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Disasters and Social Memory

The 1783 Laki Eruption in Iceland
By Alexandra Witze

The 1953 North Sea Flood in the Netherlands
By Inge Duine

North Korean Famine of the 1990s
By Sandra Fahy

The mission of the Natural Hazards Center is to advance and communicate knowledge on hazards mitigation and disaster preparedness, response, and recovery. Using an all-hazards and interdisciplinary framework, the Center fosters information sharing and integration of activities among researchers, practitioners, and policy makers from around the world; supports and conducts research; and provides educational opportunities for the next generation of hazards scholars and professionals. The Natural Hazards Center is funded through a National Science Foundation grant and supplemented by contributions from a consortium of federal agencies and nonprofit organizations dedicated to reducing vulnerability to disasters.

Observer cartoons are drawn by Rob Pudim.

On the Cover

Mrs. Zoeteman with her son Lek, evacuated after the North Sea Flood, Zeeland 1953.

Photographer: Ed van Wijk, *Het Geheugen van Nederland*

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WELCOME to the September 2015 issue of the *Natural Hazards Observer*, dedicated to social memory and disasters.

Perhaps more than before, societies remember disasters. In the past nine months alone, we have commemorated the tenth anniversary of the Indian Ocean Tsunami, the fifth anniversary of the Haiti Earthquake, the fifth anniversary of the Deepwater Horizon Oil Spill, and the tenth anniversary of Hurricane Katrina. During and after these contemporary disasters, emergency managers, decision makers, and those affected have shared their experiences. Through personal interactions and in the media, they testified—and continue to do so at yearly commemorations—about how the disasters affected them physically, mentally, and emotionally.

Why do we remember and commemorate? And why is it important to have a well-rounded narrative of a disaster that includes both the emotional and physical impacts?

Remembering—and scrutinizing—disasters helps to increase risk awareness and builds resilience to future events. In addition, remembering a disaster and sharing memories is a cathartic experience for survivors. Through memory, disasters become a shared (although not necessarily agreed on) past and can form a group identity. Memories can be expressed through different forms. Storytelling, myth, and dialogue are examples of narrative practices that are crucial for remembering. More formally organized disaster commemorations are coordinated in a number of ways—by museums, archives, memorials, and anniversary events. All are key in creating a shared identity.

But what happens if survivors are not allowed to remember a disaster? Or when they are only allowed to remember certain aspects? These questions are raised in articles by authors Inge Duine and Sandra Fahy.

Duine examines the changing narrative of the Netherland's North Sea Flood of 1953. Survivors of the tragedy, which killed 1,836 people, were not motivated to discuss the disaster's emotional impact. Instead, social and political expectations forced them to focus on the future—on rebuilding and improving what had been lost, rather than mourning it. The public memory of the flood in its immediate aftermath focused on an idealistic picture of unity, heroism, and determination, rather than on the very real chaos, sorrow, and desperation survivors endured. This was reflected in upbeat news reports that highlighted efforts to help the disaster-stricken region, rather than investigating causes of the disaster or exploring survivor experiences. The Dutch quietly recovered in a practical sense. In the five decades that followed the flood, they successfully rebuilt and improved their sea defense system. Emotional recovery, however, didn't begin until the 1990s when researchers—who collected oral histories—were able to disperse the rosy World War II-era depiction of the flood and reconstruct its collective memory.

While the Dutch eventually pieced together a more realistic picture of the North Sea Flood, North Koreans—in the aftermath of the famine of the 1990s—weren't as fortunate. In fact, they could not piece together any picture at all because people were not allowed to identify the famine for what it was, nor was there any information available about the nature of this disaster that ravaged the country and killed around a million people. As Fahy discovered while interviewing North Korean defectors in Seoul and Tokyo, even the language used to identify the tragedy was subject to restriction. Words such as famine, food shortages, or hunger were forbidden by the state. People who starved to death were said to have died of "pain," instead. North Koreans who disobeyed these language restrictions were marked as counterrevolutionaries who undermined the socialist state and could be arrested. As a result, people suffered in silence, unable to share their traumatic experiences and create social memory. Nor were they able to congregate and hypothesize about the causes of the famine or possible solutions. The lack of effective practical and emotional coping strategies prolonged the impacts of the situation for many people.

In the Netherlands and North Korea, the contrast between actual disaster and social experience resulted in a delayed or ignored understanding of events. But that's not always the case. You'll also find articles in this issue by Hanna Ruszczyck and Alexandra Witze that show something of the opposite—understanding that grows over time and that runs deeper than it appears. In Witze's article, she analyzes societal lessons learned from volcanic eruptions in Iceland since the 18th century. She argues that each eruption since the devastating Laki eruption in 1783 has added another piece of scientific and societal understanding to the puzzle. Ruszcyck discusses the Gorkha earthquake in Nepal and its impact in the city of Bharatpur. Based on her observations during and after the earthquake, Ruszczyk found that Nepalese people collectively demonstrated tremendous solidarity and support for each other and that individuals proved themselves to be much more resilient and effective in mitigating disaster than suggested in international news reports.

This issue's articles show the importance of social constructions of disaster—whether they are the forced constructs seen in the Netherlands and North Korea or the more successful and informative interpretations that evolved in Iceland or Nepal. Either way, the way humans view and understand disasters are as important as the physical events themselves.

I hope you'll enjoy your *Observer*.

Elke Weesjes

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Pic. 1.

Pic. 2.

Pic. 3.

Pic. 4.

Pic. 5.

Pic. 6.

Pic. 7.

Pic. 8.

Pic. 9.

FROM SILENCE TO RECOGNITION

The Changing Narrative of the 1953 North Sea Flood in the Netherlands

By Inge Duine

Translated and adapted by Elke Weesjes

MANY AMERICANS ARE familiar with the story of the little Dutch boy who, while on his way to school, noticed the sea trickling in through a small hole in a dike. The boy famously averted disaster by plugging the hole with his finger. He stayed there all day and all night until the adults of the village found him and repaired the hole.

In the United States, this heroic tale—popularized by author Mary Mapes Dodge in her children's novel *Hans Brinker, or the Silver Skates* (1865)—became symbolic for the Dutch fight against the water.

The real life equivalent of the tale (which ironically isn't very popular in the Netherlands) took place during the 1953 North Sea Flood. The hero of this story is Dutch skipper Arie Evegroen who, rather than a finger, used his grain barge to plug a large hole in the dike along the river IJssel. With this courageous act, he reportedly saved the town of Nieuwerkerk from flooding.

Other towns weren't as lucky. The damage and destruction caused by the North Sea Flood—in the Netherlands known as the *watersnoodramp* (flood disaster)—were enormous. A combination of a high spring tide and a severe windstorm over the North Sea caused an area of almost 500,000 acres to flood—1836 people died and 72,000 lost their homes. It was ten months before the last of the dike breaches was repaired and people felt protected from the sea again.

It might be expected that such a horrific and traumatizing

VICTIMS WHO LIVED IN THE HARDEST-HIT REGION OF ZEELAND—A DEEPLY RELIGIOUS PROVINCE—SAW THE FLOOD AS GOD'S PUNISHMENT FOR THEIR SINS AND SUFFERED IN SILENCE.

event would inspire Dutch writers, poets, and filmmakers, but that wasn't the case. Although some literature was published in the aftermath of the disaster—often featuring heroic stories in the vein of Arie Evergroen's—it was meager compared to works dedicated to World War II and the German occupation of the Netherlands. Rather than creating a common knowledge of the disaster, the stories of the watersnoodramp faded into silence for years.

There were several reasons for this. Victims who lived in the hardest-hit region of Zeeland—a deeply religious province—saw the flood as God's punishment for their sins and suffered in silence. Others saw the disaster as an unforeseen natural tragedy. In short, no one questioned whether anything but God or nature was responsible for the flood. Nor were survivors motivated—or willing—to give their account of the events. Consequently, non-fiction published after the disaster was rather one-sided, lacked human dimension, and was written "from above"—from the perspective of the powerful, the authorities, the heroes, and the saviors.

Decades later, though, people began to realize that the catastrophic conditions weren't caused only by strong winds, storm surge, and heavy rainfall, but also by human

The 1953 North Sea Flood in the Netherlands

Impact and Aftermath

By Elke Weesjes

During the weekend of Saturday, January 31, 1953, hurricane force winds over the North Sea generated a tremendous storm surge that flooded the low-lying coastal regions of the Netherlands, Belgium, and the United Kingdom. The peak high waters hit the coast in the early morning hours, surprising many people in their sleep. In the Netherlands, a country where 75 percent of the land lies either below or less than 3 percent above sea level, nearly 2000 people lost their lives. In the United Kingdom and Belgium, casualties were 307 and 22, respectively (Gerritsen, 2005).

Along the southern coast of the Netherlands, three sediment-laden rivers, the Rijn, Maas, and Schelde created a massive system of islands and waterways in the gaps between coastal dunes. Over time, many of these small, vulnerable islands merged into larger ones that were protected by dikes that were—and still are—managed by local water boards.

The first water boards, set up to maintain the integrity of water defenses around local polders[1], were founded as early as the 13th century and are among the oldest forms of local government in the Netherlands. Under French rule, the *Rijkswaterstaat* (Directorate General for Public Works and Water Management) was mandated in 1798 to centralize water control. Local water boards, however, refused to give up their autonomy and the Rijkswaterstaat ended up working alongside the water boards. Gradually the boards began to merge and their numbers declined. At the time of the North Sea Flood there were around 2,700 boards in the Netherlands, 200 of which were in the disaster-stricken region[2] (Raadschelders and Toonen, 1993).

Studies conducted in 1937 by the Rijkswaterstaat indicated that sea defenses in the southwest river delta were inadequate to withstand a major storm surge. The study proposed to dam all the river mouths and sea inlets to shorten the coast and become less reliant on sea dikes. However, because of the scale of the project and the interruption of the World War II, construction was delayed. By 1953, only two river mouths had been closed and the region still fully relied on dikes for protection (Deltawerken, 2004).

1 A polder is a piece of low-lying land reclaimed from the sea or a river and protected by dikes.

2 Today there are 25 water boards in the Netherlands. They act independently from national government to manage the continuing struggle against water.

Boat With First Responders, Zeeland, 1953 © Ed van Wijk

error and technical failures. Encouraged by a new school of researchers, survivors finally began to share their personal experiences. This dynamic would completely alter the existing collective memory of the watersnoodramp.

RECONSTRUCTIONS OF THE DISASTER

Recently, we have seen a renewed cultural interest for the flood of 1953. Two novels were published, *De verdronkene* (*The Drowned*) by Margriet de Moor in 2005, and *1953* by Rik Launspach in 2009. The first Dutch movie about the flood, titled *De storm* (*The Storm*), was also released in 2009. It attracted half a million viewers, which is quite impressive in a country with a population of just under 17 million. The cultural memory of the watersnoodramp was advanced even further when a musical, simply called *1953, de musical* went into production in 2011.

Two groundbreaking studies paved the way for this flurry of cultural expressions: *De ramp, een reconstructie* (*The Disaster, a Reconstruction*) by Kees Slager in 1992, and *Het water en de herinnering* (*The Water and the Memory*) by Selma Leydesdorff in 1993. Slager, a journalist known for his historical radio documentaries, set out to debunk the official historiography of the *watersnoodramp*. His book is based on interviews with more than 200 "ordinary" eyewitnesses and thorough archival research. Slager, unlike his predecessors, didn't avoid important questions pertaining to responsibility and accountability. In the book's conclusion, he clearly points a finger at the dike boards and councils (see textbox) that neglected the dikes' maintenance (resulting in many weak spots and overall dike erosion), as well as the nation's ineffective warning system and lack of national disaster plans. Based on meticulous research, a picture emerges of confusion, disorder, and sometimes even complete chaos. The exceptions, as described by Slager, include situations where a person assumed the role of leader and organized the disaster response. Slager successfully weaves eyewitness accounts and other materials into a seamless and balanced narrative of the watersnoodramp. As such he did exactly what

At the time of the flood, many of these dikes were in bad shape. They were not high enough and were eroding. Further erosion was caused by a military defense system, which built bunkers into the dikes. In addition, machine-gun units and manholes were dug, and piping was laid through the dikes. When the 1953 flood hit, these weak spots, which hadn't been filled properly[3], were the locations where the dikes first gave way. In all, there were some 150 breaches in sea dikes, the country's primary sea defense, which resulted in the inundation of 350,000 acres. As a result, 1836 people died, tens of thousands of livestock perished, and some 100,000 people were evacuated. The damage to buildings, dykes, and other infrastructure was enormous.

Flooded regions Southwest Netherlands, 1953

Thirty years before the flood, the *Stormvloedwaarschuwingsdienst* (SVSD), a storm tide warning service was created. The SVSD, which collaborates with the *Koninklijk Nederlands Meterologisch Instituut* or KNMI (Royal Dutch Meteorological Institute) and the Rijkswaterstaat, is activated when the weather forecasts point to expected high water-levels. After the KNMI noted the development of stormy weather on Friday January 30, 1953 it alerted the SVSD, which sent the first warning telegrams on Saturday at 11 a.m. and, as well as broadcasting radio weather. Unfortunately, telegrams were only sent to authorities who had subscribed to the service. There were a mere 30 subscriptions at the time, and only one of the 200 water boards in the hardest hit region received a telegram. The radio broadcasts weren't very effective either since the disaster happened at night, hours after radio programming went off-air. The majority of people didn't have phones and once ferries had stopped for the day, the islands in the Southwest were completely isolated from the outside world. When the storm hit the country in the

3 The country's infrastructure was devastated during the war and the dikes were part of a long list of repairs.

Military Personnel, Zierikzee, 1953 © Ed van der Elsken

the title of his book promises; he has completely reconstructed the disaster.

