Meeting Minutes of the Subcommittee on Disaster Reduction

3 March 2011, 10:00 a.m. to 12:00 p.m., White House Conference Center Lincoln Room

Italics indicate absent members. "T" indicate members participating via teleconference.

Officers

David Applegate (USGS), Chair
Margaret Davidson (NOAA), Vice-Chair
Dennis Wenger (NSF), Vice-Chair

NSTC Liaison

Tamara Dickinson (OSTP)

Designated Representatives

BLM *Edwin Roberson*
Daniel Lechefsky
CDC Mark Keim
DHS Bruce Davis
DHS/FEMA *Stephen Carruth*
DHS/USCG *Austin Gould*
DOD *Al Johnson*
DOT *Kelly Leone*
Sheila Duwadi
EOP/OSTP Tamara Dickinson
EDA *Audrey Clarke*
EPA *Peter Jutro*
Stephen Clark
FERC Pamela Romano (T)
HUD *David Engel*
NASA Craig Dobson
NGA *Chris Crosiar*
NGB *Daniel Bochicchio*
NIH Allen Dearry
NIST *William Grosshandler*
NOAA *Margaret Davidson*
John Cortinas
NSF Dennis Wenger
OPHS Sven Rodenbeck (T)
State Brian Lieke
USACE *Steven Cary*
Dimitra Syriopoulou
USAID Sezin Tokar
USDA *TBD*
USFS *Carlos Rodriguez-Franco*
USGS *Paula Gori*

Other Attendees

BLM William Ypsilantis
EPA Marcy Rockman (AAAS)
Ed Washburn
NASA Michael Goodman
Dalia Kirschbaum
NIST Eric Letvin
NOAA Nell Codner (T)
Maria Honeycutt (T)
Mary Ann Kutny
NSF Robert O'Connor
OSTP/EOP Alison LaBonte
Secretariat Ross Faith
Barbara Haines-Parmele
AMS Bill Hooke
NRC Sammantha Magsino

Agenda

10:00 Welcome and Introductions
10:05 Approval of February Meeting Minutes
10:10 Presentation: NRC Report *Building Community Disaster Resilience through Private-Public Collaboration*
10:50 Report from the Chair
10:55 Report from the Vice-Chairs
11:00 Report from the NSTC Liaison
11:05 Presentation: New Madrid Earthquake Bicentennial
11:30 Implications of the President's budget request on S&T for disaster reduction
11:55 Close and Next Actions

Handouts

- Agenda
- Draft February Meeting Minutes
- Email inviting SDR Members to contribute to review of IPCC SREX
- USGS Fact Sheet: "Earthquake Hazard in the New Madrid Seismic Zone Remains a Concern"
- USGS Fact Sheet: "Earthquake Hazard in the Hearth of the Homeland"

I. Call to Order and Introductions

Subcommittee on Disaster Reduction (SDR) Chair David Applegate (USGS) called the meeting to order at 10:03 a.m. and the participants introduced themselves.

II. Approval of February Meeting Minutes

The February Meeting Minutes were approved with no changes or corrections.

III. Presentation: NRC Report *Building Community Disaster Resilience through Private-Public Collaboration*

Former SDR Chair Bill Hooke (American Meteorological Society) recently led, in yet another chairmanship role, a National Research Council (NRC) committee that was assembled in response to a request by the Department of Homeland Security (DHS) to study public-private partnerships focused on building community disaster resilience. The committee's statement of task was to 1) assess the current "state-of-art" in private-public collaboration for strengthening community resilience, 2) identify gaps in knowledge and practice, and 3) recommend research areas for investment. Concluding its work, the committee produced the recently released report *Building Community Disaster Resilience through Private-Public Collaboration.* The report specifically seeks to:

- Identify components of a framework for private-public collaboration dedicated to strengthening community resilience;
- Develop guidelines for private sector engagement in the development of a framework for enhancing community resilience; and,
- Examine models of existing collaborations ranging from centralized to decentralized approaches, and make recommendations for a structure to further private and public sector collaboration to enhance community resilience.

