Community Resilience Panel:
Data Metrics, & Tools Standing Committee Meeting

MEETING DATE: November 9, 2015
TIME: 1:45 pm EST to 4:15 pm EST
LOCATION: National Institute of Standards and Technology (NIST), Gaithersburg, MD
ISSUE DATE: December 7, 2015

ATTENDEES:

Attendee	Affiliation
Megan Clifford [Chair]	Argonne National Laboratory
Leanne Aaby	LMI
John Baker	Johns Hopkins University
Paolo Bocchini	Lehigh University
William Booher	Booher & Co.
Jerry Brashear	The Brashear Group and National Institute of Building Sciences
Donald Bryne	METRIX411.com
Serena Chan	Institute for Defense Analyses
Roy Emanuel	Johns Hopkins University
Eleanore Hajian	DHS S&T Office of University Programs
Mat Heyman	Impresa Management Solutions, LLC
Andrea Higdon	University of Kentucky
Meghan Housewright	NFPA
Lindsey Kraats	NOAA
Frank Lavelle	Applied Research Associates, Inc.
Ting Lin	Marquette University
Aaron Marks	Dynamis, Inc.
Keely Maxwell	US Environmental Protection Agency
Josh Murphy	NOAA
Frederic Petit	Argonne National Laboratory
Erik Puskar	NIST
Karen Reczek	NIST
Anthony Rosano	Howard County Office of Emergency Managers
Julie Rosati	US Army Corps of Engineers
Nathan Smith	Cadmus
Edward Thomas	Natural Hazard Mitigation Association
Leslie Tomic	FEMA
Mari Tye	National Center for Atmospheric Research
Duane Verner	Argonne National Laboratory
Naiyu Wang	University of Oklahoma
Linda Weber	Sustainability @ TCNJ
Richard Wright	American Society of Civil Engineers

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NOTES BY: Frank Lavelle, Applied Research Associates, Inc.

1. Welcome and Introductions

Megan Clifford (Chair) led introductions of the participants and reviewed the goals for the meeting.

2. Discussion of first question for report-out: What are the largest gaps and needs within your sector that need to be addressed in resilience planning and guidance products?

When discussing the needs and gaps related to data, metrics, and tools, climate uncertainties were identified as a challenge and an area of additional research. Furthermore, the question was raised of how to build safely in today's climate, and it was noted that it was better to err on the side of caution. Participants felt that the current approach of using past events and historical information was helpful, but that guidance is needed to envision/select future hazard scenarios and plan accordingly.

Participants also raised the question of the level of risk for which communities should plan. Some felt that the current practice of focusing on specific hazards may not always be best, and that it would be important to consider systemic issues. It was stated that a consistent approach for characterizing hazards was needed. Others shared that quantifying benefits and costs in ecosystem services (e.g., wetlands, dunes) was also needed.

Development of metrics and tools was identified as a significant gap itself. Some thought that existing guidance was too general and needed to be more specific to be helpful. The group discussed the importance of and need to communicate risk and actionable information to the target audience. Moreover, guidance that specifies what tools and metrics to use and when to use them was identified as a need. In addition, many felt that integration of federal efforts was needed, including a catalogue of all of the tools and metrics that have been developed.

There was discussion of how to translate federal and other data and guidance to smaller communities. The group also discussed the need for tools for small and low-capacity communities since a large percentage of communities in the country fall under this category.

There was also discussion of how to use data, metrics, and tools to influence decision-making. Participants felt that metrics and tools could be best used to help decision-makers prioritize their spending and efforts. When discussing ways to develop metrics, or determine what was needed for metrics, the group identified the need to work with other standing committees to poll them on sector-specific needs and reach out to communities to determine what they felt was most important.

The group also added that metrics and tools need to consider the time phase to which they apply (i.e., pre-, during, or post-disaster). Moreover, the group discussed that communities will need expertise in the recovery process, but should have these resources in place before an event occurs. Some participants felt that integrating resilience planning into existing community planning processes would be the most effective way to see results.