Leydesdorff— a professor of oral history and culture at the University of Amsterdam—also collected more than 200 oral testimonies for her book. Her intentions, however, were quite different from Slager's. *Het water en de herinnering* focuses on the process of recollection and collective memory of the flood, and examines how this collective memory became part of the Dutch national identity. Within this context, Leydesdorff discusses survivor accounts that weren't included in the official historiography. Rather than one coherent narrative, she has created a collage of different—and sometimes conflicting—experiences. Both authors, albeit through different approaches, were able to unearth previously untold stories.

THE WATERSNOODRAMP IN THE MEDIA

News reports of the disaster—much like the literature that was published in its aftermath—were pragmatic. Rather than investigating causes of the disaster or exploring survivor experiences, news articles and television reports were upbeat, focused on disaster response, and highlighted efforts to help the disaster-stricken region.

This type of one-sided, non-critical news coverage was typical for the 1950s, a period characterized by the politico-denominational segregation of Dutch society, called *verzuiling* (pillarization). The country was vertically divided into several segments or pillars [*zuilen*] according to differing religious denominations and ideologies. Catholics, Protestants, social democrats, and liberals lived completely separate lives in closed-off communities. They had their own political parties, schools, hospitals, sport clubs, and media. People only bought their own pillar's newspaper and as a result, journalists didn't have to be particularly critical. Newspapers didn't have to sell their stories, because there was little competition between papers (Wijfjes 2004).

Furthermore, WWII had just come to an end and, even though society was divided, people were instructed by early hours of the morning, most people were sound asleep (Gerritsen, 2005).

No formal disaster plans were in place and the situation soon devolved into disorder, panic, confusion, and chaos. There were, however, examples of people taking charge, mending dikes, and bringing others to safety. The following day, on February 1, the rest of the country learned of the event. After assessing the situation, national authorities began sending manpower and supplies to the disaster-stricken region. Unfortunately, the already vulnerable infrastructure was devastated and it was difficult to reach those in need. Even so, the Dutch army assisted with the evacuation of over 100,000 people and thousands of cattle. French and American military were also able to transport people and food by helicopter to and from remote areas. Thousands of others immediately began work to reconstruct and repair the dikes. Closing the dike breaches was a pressing concern since the twice-daily tides threatened to widen the breaches. The repair work was extremely complex and the authorities—aware of the many conflicting local-level decisions to be made—realized that safety could only be reestablished using a central approach. The government decided that it would fund the cost of reconstruction and that the Rijkswaterstaat would be in charge, while the local water boards would provide assistance and guidance. By November, all the breaches were closed (Gerritsen, 2005).

Only 20 days after the flood, officials, thoroughly shaken by the devastating impacts, appointed the Delta Works Committee to—quietly—research the causes of the disaster and develop measures to prevent anything like it from happening again. The committee revised some of the pre-flood projects and formulated the "Deltaplan." The plan entailed blocking the estuary mouths of the big rivers, building dams and storm surge barriers, installing sluices and locks, and heightening and strengthening dikes. This series of constructions, christened the *Deltawerken* (Delta Works) was officially completed in 1997. Along with the Zuiderzee Works[4], Delta Works was named by the American Society of Civil Engineers as one of its Seven Wonders of the Modern World (Deltawerken, 2004).

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4 This project involved the damming of the Zuiderzee, a large inlet of the North Sea, and the reclaiming land in the newly enclosed water using polders.

First Responders Walk Passed a Collapsed House on the Molendijk in Gravendeel, 1953 © Ed van Wijk

Military Personnel Building a Dam of Sand Bags, Kwartiersedijk of Zwingelspaansedijk, Fijnaart, Noord-Brabant, 1953 © Aart Klein

their political leaders to unite in their efforts to rebuild the country (Leydesdorff 1993). Harmony was key in this process and dissenting or critical voices were discouraged. An example of this can be seen in documentary series, *De bezetting* (*The Occupation*) by famous Dutch historian Lou de Jong, which shows this tendency to fabricate a uniform experience. The show, which chronicles the German occupation of the Netherlands and was televised between 1960 and 1965, seemingly transcended any conflicts between different societal groups. "In *De bezetting*, memories of the war (…) were welded together and transformed into one coherent national history" (Van Vree 1995).

And so it was with the *watersnoodramp* until authors Slager and Leydesdorff shared the notion that the existing image of a homogenous experience was incorrect.

NEW MEMORIES

The historical recollection of the *watersnoodramp* was colored by sentiments such as trust, pride, and a sense of solidarity or unity that was prevalent in the post-war period. Stories about post-disaster heroism—now often debunked or nuanced—also featured in regional novels and children's books published in the 1950s.

For example, in the 1953 children's book *Houen jongens!* (*Hold Tight Boys!*) by K. Norel, protagonists, Aart and Klaas save their village Colijnsplaat from flooding during the North Sea Flood. Together with more than a hundred men, they pushed against the floodwalls that were about to give way to the water. People from all walks of life stood side by side when a school teacher who saw a big wave approaching, shouted *"Houen jongens!"*

The story elements were taken from a newspaper article that had inspired Norel, titled "Het wonder van Colijnsplaat. Vier rijen dik, arm in arm als menselijke zandzakken" ("The Miracle of Colijnsplaat. Four Rows Thick, Arm in Arm, Like Human Sandbags"). According to the article, a ship had also lodged in front of the weakened floodwall and helped to prevent the breach, yet the book and many newspaper articles emphasized the solidarity of the villagers: "The wave came and pushed the 'living dike' three feet forward, but the men pushed back. There they were, the rich farmer next to the ordinary peasant, the church elder next to the bibber, the pastor next to the heretic, friend next to enemy; the village had become one, a human chain of unity" (Dendermonde, 1953).

Such a heroic, Hans Brinker-style account seems almost too good to be true, and indeed it is. The real miracle (the ship averting the breach), did happen, but Slager discovered through eyewitness interviews that the fraternity and cohesion the media and the author of *Houen jongens!* describe was distorted. The number of people involved was also embellished: "Those men needed a good story," said Piet Blom an alderman who was present that night. "Quite a few things were exaggerated. It isn't true that more than a hundred men were gathered to push against the floodwalls, I didn't count them but there could not have been more than 40" (Slager, 1992). The "Miracle of Colijnsplaat" came into being at a later date, when the story was featured in the newspapers and Norel's book. These accounts suggest the people of Colijnsplaat were rewarded with safety for their bravery and solidarity, and it isn't a lone example. Much of the 1950s reporting on the *watersnoodramp* was characterized by a similar and often exaggerated emphasis on miracles, heroism, unity, and solidarity.

Through survivors' accounts—voices that had never been documented before—Slager and Leydesdorff were able to debunk many of these myths. They shed new light on the floods of 1953—not everyone was brave, heroic, or helpful and those in charge had no idea of the danger that was looming in the days before the storm and completely failed to take the proper precautions.

Forty years after the North Sea Flood, the watersnoodramp's narrative has finally shifted from the disaster as an act of God followed by collective heroism to the poor state of the dikes, widespread suffering, human failure, and trauma. The oral histories collected by the authors successfully dispersed a rosy WWII-era depiction of the flood and brought a new understanding of the even- Survivors' emotions unearthed by Leydesdorff and Slager also inspired a new generation of writers, filmmakers, and

playwrights. Consequently new themes surrounding regret, guilt, and despair emerged in cultural expressions about the disaster.

This dynamic shows how crucial these types of ethnographies are in understanding events—even years later. Dutch society was not able to learn from the watersnoodramp at the time. Societal structure and post-war concerns prevented the Dutch from truly processing the devastating disaster. But thanks to the preservation of these firsthand accounts, real lessons were still able to emerge.

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Pic. 1: Debris, Schouwen, Zeeland, 1953 © Dolf Kruger
Pic. 2: Washed up school desk, Zeeland, 1953 © Ed van Wijk
Pic. 3: Amphibious vehicle, Zierikzee, Zeeland, 1953 © Aart Klein
Pic. 4: Cemetery in flooded area, Zeeland, 1953 © Aart Klein
Pic. 5 Arrival flood evacuee on the dock in Rotterdam, 1953 © Ed van der Elsken
Pic. 6: Car with Red Cross collection tins (1953) © Ed van der Elsken
Pic. 7: Berta de Baarland with her dog in an emergency shelter, Ossendrecht, 1953 © Ed van Wijk
Pic. 9: Cadaver and farm, Zeeland, 1953 © Dolf Kruger
Pic. 9: Emergency cemetery in Zijpe, Zeeland, 1953 © Aart Klein

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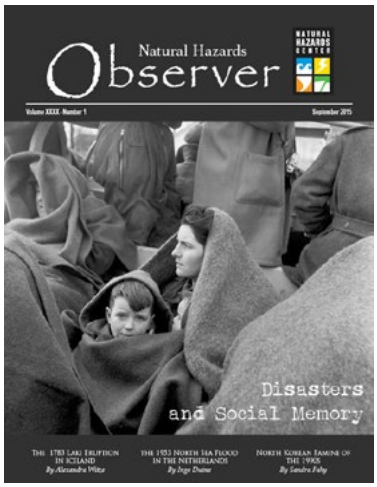
INGE DUINE teaches Communication at Avans University of Applied Sciences in Breda, the Netherlands. She has degrees in journalism and cultural studies. "From Silence to Recognition" is based on her MA dissertation titled *De ramp, de herinnering. Een onderzoek naar de herinnering aan de watersnoodramp in de journalistiek, oral history en literatuur* (The Disaster, the Memory. Research Into the Memory of the *Watersnoodramp* in Journalism, Oral History, and Literature). In her spare time, she likes to write fiction. She is currently working on her debut thriller *De laatste Tour* (*The Final Tour*), which will be published by Uitgeverij De Fontein in May 2016. See for updates: www.facebook.com/ingeduine



Call for Submissions

The *Observer* invites readers to submit items of interest for publication in upcoming issues. The *Observer* is undergoing a makeover and many more exciting changes are in the pipeline. Throughout this process we would love to hear from you. All comments and suggestions are welcome.

Our mission is to close the gap between scientists, policy makers, and practitioners by providing coverage of disaster issues, recent disaster management and education programs, hazards research, political and policy developments, resources and Web sites, upcoming conferences, and recent publications. We are looking for papers and field reports that help narrow the aforementioned divide. In additon we are looking for book reviews that contribute to the debates and dicussions in the field of disaster research.

The deadline for the next issue of the *Observer* is November 1, 2015.

Please send items of interest to
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Artist Martina O'Brien at home © Martina O'Brien.

In response to the Observer's previous issue, which was dedicated to art and disaster, I received an email from a friend who informed me about a wonderful art project called The Knitted Flood Wall. Measuring 45 feet long by 8 feet wide, this knitted replica floodwall was created by Irish artist Martina O'Brien in the aftermath of the flooding of the river Dodder on October 24, 2011.

The Dodder—one of the three main rivers in Dublin, Ireland, has a history of flooding. The river originates on the northern slopes of the Kippure in the Dublin Mountains and flows down through the city areas of Donnybrook and Ballsbridge. Because of its steep gradient, the Dodder quickly responds to rainstorms and is known as a flashy river. In the last century it has overflowed its banks on many occasions, causing damage to adjacent properties. One of the most severe floods prior to 2011 occurred on August 25, 1986, when Hurricane Charley passed south of Ireland. In 24 hours, eight inches of rain poured down on Kippure Mountain while four inches fell on Dublin, causing heavy river flooding and affecting thousands of properties in the city. Another notable flood happened on February 1, 2002, when more than 600 properties were flooded.

During the most recent flooding, on October 24, 2011, a similar number of properties were affected. O'Brien, who had been living in the Ballsbridge area—a neighborhood prone to flooding— since 2004, was at home when her neighbor knocked on her door to alert her about the river's increasing height. "Within minutes the water started to gush over the riverbank walls towards my home," said O'Brien in an email. "Brisk attempts were made to keep the water out but it was an impossible task and everything on the ground level was very quickly destroyed by the flood."

O'Brien wasn't alone. One hundred and ninety-two homes in her immediate neighborhood were destroyed and many families were rendered homeless. "The flood was devastating and afterwards, a feeling of complete helplessness set in," O'Brien said. "My neighbors and I spent the following days walking around in a daze of shock and anger at what had happened."

After the initial shock had somewhat subsided, O'Brien jumped into action. She decided that something must be done and was determined to raise awareness about the struggles that her community—now uninsured because insurance companies refuse to provide coverage—had encountered since the floods. She explained that after each flood there were calls for better protection, but unfortunately these efforts faded as quickly as the water retracted.

"I wanted to make a body of work that united us as a group and could result in a coming together to take a stance, to commemorate our experience, and to bring attention to our struggle," O'Brien said. "I wanted to make a statement about a community that has had enough of living in fear of the next heavy rainfall and focus on the largely elderly population in the area whose stories of 60, 70, and 80 years of living beside the Dodder tell of an exceptionally bittersweet relationship."

O'Brien developed the idea to knit a floodwall. She had a number of aims and objectives for the art project. Firstly, she wanted it to be a genuinely collaborative and participatory project with residents and their surrounding area. Secondly, it was to enable a dialogue and a stronger bond within the community but also provide a vehicle that could open up conversations with local authorities. Finally, it was to involve the making of a replica velocity map taken from the Catchment Flood Risk Assessment and Management (CFRAMS) study of the River Dodder by Dublin City Council to build a visual spectacle in which to highlight the issue of flooding.

In the meantime, the Ballsbridge Residence Association was set up in the area to bring the community together to help residents deal with the local authorities, politicians, and government bodies. O'Brien became a committee member. It was the first time she got involved in anything like this, but she felt the need to help in whatever way she could.

"I proposed my idea of knitting a floodwall to the committee and it was laughed at at first, which is understandable as it was a little left of the center as an idea goes," said O'Brien. "It was also met with some resistance by some members who felt it may be seen as a vehicle of protest."