Rather than spending months in search of the perfect definition of community resilience, the committee compromised and report summarizes on pages 13 and 14 that all definitions of resilience "speak in a general way to the continued ability of a person, group, or system to adapt to stress—such as any sort of disturbance—so that it may continue to function, or quickly recover its ability to function, during and after stress." The committee also relied on the definition of resilience advanced by F.H. Norris and others in the 2009 *American Journal of Community Psychology* article "Community resilience as a metaphor: Theory, set of capacities, and strategy for disaster readiness," which describes resilience as the ability of groups, such as communities and cities, to withstand hazards or to recover from disruptions such as natural disasters.

Hooke added context for his presentation by offering the proposition that the U.S. is essentially trying to achieve the National agenda on a planet that does much of its "business" through extreme events. People too often believe that coping with natural hazards and extremes is somehow a sideshow in human affairs—and not integral enough to warrant increased investment. He stressed that this viewpoint is flawed, along with the perception that public-private partnerships are peripheral to the challenges of—and solutions to— building community resilience. Private enterprise employs approximately ninety percent of all American workers, and therefore achieving the goal of resilience depends critically on the ability to effectively promote and advance the adoption of disaster risk reduction practices by the private sector. For the report, the NRC committee took a broad view of the private sector to include faith-based organizations, neighborhood groups, and other nongovernmental organizations, since these groups constitute strong elements in the fabric of most communities. The committee also dealt at length with issues surrounding poor, disenfranchised, and vulnerable populations.

Hooke noted that successful, community-level collaboration is often driven by passionate individuals who often press forward without strong incentives to do so. The challenge is to incentivize and institutionalize

that effective collaboration to ensure it endures beyond the tenure of a given set of individuals. The organizational change that this process implies needs to be better understood through case studies, evidenced-based best practices, and related data. Moreover, the committee concluded that resilience as a theory must be testable and have predictive power. Metrics and data are needed to determine/predict how, when, and why multiple-stakeholder, community collaboration succeeds. In turn, success must be definable, achievable, and repeatable. As little longitudinal data exists, repeated observations are needed to correlate change over time with collaborative activities. These observations should:

- Document community change;
- Validate methodologies;
- Provide comparable data sets on risk and resilience; and,
- Provide evidence for long-term investment in collaboration.

The committee also identified the following areas where additional research and/or implementation are needed:

- How to motivate business (all sizes) to collaborate with public sector to build resilience in all types of communities (e.g., rural, urban);
- Motivating and integrating community/faith-based/NGOs into resilience-focused collaboration;
- Moving emergency management and homeland security sectors toward a "culture of collaboration" engaging the full fabric of the community;
- Ways to build capacity for collaboration;
- Research/demonstration projects to quantify risk and outcome metrics, enhance community-level resilience, and document best practices;
- Research and activities to produce comparable nationwide data on vulnerability and resilience; and,
- National repository and clearinghouse—administered by neutral entity—to archive and disseminate resilience information.

The study's director, Sammantha Magsino (NRC), noted that once collaboration becomes an institutionalized feature of community operations, the community needs to continually re-evaluate its vulnerability and the resources at its disposal to offset its risk, as both can change over time. In response to a question about metrics, she noted that while chapter 3 of the report includes some examples of different types of metrics, the study committee was fully aware as they wrote the report that this area needs substantial research and development.

With the floor open to questions for Hooke and Magsino, discussion turned to the growing importance of social networks and social media for disaster reduction and resilience efforts. Hooke expressed the view that recent advances in social media are paving the way for what may be a very rich toolbox of 21st century technologies for addressing disaster and resilience challenges. Magsino noted that in February 2009, at the request of DHS, a separate NRC committee held a two day workshop to discuss the use of social network analysis (SNA) for the purpose of building community disaster resilience. The workshop engaged a group of approximately 30 researchers in the fields of SNA and resilience science as well as emergency management practitioners from different regions of the country. Gaps in knowledge regarding SNA and its use for constructing designed networks for the purpose of increasing resilience were discussed, as were areas of research that could fill those gaps. A summary of that workshop is available at http://www.nap.edu/catalog.php?record_id=12706.

