#3: Local Implications of National Climate Policy

Matt Fuchs, The Pew Charitable Trusts

Richard Moss, Ph.D., Earth Institute, Columbia University

July 11, 2018

Webinar Series
New York Region Climate Adaptation Network (NYR CAN)

Agenda

12:00 Welcome/News & Updates
12:10 Overview of NYR CAN
12:15 Matt Fuchs, The Pew Charitable Trusts
12:35 Richard Moss, PhD, Earth Institute, Columbia University
12:55 Q&A/Discussion
1:25 Close
News & Updates

- **Monday, July 9th, 3-5 PM** at the Borough of Manhattan Community College in Tribeca, Richard Harris Terrace (main floor). 199 Chambers St, New York, NY 10007
- **Monday, July 9th, 6-8 PM** (duplicate session) at the Borough of Manhattan Community College in Tribeca, Richard Harris Terrace (main floor). 199 Chambers St, New York, NY 10007
- **Tuesday, July 10th, 3-5 PM** at Rutgers University-Newark Campus, PR Campus Center, 2nd Floor, Essex Room. 350 Martin Luther King Jr. Boulevard, Newark, NJ 07102
- **Tuesday, July 1st, 6-8 PM** (duplicate session) at Rutgers University-Newark Campus, PR Campus Center, 2nd Floor, Essex Room. 350 Martin Luther King Jr. Boulevard, Newark, NJ 07102
- **Wednesday, July 11th, 6-8 PM** at the Hudson Valley Community Center in Poughkeepsie, Auditorium Room. 110 South Grand Avenue, Poughkeepsie, NY 12603
New York Region Climate Adaptation Network (NYR CAN)

The New York Region CAN is a growing network of waterfront counties and municipalities from around the tri-state region organized to break down walls between communities facing similar issues so that they can coordinate and collaborate with each other to tackle long-term adaptation.
New York Region Climate Adaptation Network (NYR CAN)

1. Build and interconnect a regional network of municipal and regional officials aligned around shared goals and priorities for long-term adaptation;
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3. Advocate with a regional voice for regional, state and federal policies and funding to advance long-term adaptation locally; and
New York Region Climate Adaptation Network (NYR CAN)

1. Build and interconnect a regional network of municipal and regional officials aligned around shared goals and priorities for long-term adaptation;
2. Provide a “safe space” for members to learn and share information with each other about best practices, challenges and opportunities for long term adaptation, that can be put into practice;
3. Advocate with a regional voice for regional, state and federal policies and funding to advance long-term adaptation locally; and
4. Connect the regional network to other networks both within the region and nationally.
Research: Working with experts and conducting original research to identify the elements of successful networks, adaptation best practices and adaptation funding, and polling the network on topics such as the most pressing adaptation concerns;
New York Region Climate Adaptation Network (NYR CAN)

Networking: Continually building the network through outreach to non-participating counties and municipalities, presentations at conferences and other forums, social media and engagement efforts to find common ground; and
New York Region Climate Adaptation Network (NYR CAN)

Informing: Production of an ongoing webinar series and in-person convenings of the network.
Goal of Pew’s Flood Prepared Communities Initiative: Address shortcomings of U.S. policy to reduce the effect of weather-related catastrophes such as flood and hurricanes on the U.S. economy and the environment.
FLOOD INSURANCE

INFRASTRUCTURE

NATURE-BASED SOLUTIONS

MITIGATION
Recent Impacts

In 2017, flood-related disasters cost more than $268 billion

Since 2000, these disasters have cost more than $750 billion
Gaps

Of $277 billion spent by the federal government on disaster assistance from 2005 to 2014, only about $600 million to the Pre-Disaster Mitigation grant program
Figure 2
Pre-Disaster Mitigation Spending Decreased From $157 Million in 2005 to $19 Million in 2014

Note: FEMA Pre-Disaster Mitigation grant spending (millions of dollars)


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Returns

Every $1 spent on disaster mitigation grants by three federal agencies saves society $6. In the case of riverine flooding, the benefit is $7-to-$1.
FY18 Pre-Disaster Mitigation Grants
FY18 PDM Appropriations

PDM funded at $249 million, an increase of $149 million compared to FY17
Average of $81 million since 2003

FEMA’s flood maps funded at $262.5 million, an $85 million increase over FY17
State Flood Mitigation Revolving Loan Fund
State Revolving Loan Fund