Regardless of these negative voices, O'Brien proceeded with the concept and presented the idea at a community meeting where she asked people to sign up. After the giggles subsided and the objectors softened their opinions, support for the knitted floodwall project grew. O'Brien arranged weekly meet-ups to get the momentum rolling. "These meet-ups were incredible as they acted as a space to chat and bond," said O'Brien. "As people were sharing their experiences, the meetings became a source of group therapy and gave people a sense of proactive empowerment."

Since there was no community center in the area, O'Brien suggested that the meetings take place in the local pub. This suggestion again caused some giggles: "I wouldn't be seen dead knitting in my local [bar]' comments," O'Brien explained. However, as the weeks rolled on, more and more people gathered and the act of knitting in the pub became somewhat of a spectacle in itself. Most of the 20-odd knitters, were female and ranged from 20 to 70 in age. The men organized the mechanics of the actual structure.

"Once the larger community began to see the fruits of our labors grow with sacks of knitting being gathered, the project was given more respect and gradually it was championed by everybody as being the most important thing this community has ever done—their words, not mine!," said O'Brien. "On completion, I invited the Office of Public Work's head engineers, politicians, and the Lord Major of Dublin to attend the 'opening' and by association, they were made fully aware of our situation and as a result have since initiated the erection of a flood defense wall in the area."

The Knitted Flood Wall project was a huge success; the new flood defense wall is almost finished and should be completed by the end of the year.

O'Brien continues to explore the relationship of communities with the river. Her new project—Casting Territory: A Contemporary River Keepers' Index of Lesser Known Patterns, which was exhibited earlier this year—is a collaboration with The Dodder Anglers Club and utilizes the art of fly-tying to explore the angler's unique knowledge of flora and fauna, physical geography and role as guardians of the River Dodder.

You can contact Martina O'Brien at martinalobrien@gmail.com or visit her website www.martinaobrien.ie.

Above: Knitted Floodwall project in progress © Martina O'Brien
Below: Knitted Floodwall Project Completed © Martina O'Brien

Wall prior to reinforcement © Martina O'Brien
New defense wall currently being installed © Martina O'Brien

The Rockaway Peninsula was hit particularly hard during Sandy. The Governor's Office of Storm Recovery has allocated up to $21.3 million in Federal Community Development Block Grant–Disaster Recovery (CDBG-DR) monies to fund eligible recovery and resiliency projects in the Rockaway West Community. © Elke Weesjes

Finding Opportunity Through Chaos

The New York Rising Community Reconstruction Program

By: Donovan Finn

Superstorm Sandy struck the East Coast of the United States in October of 2012, devastating large swaths of the New York and New Jersey metropolitan region. Some especially hard-hit communities have bounced back slowly. As a whole, however, the region rebounded quickly from the storm. Regional recovery was so swift, partially because recovery planners applied some of the hard lessons learned after Hurricane Katrina (Olshansky and Johnson 2014).

Among these post-Sandy innovations was the state-led New York Rising Community Reconstruction program, a $650 million effort to put rebuilding decisions and future resilience planning in the hands of residents of the hardest hit areas. This ambitious program was among the largest government-led participatory planning efforts ever attempted in the United States. In less than two years, thousands of residents in 66 communities around New York State took part in some 250 public workshops, deciding how to spend their communities' shares of more than half a billion dollars in federal disaster recovery funds. Since federal rules for spending these relief dollars increasingly emphasize public involvement and resilient rebuilding, New York's program, if successful, could be a model for future disaster recovery programs.

As an urban planner who studies community participation in the policy-making process, I've been closely following the Community Reconstruction program since its inception. Despite occasional hiccups that are inevitable in such an ambitious undertaking, it has so far done many things right in attempting to put real decision-making power in the hands of local residents. Communities were supplied with significant technical support. Project funding was identified before the process began, unlike the vast majority of participatory planning efforts, which typically focus on generating creative solutions and then chase funding after the fact. It filled an existing need in communities where participatory planning of any kind has been largely absent, and it attempted to address rebuilding and resilience in a holistic way. Planners like myself will find a lot to like about how the program was designed. But now it's time to see where the rubber meets the road. Despite many great ideas and compelling rhetoric about empowered citizen-based decision-making, questions remain and some hard choices will have to be made as the state moves to implement these plans.

RECOVER FROM YESTERDAY, PLAN FOR TOMORROW

When Sandy struck in late 2012, many communities around New York State were still reeling from the effects of Tropical Storm Lee and Hurricane Irene, both of which occurred the previous year. To address the widespread recovery needs from all three disasters, the state developed new recovery and resiliency programs that focused on household, business, infrastructure, and community recovery. All of these were coordinated through the newly created Governor's Office of Storm Recovery (GOSR). Using the slogan "Recover from yesterday, plan for tomorrow," the Community Reconstruction program allocated $650 million for community-based planning from New York State's $1.7 billion in Community Development Block Grant Disaster Recovery (CDBG-DR) money received from the U.S. Department of Housing and Urban Development (HUD).

Residents of the most severely damaged areas were un-

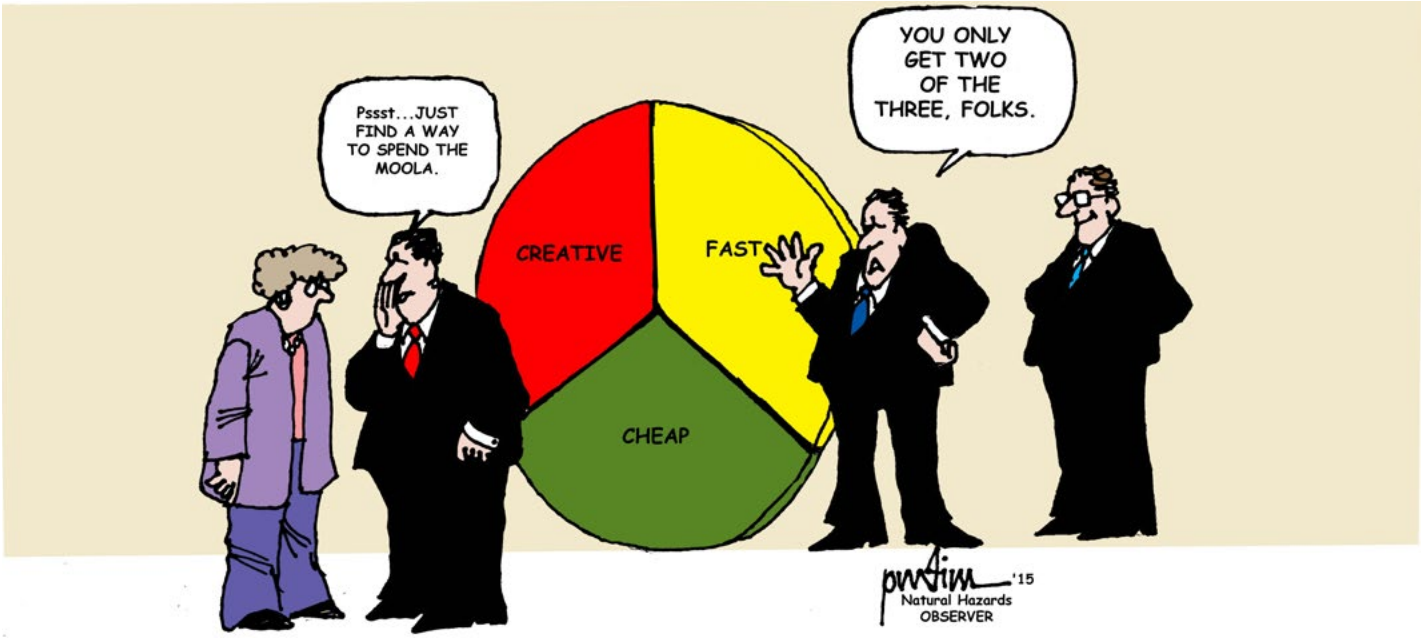
derstandably focused on getting their communities back to normal by rebuilding damaged schools, community centers, roads, and other critical infrastructure. However, by federal mandate, HUD funding also had to be spent protecting against future disasters and it had to include the public in making those spending decisions. To meet these needs, state officials created the Community Reconstruction program using FEMA's Long Term Community Recovery Planning Process as a model. In total, 66 communities that were affected by Sandy, Lee or Irene each produced a Community Reconstruction Plan with technical help from teams of urban planning, engineering, and environmental consulting firms selected and paid for by the state at a cost of $25 million. Based on assessed damage to community resources, an additional $3 million to $25 million was earmarked for implementation of each plan. State officials anticipated that this money would fund small items in the plans, such as infrastructure repairs, pilot programs, and feasibility studies for larger projects. The GOSR would simultaneously work with communities to find funding for larger projects through grants and debt financing.

Each state-approved, citizen-led Reconstruction Plan contains 30 or so projects, and over half of the almost 2,000 projects across the 66 plans focus on physical infrastructure. New York City's Red Hook neighborhood, for example, hopes to spend between $1 million and $10 million to repair the Van Brunt Street Pumping Station, which was damaged during Sandy. Ulster County in upstate New York proposes spending $1.2 million to protect its wastewater treatment plant against future flooding. The Long Island village of Bayville wants to build a $425,000 storm barrier to protect the village's east end from flooding from the Long Island Sound.

However, most of the plans also contain many projects that go beyond rebuilding. Planning committees seized the opportunity to create plans that also addressed broader livability, economic development and sustainability goals such as community gardens, bike lanes, downtown revitalization plans and small business support. Most communities felt strongly that holistic recovery was only possible if such "social resilience" needs were addressed alongside more traditional disaster resilience.

The 66 reconstruction plans were completed with impressive speed, but the real test will now be finding ways to make the plans a reality. In May of 2014 the state hired Hunt, Guillot & Associates (HGA) of Ruston, Louisiana, to guide implementation of the plans based on the firm's experience with similar work after Hurricane Katrina. HGA and the state will work with local municipalities, counties, non-profits, and other eligible sub-recipients to spend each community's allotted portion of the implementation funding by the year 2020. But many challenges await. Paradoxically, it is the very aspects that were most laudable about the planning process that now complicate implementation.

This program attempted to give regular citizens real decision-making power about recovery spending, but time constraints and a focus on grassroots participation may have actually limited the possibility of thinking outside the box about what those solutions could be. While the public, including Planning Committee members, are experts on their local communities, they are not necessarily experts on disaster recovery. As one committee member from Long Island explained to me, this shortfall made it difficult to develop innovative projects because the committee simply lacked the technical skills to come up with or evaluate creative resilience strategies. In the end, he said, their consultant suggested that creative problem-solving would take more time than the state was allotting, and instead counseled a more pragmatic approach: "Just find a way to spend the money." This tension between innovation and speed is not unique to New York. It is common in post-disaster situations. Creativity takes time and entails risk. It means communities must change. Rebuilding exactly as before is faster and feels safely familiar. Yet, if the Community Reconstruction process mostly ends up just



replicating pre-storm conditions, it risks failing to address looming resiliency needs of vulnerable communities.

Of course, many communities have proposed projects that go beyond a narrow vision of rebuilding, encompassing a broad range of social and economic issues. These tactics face their own challenges. For instance, the Community Reconstruction program is run by the state, but it still relies on federal money. That money has strict limits on the kinds of disaster-specific recovery projects it can be used for, and it favors replacement over innovation, and hard infrastructure projects over economic and social resiliency programs. So, while many Community Reconstruction Plans do contain innovative projects addressing holistic recovery and resilience, those will likely need to be funded by other sources, which have not yet been identified and have been slow to emerge.

In attempting to give autonomy to local residents, the program also did not articulate a clear strategy for how plan goals would be achieved. The plans are merely advisory, relying mostly on governmental agencies for actual implementation, from the Army Corps of Engineers to local land use planning departments. As one planning consultant told a Planning Committee in a New York City neighborhood during a discussion of development restrictions along the waterfront, "That's zoning. Don't go there." But sadly, plans will only be successful if they do "go there" and are able to influence local, state and federal spending and policy. Otherwise, they are merely good ideas wasting space on a bureaucrat's shelf.

Finally, and probably most critically, there is just not enough funding available today to achieve the ambitious visions the plans represent. The $650 million allotted to the program is approximately one-third of New York State's first tranche of federal recovery funding. It sounds like a lot of money, but it doesn't go very far in such a large state so heavily impacted by these three major storms. Infrastructure projects alone–building bulkheads, hardening utilities, strengthening storm-water management–dwarf the $650 million available, not to mention the social and economic resilience projects for which funding sources are not even identified. Filling these gaps is now the main task of the Office of Storm Recovery.

Those challenges were perhaps best summed up by Aldean Moore, co-chair of the program's Rockaway East planning committee. In April of 2014, New York held its second annual Reconstruction Conference at which Moore, in front of hundreds of state and local officials, recounted his community's Sandy experiences and praised New York Governor Andrew Cuomo for developing the Community Reconstruction program. Moore concluded his comments to the governor with a joke that drew uproarious laughter but was sobering: "And just in case you don't get a chance to ask us if we need more money…we need more money."

FROM OPPORTUNITY TO ACTION

Disaster recovery is an emotional process. The Community Reconstruction program was certainly a way for community members to channel those emotions productively. I saw one planning committee member–a stoic, middle-aged professional–cry openly when saying goodbye to his committee's planning consultant at their final meeting. Other committee members have become more engaged in their communities as a result of their role in the process, running for elected office or forming new advocacy groups. Many of the consultants involved are quick to heap praise on community members for their passion, commitment and creativity. Clearly the process served a sort of cathartic function, at the very least.

But such processes must be more than a Band-Aid. They have to provide real fixes. New York City Council member Donovan Richards represents a mostly low-income part of the Rockaway peninsula that was heavily damaged by the storm. He explained to me that in his opinion, the responsibility of government after a traumatic event like Sandy is to channel the pain felt by communities into something productive, or as he put it, "To find opportunity through chaos." Certainly, in the Rockaways and statewide, the Community Reconstruction program has shown that the state can do just that. In two years substantial progress has been made on paper. The opportunities are real and the commitment seems genuine. Now the final challenge remains: to move from opportunity to action.