Mark Keim (CDC) stated that the disaster medicine community is also following developments in social media closely, believing that the technology may have a significant impact on disaster response and resilience. Keim's article on the subject, entitled: "Emergent use of social media: A new age of

opportunity for disaster medicine," was published in the January/February issue the *American Journal of Disaster Medicine*.

Dennis Wenger (NSF) noted that the Disasters Roundtable of the National Academies will probably be dealing with the issue of social media in its planning cycle in about a year. He added that the NSF had funded a number of research projects on social media over the past year, including some interesting research that looked at Haiti and Ushahidi, and comparing the platform with Twitter. Interestingly, Ushahidi is monitored and filtered, whereas Twitter is not. A key question for those researching Twitter was whether it essentially serves to propagate rumors, as opposed to a filtered platform like Ushahidi, and the finding was "no," since there is a self-correcting factor through which it basically takes two days for misinformation to be filtered out of the Twitter system.

IV. Report from the Chair

Applegate reported that the SDR has been collaborating with the U.S. Global Change Research Program (USGCRP), the White House Office of Science and Technology Policy (OSTP), and the Council on Environmental Quality (CEQ) on the U.S. Government's review of the International Panel on Climate Change (IPCC) Special Report "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation" (SREX). In 2009, the SDR helped to identify authors and editors for the report. Now that the authors and editors have done their work and generated a 788 page report, there is an opportunity for SDR members and colleagues to review and comment on the report online (by March 7th), and also to serve on U.S. Government panels that will be convening in mid-to-late March to consolidate the U.S. response to the IPCC. Applegate referred interested Members to a handout circulated at the meeting for more details about how to engage.

V. Report from the Vice-Chairs

Dennis Wenger (NSF) recapped the March 1st Disasters Roundtable workshop that was focused on the lessons learned from the Haiti and Chile earthquakes. Wenger noted that the event was weighted more towards government response than science, but overall endorsed the workshop as a success. A comprehensive and multidisciplinary presentation on the earthquake's impact in Haiti was given by Leslie Voltaire, who holds a PhD in urban and regional science and planning, and who at one point was the favorite to be elected president of Haiti this past year. Another excellent presentation was delivered by the Ambassador of Chile to the United States, Arturo Fermandois. Also, Jose Holguin-Veras (Rensselaer Polytechnic Institute) delivered a very interesting presentation on the delivery of aid, and particularly the international delivery of aid, during the aftermath of Haiti's earthquake. Wenger noted that Holguin-Veras' research, funded by NSF, has become somewhat of a transformative breakthrough in terms of evaluating the efficacy of aid delivery. Holguin-Veras basically classified the relief agencies working in Haiti as either agent-centric, focused internally on their own agency, or network-centric, focused outwardly on their relationships with other organizations and populations. The research found that the network-centric organizations, many of them local religious organizations, were much more effective at delivering aid, as were those organizations that worked through the Dominican Republic rather than trying to land supplies at Haiti's damaged ports.

The next Disasters Roundtable workshop will probably be held in September or October and focus on the topic of public-private partnerships under the concept of responsibility for disaster risk reduction. The following workshop will be held approximately one year from now and focus on recovery, a topic which the Roundtable has not dealt with at a workshop during the past four years. With results from Katrina now available, and significant recovery research funded in Haiti, there should be ample data for workshop participants to consider.

The UN International Strategy for Disaster Reduction will be releasing the 2011 Global Assessment Report on Disaster Risk Reduction just prior to the official opening of the Third Session of the Global

Platform meeting (May 8-13, 2011, Geneva, Switzerland). The report is qualitative in its approach to measuring the advances in risk reduction made by participating countries. Wenger stated that he was serving on the advisory board for the Global Assessment and had been pleased to see that was well designed and constructed. The report also includes a very robust and thorough treatment of the strengths and weaknesses of land use planning as a mitigation device. Another chapter makes the argument that the mission of disaster risk reduction would be better served if nations folded that portfolio into their finance and planning ministries, rather than continuing to house them—as many do—in standalone disaster management agencies where preparedness and response operations tend to dictate decision-making. Finally, another section focuses on decentralization and capacity building consistent with Bill Hooke's presentation on private-public collaboration as well as some of the initiatives currently being advocated by the FEMA Administrator. Wenger noted that this section includes one of the most frank discussion on local capacity building and its inherent problems that he has read.

