building collapses, trapping a family in its wreckage. All these situations have one thing in common – the first person called to the scene is an emergency responder. When a helping hand is needed, Canadian emergency responders must have access to the best tools and technology to deal with these situations.

### A GROWING NEED FOR SCIENCE & TECHNOLOGY

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In a challenging national safety and security world, technological advancements are vital to the success of an emergency response. Time and time again, incidents have demonstrated the important role of science and technology (S&T) in planning and coordination. It is estimated that the 2010 earthquake that hit Haiti killed more than 200,000 people. During the crisis, Short Message Service (SMS) broadcasting and a crisis mapping platform were used to map help requests from survivors, from retrieving water to urgently needed medical attention. With so many response units and volunteers from all over the world helping with relief efforts, this information-sharing technology was fundamental to direct emergency services.

In our own nation, a Canadian summer's hot weather and dry forests are a dangerous combination for triggering a forest fire. As a result, computerized maps and monitoring stations have

been developed to gather and transmit information about forest conditions which has helped emergency responders predict, control, and respond to these fires as soon as possible.

Countless incidents like these remind us that no part of the world is immune to the impact of natural or accidental disasters. It also reminds us that access to, and effective use of, science and technology solutions can have a profound impacts on how we deal with these events.

### A PROGRAM BASED ON IMPACT

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To help protect Canadians and the responders who rush in when disaster strikes, the Government of Canada is supporting the development of S&T solutions to help anticipate and prevent incidents that threaten Canada's public safety and security, to prepare and respond to these incidents when they happen and, ultimately, to recover from their aftermath. The Canadian Safety and Security Program (CSSP), which is led by Defence Research and Development Canada's Centre for Security Science (DRDC CSS), in partnership with Public Safety Canada brings together emergency responders, planners, policy writers, and S&T specialists to address a full spectrum of hazards. Their collaboration can lead to the development of new knowledge and tools, and provide important advice that contributes to the overall resilience of Canadian communities.

The CSSP is also making significant investments to develop DRDC's testing and evaluation capabilities through the Emergency Responder Test and Evaluation Establishment in Regina. This facility is responsible for carrying out the majority of CSSP's testing and evaluation activities, looking at current every day technologies, including looking at associated standards, processes and methodologies that emergency responders use, as well as what could be implemented in the future.



## HELPING EMERGENCY RESPONDERS

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Unlike most professions, emergency responders cannot rely on 'on-the-job' training when it comes to some of the dangerous aspects of their work. Therefore, to develop more efficient and coordinated responses, it is crucial that they are provided with opportunities to participate in controlled real-world scenarios that would otherwise put them in harm's way. Exercises led or facilitated by DRDC CSS through the CSSP help responders familiarize themselves with procedures, roles and responsibilities, and allow them to analyze emergency plans and coordinate interoperability. Even more critical, they can practice specialized skills and even test procedures, tools, and communications in a simulated environment in real-time. How else would they get the chance to assess their capabilities for dealing with explosions, handling chemical and biological threats, or a radiological contamination in a risk-free environment?

For example, the CSSP recently partnered with responders to deliver a post-blast exercise. This created an opportunity for scientific, technical and operational analysis and discussion through a progressive series of demonstrated controlled explosions. Not only did this exercise help to validate the training standards for multiple first responder groups within Canada, it provided the community with important procedural information, and enhanced the capacity of first responders to work with other experts.

This initiative was also used to provide first responders and industrial players an orientation to forensic investigations of explosive devices, and the chance to gather for bomb blast data acquisition. The knowledge gained from the exercise provided valuable feedback which helped to identify training gaps, shortfalls and recommendations that can be used to update Emergency Operation Procedures and Emergency Plans.

## LOOKING INTO THE FUTURE

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Science and technology alone cannot guarantee safety and security, but without it, safety and security is impossible. The collaboration between

DRDC, its S&T partners from government, industry and academia, combined with the emergency practitioner communities, is essential to ensure a greater understanding of what responders are dealing with on the ground so that S&T developments are truly addressing their needs. Working together, they contribute to greater global and domestic public safety and security resiliency for Canadians and their institutions.