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Ruszczyk on Bhahtapur Durhar Square in Kathmandu Valley before the Gorkha Earthquake © Hanna Ruszczyk

Dispatch From Bharatpur

Nepal, Five Months after the Gorkha Earthquake

By Hanna Ruszczyk

THERE IS AN ANCIENT INDIAN FABLE that tells the story of six blind men who had often heard about elephants, but, being blind, had never actually seen one. Curious about the creature, the six blind men visit the Rajah's palace where they touch an elephant with their hands, hoping to envision what the animal might look like. But because the animal is so big they all touch different body parts and they consequently have very different impressions of what an elephant looks like. When they discuss their findings with the Rajah, they are all adamant their view is correct. The Rajah, a very wise man, explains that they were all correct, albeit partially and tells the men that they can only get an accurate idea of what an elephant looks like when they step back and incorporate different views.

This fable, which teaches us—among other things—about the importance of being open-minded, sprang to mind when I was reading and watching news reports about the earthquake in Nepal in the days, weeks, and months after the earth's upheaval. These reports seemed to focus primarily on the dire circumstances in the Kathmandu Valley and Mount Everest, on death and destruction, on bureaucratic red tape delaying disaster aid, as well as on uncooperative and underprepared officials. The international news reports were not necessarily wrong, however. They seemed limited in scope and did not match my personal experiences in Bharatpur, Nepal's fifth largest city located about 38 miles south of the earthquake's epicenter in Gorkha. It felt as if I were reading about the elephant's ear, while I had touched its tail.

In this article I'd like to provide an additional or different viewpoint of the earthquake and its immediate aftermath and briefly discuss the current situation in Nepal. Rather than discussing death, destruction and national incompetence to respond adequately, I want to highlight local disaster preparedness, resilience, and the impact of ongoing initiatives that empowered people to respond quickly during the earthquake and its aftershock sequence. Five months after this catastrophe, we can begin to reflect on the effectiveness of national and international relief efforts and earthquake-awareness programs.

A TERRIFYING EXPERIENCE

On Saturday, April 25, the day of the earthquake, I was in Bharatpur, conducting fieldwork for my ongoing PhD project. My research focuses on the concept of resilience and examines how people in two very different parts of the city understand their sources of resilience. Ultimately, I want to understand if and how community resilience can be enhanced in a changing urban landscape.

Bharatpur is located in the Chitwan district in the Tarai, a belt of marshy grasslands and forests south of the foothill of the Himalayas. In the past 20 years, the city has seen migrants arrive from many different parts of the country. Bharatpur reflects many characteristics associated with urbanizing Nepal. It is a dynamic and heterogeneous city; at its core it harbors long-time residents, but it also teems with new affluent migrants who built their own homes, migrants who are escaping conflict, economic migrants from Bihar, India, as well as new residents from nearby villages that are being amalgamated into the municipality. All of these residents have very different connections to the government, to each other and to their urban physical environment.

Bharatpur is in the process of implementing the national building code and has made provisions for earthquake-resistant construction with the support of the National Society for Earthquake Technology (NSET) and the United States Agency for International Development (USAID). This, together with the city's rapid urbanization made Bharatpur an excellent field site for my research.

I had arrived in Nepal in the beginning of April. This was my second trip to Bharatpur and my fifth to Nepal, and I expected to stay until the end of May. The massive 7.8-magnitude earthquake cut my visit short; I stayed until I was able to leave the country via India a week after the disaster struck. I kept a daily journal to document the earthquake, its aftermath, and my departure through India. The following is an excerpt from my journal describing the day of the earthquake:

"The earthquake started at 11:56 a.m. on the day of rest (Saturday), therefore there were few vehicles traveling, the shops were still closed and few people were out in Bharatpur. My research assistant and I were walking on New Road in the industrial area of town where the India bound trucks get serviced, where buses are made etc. It is a wide unpaved road near the river. I heard thunder. Metal was shaking on the commercial building to my left… People were looking at the sky. I asked R. what he thought was going on. He said: 'earthquake'…I felt faint and not stable on the ground. There was a yellow haze and it appeared as if waves were coming from the ground and the ground was shaking horizontally. It lasted around a minute-and-a-half. I swayed but did not fall."

According to projections (USGS PAGER) for Bharatpur, an earthquake could result in as many as 60,000 (30 percent of city's population) fatalities. There were, however, no deaths. The city's infrastructure was intact and only a few buildings were damaged. It is unclear why Bharatpur was spared devastation. In the first 72 hours, we experienced 68 aftershocks. It was, quite simply, terrifying. The 6.7-magnitude aftershock on Sunday, April 26, was especially grim and felt almost as powerful as the Saturday earthquake.

The Gorkha Earthquake—felt in Nepal, India, China, and Bangladesh—and the aftershocks that followed killed more than 9,000 people and injured another 23,000. Nepal, which incurred 8,857 deaths and 22,304 injuries (OCHA 2015), bore the brunt of the earthquake— the worst natural hazards to strike the country since the 1934 Nepal-Bihar Earthquake.

EARTHQUAKE AWARENESS PROGRAMS

In the Chitwan district, many of the earthquake-awareness programs were initiated by the Nepali government, the National Society for Earthquake Technology, the Nepal Red Cross, and other organizations. Those programs were in place before the Gorhka Earthquake struck the region, and they have been effective; a cross section of Bharatpur's society was well informed and knew how to respond during the earthquake. People were taught to "duck, cover and hold," and they knew to calmly walk outside and gather in open spaces. Some people had planned evacuation routes.

After the earthquake I spent much of the following days walking through the streets of Bharatpur, asking residents where they were at the time of the earthquake and how they responded during the tremors. From these impromptu interviews it became clear that people had learned from the media what actions to take in case of an earthquake—particularly from the radio and the government TV channel—as well as from their children (who had learned basic disaster preparedness at school). The notable exception was those individuals who lived in the slums of the city. They explained to my research assistant and I that they did not know the tremor was a full-on earthquake. Even once they realized what was actually happening they still didn't know how to respond to the earthquake. Subsequently, we explained to these people what to expect in the ensuing days, and we shared possible coping strategies to deal with the anticipated aftershocks.

My overall impression was that people were calm yet scared. The situation in Kathmandu, as we learned through countless news reports in the international media, was very different; parts of the city were devastated, including the city's heritage sites, people were buried under rubble, and the situation was chaotic and confusing.

KEY FACTORS SUPPORTING RESPONSE AND RELIEF EFFORTS

It might be hard to imagine, but the impact of the earthquake in Nepal could have been much worse. In the initial aftermath, three factors supported the relief efforts: Firstly, the telecommunication systems did not collapse and people were able to mobilize social capital and humanitarian assistance. The mobile phone system was overloaded but did not fail (phone calls were limited to three minutes for the first days). Overall, people were able to connect with support systems outside of the disaster-stricken area. Internet functioned intermittently, but sufficiently to access information. Social media, such as Facebook, Whatsapp, and to a lesser extent Twitter, were used by Nepali people not only to contact loved ones but also to mobilize resources and share information about the evolving situation in the Kathmandu Valley and beyond. Prime Minister Sushil Koirala of Nepal, who was in Thailand on the day of the earthquake, reportedly found out about the catastrophic disaster that had hit his country, through a Tweet by Indian prime minister Narendra Modi.

Secondly, critical physical infrastructure did not collapse. The Tribhuvan International Airport in Kathmandu was not damaged and international relief was able to reach much of the disaster-stricken area. The road network surrounding the Kathmandu Valley wasn't damaged either and facilitated the departure of hundreds of thousands of people from the Valley in the days following the earthquake, thus easing the demand on resources in the Valley. And finally, national collective action was mobilized. By day three, informally and through Nepali organizations, Nepali people began to mobilize resources; organize fundraising events; and gather food, clothing, and shelter to be sent to the devastated hill communities. The international media did not highlight these critical local first response efforts. Instead, they largely focused on international aid and bureaucratic bottlenecks.

FIVE MONTHS LATER

Among disaster risk-reduction professionals, Nepal was immediately compared with Haiti. In Haiti, a 7.0-magnitude earthquake that hit on January 12, 2010, killed approximately 220,000 people, displaced 1.5 million, and destroyed or damaged 300,000 buildings. The death toll from the Nepal disaster is considerably lower, yet a greater number—eight million people—have been badly affected. Over 600,000 houses were destroyed and an additional 285,000 were damaged (OCHA 2015).

The international aid community has learned valuable lessons from the Haiti experience and other events since 2010, including the need for aid agencies to unite in their efforts and work together with the national government, rather than skirting around it; the recognition that the urban areas struggle with very different problems than rural areas; the need to consider long-term economic development alongside humanitarian issues; and the inclusion of those affected in key decisions over how aid money is spent. As such, many mistakes made in Haiti were not repeated in Nepal.

The Haitian diaspora has contributed more than $10 billion to the post-earthquake recovery since 2010 (Multi-

Young men working abroad transfer money to their families in Bharatpur. The money is primarily utilised for daily living and house construction. © Hanna

lateral Investment Fund, 2010, 2011, 2012, 2013, 2014 and Raymond 2015). The Nepali diaspora has been, and continues to be, equally active, not only by sending remittances but also by organizing fundraisers in the United States, in the United Kingdom and other countries, and by providing relief through non-governmental channels. Besides the efforts of the Nepali diaspora and the international aid community, recovery initiatives by the Nepalese must be noted. Specifically, Nepali youths have mobilized and are volunteering their time and other resources to help rebuild their country.

Although media reports didn't necessarily reflect this reality, Nepalese people collectively demonstrated tremendous solidarity and support for each other and individuals proved themselves to be extremely resilient and effective in mitigating disaster.

LESSONS LEARNED

Five months have passed since the Gorkha earthquake. Now the focus is not only on providing humanitarian assistance to hundreds of thousands of people who are still in need, but also on recovering form the disaster and understanding what happened and why. Overall, there is much to be learned in the following months and years about the earthquake and its long-term impact on Nepal and the region.

Just as the blind men in the Indian fable, my personal perspective is also partial, but I hope it nevertheless offers some useful insight and a more nuanced image of the earthquake in Nepal and the Nepali response to this tragedy.

After a disaster of such magnitude, the task of reconstruction is never easy. Full recovery takes time; after the photographers, film crews, and aid agencies have moved on, the region will continue to recover. But when we look at Bharatpur, maybe the future for Nepal is more hopeful than we think and perhaps the city will serve as a beacon of hope, or even a yardstick.

Hanna Ruszczyk will return to Bharatpur in late September to continue her fieldwork. She is looking forward to learn how people integrate the earthquake experience into their lives and the effects of this tragedy on the future of Nepal. She intends to contribute another article about the situation in Nepal early next year. You can contact her via email h.a.ruszczyk@durham.ac.uk.

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HANNA RUSZCZYK has spent most of her career living and working in countries that are rapidly changing and urbanizing. She has worked in development for the International Labour Organization, United Nations Development Programme, and United States Agency for International Development. In this capacity, she focused on micro and small enterprise development. Ruszczyk's MA thesis (Durham University, UK) was titled 'Local understandings of community resilience in earthquake prone Nepal'. Her PhD, which she is currently undertaking at the same university (Department of Geography and the Institute of Hazard, Risk and Resilience), is a continuation of her MA research. For Ruszczyk, this PhD is an opportunity to explore and engage critically with a wide range of subjects including resilience, community, urbanisation, risk, power, natural hazards, linking research to practice, Bihar State, India and Nepal. Her work is part of the Earthquakes without Frontiers Project.

Hanna wrote daily summaries of her earthquake experience and her eventual departure via India. They can be found at: http://www.dogweb.dur.ac.uk/GeoPaD/nepal-earthquake-day-1/ & http://www.dogweb.dur.ac.uk/GeoPaD/returning-home-from-nepal-by-hanna-ruszczyk/

Laki © Alexandra Witze

Island on Fire

Societal Lessons from Iceland's Volcanoes

By Alexandra Witze

ON THE MORNING of June 8, 1783, the ground ripped open in south-central Iceland and began spewing fire. This violent volcanic outburst, known as the Laki eruption, lasted eight months. Its effects lingered for years, not just in Iceland but around the globe. From poisoning the skies over Europe to changing climate across the Northern Hemisphere, the Laki eruption was one of the most extraordinary volcanic events in history.

The eruption shaped the modern scientific understanding of Icelandic volcanoes and the power they unleash. Lessons from this 18th century calamity have helped researchers understand and respond to other disasters in the past few years, including the economically devastating 2010 eruption of the Eyjafjallajökull volcano that grounded planes across Europe. The Laki eruption provides a historical springboard for exploring Icelanders' resiliency to volcanic disasters—and how other volcanically active areas can learn from this small island nation.

LAKI

It all began in Iceland's wild highlands, a couple of hours drive east of what is now Reykjavik. In 1783, the area around Laki was home to rural farming communities that depended on sheep that grazed the lush pasturelands and fish that danced through the cold clear streams. The eruption ended all that. One bright morning, a dark cloud appeared to the north, rising higher and soon blotting out the sky. Within hours, a blizzard of ash fell over towns and mixed with rainwater to form a dark, unavoidable slurry (Witze and Kanipe, 2015).

Lava followed. Huge rivers of molten rock flowed down from the highlands, swallowing farm after farm in their fiery path. During the first 12 days, the Laki eruption put out the equivalent of two Olympic-sized swimming pools of lava every second. By the time it was all over, in February 1784, it could have buried Manhattan 820 feet deep

in newly formed rock.

The eruption devastated Iceland. Ashfall buried the summer grass so that sheep, cattle, and horses starved. Throughout the winter of 1783-84, and for several years to follow, families had almost nothing to eat. Over the next two years the famine that set in, known as the "mist hardships" for the volcanic fog that enshrouded the land, killed nearly 10,000 Icelanders from starvation—one fifth of the island's population at the time (Jackson, 1982).

