How Communities Can Use Risk Assessment Results: Making Ends Meet: A Summary of the June3, 2010 Workshop of the Disasters Roundtable

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A Summary of the June 3, 2010 Workshop of the Disasters Roundtable

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FOREWORD

The Disasters Roundtable (DR) facilitates the exchange of ideas among scientists, practitioners, and policymakers to identify urgent and important issues related to the understanding and mitigation of natural, public health, technological, and other disasters. The Disasters Roundtable (DR) is a unit of the Division on Earth and Life Studies in the National Academies National Research Council. For upcoming meetings, please visit http://www.nationalacademies.org/disasters.

The DR steering committee is composed of appointed members, sponsoring ex-officio members, and liaisons. The appointed members at the time this workshop was held were John R. Harrald, chair, George Washington University, Virginia Tech; Arrietta Chakos, Urban Resilience Policy; Reginald DesRoches, Georgia Institute of Technology; Ronald T. Eguchi, ImageCat, Inc; Gerald E. Galloway, Jr., University of Maryland, College Park; Gerard Hoetmer, Public Entity Risk Institute; Juan M. Ortiz, City of Fort Worth, TX Office of Emergency Management; Monica Schoch-Spana, University of Pittsburgh Medical Center; Darlene Sparks Washington, Independent Consultant; Deborah S. K. Thomas, University of Colorado, Denver; and Mary Lou Zoback, Risk Management Solutions, Inc.. The ex-officio members were Frank Best, PB Americas, Inc.; Andrew J. Bruzewicz, U.S. Army Corps of Engineers; Lloyd S. Cluff, Pacific Gas & Electric; H. Michael Goodman, National Aeronautics and Space Administration; Paula Gori, U.S. Geological Survey; Mary Ellen Hynes, Department of Homeland Security; David J. Kaufman, Federal Emergency Management Agency; Roger V. Pierce, National Oceanic and Atmospheric Administration; Theodore C. Van Kirk, Dewberry; and Dennis E. Wenger, National Science Foundation. The DR staff included Lauren Alexander Augustine, Director; John Brown, Jr., Program Associate; and Sheena Siddiqui, Research Associate. The liaison members were Claire Lee Reiss, Public Entity Risk Institute; Ellis M. Stanley, Dewberry.

This document does not necessarily reflect the views of the Roundtable members or other participants. For more information on the Roundtable visit our website: http://dels.nas.edu/dr or contact us at the address below.

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This workshop summary has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published summary as sound as possible and to ensure that the summary meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this summary:

Arrietta Chakos, Urban Resilience Policy
Monica Schoch-Spana, University of Pittsburgh Medical Center
Ellis Stanley, Dewberry
Mary Lou Zoback, Risk Management Solutions

Although the reviewers listed above provided many constructive comments and suggestions, they did not see the final draft of the summary before its release. Responsibility for the final content of the summary rests entirely with the authors and the institution.

'Making Ends Meet'

Today, text messages, tweets, smartphone apps, and social networks, not to mention 24-hour cable news cycles and countless other media platforms, deliver information to people in the critical times during and after a disaster. These and other technological innovations in risk identification and risk assessment advance the rate, quantity, and the quality of information that is transmitted and received during times of disasters.

"How Communities Can Use Risk Assessment Results: Making Ends Meet" was one of seventeen sessions held during the World Bank's Understanding Risk: Innovation in Disaster Risk Assessment Conference. The conference was held at the World Bank headquarters in Washington, DC. The conference addressed important questions such as: What is risk? Can we measure it? If we can understand it, can we manage it better? Francis Ghesquire, Regional Coordinator for Disaster Risk Management for Latin America & Caribbean Region, World Bank said, "The concept of this meeting stems from the idea that bringing people from different backgrounds, but concerned with the same problem, is the best way to spur innovation".

The "How Communities Can Use Risk Assessment Results: Making Ends Meet" session, hosted by the Disasters Roundtable (DR) of the National Research Council of the U.S. National Academies, posed the question "How can 21st century technological innovations be used in the pre-disaster, during disaster, and post-disaster phase?" The session was an interactive discussion with panelists and about 50 participants who probed ways to satisfy the need to have information transmitted, received, and understood in ways that reduce risk to people and communities. Participants came from the United States, South America, Asia, Europe, Africa, Central America, Caribbean, Australia, and New Zealand. Those in attendance included, disaster and risk managers, practitioners, educators, government employees, and nonprofit and private sectors workers.

The 90-minute session was divided into four segments: (1) brief opening statements from each of the invited panelists; (2) three 20-minute panel discussions on pre-, during-, and post-event disaster phases, respectively; (3) ample time for questions, answers, and discussion among panelists and participants; and (4) creating an agenda for actions that can advance people, organizations, and communities to reduce their risk and be more resilient in all phases of disasters.