## BIOSKETCH

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*Katherine Cornick is a Communications student working at the Defence Research and Development Canada's Centre for Security Science. This summer, she will be graduating from the University of Ottawa with an Honours Bachelor of Arts Specialization in Communication. She will be returning to school in September 2014 at Carleton University where she will be starting her Masters of Journalism.*

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## Leading Environmental Business Summit Focuses on Resilient Cities

By: *Lilia Yumagulova, Doctoral Student, School of Community and Regional Planning, University of British Columbia*

The increasing number of extreme weather events and financial losses from natural hazards and the increasing interdependency of public and private sectors necessitate building stronger connections between the public sector, industry and businesses. Creating these connections needs to be one of the strategic goals for CRHNet moving forward.

Taking one small step in this direction, CRHNet interviewed John D. Wiebe, President & CEO of the Globe Group, spearheaded by the not-for-profit GLOBE Foundation, an organization that focuses on innovative technologies and an international champion of environmental business prior to Globe 2014. The interview focused on the expectations and highlights of the upcoming conference. The

conference took place in Vancouver from March 26-28, 2014.

Every two years, the Globe conference brings together environmental business leaders, corporate environmental managers, and sustainability practitioners to focus on corporate sustainability, business growth, energy and climate change solutions and urban development. Described as “North America’s largest international environmental business summit,” this year the GLOBE conference in Vancouver is based around the theme of “Resilient Cities.” This theme signals a strong interest and serious concern that business and industry have regarding extreme events and climate change in urban settings. This theme is driven by the fact that the magnitude and frequency of extreme weather events in North America has grown steadily over the last two decades, culminating in 2013 with a record of natural disaster insurable losses of \$3 billion in Canada alone, due largely to major floods in Alberta and Ontario.

CRHNet: Why the “Resilient Cities” theme this year?

JW: When you go through the planning process and engage in developing cities you want to ensure that you are not creating systems and procedures that result down the road that you become locked into taking a certain direction. Planning needs to take into account changing technology, it needs to take into account the future and so in that way you become more resilient.

CRHNet: How is resilience different from sustainability for you?

JW: It’s not a great deal different. Both words can be difficult to interpret but the concept of resiliency, for me, it changes over time, it has the ability to focus on the future and to take into account natural disasters, for example. I suppose if you were to think about sustainability it might be the same but I think it has a different connotation given that we

need to think about changes in weather, global warming, urbanisation is increasing, technology is changing... We need to ensure that we are resilient. Sustainability is a context for resilience.

CRHNet: Globe has been focusing on building strategic alliances with business and environmental sectors. Who else do you think should be at the table if we are getting serious about resilience?

JW: City administrators, architects, planners... We are focused on the technological side of it; we are not focused on the public engagement side, that’s a whole different story. We are technologically focused, so it is companies, government and management.

CRHNet: What do you hope will be some of the outcomes or solutions out of this conference?

JW: We provide a dialogue platform for exploration. We are an international non-for-profit and not an advocacy group, so what comes out is what people who come here want to come out.

CRHNet: What are some of the highlights that you are looking forward to?

JW: All the speakers that are coming here; and hearing about the international perspectives from around the world. I think this will be an interesting dialogue about what people have done and what they are looking to do.

CRHNet: Is there anything else that would like to highlight to our readers who primarily consist of disaster and emergency management specialists?


JW: I think that is the whole issue: how do you deal with resilience issues that are increasingly challenging your readers and others? How do you plan for and deal with emergency situations? What are the steps that one needs to take, not only as a company, but for governments and cities that’s going to help to avoid, or if not avoid then make it easier to deal with, floods in Calgary or rising sea

levels? We have John Englander coming who has written about sea level rise and how that is going to affect the cities. That's the kind of discussions that we want to have. What is the outcome of that? Do we build the dikes all around the city? Do we tear down the buildings around the sea shore? What do we actually do? So, that's the dialogue we are hoping to have.

Pricing risk is another focus of the conference this year: "How is the insurance industry in North America dealing with growing annual losses of such magnitude in order to continue protecting homeowners and businesses? What should industry, governments, and the public do to better prepare and reduce their vulnerabilities to extreme weather events?" According to an interview with Rob Wesseling, Executive Vice President, National P&C Product at The Co-operators, Canadians need to model and monetize the natural disaster risk that they are exposed to and base their development and adaptation decisions on this knowledge in order to develop appropriate solutions to transfer remaining risk. This requires a broad based and coordinated response from all three levels of government, builders, developers, lending institutions, insurers, reinsurers as well as home and business owners.