What happened in Iceland did not stay in Iceland. The Laki eruption belched out huge amounts of gases—including more than 120 million tons of sulfur dioxide—that became caught up in southeast-flowing winds and carried toward Europe. Throughout the summer of 1783, a peculiar "dry fog" was seen in London, Paris, Stockholm, Rome, and beyond. People reported a sour smell in the air, trouble breathing, and plants withering on exposure. In essence, the sulfur dioxide had transformed into an acidic fog that spread across the continent (Thordarson and Self, 2003).

In one final insult, the volcanic particles also acted as a giant sunscreen, reflecting the sun's energy back into space. Temperatures plummeted and the winter of 1783-84 was one of the coldest on record for much of the Northern Hemisphere. Climate was disrupted for years afterward across the Northern Hemisphere. In Egypt, the flow of the Nile River dropped, cutting off irrigation waters and leading to widespread famine. By the time it was over, the direct and indirect effects of the Laki eruption are estimated to have killed more than one million people worldwide.

Within Iceland, it remains the most societally devastating eruption since Vikings settled the island around the year 871 A.D. The Laki disaster is imprinted in the national psyche as a kind of worst-case scenario for what natural disasters can do. It took many years for residents to rebuild their lives and the economy to slowly recover.

One of the biggest challenges in responding to the Laki eruption was Iceland's isolation and poverty at the time. The island was ruled by the king in far-off Copenhagen. When word of the disaster finally reached Denmark, carried by sailors who passed through Iceland's rich fishing grounds, the king dispatched emergency relief funds—but there was simply no infrastructure for ensuring that money and supplies got into the hands the farmers whose livestock and lands had been destroyed.

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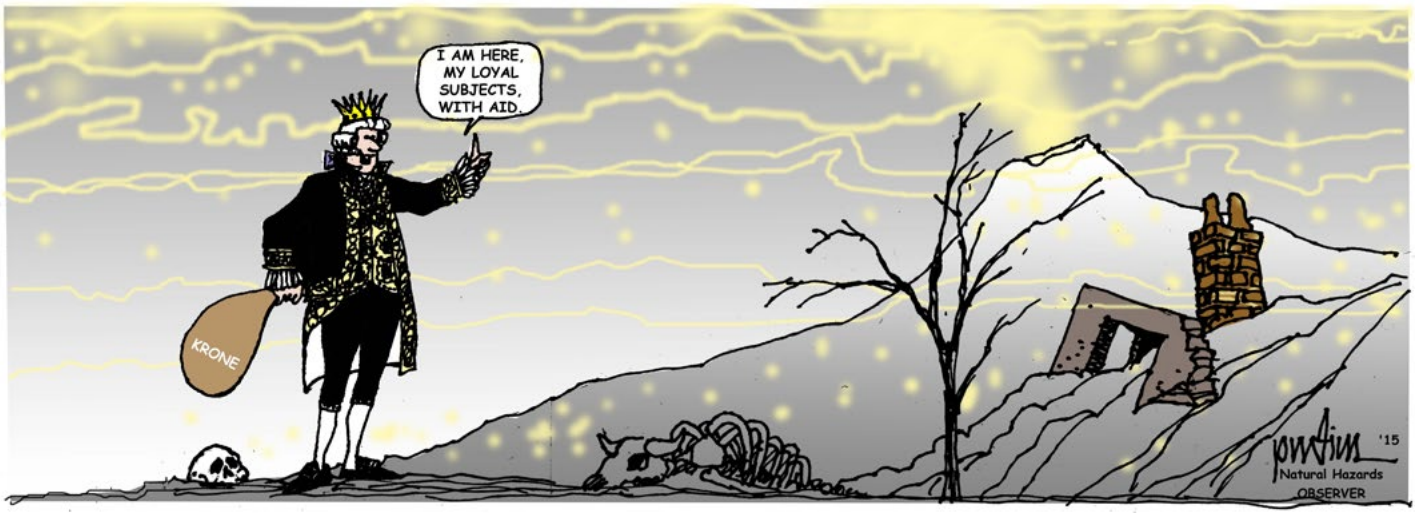
Since Laki there have been plenty of other eruptions in Iceland. The island has at least 30 active volcanoes, with an eruption once every five years on average (Thordarson and Larsen, 2007). But the 1783-84 Laki eruption is the benchmark by which all others are measured, thanks to its devastating impact on the country. Laki put out more lava and more gases than any other eruption in Iceland's history, except for a 10th century event that occurred before the country was widely settled. Modern volcanologists have mapped the sprawling Laki lava flows and can now use that data to calculate how much molten rock and gas a single Icelandic eruption can put out at a time.

Over the past two centuries, Icelanders have internalized the lessons of Laki and worked to understand and prepare for future eruptions. Today, despite a 2008 near financial collapse, Iceland is one of the most technologically advanced nations in the world. Its volcanoes are extremely well monitored and its civil-protection service responds almost immediately to any impending eruption. Unlike in 1783, people can sit at home and check the Icelandic Meteorological Office Web site for the latest news, maps, and predictions of what natural disaster might happen next.

That came in handy in the spring of 2010, when the now-infamous volcano known as Eyjafjallajökull erupted. Within Iceland, the impacts were fairly mild. No one died in the eruption, and the most serious repercussions were for farmers whose fields and livestock were covered in ash. Still, it offered a chance for Icelanders to update their emergency preparedness.

Eyjafjallajökull wasn't a particularly large eruption by Icelandic standards, but it had an outsized effect on the rest of Europe (Karlsdóttir et al., 2012). Just as with the Laki eruption in 1783, the prevailing winds blew south and east—directly toward European airspace. Aviation of-



On the road to Laki © Alexandra Witze

Laki © Alexandra Witze

ficials made the drastic decision to ground nearly all commercial flights, including those at vital transportation hubs such as London's Heathrow airport. They did so because volcanic ash can melt and fuse into a glasslike substance inside jet engines, shutting them down.

The affair underscored just how poorly prepared Europe was for an Icelandic eruption. At the time, aviation guidelines for how much volcanic ash a plane could fly through were vague and outdated, which led officials to err on the side of safety and ground more planes than were perhaps necessary. With paying passengers grounded and cargo unable to move across Europe, total economic losses soared into the billions of euros.

Eyjafjallajökull was a wake-up call for European officials. Among other changes, it prompted the UK government to add Icelandic volcanoes to its National Risk Register, an official list of the dangers that emergency officials should prepare for. (The register explicitly cites the 1783-84 Laki disaster as the best-understood example of a big eruption to be planned for, including the possibility of high levels of polluting gases wafting across Europe for months.) The International Civil Aviation Organization (ICAO) also relaxed its guidelines for the acceptable concentrations of ash that planes can fly through, effectively putting more power in the hands of airlines and pilots to make their own decisions in volcanic ash emergencies.

GRÍMSVÖTN

Lessons from Eyjafjallajökull were put to the test the very next year. In April 2011, the ICAO coordinated an exercise in which more than 70 airlines and emergency responders practiced how they would respond to an eruption of Iceland's most active volcano, Grímsvötn. As if on cue, Grímsvötn erupted the following month. This time, the weather patterns did not blow as much ash into European airspace, but Europe was also much better prepared. Officials sprang into action, immediately assessing the amount of ash and how much of a threat it posed to aviation. Coordination among groups was smoother and information flowed more quickly. In the end, the Grímsvötn eruption—which was physically more powerful than Eyjafjallajökull the previous year—caused far less transportation havoc (Parker, 2014).

BÁRDARBUNGA

And then came a different kind of test. In August 2014, yet another Icelandic volcano erupted—not in an ash-rich blast like Eyjafjallajökull or Grímsvötn, but in a gas-rich eruption like Laki. In the country's northeast, in a remote area known as Bárdarbunga, a fissure ripped open and began spouting lava. It looked remarkably like a miniature version of Laki, one-tenth its size.

Just as happened in 1783, Icelanders found themselves in the middle of an atmospheric pollution emergency. For more than three months, the eruption belched some 35,000 tons of sulfur dioxide a day, nearly three times the annual anthropogenic emissions of the European Union (Gettelman et al., 2015). Shifting winds carried the gassy plume in different directions across the island, where automated atmospheric monitoring stations measured sulfur dioxide levels. At times they spiked well above acceptable World Health Organization levels of exposure. Television forecasts included information about what parts of the country should expect the plume of polluted air over the next few days. When gas concentrations were particularly high, children and the elderly were warned to stay inside.

The Bárdarbunga eruption petered out in February 2015. Fortunately, it didn't emit enough sulfur dioxide high enough into the atmosphere to be transported across to Europe and change the global climate as the Laki eruption did. But it did provide a test case for how emergency officials would respond in the event of a gas-rich eruption on the scale of Laki.

Among other shortcomings, Bárdarbunga made clear

Laki © Alexandra Witze

Eyjafjallajökull © Sverrir Thorolfsson

that scientists need to improve predictions of how gas might spread—and what health effects it might have—in a way that local residents can use. In the wake of the 2010 Eyjafjallajökull emergency, officials forgot somewhat about the lessons of Laki and spent more time thinking about and preparing for the possibility of an ash-rich, not a gas-rich, eruption. Iceland was lucky that Bárdarbunga was a small eruption. One estimate suggests that if a Laki-scale eruption were to happen tomorrow, 142,000 people across Europe would die from the gas exposure (Schmidt et al., 2011).

NEW INITIATIVES

Perhaps the biggest lesson from the recent Icelandic eruptions is a growing awareness of the many types of volcanic hazards contained in just one small country. As a scientifically advanced and technologically connected nation, Iceland is leading the way in understanding and predicting such eruptions. One major new initiative put in place after Eyjafjallajökull is a European Union-funded project called FUTUREVOLC. It has beefed up the networks of seismometers and global-positioning-system instruments around several of Iceland's most active volcanoes so that volcanologists have advance warning when the ground begins to shift. Such movements can be signs of magma flowing within the earth on its way toward a full-fledged eruption.

FUTUREVOLC scientists work closely with researchers at other dangerous volcanoes, such as Italy's Vesuvius and Etna. They hope that what they learn in Iceland will translate to other locales, allowing everyone to better predict when evacuations are needed. The ultimate goal is to share that experience worldwide, at active volcanoes in in areas such as the Caribbean, Indonesia, and beyond.

As the Bárdarbunga eruption made clear, there is still a long way to go. Even a well-prepared nation like Iceland can be caught unaware by the unexpected violence or nature of a new volcanic eruption. But each eruption—whether Laki in 1783, Eyjafjallajökull in 2010, or Bárdarbunga in 2014—adds another piece of scientific and societal understanding to the puzzle.

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mapping a hidden disaster

Personal Histories of Hunger in North Korea

By Sandra Fahy

Series North Korea: Daily life remains a struggle (2012)
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IN MAY 2015, the United Nations Food and Agricultural Organization warned that a major drought in North Korea could lead to severe food shortages. The international media—reminded of the devastating famine of the 1990s that killed approximately 500,000 people—jumped on the story and the drought made headlines all over the world. The media storm was followed by a statement from North Korean state news agency KCNA calling it "the worst drought of the century." As it turned out, this was quite the hyperbolic statement; the drought ended in July without affecting the food supply.

Stories of drought and other devastating natural disasters threatening the country's food supply are a common feature in reports from the North Korean capital of Pyongyang. It is very difficult to gauge the nature and effects of these disasters, however, because the country is hermetically sealed from the rest of the world.

Skeptics have challenged North Korea's claims. Andrei Lankov, a North Korean history professor at Kookmin University in Seoul, has stated that in recent years Pyongyang has overstated significant flooding and droughts to garner international assistance (Brian Padden, 2015).

North Korean officials had learned, after the famine of the 1990s, that they could not request foreign aid while also instructing the state media to paint a rosy picture of life in the socialist state. Blaming a natural disaster was the perfect solution, since it meant that the state did not have to admit to human error or economic weakness.

The fact that Pyongyang reports on floods and droughts does not mean that there is transparency about these events. For example, human casualties often go unmentioned, or reports imply that nobody was killed. So it is difficult to find out how disasters, such as drought and famine, affect people in North Korea.

This is where my research comes in. Curious about the impact of food shortages on people in North Korea, I conducted research in 2005 and 2006 with survivors of the 1990s North Korean famine. Having worked as a volunteer translator and teacher in North Korean defector communities in Seoul and Tokyo for several years, I used my activist connections to meet people who were living ordinary lives in Japan and South Korea, people who were not active in the political activist community. I interviewed more than 30 individuals from all walks of life—15 men and 15 women ranging in age from 17 to 70. Some came from Pyongyang, while others came from the more northern remote regions of Musan or Chongjin. The questions that drove my research included how famine and ongoing food shortages influenced people's social relationships and how they communicated about the famine. In particular, I was curious to know how people spoke about the difficulties within their families, their communities, and even within their own minds through self-talk. How people used language was key to understanding how they survived.

My research highlighted the multiple and versatile roles language played in surviving the famine. The state actively censored speech about the famine, while using euphemisms to describe the food shortages. For example, officials never used the word "famine" in the context of North Korea, although they did use it to describe situations in South Korea or the United States. Instead, official accounts use the term "food ration downturn" or the propagandistic phrase "The March of Suffering." People were expected to use the same terms. An accidental slip of the tongue while angry, intoxicated, or distracted could result in arrest or worse.

The inability to speak directly about the famine resulted in unusual communication styles, and when people left North Korea they took this language style with them. Indirect communication was essential for survival. Precise, direct expression was avoided in favor of obfuscating language. This helped people to share their thoughts in ways that avoided sanctions and danger. Through interviews with survivors I soon realized that, because of these language restrictions and state propaganda, the famine experience in North Korea was exceptional.