Another challenge discussed was compatibility/vocabulary. That is, a common language to allocate resources appropriately. The group also discussed the end goals of this standing committee and tools being created, including the need to support decision making. Some expressed that the economics group should be included in this standing committee, rather than separated.

Next, the issue of externalities was discussed. For example, benefits often accrue to stakeholders who do not bear the costs. Furthermore, getting the insurance industry to recognize benefits of resilience by adjusting or discounting premiums was discussed as a possibility.

The group then discussed the attributes of a good metric, and what data communities need. The group expressed that a good metric should be easily understood and have scientific merit. Some suggested that standards were needed to guide data to be collected. However, it was also noted that accessing data from industry and researchers can be difficult. The need for data interoperability was also raised.

With respect to data, the standing committee developed a list of data they thought were needed for tools and metrics to measure community resilience, including:

- Recovery times
- Utility networks
- Building inventory
- Infrastructure inventory/network
- Demographics
- Hazard data
- Climate projections
- Community change
- Community capabilities/resources (e.g., logistical plans)
- Disaster investigation data and recommendations

The group felt that data collection needs to be simplified, standardized, and shared among communities. However, participants noted that some things were difficult to measure, such as a community's ability to adapt and social consequences that could be related to other elements (e.g., economics). Availability of public safety data related to evacuations, dam safety, etc., is unclear. Legal challenges of obtaining data may also present obstacles in developing metrics and tools.

3. Discussion of the second question for report-out: Identify significant interdependencies and gaps with other sectors that impact resilience.

Participants discussed the highest impact points, noting that benefits of planning ahead and mitigation are often not considered (e.g., substation mitigation does not just reduce lost revenue to the utility, it benefits all customers). It was suggested that a focused set of questions will help drive analysis of interdependencies and determine consequences that are or are not acceptable to communities. These questions could also be used to take another step and identify ways to re-direct consequences of disruptions towards more acceptable outcomes. Therefore, being able to identify the highest consequence failure points was key to enable communities to identify and prioritize their investments.

The group then focused on how it would bring together all of the infrastructure systems, buildings, and social and economic standing committees to ensure cross-coordination occurs with respect to data, metrics, and tools. Participants felt they could collect needs and guidance from the other standing committees regarding their sectors. They also discussed designating individuals on this standing committee to interact with other standing committees and/or vice versa. However, it was pointed out that the coordinating committee was intended to play the role of cross-sector coordination.

4. **Discussion of the third question for report-out: How do we address the needs and gaps we identified?**

The participants noted that there were many existing gaps and needs, as previously discussed. The group expressed the need for communication specialists, and that metrics should be people-centered.

When discussing the overall goals for the standing committee, it was discussed that the focus would be on buildings and infrastructure systems performance on community services and functions. The NIST Guide was discussed as one tool, but the standing committee is not limited to using it alone (i.e., participants may also use other documents). Participants felt that it is important that this group be additive rather than duplicative.

The discussion of how to structure this standing committee also took place. Participants felt that creating working groups was needed and they should be organized around prioritized questions to answer. There was also some discussion of whether "systems" or "processes" should be added to the standing committee name. Regardless, the group agreed that its focus should be on community-level metrics rather than individual sector metrics.

In terms of the current Panel structure, participants suggested that members of their standing committee participate in other standing committees to ensure that any guidance developed by this group would reflect needs across all sectors.

5. **Discussion of the fourth question for report-out: Are there others we need to engage to help us address these needs? Others may include SMEs/groups not at the meeting in your sector or SMEs/groups from other sectors.**

The group was interested in gaining more input and participation from the insurance industry, legal perspectives, state, local, and tribal governments. Others listed included chamber of commerce representatives, utilities, researchers, the American Planning Association, and National Association of Counties.

6. **Discussion of the fifth question for report-out: What are existing codes, standards, guidance, goals, and/or protocol that have been published, or are in-process, in your respective sectors?**

Due to time limitation, the standing committee did not have enough time to address this question.