Concept proposed in 2017:
Envisioned as partnership program, where FEMA gives capitalization grants to states to help establish revolving funds
Low-interest loans to finance projects to decrease flood risk: elevation, buyouts, flood control measures, enviro restoration, wetland restoration… FMA
State Revolving Loan Fund

State Revolving Loan Fund for Flood Mitigation

Numerous studies have shown that flood mitigation actions taken before a storm can save lives and dollars. But while payoff for pre-disaster mitigation can run upwards from $4 for every $1 invested, federal spending for post-disaster recovery still far exceeds pre-disaster spending. New proposals to fund state-run revolving loan funds would help to shift the focus of federal disaster spending and allow states to plan for and implement priority projects to prevent flood damages. Though new to the Federal Emergency Management Agency (FEMA), the revolving loan fund model has been used with great success by many states to upgrade drinking water infrastructure and improve water quality.

Federal capitalization provides initial funding.

States add share.

State gives low-interest loans & grants for mitigation.

Principal & interest returns to the fund and becomes available for new projects.

States & communities may leverage funds by issuing bonds.

State works with communities to select top priority projects for funding, such as improved stormwater management, home buyouts and elevations, wetlands restoration, and open space protection.
Strengths

• Proven model - CWSRF
• Partnership program / flexibility
• Communities can use RLF to generate revenue to repay loans; resilience investment adds to the economy
• Tool in the toolbox for pre-disaster mitigation
Legislative action

• S 1507 introduced by Senator Reed (D-RI) with Senators John Kennedy (R-LA) and Robert Menendez (D-NJ) in June of 2017

• Sen. Menendez advocacy

• House??
Recent support

MRCTI 2017: Establish a Resilience Revolving Loan Fund to augment PDM Grants

NIBS incentives paper 2015

Senate Democrats’ Infrastructure Blueprint 2017
Growing support for SRF

NATIONAL SUPPORT FOR THE STATE FLOOD MITIGATION REVOLVING FUND:

American Planning Association
American Rivers
American Society of Civil Engineers
Association of State Floodplain Managers
Consumer Mortgage Coalition
Enterprise Community Partners
Insurance Institute for Business & Home Safety
National Institute of Building Sciences
Natural Resources Defense Council
Reinsurance Association of America
Smart Home America
St. Bernard Project
The Nature Conservancy
The Pew Charitable Trusts
Union of Concerned Scientists
U.S. Resiliency Council
Shore Up CT

- Connecticut funded low-interest loan program gave financing for property owners in coastal municipalities in Flood Zones VE or AE to elevate and wind proof their properties along with other retrofits.
NY and NJ Mitigation Loan Program

• In 2014, after Superstorm Sandy, Congress appropriated $500 million in SRF funds for New York and New Jersey to "reduce flood damage risk and vulnerability or to enhance resilience to rapid hydrologic change or a natural disaster at a treatment works."
Indiana SRF

Indiana SRF Green Project Reserve Sustainability Incentive Program

Eligible projects:
• Debris removal / clearing streams
• Building/repairing flood protective works
• Establishing floodways
• Constructing streambank protection
VA Shorelines Resiliency Fund

• The Virginia Shorelines Resiliency Fund established a revolving loan program in 2016

• Yet to be funded, with non-coastal legislators disapproving its limited application to shoreline communities.
Disaster Recovery Reform Act
6% set-aside for mitigation

In June 2018, Senate HSGAC passed a bill that sets aside six percent of all disaster costs for pre-disaster mitigation

S 3041, Disaster Recovery Reform Act, amending Stafford Act
Pew’s School Flood Risk Report
Key Findings

The risk of school flooding is distributed widely across the United States. The Atlantic Coast, Gulf Coast, Mississippi River corridor, and southwestern Arizona have the highest composite flood risk scores.
New York: Flood Risk and Mitigation Fact Sheet
Figure 1
Flooding Touches Every County in New York
Historical flood events, 1960-2012

Historical Property Damage
- $500,000-$6,000,000
- $6,000,001-$20,000,000
- $20,000,001-$35,000,000
- $35,000,001-$60,000,000
- $60,000,001-$130,000,000
- $130,000,001-$800,000,000
- $800,000,001+

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Figure 2
Over 600,000 New Yorkers Live in Flood-Risk Areas
Lives, property, public infrastructure vulnerable to flooding, and government aid