FAMINE AND FOOD INSECURITY

Twenty years ago, after major floods washed away crops, the North Korean government appealed to the international community for aid. Officials claimed that the flood had caused severe food shortages, but when the World Food Program (WFP) gained access to the country and measured malnutrition, it found rates of child wasting and stunting consistent with years of chronic hunger. In the period 1995 to 2000, out of a total population of approximately 22 million, between 600,000 and 1 million people died from starvation or hunger-related illnesses (Goodkind and West 2001).

North Korea's food insecurity in the late 1980s, the prelude to the famine, was caused by myriad factors, including the break-up of strategic economic ties following the collapse of the Soviet Union, the need to repay debts to the Soviet Union and China, failed agricultural reforms, and a government distribution system that unfairly distributed scarce resources according to assumed political loyalty.

In a town in North Hwanghae province, North Korea, farmers have brought in the maize crop. North Korea struggles to have proper food storage facilities so when the crops come in much of it lies out in the open. Experts estimate that more than 30% of the crops are lost between harvest and final consumption due to numerous factors.
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Maize which has been harvested is drying in the sun in a small town in South Hwanghae province in preparation for storage during the winter.
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Agriculture in North Korea relies heavily on manual labor with few machines in sight. During harvest season, students and pupils are often drafted in from cities to help bring in the crops in time before the autumn rains.
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These young people from collective farms are still trying to bring in the harvest although recent autumn rains have soaked the crops which may make them difficult to store.
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As a result, millions of people were unable to access sufficient food for survival. By 1995 and 1996, the floods tipped the existing food insecurity towards famine and allowed the North Korean government to blame a natural disaster rather than its own destructive politics.

CENSORSHIP

Historically, food shortages and other forms of extensive suffering often result in rebellion and government collapse. However, in the case of despotic leaders, such as Stalin during the Soviet Famine of 1932-33 and Mao during the Great Famine in China (1958-62), quite the opposite occurred. Rather than causing social unrest, famine in these countries precipitated massive consolidation of power (Lautze, 1997). In Korea, Kim Jong-il (although not as esteemed as his father, Kim Il-Sung, who passed away in 1994) was also able to maintain power. People who were discontent with the state's response to the devastating famine were not able to generate significant agitation among the general public to change the regime (Fahy, 2011). However, there was one serious attempt to overthrow the government when a military-level coup was attempted in Hamhung in 1996, but the group was caught and killed (Fahy, 2015). Kim Jong-il's government successfully avoided wide-scale rebellion. A key feature of this was censoring direct communication about the famine and severely punishing those who disobeyed. Defectors in South Korea and Japan felt angry and resentful toward the regime, but it is difficult to know if they are representative of those who remain at home in North Korea.

One of my respondents, Mr. Jae-young Yoon, a middle-aged former soldier from Chongjin whose son died from starvation, explained that the subject of hunger had to be

In the mountainous region of South Hamgyong province numerous villages were affected by flash floods in July 2012 which destroyed hundreds of homes.
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In the mountainous regions of South Hamgyong province, the International Federation of the Red Cross (IFRC) used ECHO funds to assist the North Korean Red Cross distribute aid to 2,500 affected and displaced families in conjunction with similar activities carried out by Save the Children.
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This family in South Pyongan province has lived in a small tent for the past three months since a flash flood destroyed their home in July 2012. As temperatures plummet as winter approached they hope to move into a new home build by the government in the coming week.
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These government built houses in South Pyongan province have been erected on higher ground to house families who lost their homes during the flash floods in July 2012.
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avoided altogether in social discourse:

"If someone had died of hunger you couldn't say that they were so hungry they died. You could say they were in so much pain they died. When you were working you would always feel hungry, to work without having eaten, argh!! There was no way you could say 'I am so hungry, I can't do it.' 'I'm in pain,' you could say" (Field Research January 2006, Seoul).

Other survivors shared equally devastating experiences. Mr. Chung-su Om and Mrs. Sun-ja Om, who were among Pyongyang's social elite, had prepared a small banquet when I arrived at their house. It was common for North Korean's to show this kind of warmth and generosity to me during the course of my research, but it was always awkward. While eating bowls of rice and plates of kimchi and seaweed, they described the sound of the famine, "Like frogs or mosquitoes in the night, the children cried of hunger" (Field Research, February 2006, Seoul).

The sound of the famine could be heard in the night, when the labor of the day was done and nothing remained but hunger:

"The children didn't know better," Mrs. Sun-Ja Om explained, "[unlike us] they did complain about the hunger. They were always crying for food" (Field Research, February 2006, Seoul).

Back in North Korea, these painful observations were not to be discussed. People were either aware of the repercussions of voicing them or they were made aware by the authorities.

Mr. Chul-Su Kim, also among the Pyongyang elite, explained that, while drunk, he lamented his father's death from hunger. The next day he got a knock on the door from the secret police. Two officers ordered him out of the house and interrogated him. He described the exchange:

These water logged rice fields have been harvested but some of the crop appears to have been left in the fields due to a lack of transport.
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In all the villages visited, the small gardens around houses are all being used to grow food, mostly cabbage for the traditional Korean dish "kimchi" or pickled cabbage.
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"'Comrade, your father has passed away?' asked one of the officers." "'Yes, he passed away,' I answered." "'What age was your father?'" "'He had just turned 70.'"
"'Oh, he was quite an age when he died then.'" "'Yes, he was,' I said, suddenly realizing what the secret police was getting at."

"'Did your father have some kind of illness?' they asked me, and I said, "'He had high blood pressure.'" "'Ah! He died from his blood pressure going up. Comrade Kim, comrade, don't go around saying that people are dying of hunger. Do you get it? Why should anyone be dying of hunger in a socialist society?'"

"I pulled my children and my wife aside and told them not to say their grandfather died of hunger because if they say that they would take us away (Field Research August 2006, Seoul)."

During the famine, knowing what not to say was literally the difference between life and death. But how did people learn what they could and couldn't say? As the above example of Mr. Kim indicates, sometimes the lessons on what not to say were taught directly and subtly incorporated. In other cases it was the sequence of events that led people to interpret cause and effect. For example, Mrs. Sun-Ja Om explained how one of her acquaintances disappeared after speaking too critically about the food situation:

"There was no way that the hunger could be spoken about. There was an elderly woman who was very hungry, she was about 80 years old, she went out saying, 'Oh my gosh! I am so hungry. How are we meant to live like this?' and that very night she was taken off somewhere" (Field Research February 2006, Seoul).

The State's censorship of speech had far-reaching consequences, both psychological and practical. People were unable to share their hardships and frustrations with each other and were forced to deal with loss and desperation all on their own.

As Mrs. Sun-Ja Om explains:

"That's right; truly you wouldn't let it [the famine experience] out of your heart. Well, for that matter you wouldn't think about it. And you wouldn't speak of it. If you spoke of it you were dead. Your neck wrung. Banished. Executed. So because of that, it wouldn't leave your lips" (Field Research February 2006, Seoul).

Strict censorship of speech prevented like-minded people to fraternize and rebel against the government, but it also prevented people from hypothesizing about the causes of and solutions to the famine. Without effective coping strategies, people felt a prolonged impact of the famine.

PROPAGANDA

While coming down hard on people who openly discussed the negative impact of the food crisis, the North Korean government, through state-controlled media, increased ideological messages about solidarity and endurance (Oh and Hassig 2000). Editorials in the leading party newspaper acknowledged the food shortage and placed responsibility for overcoming it on the people through prescriptive calls for "revolutionary" and "collective" responsibility (see Rodong Sinmun 1999a, 1999b, 1999c, 1999d). Local authorities advised alternative foods and cooking methods such as eating one meal a day and cooking roots and tree bark. Eating substitutes became so common in North Korean society that the Korean motherly greeting "Did you eat rice today?" was replaced with "Did you eat the substitute today?"

In state propaganda the famine was referred to as *Konan ŭi Haenggun*, or March of Suffering, which directly evoked North Korea's founding leader, Kim Il-Sung's historic march in Japanese-controlled colonial Manchuria. In the 1930s, Kim Il-Sung had joined the Korean guerrilla re-

sistance against the Japanese occupation of Korea and in 1938, he and a group of resistance fighters were forced to undertake a long march as the group was pressed by Japan's revamped counterinsurgency activity. During their march—which lasted for about a hundred days during the winter—they fought hunger and enemy troops. The march was considered a trying time for Kim and his militia. The famine of the 1990s was considered another period of hardship in the evolution of the North Korean revolution. During the famine, people were reminded that their fight against hunger was like Kim's fight against Japanese imperialism: difficult, but essential for the revolution. Mr. Jae-young Yoon explained:

"This is what they taught the people: 'America, the international community and its puppet South Korea are ceaselessly preparing for war. We have to tighten our belts to build up the national defense, to build up the economy. So let's build up the economy.' And for that, the citizens suffered tremendously, not anticipating the rain and snow storms that came and destroyed the farms [and the food supply]" (Field Research January 2006, Seoul).

Besides the term March of Suffering, the press and state officials used other euphemisms to describe the country's desperate situation. Miss Hye-jin Lee, from Musan, explained:

"They did not use the expression "famine," nor did they use the expression "hunger." Rather, they used the term *shingnyang t'agyok* (food ration down turn). Starvation was a term we really didn't use. I had been taught that starvation was happening to the beggars in South Korea, and in that instance we used the term a lot. But for the situation we were going through with the food, we didn't use that term" (Field Research August 2006, Seoul).

Speaking about hunger or starvation was considered counter-revolutionary since it meant identifying the state's failures and shortcomings. In socialist North Korea, the state was expected to provide food, housing, education, and health care. Failing to do so equaled the failure of socialism.

It is impossible to say how many people believed the famine wasn't a famine but another period of hardship in the evolution of North Korea's revolution. However, control and surveillance in both public and private spheres of life meant that if you did not agree with the state's official line regarding the famine, or anything else, you were unable to verify if others were like-minded without risking your life.

CONCLUSION

The oral accounts I collected from North Korean famine survivors underscore the overlap between the multiple human rights violations people faced. The inability to access sufficient food in North Korea was tied to the inability to speak clearly and critically about the situation. That, in turn, was tied to the nation-wide system of surveillance and punishment.

Famine and food insecurity in a place like North Korea, where the state controls all culture, media, and communication, is fundamentally different from experiences of food insecurity elsewhere. Besides being deprived of food, in North Korea the people were deprived of information about the famine, of the opportunity to protest, and of the freedom to accurately describe their situation and share experiences and trauma with other victims.

With the recent reports of drought in North Korea we see that the state, yet again, blames forces of nature for food shortages and fails to identify how its stubborn isolationist politics is culpable. I expect the North Korean government to continue to obfuscate, conceal, pass the buck, and propagandize, which is why defectors' accounts are so valuable. The insights that these survivors offer will benefit aid agencies when responding to future disaster situations.

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Children of Katrina,
Alice Fothergill & Lori Peek, 2015
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By Elke Weesjes

At a meeting in early August of 2005, sociologists Alice Fothergill and Lori Peek had a long conversation about collaborating on a project someday about vulnerable populations in disaster. The two women had worked together before and had just published an article on poverty and disasters in the United States. Inspired by the late William A. Anderson who, in a 2005 article, called for additional social science research on children and disaster, they decided to heed that call together. A mere two weeks later, Hurricane Katrina slammed into the Gulf Coast, causing one of the worst disasters in U.S. history. Peek and Fothergill quickly decided that this event was so important that they needed to start their project immediately.

Over the next seven years Fothergill and Peek set out to understand the experiences of children in the aftermath of Hurricane Katrina by studying well over 650 children between the ages of 3 and 18 years old, and interviewing roughly 100 adults. Of these respondents the researchers identified a sample of 25 core children and their families whom they followed closely over time. Eventually, they selected seven respondents, referred to as focal children, based on the fact that their individually distinct experiences represented the much broader sample. By opting for this particular methodology, the authors successfully convey their findings based on hundreds of interviews, without cluttering the narrative with endless and above all impersonal statistics and numbers.

Fothergill and Peek identified three different trajectories in their research: the declining trajectory, the finding-equilibrium trajectory, and the fluctuating trajectory. Their book is divided into three parts, each explaining one of these trajectories, exemplified by the experiences of two or three of the focal children and their families.

The children's stories are heart-wrenching, yet often inspirational. In part one, *Declining Trajectory*, we meet Daniel, an African American boy who was 12 years old when Katrina struck. He had lost his father in 2003, and as a result, his mother, his older brother, and his baby sister became stuck in what anthropologist Laura Lein has referred to as the "basement of extreme poverty". After Daniel's father's untimely death, the family moved around between run-down rentals located in New Orleans' most dangerous neighborhoods and homeless shelters. Daniel's mother, who struggled with mental health issues and no education beyond elementary school, could not find stable employment to support her children. When the Mayor of New Orleans ordered an evacuation of everyone in the city, she decided to have the family ride the storm out in their one-bedroom apartment; after all, she had no money, no car, and no other place to go. As the floodwaters began to rise, Daniel took the lead and guided his mother and baby sister through the water to safer grounds, essentially saving their lives. (His older brother was living in Los Angeles.)

Daniel's life after Katrina continued to be marked by shocks, setbacks, and instability. For seven years, his family bounced around between disaster shelters, hotel and motel rooms, government-subsidized housing, and homeless shelters in three different states. They even lived on the streets for a period of time. Fothergill and Peek note that many of the issues that Daniel experienced after Katrina can be traced to housing, or the lack thereof. One of the immediate ripple effects of his lack of stable housing was a disrupted academic career for Daniel; he missed almost two academic years and, although a bright boy, was never able to fully catch up.

Housing and school are two of the six spheres of children's lives that Peek and Fothergill looked at when examining the impact of Katrina. They also examined peers and friends, physical and emotional well-being, recreational and extracurricular activities, and family. Disruptions in any of these spheres are detrimental to children's ability to recover from disaster, according to the authors.

Fothergill and Peek make it very clear that *all* the children in their sample went through some period of decline after Katrina. They all experienced destruction and disruption. Yet the depth of this decline and the severity of the disruptions varied significantly. With Daniel's story, the authors show that the vulnerabilities the children brought with them into the disaster strongly influenced their fate in and after the disaster.