*The full interview with Rob Wesseling can be found at <http://2014.globeseries.com/home/conference/q/conversation-rob-wesseling-executive-vice-president/>.*

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**FEMA** | Emergency Management Institute

**FEMA EMI News**

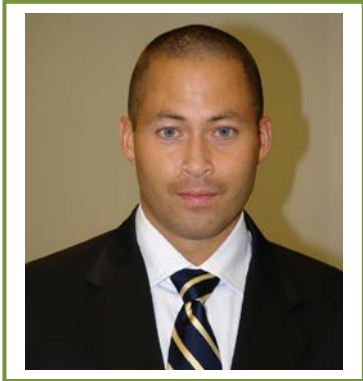
**Training Opportunity**

Course: V-0023 - Virtual Tabletop Exercise Series (VTTX) – Public Health - Pandemic Incident Focus

<http://content.govdelivery.com/accounts/USDHSFEMA/bulletins/aba580>

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## Security and Emergency Management Instruction in Qatar



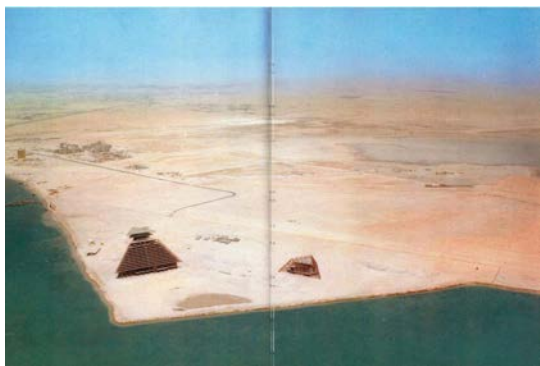
By: *Jeff Vasseur* is a student in the NAIT Emergency Management Diploma

My disaster experience began on September 2, 1998 when Swissair Flight 111 crashed off the southeast coast of Nova Scotia, killing all 229 persons on board. Within hours of the crash, I was deployed to the Canadian Coast Guard Ship MATTHEW to participate in the search, rescue and eventual recovery operations. I was also involved in response and support operations following the 1998 ice storm in the Quebec City area, Hurricane Juan in 2013 near Halifax, and several on- and off-shore military security responses for the United Nations (domestic and international), and the North Atlantic Treaty Organization.

I am a member of the CNA-Q's Crisis Management Team, which is responsible for developing and maintaining the campus emergency management plan for approximately 700 employees. I am also a member of the developmental team for the CNA-Q's first (and one of the Gulf region's first) academic offering in Emergency Management at the Certificate/Diploma level. As a Crisis Management Team member, I liaise with the Canadian Embassy and the Canadian Emergency Management Network, conduct tabletop exercises and promote emergency preparedness on campus. I am currently developing linkages with the International Association of Emergency Managers, the Emergency Planning College (UK), and the Business Continuity Institute.

Perhaps the first challenge in teaching security in the Middle East is the inevitable language barrier. In Qatar this is a consequence of rapidly expanding construction and development, and the increasing number of migrant workers. Construction and growth started with the discovery of oil in the 1940s and the more recent finding of massive natural gas reserves. Expansion of the capacity to export liquefied natural gas has propelled Qatar into being the wealthiest nation in the world per-capita.

There are some major differences teaching in Qatar as opposed to in Canada. The English language



*Doha (approximately 1975)*

Source: <http://dohanews.co/talk-about-rapid-development/#jp-carousel-15366>



*Doha (2013)*

Source: <http://smokingdesigners.com/wp-content/uploads/2011/06/qatar.jpg>

abilities of the students present obvious challenges in communication and lesson comprehension. Sensitivities predominant in the Arab world such as male and female gender segregation are much more

pronounced in the Middle East and although we are a Canadian college, males and females are often separated by institutional policy; for example “male only cafeterias” and classroom seating based on gender. Respect for religious observations include allowances for daily prayers in designated rooms on campus, spaces for ablution (cleansing) before and after prayer, and the use of modest attire at all times. The students on campus are a mix of local Qatari and other Arab nationals from the Gulf States – Bahrain, Kuwait, Oman, Saudi Arabia and the United Arab Emirates, neighbouring Arab nations such as Egypt, Syria and Jordan, African nations (Sudan, Somalia, Kenya) as well as expatriates from European, North American, and Asian nations. An interesting difference with Canadian students, is that here at CNA-Q, the students are almost all sponsored employees of companies operating in Doha.