Those interested in participating in the U.S. Delegation that will be traveling to Geneva to attend the Global Platform are invited to contact Applegate (applegate@usgs.gov).

VI. Report from the NSTC Liaison

Tammy Dickenson (OSTP) thanked Applegate and others at the meeting for providing her with information to brief the President's Science Advisor, Dr. John Holdren, on the Christchurch earthquake. On a related topic, she noted that she would be reaching out to SDR Members and others in the disaster community to request briefings on the National Level Exercise 2011.

Dickenson reported that the revised SDR charter was currently in the White House concurrence cycle and if all goes well, should emerged with approval in approximately10 days.

Lastly, the National Windstorm Impact Reduction Act of 2004 calls for reports covering progress made by the program it established to be sent to Congress on a biennial basis. Dickenson stated that the OSTP was looking into convening the WindHRP Working Group to begin drafting the next report. Applegate noted that a reauthorization bill, which packaged together WindHRP, NEHRP, and Fire Administration language, was in the pipeline to be passed last year. It did in fact pass the House but ultimately stalled out in the Senate, and will essentially start from scratch again in the current session of Congress. Eric Letvin (NIST) stated that the National Institute of Standards and Technology had hired wind engineer Dr. Marc Levitan (formerly of LSU) in anticipation of the bill being passed, since it transfers leadership of the National Windstorm Impact Reduction Program to NIST.

VII. Presentation: New Madrid Earthquake Bicentennial

At the February 3rd SDR meeting, Keith Holtermann (FEMA) gave a presentation on the National Level Exercise (NLE) 2011, which is focused on a potential high impact earthquake in the New Madrid Fault Zone. Applegate emphasized NLE 2011 as an opportunity for the agencies to exercise the S&T aspects of their portfolio which would become involved in the event of a large impact earthquake occurring in the New Madrid Fault Zone.

As context, Applegate recapped the recent earthquake in Christchurch, New Zealand. A large earthquake along the New Madrid Fault would produce liquefaction similar to that seen in Christchurch, and like that city, the urban centers of the central U.S. include a tremendous amount of vulnerable, unreinforced masonry buildings. The New Madrid Seismic Zone in the Lower Mississippi Valley is the most seismically active zone east of the Rocky Mountains. In the central and eastern U.S., the Earth's crust is older and colder than that west of the Rockies and is therefore more efficient at propagating energy, so earthquakes are felt more strongly at greater distances from their epicenters. Moreover, in the Mississippi Valley there is a very thick sediment build-up from the Mississippi River, which also amplifies any shaking.

The NLE 2011 is being held this year in conjunction with the 200th anniversary of the 1811-1812 New Madrid earthquakes. The population in the general area where those earthquakes struck was quite modest during the early 19th Century. Today, several large cities, including Memphis and St. Louis, lie within or near the hazard zone. A large earthquake in the New Madrid Fault Zone would likely produce slope failures along the banks and bluffs of the Mississippi and other rivers, impeding navigation; levy failures; liquefaction due to sandy soil and a high water table; and uplift and subsidence. The release of subsurface water from sand blows associated with liquefaction as well as river bank failures that produce flooding are a real concern for agriculture.

FEMA is helping to sponsor the Great Central U.S. ShakeOut, similar to the event that has become an annual exercise in California. The participation goal for the Central U.S. version has been one million people version; as of March 2, over 850,000 people/entities had signed up.

Mark Keim (CDC) noted that from a medical response and preparedness perspective, there is tremendous vulnerability in the New Madrid Fault Zone region since it includes populations very comparable to those that were devastated by Hurricane Katrina. In particular, the poverty in Memphis is remarkable. Healthcare is very limited, especially trauma care. Keim conveyed his understanding that in the event of a damaging earthquake striking St. Louis and/or Memphis, many of the local fire stations in those cities are anticipating widespread failures of the large stock of unreinforced masonry buildings, leaving roads impassable, and restricting their response to a few city blocks.