However, not all children who were classified as vulnerable pre-disaster fared the same as Daniel. In part two, *Finding-Equilibrium Trajectory*, the authors discuss how resource depth and access to helpful and supportive advocates—both before and after disaster—can halt the decline in the aforementioned spheres. We meet Cierra, an African American girl who was 11 years old at the time of Katrina. She lived with her single mother, Debra, who was employed in a low-wage job at a hospital in New Orleans. Cierra's father was mostly uninvolved in her life and contributed very little financially. As such, Cierra was classified as vulnerable before the disaster.

Debra was unable to evacuate because she had to report for work, and she lacked a car and a social network outside of New Orleans that she could rely on. Cierra and Debra took shelter in the hospital during and in the immediate aftermath of Katrina. Their experiences while in the hospital, which had lost power were harrowing; they feared for their lives. After they were rescued by boat—four days after Katrina made landfall—they stayed at a temporary shelter in Lafayette. Thereafter they moved into

a FEMA trailer before securing a Habitat for Humanity home in Lafayette, the city where they would permanently settle.

Cierra's story might resemble Daniel's: Both grew up with very limited financial resources, had a traumatic experience in the storm, were displaced for a long time, and did not have stable housing in the immediate aftermath of the storm. Nevertheless, Cierra found equilibrium. The authors relate this different outcome to the support and assistance of advocates—such as disaster shelter workers, pastors, and teachers—and institutions, including FEMA and Habitat for Humanity. Another factor was that Debra was able to locate and mobilize these resources. After a period of decline, Cierra and her mother found stable housing and Cierra was able to finish high school with such good grades that she was admitted to both a community college in Louisiana and a university in Texas.

Cierra and Daniel are just two of the seven children whose experiences were meticulously documented by Fothergill and Peek. Through these very personal stories, the authors underscore that disasters are not equal-opportunity events. Children, like adolescents and adults, are positioned differently based on their race, social class, age, and gender before disasters strike. However, the authors also show that recovery trajectories are not necessarily the same even for children who share pre-disaster vulnerabilities. By carefully listening to children, their parents, teachers, and other adults who are involved in children's lives, the authors identified many of the factors that contribute to a downward trajectory. Fothergill and Peek offer detailed recommendations for improved disaster preparedness, response, and recovery efforts for children and youth in each of the spheres they studied.

It is important to note that the authors don't sugarcoat the facts. Without judging or blaming children, their families, or their wider community, Fothergill and Peek describe problems such as virulent crime and drug addiction. From the metal detectors and armed security guards at an elementary school, to the devastating drug addiction of a focal child's mother, the authors aren't afraid to paint the full picture. The arresting subject matter and the authors' thorough and honest approach make this book a critical addition to the field. Although written for a wide audience, it would serve as an especially useful read for policy makers in charge of disaster recovery.

Cultures and Disasters: Understanding cultural framings in disaster risk reduction
Fred Kruger, Greg Bankoff, Terry Cannon. Benedikt Orlowski, Lisa Schipper (Eds.) 2015
ISBN 978-0-415-74560-4
276 pages $56.95 (paperback)
Francis & Taylor

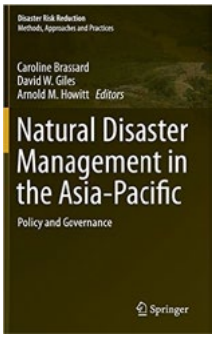
By Zehra Zaidi

This collection of essays provides a much needed intervention in the field of disaster risk reduction. Its contributors represent some of the most eminent scholars in the field, providing insight into the socially embedded nature of risk and the contextual nature of people's perceptions, interpretations, and reactions to hazards.

The book is comprised of 15 chapters, separated into three different themes. The first section deconstructs the notion of disasters from different social perspectives, and explores how cultural norms and values play a role in determining the existence or absence of risks. Arguments relating to disaster risk reduction as a manifestation of neoliberal politics, or of an increasingly security obsessed society highlight the influence of larger cultural paradigms in shaping modern thinking on disasters. Lessons on historical interpretations of disasters, often expressed through architecture and the built-environment, continue to offer learning opportunities for modern societies. Cultural beliefs and behavior can therefore be the seen as the lynchpin around which modern day vulnerability to disasters, especially in the context of climate change, is configured and projected. The following section examines aspects of culture that influence how risk and vulnerability are communicated and embedded into everyday practice. Drawing on frameworks as diverse as behavioral drivers, health, religious beliefs, and psychosocial trauma, each chapter highlights responses to disasters that are often discounted in favor of more hegemonic or technical solutions. By focusing on local or even individual triggers and responses to risk, the section builds the case for a more

contextualized and culturally sensitive interpretation of disaster risk management that can offer new entry points into strengthening resilience. The last part of the book is an amalgamation of illustrative case studies examining the way in which implementation of disaster risk reduction initiatives is supported, transformed or rendered useless through interaction with cultural practices. From the 'Geldof/Bono factor,' to gendered capacities, objective versus subjective worlds, and the political nature of participation of both the DRR practitioner and the vulnerable, this section provides diverse and colorful examples to bring home the importance of cultural signifiers in regulating disaster management efforts.

One of the strong points of this book is that it does not attempt to reduce the concept of culture to a singular or universal notion. Instead, each contribution approaches culture in its own individual manner, reflecting the fluidity and plurality of how beliefs, attitudes, experiences, values, and day-to-day routines mediate the way in which societies interact with their risk environments. Disaster risk reduction studies and initiatives, coming from the perspective of security and safety, can often assume a position of rationality and scientific validity. This book serves as a reminder of how far we still need to go in understanding and incorporating the socially constructed nature of risk in the field of disasters – and, conveniently, lays out the beginnings of an agenda to get there.



Natural Disaster Management in the Asia-Pacific: Policy and Governance
Caroline Brassard, David W. Giles, and Arnold M. Howitt, eds., 2015,
ISBN: 978-4-431-55156-0,
203 pages, $129 (hardcover)
Springer

By Thomas W. Haase

The book *Natural Disaster Management* in the Asia-Pacific presents a synopsis of contemporary risk-management thinking in the Asia-Pacific. The opening chapter, written by editors Caroline Brassard, Arnold Howitt, and David Giles, sets forth the book's primary thesis: disaster-risk reduction must be integrated into the long-term policy agendas of governments throughout the Asia-Pacific region. To set the context for the subsequent chapters, the editors summarize the lessons of recent disaster experiences and stress that successful disaster risk- management strategies are those that coordinate local, national, regional, and international actors.

The remainder of the book is organized into three parts. Part one reviews how relationships between local and national governments, civil society organizations, and international contributors can improve emergency response and humanitarian relief. In chapter two, for instance, Rebecca Barber details how the Philippines strengthened its disaster-response and relief capacities by adopting a comprehensive framework, clarifying agency responsibilities, and implementing the cluster approach . Shifting to the subject of recovery and resilience, the second part considers: "the ways in which the responsibility for recovery is divided among national, provincial, and local governments – and the community-at-large" (p. 7). This division is illustrated in chapter nine, where Kerry O'Neill reveals how the Victorian Bushfire Reconstruction and Recover Authority worked with local stakeholders to develop a framework for reconstruction for the Marysville area, an Australian community devastated by bushfire. The chapters in the final part of the book explore how community preparedness efforts can help mitigate the costs of disaster. The authors of these chapters consider several preparedness alternatives. Gilles Carbonnier, for example, argues in chapter eleven that risk insurance and risk-linked securities, particularly those developed through public-private partnerships, can help Southeast Asian governments to "assert sovereignty and reduce aid dependency" (p. 186).

The value of this compilation of chapters resides in its breadth and diversity of coverage. While works that explore the experiences of multiple counties can be unwieldy, *Natural Disaster Management in the Asia-Pacific* is well organized, concise and easy to navigate. Moreover, given the priorities outlined by the Sendai Framework for Disaster Risk Reduction, this book will be of interest to those involved in disaster risk-management activities throughout the Asia-Pacific.

Fed Up,
2014, 1hr. 32 min.
Directed by: Stephanie Soechtig

By Elke Weesjes

Fed Up is yet another eye-opening documentary about the nation's eating habits and obesity epidemic. In the same vein as *Supersize Me* (2004) and *Food Inc.* (2008), *Fed Up* focuses on the relationship between sugar and childhood obesity, exposes the food industry's relentless quest for profit above all else, and dispels the myths surrounding diet and exercise.

Narrator and executive producer, Katie Couric, examines the root of the obesity problem and interviews a variety of politicians—including former President Bill Clinton—nutritionists, physicians, and scientists. Besides presenting statistics and infographics, *Fed Up* introduces four severely obese teenagers who share their frustrations, their day-to-day struggles to eat healthier foods and lose weight, and their sense of failure and hopelessness.

This film squarely puts the blame for the obesity crisis on politicians and food industry. It exposes these industry's

immoral lobbying, misleading labeling, predatory advertising, and their overall disregard for public health. Furthermore *Fed Up* attacks politicians and the government, in particular the USDA, for having a conflict of interests. The nation's cheese consumption serves as an example of the USDA's double mission. As Americans gradually began to shift to skim milk in the mid-1980s, rather than whole milk, the dairy industry was stuck with huge amounts of leftover milk fats, so it decided on a big marketing push for cheese. This very successful push was praised in USDA industry reports, while other USDA reports concerned with the nation's diet stated that people should cut their cheese consumption because it isn't considered a healthy food.

Wondering where it all started, the film takes the viewer through a history of Americans' dietary habits. It argues that the obesity crisis began in the late 1970s, when a U.S. Senate committee on nutrition, in an attempt to curb the increase of heart disease, prepared guidelines urging Americans to eat more fruit, grains, and vegetables, and fewer dairy products, eggs, and meat. According to the film, the egg, sugar, and beef associations teamed up and demanded a rewrite of the recommendations. As a result of their objections, the report was revised to call for buying more lean products instead of fewer rich ones. These guidelines did not lead to healthier diets, instead it kick-started the fat-free food boom. Sounds healthy at first glance, except that fat-free foods tend to contain much more sugar. As a result, Americans' sugar consumption has doubled since the late 1970s.

Fed Up continues on the politics-over-nutrition front by discussing how, in the early 1980s, President Ronald Reagan made serious spending cuts to the National School Lunch Program, which was established in 1946 to ensure the health and wellbeing of American children. And who could forget that Reagan allowed ketchup, pickle relish, tomato paste and other condiments to count as vegetables. These cuts led to schools selling their kitchen equipment and laying off real cooks. Nutritious dinners were replaced by unhealthy alternatives, like burgers, fries, and pizza. As the teenagers featured in this documentary explain, not much has changed since then. There might be one healthy option, but it takes a lot of determination to choose the one healthy menu item over all the junk food that's on offer.

One of *Fed Up*'s most refreshing segments criticizes the idea that burning calories through exercise, as promoted by Michele Obama's "Let's Move" campaign, can undo these abysmal eating habits. By showing how much exercise one needs to compensate for a candy bar or bottle of soda, and the frustration of the obese teens who attempt to follow Ms. Obama's advice, it becomes clear that the caloric math doesn't hold up. "We are not going to exercise our way out of obesity," one nutritionist says. Which is why, according to *Fed Up*, it is time to hold the food industry and the government accountable for creating this deadly epidemic, rather than putting all the blame on people who are overweight.

Natural Hazards Library

THE LIBRARY IS an extensive collection of resources that focuses on the social dimensions of natural hazards and disasters.

The collection provides a wide spectrum of information for both researchers and practitioners. Regardless of discipline, it provides practical, applied, and academic support to those in need of disaster knowledge.

What's happening in the Library:

- Thanks to funding from the University of Colorado's Institute of Behavioral Science, the library has moved part of its collection to cyberspace and is working to make full-text copies of titles available through the new HazDoc repository. The project is expected to be completed sometime in 2016.
- We encourage all researchers and authors to join the Open Access movement! While we work out copyright and digital ownership issues for proprietary material, submitting a prepublication copy of your work for inclusion into HazDoc will allow it to be freely shared with others in the hazards and disaster community. For more information contact Wanda Headley at 303.492.5787; wanda.headley@colorado.edu.
- HazCat is a fully functioning online public access catalog that allows users to more easily find and access full-text titles.

October 16-17, 2015
Tri-State Emergency Responder Conference
Northeast Iowa Community College
Dubuque, Iowa
Cost and Registration: $198, open until filled
This conference will provide regional fire and emergency medical services personnel with an opportunity to increase their training and knowledge base. Topics include risk management for firefighters, ethical decision making, tactical EMS operations, and customer service skills for first responders.

October 31 to November 4, 2015
2015 Annual Meeting
American Public Health Association
Chicago, Illinois
Cost and Registration: $870 before September 17, open until filled
This conference will focus on helping public health workers form partnerships with a variety of agencies and policy makers to further the health of their communities. Topics include mental health in older adults, racism and public health, multi-sector partnerships to prevent violence, creating healthy places, public health and safety issues, and using science to support decision making.

November 3-5, 2015
Rising Seas Summit
Association of Climate Change Officers
Boston, Massachusetts
Cost and Registration: $775, open until filled
The conference will provide a multi-sector look at the intersection between climate change, sea level rise, and extreme weather events. Topics include leveraging climate data tools, developing organizational adaptation plans, engaging the business community, protecting drinking water, and addressing policies that mask risk.

November 13-18, 2015
IAEM Annual Conference
International Association of Emergency Managers
Clark County, Nevada
Cost and Registration: $743 before October 13, open until filled
This conference will focus on expanding the spectrum of emergency management and providing training and networking opportunities. Topics include how gender matters in emergency management, disaster research put into practice, social media, and leadership examples from Fukushima and Hurricane Sandy.