Lives and property

620,075
Estimated number of people living in a special flood hazard area

18,593
Repeat loss properties

Critical infrastructure

160+
Critical facilities at risk from flooding

Flood-related disaster assistance, 2000-17

$15.34 billion
FEMA public assistance

$1.26 billion
FEMA individual assistance


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Figure 3
State and Federal Investment for New York's Flood Mitigation Efforts
Risk-reduction spending by program and level of government, 2000-17

<table>
<thead>
<tr>
<th>Program</th>
<th>Federal share</th>
<th>State share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-disaster and other mitigation grants</td>
<td>$17.8 million</td>
<td>$6.6 million</td>
</tr>
<tr>
<td>Hazard Mitigation Grants made after flood-related disasters</td>
<td>$1.46 billion</td>
<td>$936.5 million</td>
</tr>
</tbody>
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FFI Report: “What We Don’t Know About State Spending on Natural Disasters Could Cost Us”
State tracking of disaster spending

Table 2
8 Respondents Made Substantially Different Investments in State Programs
State expenditures for own activities as a share of total disaster spending, state FY 2012-16

<table>
<thead>
<tr>
<th>State</th>
<th>State programs (% of total disaster spending)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arizona</td>
<td>81</td>
</tr>
<tr>
<td>Arkansas</td>
<td>-10*</td>
</tr>
<tr>
<td>Delaware</td>
<td>93</td>
</tr>
<tr>
<td>Maryland</td>
<td>53</td>
</tr>
<tr>
<td>Ohio</td>
<td>52</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>18</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>58</td>
</tr>
<tr>
<td>Wyoming</td>
<td>0</td>
</tr>
</tbody>
</table>

* Arkansas reported receiving more federal reimbursements than its combined state program and federally related spending during fiscal 2012-16, which resulted in a negative percentage. The discrepancy is a function of the timing of the federal reimbursement process; the state was refunded during the study period for federally related spending that occurred before the start of the period.

Notes: Percentages reflect state program spending as a share of total state disaster spending. State program spending refers to states’ expenditures for their own programs and for state disaster declarations. Total disaster spending is the sum of state program spending and state cost shares for federal programs, which are calculated by subtracting federal reimbursements received from state spending related to federal programs. Because of the timing of the federal reimbursement process, some included reimbursements are for federally related spending that occurred before fiscal 2012, and some federally related spending was not yet reimbursed at the end of fiscal 2016.

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Key Findings

➤ Most states do not comprehensively track natural disaster spending

➤ State spending is highly variable
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Climate Science for Climate Action

Richard H Moss, Ph.D.
Visiting Senior Research Scientist,
Earth Institute, Columbia University
2017: Continuing a Long Term Trend

- 41st consecutive year above the 20th century average
- Third warmest year on record (global average)
  - 6 warmest years on record have occurred since 2010
2017: Record Damages: The Earth System’s Growing Disaster “Tax”

- Weather/climate damages in 2017 shattered previous annual US record
  - $306+ billion in total
  - Previous record (2005) was ~$200 billion
- 16 ‘$billion dollar’ disasters
  - 1980–2017 annual average is 6.0 events
- Each $1 for adaptation saves $6 in impacts

(all cost-adjusted. Source: NOAA)
The Trump administration just disbanded a federal advisory committee on climate change

By Juliet Elperin  August 20, 2017  Email the author

President Trump speaks about the U.S. role in the Paris climate change accord in the Rose Garden of the White House in June. (AP)

The Trump administration has decided to disband the federal advisory panel for the National Climate Assessment, a group aimed at helping policymakers and private-sector officials incorporate the government’s climate analysis into long-term planning.

States to Revive Climate Panel Disbanded by Trump

The panel was tasked with translating scientific studies into policy actions that states could use to reduce emissions

By Scott Waldman, ClimateWire on January 3, 2018

New York Gov. Andrew Cuomo (D) will reconvene a science advisory panel shut down by the Trump administration.

New York, along with other states involved in a climate policy network to counterattack the federal government’s retreat on carbon regulation, will reconstitute the federal advisory committee for the Sustained National Climate Assessment. Cuomo will announce the move today

By Bryan Keefer: Getty Images
“Assessments”: Synthesizing Science for Policy

- Assessments connect science and policy
  - Policy-oriented synthesis (1000s of articles, reports, and other sources)
- Process builds consensus
  - Multi-year schedule: several stages of review; transparent
  - Governments frame and approve
  - Scientists (volunteers) draft content
  - Non-expert citizens have a limited role
Focus on Improving Climate Science for Action

Independent Advisory Committee (IAC)

