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*The New York Extension Disaster Education Program: Testimony before the
New York Legislature Standing Committee on Environmental Conservation's
Hearing on Effects of Extreme Weather Events*

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Hearing on the Environmental Causes and Effects of Extreme Weather Events
New York State Assembly Standing Committee on Environmental Conservation
Babylon Town Hall Board Room, Lindenhurst, NY
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Professional qualifications:

Keith G. Tidball is Senior Extension Associate in the Department of Natural Resources at Cornell University, Cornell Cooperative Extension (CCE) NY State Program Leader for Extension Disaster Education (EDEN), Associate Director of the Civic Ecology Lab, and Team Leader for the Nature & Human Security/Peopled Landscapes & Vulnerability team. He received his Ph.D in Natural Resources at Cornell University, his M.A. in International Affairs from the George Washington University, and his B.A. in Anthropology from the University of Kentucky. Tidball is deeply engaged with the environmental causes and effects of extreme weather events via his applied research and extension activities as described on the CCE Extension Disaster Education Network website (<http://eden.cce.cornell.edu>) and in his new book *Greening in the Red Zone: Disaster, Resilience, and Community Greening* (<http://tinyurl.com/tidballgrz>). He is committed to evidence-based disaster preparedness and response extension and education that contribute to the resilience of individuals, communities, and whole social-ecological systems.

Testimony of Keith Tidball:

Thank you for the opportunity to testify about ways in which individuals and communities can better mitigate, prepare for and respond to environmental causes and effects of extreme weather events. Today I want to address you as the State Program Leader for EDEN—the Extension Disaster Education Network at Cornell University. I will describe EDEN in greater depth later, but in short, EDEN is New York State’s premier program focused upon linking extension educators, emergency managers, and community officials to enhance resilience and reduce the impact of disasters in New York communities.

In 2012, record-breaking extreme events occurred in New York and in each of the other 49 states. There were 3,527 monthly weather records broken for heat, rain, and snow in the US, according to information from the National Climatic Data Center (NCDC)¹. That's even more than the 3,251 records broken in 2011—and some of the newly-broken records had stood for 30 years or more. We saw the hottest March on record in the contiguous US², and July was the hottest single month ever recorded³ in the lower 48 states. Spring and summer weren't the whole story: 2012 was declared to be the warmest year overall ever recorded in the US, according to the National Oceanic and Atmospheric Administration (NOAA)⁴. The frequency and intensity of some very costly types of extreme events⁵ are likely to worsen as temperatures are predicted to continue to rise and affect weather patterns. Extreme weather events inflict tremendous costs on our health and families as well. Whether climate change, direct alteration of buffering landscapes by humans, or other causes are to blame, it is clear that the frequency of extreme events such as floods, droughts and heat waves are increasing and expected to continue to do so. With that comes an increase in the vulnerability of humans within social-ecological systems, or the so-called “environment.” Today I will share with you some recommendations from Cornell’s Extension Disaster Education program on how to address this vulnerability.

People are part of social-ecological systems

Unfortunately when we think of the “environment,” we tend to think of it in abstract terms, rather than in intimate terms. This is problematic in that it encourages us to think of environmental problems as “out there” instead of as a part of our daily existence. This thinking derails common sense discussion about climate change or other large scale environmental issues, but it is down-right dangerous when it transfers to disaster preparedness or lack-thereof. History is full of tragic examples of people who failed to engage in the most basic preparedness because they convinced themselves that hazards and disaster were “out there” and “could never happen to them.” It is my opinion that an understanding of environmental causes and effects of extreme weather events that results in more resilient citizens and communities will require a paradigm shift about our role in “the environment”, our “ecological identity” if you will, and subsequently

¹ National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC) US Records 2012 website at: http://www.ncdc.noaa.gov/extremes/records/monthly/maxt/2012/01/00?sts%5b%5d=US#records_look_up .

² According to National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC) State of the Climate-National Overview-March 2012 website at: <http://www.ncdc.noaa.gov/sotc/national/2012/3> .

³ According to National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC) State of the Climate-National Overview-July 2012 website at: <http://www.ncdc.noaa.gov/sotc/national/2012/7> .

⁴ <http://usnews.nbcnews.com/news/2013/01/08/16413805-noaa-2012-was-warmest-year-ever-for-us-second-most-extreme?lite>

⁵ As of December 20, 2012, eleven extreme weather events that each cost more than an estimated billion dollars in damages had occurred in the US, according to NOAA information available at: <http://www.ncdc.noaa.gov/news/preliminary-info-2012-us-billion-dollar-extreme-weatherclimate-events> . NOAA further estimated that total aggregate costs for 2012’s event are likely to exceed 2011’s total of \$60 billion

will also require the development of “a culture of readiness and resilience” amongst citizens, corporations, communities, and the municipalities

People’s actions during “Red Zone” disturbances directly affect outcomes

We know that most communities will likely be impacted by several types of hazards during a lifetime. People are also traveling more than ever before to areas impacted by hazards they may not be at risk of near their homes. And the increasing frequency of hazards was mentioned previously. Knowing what to do before, during and after an emergency is a critical part of being prepared and may make all the difference when seconds count. No conversation about environmental causes and effects of extreme weather events should fail to acknowledge this, especially when we consider effects on peopled landscapes such as open spaces and parks, agricultural and forested lands, and coastal areas. My applied extension work and research has shown repeatedly the difference preparedness makes in these contexts, as I will share in a few moments. Often, it is the difference between recovery and being written off, between a salvageable home or farm and a total loss, between life and death. People’s actions during and after extreme events directly affect outcomes across scales.