November 17-18, 2015
Association of Healthcare Emergency Preparedness Professionals Annual
Association of Healthcare Emergency Preparedness Professionals
Omaha, Nebraska
Cost and Registration: $520 before September 30, open until October 16.
This conference will help guide participants through the most important disaster preparedness concerns in various types of healthcare facilities today. Speakers will share disaster stories from the field and help guide and refine participants' disaster planning efforts. This event will allow for intensive and collaborative learning and networking opportunities.

November 19-22, 2015
2nd World Congress on Disaster Management
Disaster Management, Infrastructure and Control Society
Visakhapatnam, Andhra Pradesh, India
Cost and Registration: $310, open until filled
This conference will address environmental, technical, social, and economic risks in today's societies and the links between these risks. It will explore various dimensions of natural and manmade hazards and the various efforts and initiatives for building resilience. Topics include earthquake disasters, rescue and evacuation, crisis communications, IT disaster management, and media and disasters.

December 9-11, 2015
NEEDS Conference
University of Copenhagen
Copenhagen, Denmark
Cost and Registration: $135, open until filled
This conference, the first Northern European conference on emergency and disaster studies, will explore the status quo of disaster research and management. It intends to bring together disaster researchers from academic institutions and practitioners from the international disaster management community to build networks and to discuss the most pressing issues in disaster research across the academic and practical disciplines. Tracks include, technology in disaster, historical disasters, disaster ethics, the role of religion in disasters, and global disasters.

December 10-12, 2015
2nd Conference on Improving the Seismic Performance of Existing Buildings and Other Structures
Applied Technology Council and Structural Engineering Institute of the American Society of Civil Engineers
San Francisco, California
Cost and Registration: $800 until October 1, open until filled
This conference will focus on the presentation and exchange of new information on the seismic evaluation and seismic rehabilitation of existing buildings, including innovative use of new technologies and materials, implementation issues, needed improvements to existing standards and methods, and socio-economic issues.

Below are descriptions of some recently awarded contracts and grants related to hazards and disasters. Please see http://www.nsf.gov/awardsearch/ for more information.

CSBR: Natural History: Reconstructing the lost field notes of Royal D. Suttkus using the notes of other collectors in the Royal D. Suttkus Fish Collection
Award Number: 1458311. Principal Investigator: Henry Bart. Co-Principal Investigator: Nelson Rios. Organization: Tulane University. NSF Organization: DBI.
Start Date: 08/01/2015.
Award Amount: $102,782.00.

RAPID: Avoiding Secondary Disasters: Wastewater Treatment Design and (Re)construction during Large-Scale Disaster Response
Award Number: 1539775. Principal Investigator: Heidi Gough. Co-Principal Investigator: Amy Kim. Organization: University of Washington; NSF Organization: CBET Start Date: 08/15/2015.
Award Amount:$99,989.00.

RAPID: Investigating the Efficacy of Coordination of Damage Assessment Initiatives following the April 2015 Nepal Earthquake
Award Number: 1548217. Principal Investigator: John Bevington. Co-Principal Investigator: Ronald Eguchi, Lucy Arendt. Organization: ImageCat, Inc. NSF Organization: CMMI.
Start Date: 08/15/2015.
Award Amount: $49,572.00.

RAPID: The Himalaya Connection Video, Outreach & Education
Award Number: 1550276. Principal Investigator: Doug Prose. Co-Principal Investigator: Diane LaMacchia. Organization: EARTH IMAGES FOUNDATION. NSF Organization: DRL.
Start Date:09/01/2015.
Award Amount: $199,612.00.

Collaborative Research: Modeling Post-Disaster Housing Recovery Integrating Performance Based Engineering and Urban Simulation
Award Number: 1560939. Principal Investigator: Scott Miles. Organization:University of Washington. NSF Organization: CMMI.
Start Date:09/01/2015.
Award Amount: $204,893.00.

RAPID: Breaking drought as an opportunity to examine regional vs. local constraints on microbial community responses to environmental change
Award Number:1546740. Principal Investigator: Christine Hawkes. Co-Principal Investigator: Organization: University of Texas at Austin. NSF Organization: DEB.
Start Date: 09/01/2015. Award Amount: $141,437.00.

An Ecological Assessment of New York's Home Buyout Program: Exploring Lived Experiences and Implications for Affected Households and Communities
Award Number:1536217. Principal Investigator: Charlene Baker. Co-Principal Investigator: Sherri Binder. Organization: University of Hawaii. NSF Organization: CMMI
Start Date: 09/01/2015.
Award Amount: $468,618.00

Collaborative Research: Online Hazard Communication in the Terse Regime: Measurement, Modeling, and Dynamics
Award Number: 1536319. Principal Investigator: Carter Butts. Organization: University of California-Irvine. NSF Organization: CMMI.
Start Date: 09/01/2015
Award Amount: $343,876.00.

Doctoral Dissertation Research: IMEE: Disaster Recovery, Social Capital, and the Sri Lankan Context: A Comparative Study of Two Communities in Batticaloa
Award Number: 1538165. Principal Investigator: Kathleen Tierney. Co-Principal Investigator: Elizabeth Bittel. Organization: University of Colorado at Boulder. NSF Organization: CMMI.
Start Date: 09/15/2015.
Award Amount: $9,568.00.

Collaborative Research: Extreme Rainfall in Urban Environments
Award Number: 1522492. Principal Investigator: James Smith. Organization: Princeton University. NSF Organization: AGS.
Start Date:09/15/2015.
Award Amount: $91,224.00

EPCN: Quantifying the Resilience of Power Systems to Natural Disasters
Award Number: 1509880. Principal Investigator: Daniel Kirschen. Co-Principal Investigator: Organization: University of Washington. NSF Organization: ECCS.
Start Date: 09/15/2015.
Award Amount: $349,972.00

Hazards SEES: Bridging Information, Uncertainty, and Decision-Making in Hurricanes using an Interdisciplinary Perspective
Award Number: 1520338. Principal Investigator: Satish Ukkusuri. Co-Principal Investigator: Seungyoon Lee, Milind Kulkarni, Yue Ge, Pamela Murray-Tuite. Organization: Purdue University. NSF Organization: CMMI.
Start Date: 11/01/2015.
Award Amount: $2,475,000.00.

Wanted: Research Associate
The Urban Institute
Washington, D.C.

This position will support the Institute in using social science research to further housing and community policy in the areas of economic development, resilience, response, youth development, and hazard mitigation. Duties include developing empirical research projects, fundraising, evaluating existing projects, data collection, and report writing. Project management experience, knowledge of hazards and disaster management, and a PhD in urban planning, sociology, or related fields are required. Please reference Job ID 2107 when searching for position.

Deadline: Open until filled.

Call for Papers, International Journal of Mas Emergencies and Disasters

The *International Journal of Mass Emergencies and Disasters* will release a Special Issue on the Nepal 2015 earthquake. It welcomes papers from scholars all over the globe and anticipate a broad range of subtopics including (but not limited to): Humanitarian logistics after the earthquake, Political issues related to relief (or recovery), Religious or cultural aspects related to the disaster, Family structure, migration, and demographic issues, Public health issues related to the hazard event, Mitigation strategies, Preparedness at the institutional or community level, Media, framing, and policy issues related to the event.

The deadline for manuscripts is December 31, 2015. Questions regarding the Special Issue can be sent directly to the Guest Editor, Dr. Sarah DeYoung at sedeyoun@udel.edu.

Call for Abstracts, Resilience: Policies, Practices and Discourses

The editors of *Resilience: Policies, Practices and Discourses* are accepting abstracts of papers to be published in an upcoming issue of the journal that will focus on political ecologies related to resilience and an era where humans have become a geophysical force. Interdisciplinary abstracts of no more than 500 words may be submitted via email.

Deadline: October 15, 2015

Call for Papers on Climate Change and Health

A special feature of Health Security, a bi-monthly peer-reviewed journal, will be devoted to climate change and health. Health Security provides research and essential guidance for the protection of people's health before and after epidemics or disasters and for ensuring that communities are resilient to major challenges. For this special issue, the Journal seeks papers that address the wide range of policy, practice, and research issues at the intersection of health and a changing climate.

Examples might include articles related to: Emergence and reemergence of health threats currently not endemic to a region (e.g., dengue in the US). Infectious disease surveillance and insect vector control, Healthcare facility readiness for extreme weather events (e.g., heat waves, floods, droughts, wildfires), Increasing frequency and severity of hurricanes and other severe storms, Mitigation strategies for large-scale heat-related illness.

Papers must be submitted by December 1, 2015

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http://ibs.colorado.edu/hazards/subscribe

IN SEPTEMBER 2014, Mount Royal University (MRU) opened the Centre for Community Disaster Research. Located in Calgary, Canada, the CCDR grew out of the devastating 2013 Southern Alberta flood and a recognition that disaster scholarship and planning are lagging behind in Canada. With the 2014 closure of the University of Manitoba's 24-year-old Disaster Research Institute, the time was right to create a new disaster hub. MRU was fortunate to attract external funding from both the Social Sciences and Humanities Research Council (SSHRC) of Canada and from the Calgary Foundation to open the CCDR.

Despite the need and the interest, our team at MRU grappled with one pressing question: what would a disaster center look like in an all-undergraduate institution, without the contributions of graduate students or postdocs, while relying on contributions by faculty members with higher teaching loads?

Since its opening a year ago, the CCDR has identified 13 Faculty Affiliates (11 from MRU and 2 from other institutions), funded several innovative early-stage research projects, hired an undergraduate student as our Office Manager, and employed more than 15 undergraduate students as Research Assistants on Centre projects.

The CCDR's Faculty Affiliates are undertaking a number of projects aimed at understanding the social dynamics of disaster and mitigating disaster risk. For instance, Caroline McDonald-Harker is part of a three-university team undertaking the "Alberta Resilient Communities" initiative—a project that seeks to use child and youth-centered approaches to improve health, well-being, and planning in the aftermath of the 2013 flood. McDonald-Harker and I also conducted interviews with 105 parents in the flood-affected community of High River, Alberta, aimed at understanding how family dynamics and parenting practices changed as a result of the flood—a project we're calling the "High River Family Study." And, other faculty affiliates are working on projects that, for instance, seek to uncover the paleo-flood history of the High River area (Matthew Swallow), how children understand disaster risk (Katherine Boggs), and how college students experience depictions of suffering in courses related to disaster (Patricia Kostouros), and others. These projects all employ MRU undergraduate students as Research Assistants.

The CCDR held a number of events in our first year. This included a guest lecture from Lori Peek (co-Director of the Center for Disaster and Risk Analysis at Colorado State) on children and disaster resilience, a symposium on disaster risk reduction, frequent seminars and brown-bag events. The coming year will feature our first Fall Lecture, Kristen Barber from Southern Illinois University, speaking about gender in disaster, our first seminar by CCDR undergraduate students, and the first presentations on research projects funded by the CCDR.

Central to the CCDR's mission is community involvement and community-driven research. We have partnered with various community organizations on projects of mutual interest, including Canada's Department of National Defense, the City of Calgary, the Town of High River, Alberta Health Services, and others. These partnerships have resulted in coauthored reports with organizations such as the Emergency Social Services Network of Alberta (ESSNA) and the Urban Conservancy (New Orleans, LA).

The CCDR also stands to benefit from tremendous pedagogical synergies. Though MRU offers more than 15 different courses related to disaster (and a post-graduate certificate in Disaster and Emergency Management), this work previously occurred in disciplinary silos. Through the CCDR, we are exploring ways to bring our classes together, across disciplinary boundaries, for guest speakers, fieldwork, or student-driven research projects.

In yet another example of pedagogical innovation, I recently took my second class of students to New Orleans to learn about recovery from Hurricane Katrina and from the BP oil spill. Offered with the help of the CCDR and with funding from the Government of Alberta, this field course asked students to learn, conduct original research while working with a local partner organization, and to do hands-on service-learning by helping in the rebuilding efforts. Experiences like this—the blending of teaching, learning, research, and service—are at the heart of the CCDR's mission.

Students working with the CCDR have already gone on to experience great success in the disaster field after leaving MRU. Several students are attending graduate school and working on theses related to disaster. One of our alumni, Melanie Gracy, is currently working for the United Nations in New York City on disaster risk. Another alumnus, Zachary Cox, is employed by IBM as a business continuity consultant in the context of disaster. Two recent students associated with the CCDR have also gone on to win the Natural Hazards Center's undergraduate paper competition: Julie Broderick in 2011 and Melanie Gracy in 2014.

At the end of the day, time will tell if it is feasible to run a disaster research center at an all-undergraduate university. But, after our first year, all signs are positive: we have attracted significant interest in our events, and have planted the seeds for several innovative, community-responsive research projects—all driven by the tremendous work of undergraduate Research Assistants.

If you would like to keep updated on CCDR events, reports, or activities, you can follow us on social media or on the web: Website: http://www.mtroyal.ca/ccdr, Twitter: @disasterCCDR, Facebook: https://www.facebook.com/CCDRMRU.

And, please drop us an e-mail if you would like to join our e-mail list: ccdr@mtroyal.ca

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The success of the Natural Hazards Center relies on the ongoing support and engagement of the entire hazards and disasters community. The Center welcomes and greatly appreciates all financial contributions. There are several ways you can help:

Support Center Operations—Provide support for core Center activities such as the DR e-newsletter, Annual Workshop, library, and the Natural Hazards Observer.

Build the Center Endowment—Leave a charitable legacy for future generations.

Help the Gilbert F. White Endowed Graduate Research Fellowship in Hazards Mitigation—Ensure that mitigation remains a central concern of academic scholarship.

Boost the Mary Fran Myers Scholarship Fund—Enable representatives from all sectors of the hazards community to attend the Center's Annual Workshop.

To find out more about these and other opportunities for giving, visit:

www.colorado.edu/hazards/about/contribute.html

Or call (303) 492-2149 to discuss making a gift.

A U.S.-based organization, the Natural Hazards Center is a nonprofit, tax-exempt corporation under Section 501(c)(3) of the Internal Revenue Code.