Purpose: Develop Recommendations to States, Cities, NGOs, universities and others on how they can leverage ongoing federal science and improve information for action

Background:

• The IAC succeeds the discontinued federal advisory committee
• NY State (on behalf a larger group of states), Columbia University’s Earth Institute, and the American Meteorological Society are supporting the IAC
• Members serve in their individual capacity and volunteer their time/expertise
• The IAC, like its predecessor, is not focused on the NCA4 report
• The NCA4 process is continuing, with release expected in late 2018
• The IAC will sunset in 2018, handing off implementation to a proposed consortium

“The work you are doing today has never been more urgent…”
Governor Andrew Cuomo (NY)
A New Assessment Approach to Improve Usability

What is Sustained Assessment?

An ongoing participatory process for engaging stakeholders and scientists in discovery, communication, and use of scientific knowledge of global change

Motivating insight:

• Effectiveness depends on sustained communication among users and experts to enhance relevance of and trust in the information provided

Products:

• Data, projections and scenarios, visualizations, decision support tools, sustained dialogues, and other science-based resources

History and status:

• Three assessments have been produced and have provided widely used information
• Considered the definitive source of climate information
• State of science in sectors and regions
• “Sustained process” launched in 2013
• Agency activities curtailed since 2017
IAC Report: Assessing Climate Science for Climate Action

Executive Summary
Guide to the Report
1: Introduction
2: Practitioner Perspectives and Needs
3: Assessing Science to Support Goals and Actions
4: Innovation in the Sustained NCA: Under-utilized Opportunities and Under-served Practitioner Needs
5: Sustained Assessment Network Functions, Design, and Governance
6: Recommendations for an Applied, Sustained Climate Assessment Process
Example Goals of Communities and Groups

- Build weather-ready infrastructure (transportation, housing, etc.)
- Manage development for future wildfire risk
- Reduce inland flooding (green and traditional infrastructure?)
- Protect coastal properties from erosion and manage coastal storms
- Maintain or improve electric service
- Locate public or private facilities
- Invest in water supply infrastructure
- Maintain water quality in rivers/lakes
- Protect vulnerable populations during extreme heat events
- Plan and implement conservation projects (maintain biodiversity)
- Promote sustainable agricultural practices
What Practitioners are Looking to the Assessment to Provide: Information to Support Action

Policies and approaches to support action:
- Integration/"mainstreaming"
- Codes and policies
- Financing
- Capacity building
- Communications
- Monitoring and evaluation

How the assessment could help:
- Develop guidelines and support networks for applying climate science
- Deliver science to fit planning structures, processes, and decision-making contexts
- Coordinate ongoing needs assessments
- Address synergies of adaptation, mitigation, and sustainable development
- Work across sectors and on interactions of climate impacts with existing challenges (especially equity)
- Improve tools such as cost-benefit analysis to better reflect climate risks and opportunities
A New Approach

Assess Applications of Science

Key Recommendation: Assess how science is being used and work towards consensus on good practices and research needs

The IAC explores a possible framework for state of practice assessments that examines how science is used in the stages of adaptive management:

• Issue/problem/goal framing;
• Synthesizing knowledge of risks and opportunities;
• Informing the appraisal and selection of options;
• Monitoring, assessing results, and updating

Implementation: Create a new national consortium to scale up incorporation of climate science and best practices into the actions of cities, states, businesses, and other practitioners

Key supporting initiatives:

• Collaborate with government, scientific societies, NGOs, professional societies
• Establish a sustained assessment technical working group to pilot approaches to conduct these assessments
• Identify high-priority goals/challenges and conduct initial assessments to support users and test methods
Building on prior reports and recommendations, this section highlights a clear need for a process to assess climate information in use context and to provide technical guidelines for users and improve knowledge for climate services.

The goal would be to establish consensus on sources and methods for different categories of climate information.

Guidance could take the form of a periodically updated authoritative guidebook or other products.

The need for and goals of such an activity seem clear, but the institutional framework for convening it is not. Participants should include scientific groups such as AMS and AGU, climate and impacts scientists, and intermediaries. Identifying a lead institution or institutions will require careful consideration.

Without guidance and collaboration, downscaling can impart an unsubstantiated sense of accuracy and mislead users.
What I Hope You Take Away

- Climate assessment reports have identified and conveyed the risks
- A sustained assessment process can provide:
  - Scientific resources
  - Innovative products for decision making under uncertainty
  - Engagement that supports solutions
- Civil society and states/local governments can help build a network that brings science to action