VIII. Implications of the President's budget request on S&T for disaster reduction

Applegate opened the floor to comments from the agencies about how the President's budget request for FY12 would impact federal programs from a disaster reduction standpoint.

Craig Dobson (NASA) summarized that for well over a decade the hazards community has recognized a number of observational gaps that need to be filled in order to better understand the processes that give rise to natural disasters. At the top of the list are things like high resolution topography and deformation of the Earth's surface, including crustal deformation, seismic activity, magmatic inject from volcanoes, and subsidence processes. These processes are measured at a distance remotely by LiDAR and radar, and also interferometric synthetic aperture radar (InSAR), which does this very well.

NASA is of course in the business of putting up satellites, and ten percent of the agency's budget is devoted to Earth observations. The agency takes guidance from the National Research Council (NRC) on what kinds of missions should be put into its queue for consideration. This is done through a process called the decadal survey for Earth sciences, which was completed in January 2007. Among the survey's Tier I recommendations was a mission known as DESDnyI (Deformation, Ecosystem Structure, and Dynamics of the Ice), which was to serve three science foci. The first focus was on climate change and ecosystem structure. It was to have a LiDAR component to map the three-dimensional structure of vegetation and help bring clarity to issues surrounding the carbon budget. The second focus—also climate-related—was to use SAR to look at the dynamics of ice that contribute to sea level rise. The third focus was for natural hazards. The cryospheric component and the hazards piece consisted of an InSAR platform that would be run on the DESDnyI mission. For several years DESDnyI has been in a pre-formulation phase, during which the mission concept, cost, and design have been studied. Recently, in January, the DESDnyI mission went through NASA's mission concept review process and was expected to move into a Phase-A formulation period in March, which is when NASA would have begun the "heavy lifting" on the design for the mission.

Dobson noted that he attended the March 1st Disasters Roundtable workshop on Haiti and Chile, during which a comment was made that economic and political timetables are fast moving and therefore out of

sync with the disaster reduction clock, which in turn imposes some problems with trying to do long-term work towards resilience. The message conveyed at the workshop was that when times are tough, one of the first places targeted for budget reductions are programs associated with hazard resilience.

With the goal of saving about $1.5 billion over the next five years, the FY12 budget guidance directs NASA to "put the brakes" on the Climate Absolute Radiance and Refractivity Observatory (CLARREO) and DESDnyI, which would entail these missions remaining in the pre-formulation phase. NASA is still committed to attempting to fill the observation gaps that CLARREO and DESDnyI were designed for, but the directive essentially puts NASA back to square one of the concept definition. Dobson noted that the directive to halt was unfortunate given the advanced planning stage reached, which included collaboration with the USGS, DHS, and NSF to develop partnering arrangements. The directive advises NASA to obtain the LiDAR data through international partnerships, an approach that has been investigated without success so far, and obtaining the approximately one million scenes of InSAR data per year that the DESDnyI mission would have provided will be difficult. There are other international satellites that provide something similar but not exactly the type of data that the DESDnyI mission would have delivered. Dobson estimated that seeking this information through the commercial marketplace, if it could be provided, would cost approximately $5-6 billion annually.

Bruce Davis (DHS) reported that DHS was also particularly disappointed with this move to halt further development of DESDnyI. The mission represents a rather unique measurement that is not reproduced by any international capability. DHS sees the suite of measurements and information that DESDnyI would provide as critical for a wide variety of applications, including earthquakes, fires, floods, and issues associated with border security and anti-terrorist-type activities. DHS has several distinct operating groups with ongoing projects that were to flesh out the utility of this measurement.

