Weather and Climate Extremes: The Role of Science in Municipal Planning

Roundtable Discussions with Planners and Practitioners

Introduction

Communities nationwide are the front-line in planning for and responding to the risks and impacts of weather and climate change. Arming planners with actionable data, tools, resources, and processes to address and plan for extremes and impacts of a variable climate is vital to the health and long-term economic and environmental viability of our cities, towns, and rural areas. In March 2017, the American Planning Association (APA), in partnership with the Sectoral Application Research Program (SARP) within NOAA, gathered together 64 planners, practitioners, researchers, and policymakers for two roundtable discussions focused on the inclusion of science in local planning. These roundtable discussions sought to approach the issue from a variety of perspectives, organizing discussions around the identification of barriers at both the national and local scale, and discussing how these barriers could be addressed in the context of local planning processes.

Goals

The three primary goals for these discussions were to:

1. Advance understanding of demand for and efforts to improve use of weather and climate information in planning.
2. Identify barriers to the use of weather and climate information and ways to overcome them.
3. Gain insight into effective delivery of weather and climate information in planning.

Discussion Overview

The first roundtable discussion in Washington D.C. approached the topic from a national view of sets of issues that affect local, regional and national planning and preparedness. A total of 38 people participated, representing organizations involved in planning from a variety of perspectives such as transportation, environmental, and water resource planning. This discussion centered heavily upon how to develop tools, package data, and provide funding and technical assistance for planners to use in the context of climate adaptation and planning. Attendees were encouraged to think critically about how the resources they develop are useful for planners who work at local and regional scales. Frank conversations on the viability and utility of tools, data resources, and policy guidance were highlights of the national roundtable discussion.

The second roundtable was held in Chicago, Illinois, and included 26 planners, practitioners, and researchers from the Chicago metropolitan-area and wider Midwest region. This discussion focused heavily on barriers to the inclusion of weather and climate information in planning from a local and regional perspective. After an initial presentation outlining the primary themes of the national meeting, participants were encouraged to share their approaches, critiques, and suggestions for how climate science can be better integrated into the planning process at the local level.

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National Perspective

Current Use and Suggested Improvements to Tools, Policy, and Funding

Initial group discussions centered on four general topic areas: 1) Weather and Climate Science, Predictions, and Research, 2) Data and Tools for Planning, 3) Policy Guidance, and 4) Funding Opportunities. Within these topic areas, discussions focused on how federal agencies and national organizations are already providing support for including climate science in planning, and how support for planning through the provision of data, information, and tools can be improved.

Science, Predictions, and Research

Participants felt that existing data, tools, and resources relevant to weather and climate extremes are valuable to planners and practitioners, but cited significant room for improvement.

- Researchers, federal agencies, and NGOs should focus on the needs of planners and the questions they are asking.
- Researchers must focus on how to communicate climate science in the context of local planning.
- Agencies and research organizations should emphasize through better communication the value of no regrets action, reframe the discussion of uncertainties around the need to take action, and focus on providing tools that are address decision needs and timetables and are easy to use.

Data and Tools for Planning

The recent growth and availability of both climate and urban data (particularly in major urban areas) was identified as a major benefit that most participants felt should continue to be harnessed by federal agencies and national organizations to aid local climate adaptation planning efforts. However, more information doesn't mean better information and significant gaps still exist.

- Planners may lack the knowledge or capacity to use this information in their planning activities.
- Planners will require stronger and more specific guidance on how to integrate particular data and tools into plans.
- It is vital for agencies and data providers to understand the context of daily planning work, which may involve comprehensive planning, but is more often focused on daily implementation and monitoring.

Policy Guidance

Many participants felt that existing policy frameworks, such as FEMA's Community Rating System, demonstrate that effective policy-making can have a substantial impact on the practice of local planning.

- Policy guidance should include tangible technical assistance and education for local practitioners.
- Policymakers should establish better national standards and best practices on how to incorporate climate and hazards information into planning that can be useful at a variety of scales.
- Local knowledge and community organizations should be supported and relied upon by policymakers to help develop policy that is attentive to local needs and concerns.

Funding Opportunities

Existing federal and NGO funding programs were highlighted as valuable to planners and practitioners. However, significant gaps in funding opportunities and accessibility still exist.

- Additional funding that builds or complements local capacity and educates the public on inclusion of science in public policy is crucial to growing the ability of planners to include or consider climate science and data in their planning efforts.
- Funding organizations should become knowledgeable about what local practitioners need, focus funding opportunities on providing co-benefits of addressing near-term and long-term risk management challenges of weather and climate, and evaluate whether existing local funding could be serving climate adaptation needs.
- Considering the bond and insurance markets in financing resilience and climate adaptation efforts is also vital.