Professional development and continuing education for working professionals can be a challenge. Research lead me to the NAIT Emergency Management Diploma Program and it quickly emerged as the ideal scholastic pursuit because of the immediate relevance of the curriculum, applicability to my current responsibilities, and the flexible mode (online) of delivery. Every course is directly related to my teaching or Crisis Management Team duties, and also offers a very valuable opportunity to connect with other practitioners across Canada and overseas.

## **BIOSKETCH**

Jeff Vasseur is a student in the NAIT Emergency Management Diploma. He started the program in Spring 2013 and is currently on the Dean’s Roll of Honour. Jeff is also an instructor at the College of the North Atlantic – Qatar (CAN-Q), a Canadian-based technical college in Doha, State of Qatar, where he teaches security and emergency management for front-line security personnel in the oil and gas sector.



# USEFUL Links

## Linked In Professional Groups of Interest



**BCMIX - Business Continuity Management Information eXchange**



**Emergency Management Professionals**



**Council on Emergency Management**



**EOC: Emergency Operations Centre Group**



**Canadian Risk and Hazards Network**



**Emergency Management and Homeland Security Professionals**



**Crisis, Emergency & Disaster Recovery Professionals**



**Global Police Trainers**



**Disaster and Emergency Management**



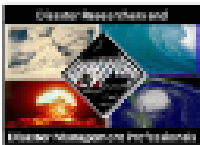
**Greater Vancouver Security Partners' Forum**



**Disaster Mental Health Provider Network**



**The ICOR - The International Consortium for Organizational Resilience**



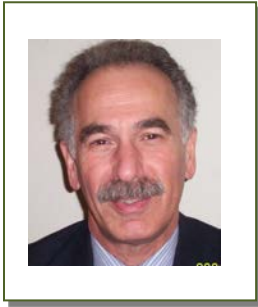
**Disaster Researchers and Disaster Management Professionals**



**Professionals in Emergency Management**

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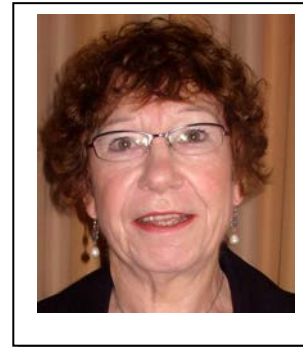
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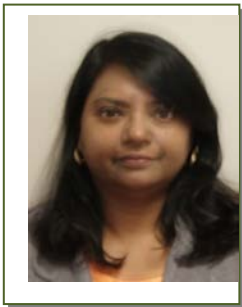
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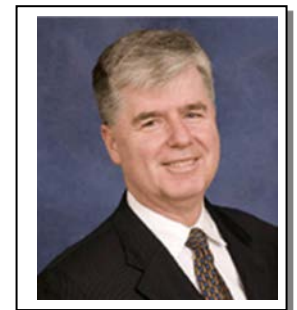
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## Become a CRHNet Member

### What is “CRHNet?”

Founding members of CRHNet had a vision to develop a Canadian inter-disciplinary and cross sectoral **network** of researchers, academics, practitioners and business and local community members to enhance an understanding of risk, hazards and emergency management. The mission of CRHNet is to create **a safer and more resilient nation** by identifying risk and hazards and to improve emergency and disaster management.

The Network creates an environment in which the hazards research, education and emergency management practitioner and business community can effectively **share knowledge and innovative approaches** that reduce disaster vulnerability. CRHNet can help to:

- (1) fill the information and research gaps that exist in Canada;
- (2) inform practitioners; and
- (3) reinforce the lessons of the past.

### How do I benefit from becoming a Member in CRHNet?

- Discounted registration fee for the annual **CRHNet Symposium** and access to presentations
- Regular newsletter with current disaster research topics
- Access to disaster case studies and reports
- Access to CRHNet members to exchange hazards knowledge

### How can I join and support CRHNET?

It's easy! Just access the CRHNet website [www.crhnet.ca](http://www.crhnet.ca) and you will find the membership information to complete on line.

**Join, and help us make a safer Canada as well as a safer world.**

[www.crhnet.ca](http://www.crhnet.ca)