The session included four panelists, Ana Lucia Hill, Disasters Manager, Mexico City, Mexico; Frantz Verella, former Minister of Public Works, Port-au-Prince, Haiti; David Ropeik, American journalist and consultant specializing in risk communication and author of "How Risky Is It, Really?"; and Timothy Tinker, strategic and technical communicator, Booz Allen Hamilton, Washington, DC, U.S. The panelists brought forth a range of expertise that included perspectives from the media, private sector, federal government officials in disaster management, and public health. Panelists and participants engaged in a conversation structured around four overarching questions in the three phases of disasters, pre, during, and post. The questions were posed and discussed in three 20-minute panel segments. The questions were:

- how do people behave when they receive risk information?
- what is the role of social networking in communicating disaster risk information?
- how do technological innovations in natural hazard risk assessment help reduce human suffering? and
- how can technological innovations help communities use risk information and become more resilient?

Ana Lucia Hill spoke of the importance of education in the pre-disaster phase. She advocated educating people and providing them with tools to enable them to make "wise decisions". In the pre-disaster phase, it is also important to put into place early warning systems. One of the early warning systems that Mexico employs is a message (SMS) to phones with a distinct tone announcing the arrival of the message. The alert tone notifies the public that the message is important, comes from an authoritative source, and that it should be read immediately. During a disaster, Ms. Hill said it's important to make sure that there is a plan in place so disasters are handled appropriately, and emergency situations are eliminated, even if 21st century technology is not working. Ms. Hill said that tools like Twitter (including twitpics) can be useful, but she issued a caution, as well: the quantity of information transmitted via social networking sites may not be of high quality or reliability or include enough information to be actionable. After disasters, it is important to utilize the technology that is available to the community, such as cell phones and televisions, to gather information, dispense simple instructions on how individuals can help themselves, or how to call for help.

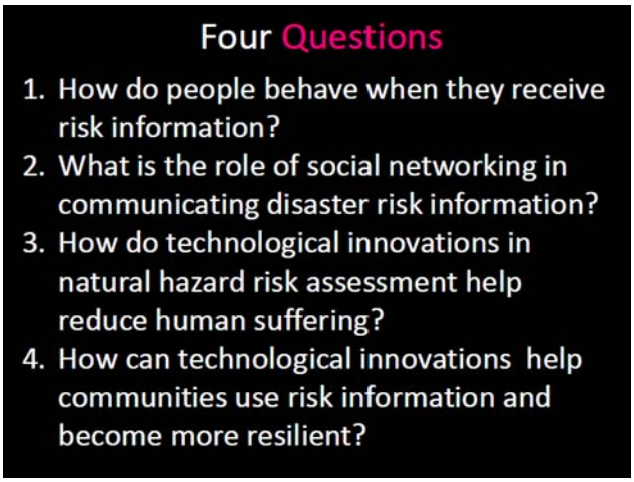
Ms. Hill ended with an illustration of how the act of communicating information – even if it's done effectively – is not the same as understanding how that information is received, nor is it the same as understanding what people will do with the information upon receipt. A story that Ms. Hill shared was about recent flooding in southern Mexico that forced people to evacuate their homes. The evacuation instructions were specific in instructing evacuees to "take only necessary items." One of the evacuees brought her washing machine to the shelter. When questioned about this as a "necessary item," she replied that she washes clothes for a living, and that she would need her washing machine for work, no matter where she is. While this response (and others) to the instructions was not an expected outcome (many of the men brought their large-screen televisions), Ms. Hill noted that this woman knew what defined her in society, and was clear on what she wanted to protect as it would enable her to recover from the disaster. Ms. Hill also noted that most of the poor and vulnerable, while they have more important priorities than worrying about risk management on a daily basis, do have cell phones and are very good at listening when faced with imminent risk, and will likely do exactly what is asked of them.

Frantz Verella spoke of rebuilding a more resilient Haiti and shared many stories with audience members. During the pre-disaster phase, Mr. Verella said that it is important for people to believe a disaster is imminent, "if you believe, you will do what is needed [to protect yourself before a disaster occurs]". He spoke of the failures of common control systems like telephones during disasters, when roads are blocked, communication systems are down, and power is out. Mr. Verella told how during the recent earthquake in

Haiti the Haitian Prime Minister could not contact the President using the available technology, so Mr. Verella had to drive by motorcycle to the President's house. Upon reaching the President, Mr. Verella found that the President had unsuccessfully been trying to contact the Prime Minister's head-quarters, therefore the President asked Mr. Verella to take his motorcycle to the Minister's headquarters to see what the situation was. Once Mr. Verella reached the headquarters, he found that the building had collapsed, destroying all of the Minister's control and communication systems. From this story and others, Mr. Verella shared four key points:

- It is essential that systems for reducing disasters are organized on density connected networks instead of a hierarchal tree because if one link fails in a hierarchal tree, the whole system fails. A density connected network is two-way communication – not just output – that facilitates an on-going conversation.
- It is important that communications and their infrastructures are redundant.
- It is essential to include people who are normally not included in communications – youth group leaders, religious leaders, women in markets – in disaster communication and protocols.
- There is a need for emergency locations for disaster victims to go to, outside of disaster threatened areas with power sources and communication.