Mary Ann Kutny (NOAA) stated that the FY12 budget request includes some areas of concern for NOAA. One of them is the national water level observation network, which provides critical input for tidal data, tsunami warnings, evacuation run-outs, and storm surge models. The concern is that the FY12 reductions will impact NOAA's ability to maintain those observations. It impacts basic geospatial infrastructure and therefore tidal data, which are key for critical infrastructure location, construction of levies and sea walls, and determining the heights of evacuation run-outs. Another concern is that the FY12 budget does not include funds to advance NOAA's warning forecast capability, which was a capability that was designed to improve lead times for the precision and accuracy of forecasts for severe weather events such as tornadoes, high wind events, hail, and flooding. The reductions that are called for in the FY12 budget request will at the very least cause NOAA to push back the availability of that capability. The work that is currently being done on that at NOAA's National Severe Storms Laboratory would be slowed if not halted.

SDR Members are encouraged to send run-downs of key changes and their impacts for their agencies resulting from the President's FY2012 budget proposal to Tammy Dickinson (Tamara_L_Dickinson@ostp.eop.gov).

IX. Discussion on Disaster Risk Reduction for Nepal

Sheila Duwadi (FHWA) informed the group that a workshop is being planned in Katmandu for Nepal to assess the state of its critical infrastructure relative to its earthquake hazard. The U.S. Army Corps of Engineers (USACE) is putting the workshop together with the Federal Highway Administration assisting with highway bridge issues and the Federal Aviation Administration helping to assess the country's airports. Nepal is a landlocked country ringed by the Himalayas, so keeping the main airport in Katmandu open during a disaster is a priority.

Brian Lieke (State) noted that USAID is putting together a high level event concerning disaster risk reduction for Nepal. The event will take place on April 15th in Washington, DC, and include high level speakers in the morning and possibly an opportunity for scientific exchange in the afternoon. Sezin Tokar (USAID) reported that the agenda for the meeting is still being worked on but would be shared with the SDR when closer to being finalized.

X. Adjournment

The meeting adjourned at 12:08 p.m.

XI. Future Meetings

In 2011, the SDR will meet from 10:00 a.m. to 12:00 p.m. on the first Thursday of each month in the Lincoln Room of the White House Conference Center. The meeting dates are:

Thursday, April 7, 2011	Thursday, July 7, 2011	Thursday, October 6, 2011
Thursday, May 5, 2011	*Thursday, August 4, 2011	Thursday, November 3, 2011
Thursday, June 2, 2011	Thursday, September 1, 2011	Thursday, December 1, 2011

*Subject to cancellation

XII. Agenda Items and Other Communications with the Subcommittee

Please send proposed agenda items and any other items intended for distribution to the full Subcommittee to Ross Faith (ross.faith@mantech.com).

XIII. Contact Information

SDR Leadership

David Applegate	Chair	703-648-6714	applegate@usgs.gov
Margaret Davidson	Vice Chair	843-740-1220	margaret.davidson@noaa.gov
Dennis Wenger	Vice Chair	703-292-8606	dwenger@nsf.gov

Secretariat

Ross Faith	703-388-0308	Ross.Faith@ManTech.com
Barbara Haines-Parmele	703-388-0309	Barbara.Haines-Parmele@ManTech.com

XIV. Summary of March Actions

Action	Lead	By When
Contact Dave (applegate@usgs.gov) or Ross (ross.faith@mantech.com) for information on how to tie into the National Level Exercise 2011 calendar of events	SDR Members	ASAP
Provide a run-down of key changes and their impacts for your agency resulting from the President's FY2012 budget proposal to Tammy Dickinson (Tamara_L_Dickinson@ostp.eop.gov).	SDR Members	ASAP
Send nominations for the U.S. delegation to the UN/ISDR Global Platform meeting (May 8-13, 2011) to Dave (applegate@usgs.gov), copying Ross (ross.faith@mantech.com).	SDR Members	ASAP

Action	Lead	By When
Send Sezin Tokar (stokar@usaid.gov) your ".gov" e-mail address to receive USG-only updates from USAID on global disaster response activities.	SDR Members	Standing
Contact Ross (ross.faith@mantech.com) to receive copies of the Grand Challenges for Disaster Reduction Implementation Plan packets or CD.	SDR Members	Standing
Let Dave (applegate@usgs.gov) or Ross (ross.faith@mantech.com) know how you use the implementation plans, including when you link to the plans from your agency websites. Send Ross or Dave additional distribution suggestions, including relevant contact information.	SDR Members	Standing