People’s readiness and recovery capacity are a function of education and training

So how do we ensure that peoples’ actions reflect the highest levels of preparedness, and manifest a culture of readiness and resilience? The answer is simply increased education and training, in all arenas (formal, informal, vocational, etc.). Before a disaster, people of all ages, incomes, and ethnicities need to learn how to know there is an impending hazardous event. They need to familiarize themselves with the signs of events that come without warning and know the local advance alerts and warnings and how they will receive them. Knowing about local emergency plans for shelter and evacuation and local emergency contacts will help them develop household plans and will also aid them during a crisis. Learning what to do in different situations and developing and customizing their plans for their local hazards, the locations frequented by members of their household and the specific needs of household members including animals will help them reduce the impact of disasters and may save lives and prevent injuries and property damage. People’s readiness and recovery capacity are a function of education and training.

Disaster education and training is a Federal priority

This kind of education and training is a federal priority. The Federal Emergency Management Agency (FEMA), the National Oceans and Atmospheric Administration (NOAA), and many other federal agencies are directed to invest in disaster education and training. Perhaps of particular interest to you, but perhaps not fully understood, is the important role of the United States Department of Agriculture (USDA). USDA Agencies with essential functions that must have a continuous emergency operational capability during national security emergencies are: Agricultural Marketing Service; Agricultural Research Service; Animal and Plant Health Inspection Service; Farm Service Agency; Food and Nutrition Service; Food Safety and Inspection Service; Foreign Agricultural Service; Forest Service; National Agricultural Statistics Service, Natural Resources Conservation Service, and the National Institute of Food and Agriculture (NIFA) (formerly Cooperative State Research, Education, and Extension Service).

I want to point out the last one I mentioned in particular. NIFA, formerly the Extension Service, funds the National Extension Disaster Education Network (<http://eden.lsu.edu>), a network of most of, if not all, the land grant universities in the US, including Cornell University in New York State, and a clearinghouse of the best, most cutting-edged, state-of-the-art, evidenced-based research and extension in the world regarding disaster preparedness and response education.

State Land grant universities are a long-standing connector to Federal priorities

All of these USDA entities are important, and your liaison to all of them is the state land grant university and the cooperative extension network. The nationwide network of Cooperative Extension programs began in 1914 as a means of applying land-grant university research in understandable and useful ways to farmers and rural families. Today, Cooperative Extension serves urban, suburban, town and rural areas. NIFA funds allocated to benefit the citizens of New York come through Cornell University. Cornell Cooperative Extension is a key outreach system with a strong public mission and an extensive local presence that is responsive to needs in New York communities.

With offices in every county and the 5 boroughs of New York City, Cornell Cooperative Extension provides 56 portals across the state to Cornell University and the USDA resources such the Extension Disaster Education Network. Extension educators in these locations form powerful community-university partnerships with the Cornell campus, and involve local constituents to address the issues and concerns of New Yorkers. The New York state land grant university, Cornell University, is a long standing connector to federal priorities.

Cornell University Cooperative Extension (CCE) NY EDEN

When disaster strikes, people can turn to Cornell Cooperative Extension (CCE) for reliable information and educational resources to aid in preparation and recovery efforts. While extension is not considered an “emergency response” agency, it often is called upon before, during, and after disasters to provide objective evidence-based education. Cornell CCE’s Extension Disaster Education program equips a large cadre of county-based extension educators to participate in local disaster preparedness, management and recovery efforts.

The CCE NY EDEN website provides instant access to: (1) A searchable database of evidence-based disaster resources; (2) disaster professionals in all 50 states and three U.S. territories; (3) Coast-to-coast coverage with close-to-home education; (4) National EDEN member university and disaster agency websites; (5) Educational materials tailored to help people deal with a wide-range of hazards; (6) Food and agricultural defense educational resources, and (7) Simple access to timely social media regarding disaster alerts from local, state, and federal sources.

CCE EDEN Superstorm Sandy Response

CCE’s NY Extension Disaster Education Network (EDEN) identified key areas for improvement after Hurricanes Irene and Lee damaged large areas of upstate New York in 2011. In the months following, a concentrated effort was put forth to develop a system-wide set of standard operating procedures, including provisions for rapid assembly of a Disaster All-hazards Response Team (EDEN-DART) tailored to the specific incident.