Author and risk communication consultant David Ropeik spoke about how the brain works in the different phases of disasters. Mr. Ropeik said it was important in a pre-disaster period for authorities to speak about emotions that may arise when a disaster strikes, so people can expect certain feelings and be better prepared to respond in emergency or life-threatening situations. The transmission of stress-related neuro-chemicals in the brain can supersede logic and reason, so a reliance on technology or a device, such as an application on a phone to dial emergency numbers will work best when the technology is familiar or has been used or practiced before the risky situation occurs. Also, in communicating risk, it is okay for people to be a little afraid; emotional language is much more likely to animate the activities one would like people to do. One should aim to replace fear with vigilance.



Timothy Tinker, a strategic and technical communicator, said everyone in an enterprise needs to be ready for a disaster, understand the role each person will play in order to build resilience. He emphasized the need for individuals to be vigilant by being in a "skilled state of mind." He said that people can act accordingly if they are able to

decipher if the threat is real or perceived. Mr. Tinker showed excerpts from videos and asked audience members what they would do in different situations. One of the new ways to share disaster information is through the "citizen reporter". Any individual at the scene conducts a scene analysis, may interview people, gather information and photos, and write a piece on what he or she saw, or share a clip of the disaster scene. Mr. Tinker believes that there is an opportunity to adapt to these new and innovative ways to communicate and use new technologies.

After the panelists made their statements and presentations, participants and panelists were asked to write down important action items that, based on their experiences, would reduce risk to people and communities in the different phases of disaster preparedness, response, and recovery. The ideas that participants contributed are summarized below.

Pre-Disaster Phase: Participants discussed that emergency managers, citizens, and governmental officials could help build resilience in the following ways:

- Build collaborative relationships at the community level.
- Initiate an emergency warning text message system with a unique alert tone similar to the system that Mexico uses.
- Those with smart cell phones could download applications like "I'm OK", and if new cell phones come equipped with such an application, it would allow the caller to send an SMS "I'm OK" text message, with the push of a single button, in a disaster situation, to a preprogrammed list of friends and family.
- Identify community leaders and engage their participation in decision-making processes by preparing communities to be able to identify hazards and develop and practice emergency plans.
- To lead to better community preparedness engage community members to be empowered through building trust and control at the individual level.
- Support the development of resilient social networks that are the foundations for response efforts.
- When communicating about hazards and risks, inform people about what actions to take, but also tell people how they may feel as a result of a disaster or emergency. More strongly connecting the emotional expectations of an emergency to the actions that people can take increases the control each person has in risky situations.

During a Disaster: Participants discussed the key actions below to build resilience of people and communities:

- Assure that disaster communication includes pre-determined lists of action items for citizens, in order for people to have real, achievable tasks so they feel that they have some control.
- Develop innovative disaster information systems for emergency managers that can automatically receive information about the disaster. These systems could be equipped to receive that information via mobile devices with social networks and other applications enabled (e.g., picture mail/text messaging).
- Emergency managers and civic leaders could coordinate and communicate with citizens.

- Bottom-up communication, not just top-down communication systems
- Wide-spread use of cell-phone applications like “I’m OK.”
- Expand emergency responders’ disaster information systems so they are capable of receiving and integrating “bottom-up” disaster information from citizens. For example, through text messages, shared videos, and pictures.

Post-Disaster: Participants discussed the key actions below to build resilience of people and communities:

- Use the disaster to design and secure strategic investment in long-term infrastructure construction.
- Evaluate lessons from the recent disaster response, and extract from those lessons of what worked well and what needs improvement to develop more robust or alternative plans.
- Design and engage systems for advance disaster recovery and rebalance.
- Secure regional investment in risk reduction to help protect against future disasters.

The Disasters Roundtable of the National Academies facilitates the exchange of ideas among scientists, practitioners, and policymakers to identify urgent and important issues related to the understanding and mitigation of natural, public health, technological, and other disasters. The Roundtable holds workshops in 6 areas, climate and natural hazards; geological hazards; public health and biohazards; planning and preparedness; resilience and recovery; and social aspects of disasters management. The DR is a unit of the Division on Earth and Life Studies in the National Academies National Research Council.

Presentations

How Communities Can Use Risk Assessment Results, Lauren Augustine.pdf,

Risk Enterprise, Tim Tinker.pdf

Natural Disaster in Haiti's Recent Past, Frantz Verella.pdf

Video of entire workshop in four parts

Making Ends Meet (1 of 4)

Making Ends Meet (2 of 4)

Making Ends Meet (3 of 4)

Making Ends Meet (4 of 4)

Alternatively, presentations and/or videos of the entire workshop can be viewed at: http://community.understandrisk.org/page/making-ends-meet-how.