Climate Science in the Local Planning Context

Participants were also tasked with discussing barriers and opportunities in the context of common municipal plan elements. The four general areas are: 1) Environment and Resource Management, 2) Hazard Management, 3) Financial and Economic Implications, and 4) Water Policy and Issues. Highlights of the discussion are below.

Environment and Resource Management

- Agency and NGO tool developers must ensure that they are not separating environment and natural resources management priorities from the broader community context (especially economic and social factors). Tools should take this into account.
- There is a need to provide curated, authoritative libraries of data, tools, and models that planners can use to integrate climate change adaptation and mitigation into environmental and resource management planning efforts. Some success was cited in the "trusted person" model, which matched practitioners with research professionals who could educate and guide planners on the effective use of available tools and resources.

Hazard Management

- Communities will benefit from incentives such as awareness of steps that neighboring municipalities have taken to incorporate climate information into their hazard mitigation plans and implementation processes.
- There should be stronger linkages, particularly with hazard mitigation, across a municipality's plans (e.g. water resources, emergency management, economic development) and better means of implementation.

Financial and Economic Implications

- Connecting climate adaptation to shared values and objectives, such as global competitiveness, national security, and infrastructure development, is a prudent strategy for reinforcing the connection between hazard risk management and economic stability

- Federal agencies, NGOs, and local planners must consider how to utilize existing programs and mandates working together to improve their collective impact.

Water Policy and Issues

- Infrastructure redevelopment provides an opportunity to talk about climate extremes and water policy in terms of other national priorities such as jobs, public safety, and fiscal benefits.
- Integrating and coordinating water resource planning and management across different local governmental departments may help to streamline heavily siloed operations and avoid the duplication of adaptation efforts.
- The clear co-benefits of green infrastructure can effectively highlight best practices, while simultaneously serving adaptation goals in a language that is familiar to local planners.

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Local Perspective

The national perspective of the previous roundtable greatly benefited the local discussion. Barriers identified in the national discussion were often echoed with considerable local context, helping to validate the concerns of agencies and NGOs, while adding much needed nuance and direct planning experience to the conversation.

Climate Information in the Local Planning Context

As in the national roundtable, participants again discussed the inclusion of climate information in local planning within the context of common plan elements. The small group discussions focused on: 1) Environment and Water Management, 2) Financial and Public Administration, and 3) Hazard Management. Participants were encouraged to identify the types of barriers planners are facing regarding the incorporation of climate information into these aspects of planning and to brainstorm potential solutions.

Environment and Water Management

- There is an institutional disconnect between water managers and urban planners. Professional organizations such as APA can facilitate communication between and within these groups. Such outside professional organizations could help to generate active capacity building at the local and regional levels.

- Some communities may lack local champions for incorporating climate information into planning processes. It may be worthwhile to cultivate friendly competition between municipalities. Many communities like to emulate their neighbors, and this could be an opportunity to encourage municipalities to integrate more climate information in their planning processes
- The sheer volume of information that planners and water managers already deal with is often overwhelming, and highlights existing capacity limits in municipal government. Localized information responsive to specific decisions and contexts would be most beneficial to planners and water managers. Additionally, a lack of scientific training often may make understanding the data difficult for planners.

Financial and Public Administration

- Planning processes are open for public input with decisions documented and justified so that constituents understand the utility of public investment. Planners could utilize communication techniques that highlight climate integration and adaptation planning successes to demonstrate the value of these investments.
- It is often easier to be reactionary than to be proactive in planning. Leveraging funding attached to disasters and other extreme events is an opportunity not only to prompt more proactive planning but also to integrate climate information able to improve aspects of the planning process.
- Capital improvement and infrastructure projects may be an opportunity to achieve multiple objectives that includes climate adaptation.

Hazard Management

- Pre-disaster funding is vital. Tying hazard mitigation grants to pre-disaster recovery plans and the local hazard mitigation plan could help improve plan coordination and provide opportunities for the integration of climate information.

Key Findings

The following two sections highlight the common themes that recurred over the two roundtable discussions.

Primary Barriers

- Many communities lack local capacity to incorporate climate change science, data, and information into their planning processes. There is often no immediate demand, requirement, or clear, near-term benefit to further complicate already complex planning processes.
- There are many tools, resources, and data sources, but very little understanding of what

currently exists, how tools can be used in a planning context, and how reliable these tools are. Additionally, many planners don't often have the scientific education to easily incorporate available climate information.