These preparations were formalized via the creation of the EDEN-DART Standard Operating Procedures (SOP), which was revised and enhanced through drills and table top exercises over the past 12 months. In late October of 2012, CCE NY EDEN-DART was activated for the first time in a “live” incident by New York EDEN’s Program Leader Keith Tidball several days before Hurricane Sandy made landfall in the New York City area on October 29, 2012.

Outreach to statewide extension associations and staff included phone calls and emails to association executive directors and a message to all system staff providing basic instructions on safety and preparedness. Situation reports were filed by most county associations within two days.

Direct linkages to the National Weather Service, the NYS Emergency Operations Center via NYS Department of Agriculture and Markets, and other state government agencies allowed for close monitoring of the hurricane’s path and intensity.

Anticipated communications and disaster education resource needs were identified and compiled for rapid dissemination via Facebook, Twitter, email list serves, the CCE and NY EDEN websites, and the Cornell University Press Office.

The emerging picture that upstate New York’s agricultural sector had been largely spared was made possible early on by CCE’s extensive connections in every corner of the state. The focus then quickly shifted to Long Island, the Lower Hudson, and New York City, and resources were tailored for more urban environments.

A special Hurricane Sandy resource page was rapidly developed and posted on the NY EDEN website. With the help of Cornell faculty, new resources were gathered and packaged and others were verified. Social media figured prominently in the response. A new NY EDEN Facebook page was created and achieved 319 page views on Oct 29th, which were “liked,” shared, or otherwise viewed by 1,921 individuals (Facebook metric “viral”). NY EDEN also utilized Twitter and sent out 288 “Tweets,” with 64 followers receiving “tweets” and “re-tweeting.”

The Cornell CCE NY EDEN listserv was used to send out more than 50 emails containing important updates, talking points, and fact sheets, as well as instructions for associations on how to rapidly add to their websites Hurricane Sandy content and links back to NY EDEN for their stakeholders.

News media outputs by NY EDEN staff both before and after the hurricane included NBC News (blog), USA Today, Huffington Post, Morning Ag Clips, NY Farm Bureau, Food & Farm Show/Foodstuffs web radio, multiple local radio and newspapers outlets, The Cornell Chronicle and others.

NY EDEN is now in a period of regular contact with CCE associations in counties most impacted by Hurricane Sandy. Educational and informational resource needs of constituents of those counties are being assessed. Current recovery issues and future needs are also being discussed and coordinated with neighboring states and the national EDEN organization. Leadership from affected CCE county associations is included in these efforts.

Challenges and Opportunities for NY State

Shortly after Superstorm Sandy struck, Governor Cuomo announced the establishment of three related emergency preparedness commissions. Despite the historically significant capacity of both USDA/NIFA's national extension disaster education program and the Cornell Cooperative Extension New York Extension Disaster Education program, there are officially no Cornell members of the newly formed "NYS Ready Commission⁶;" no Cornell members of the newly formed "NYS Respond Commission⁷;" and no Cornell representation on the newly formed "NYS 2100 Commission⁸." This oversight represents "missing the boat" on a significant pool of county and state resources in the form of county Cornell Cooperative Extension associations and their important local community networks, particularly in the area of disaster readiness, recovery, and resilience in the agricultural and natural resources sectors. Of perhaps greater concern is the challenge presented by attempting to forge ahead in the area of emergency preparedness in the State of New York without the sizeable benefit of a USDA funded federal land grant system's National Extension Disaster Education Network and its New York State representative Cornell CCE's NY EDEN. Clearly these oversights point to an opportunity to leverage the best available disaster readiness, recovery, and resilience science residing in the NY EDEN and the larger national program, along with its formidable dissemination vehicle of more than 56 nodes or portals throughout the state.

Recommendations

Given the above-detailed existence of national and state resources dealing with extreme weather events readiness, recovery, and resilience that reside within and can be disseminated by the State's land grant university (Cornell University) and its cooperative extension system, I recommend that the New York State Assembly Standing Committee on Environmental Conservation:

- 1.) encourage the Governor to more explicitly include expertise in planning for effects created by extreme weather events on peopled landscapes such as open spaces and parks, agricultural and forested lands, and coastal areas.
- 2.) encourage the Governor to include the *existing* capacity of local CCE associations, Cornell, and the NY Extension Disaster Education Network (EDEN), in commissions and other efforts to improve NY State's disaster readiness and resilience.
- 3.) continue to support and enhance partnerships between Cornell and DEC and NYSDAM respectively in efforts to improve NY State's disaster readiness and resilience.
- 4.) support county efforts to seek cross-functional partnerships with CCE in the area of disaster education and outreach.

⁶ <http://www.governor.ny.gov/NYSReadyCommission>

⁷ <http://www.governor.ny.gov/NYSRespondCommission>

⁸ <http://www.governor.ny.gov/NYS2100Commission>