- Planners lack good examples of how other cities are incorporating climate information in their planning processes.
- While many cities are taking strong action on climate adaptation, mitigation, and incorporating climate and hazards information into their planning processes, political will is not evenly distributed across the nation. Without local champions for incorporating climate into planning, planners and practitioners may be less likely to advance or advocate for adaptation measures.
- Planners lack specific and trusted technical assistance that can provide advice on how best to translate regional, national, or global data, into actionable local information.
- Funding to study local climate change impacts is limited and oftentimes not being pursued by those who are at the beginning stages of incorporating climate science into their planning. Funding to better understand the needs of planners is evolving. There is a continued need to fund studies on how to better incorporate climate into planning decision making.
- Technical specialists are often isolated within governmental hierarchies, with little cross-agency exchange of information, and even less coordinated action.

Potential Solutions

- Continue to support planners and practitioners where it is most needed. Participants suggested using APA to survey its membership to identify specific needs and tools.
- Find ways to improve upon existing resources rather than developing more tools. This model proved to be a success with the Water Resources Dashboard on the Climate Resilience Toolkit. Agencies and tool developers should determine points of intervention that aid planners in the use of climate., science tools and consider linking users with technical assistance (e.g., “trusted guide”).
- APA and other professional organizations should consider hosting tailored training sessions on selected tools and data sets that could provide AICP credit or some other incentive. This may help to mainstream the most beneficial resources.
- Practitioners could build consensus by creating a communication portfolio of talking points with target audiences of people outside of planning (e.g., civic organizations, politicians, etc.). This may help to create messaging consistency about climate information and planning.
- Planners and scientists co-producing local information that can improve tools may allow

practitioners more opportunities to shape the information and tools most relevant to them.

- Appealing to co-benefits, cultivating public-private partnerships, and leveraging funding and resources may provide opportunities where practitioners can still move forward and incorporate climate information into their planning processes.

Suggested Next Steps

Incorporating climate information into planning is evolving. Organizations such as APA and those invited to the DC meeting should meet regularly with each other and pertinent Federal agencies to discuss new opportunities for continued inclusion of climate information in planning. APA and NOAA SARP will continue to work with those organizations that attended the workshops (as well as others that are interested) in developing a community of practice to share insights on using climate information in planning.

APA will continue to work with its constituents on inclusion of weather and climate within planning, including on topics related to tools and technical assistance. APA can take the lead in discussing with federal agency partners and allied NGOs means of incorporating these findings and ideas into public policy making, projects furthering the dissemination and use of best practices, and expanding the development of various forms of professional training and education regarding the integration of climate science into public planning and policy making.

As part of the Built Environment and Water sections of the Climate Resilience Toolkit, NOAA, APA and partners will continue to add case studies and tools that will be relevant to planners. This website could be enhanced by sector-relevant webinars that are shared within the community and an improved method (e.g., a decision tree) for finding relevant tools and case studies for users as well as other sections yet to be designed. One example of the latter would be a method to highlight no-regret activities successfully developed by communities using climate science and information on how to integrate data and tools into planning documents.

The following next steps were suggested by participants in the climate roundtables, and are a valuable and ambitious series of action items to consider.

Outreach and Coordination

- APA should conduct a survey of their membership to assess their needs in planning for climate change. This outreach should assess understanding of climate science and impacts, as well as the extent to which local planners incorporate climate change information into their plans and planning processes.
- APA, NOAA, and partners should hold multi-disciplinary and regular climate summits to better assess practitioner needs and the state of practice in communities. APA and NOAA should consider more regular discussions with practitioners, agencies, and NGOs similar to the climate roundtable meetings.

Guidance and Capacity Building

- APA, NOAA, and partners should continue to communicate guidance to planners and practitioners on weather and climate risks in the context of local impacts.
- APA should work with chapters and divisions to help build capacity at the local level. This may include working to develop model codes, ordinances, and processes that mainstream the incorporation of climate change information into plans.
- NGOs and governmental agencies should develop plain language guides to mitigating climate change impacts. These guides should focus primarily on the local impacts of climate change and use elected official-friendly terms and topics, like preventing street flooding, securing public facilities, and making smart investments in infrastructure.

Training and Education

- Climate and weather impacts and adaptation can be more fully integrated into practitioner certification processes. Programs like AICP should incorporate weather and climate education directly into both exam study and certification maintenance.
- Practitioner education should focus primarily on utilizing and promoting existing resources such as those through the NOAA Climate Resilience Toolkit and NOAA's Digital Coast.
- APA should work with university planning programs to ensure that they are incorporating climate change education into coursework and specialization pathways to help prepare students for the risks of a varying and changing climate.

Collaboration

- Professional associations (such as AIA, APA, and ASCE) should work to cultivate partnerships among their members and constituent chapters to increase collaboration on climate adaptation at the local level.