



Climate Change Challenges and Opportunities in New York Municipalities: Assessing the Perceptions of and Actions to Local Climate Change

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The local effects of climate change are already being experienced by New Yorkers who are noticing milder winters, warmer summers, heavier rainfall events, and seasonal changes in the plants and trees on their farms and forests, however, it is not clear whether people are attributing these effects to climate change. New York has made great strides in reporting on the potential impacts of climate change with the release of the 2011 ClimAID Assessment. According to ClimAID, New Yorkers can expect to see an increase in extreme weather events such as more frequent heat waves, heavy downpours, and increased summer droughts, as well as the possibility of coastal areas seeing a rise in sea level. The effects of these events, whether they are perceived or not, will impact many sectors that municipalities are responsible for, e.g. public health, energy, transportation, communication, agriculture, natural resources, natural ecosystems, etc. (ClimAID 2011). The state also created the 2010 preliminary Climate Action Plan that outlined how the state will adapt to and mitigate climate change. However, there is a need to translate the technical findings of these reports into easily understandable documents that are relevant to the geographic scale at which municipal officials operate. As a home rule state, New York has a large number of small local governments (62 counties, 932 towns and villages, and 62 cities), and many decisions that affect energy, infrastructure, and land use are made at the local level. Municipal officials in New York face the unprecedented challenge of finding ways to mitigate and adapt to climate change. Preparing them to take advantage of opportunities and minimize the adverse consequences of climate change will require improved education and outreach to decision-makers.

Summary of Research Methods

In 2010 and 2011, a survey was sent via email and

postal mail to municipal officials (e.g., county executives, mayors, town supervisors, Environmental Management Council members, and Conservation Advisory Council members) throughout New York State (N=1,416, total number of respondents=299, response rate=21%). The survey questions were designed to address the following: municipal officials' knowledge of climate change, attitudes towards it, actions already being taken to address climate change, barriers to climate mitigation/adaptation action, where current information regarding climate change is retrieved, what information is still needed, and how best to provide additional information.



Municipal Officials' Knowledge and Attitudes About Climate Change

Figure 1 (next page) shows that just over half of the respondents (54%) would rate themselves as moderately well-informed about climate change. Approximately one-third of respondents rate themselves as knowing a little bit (23%) or not knowing much (8%) about climate change. Figure 2 (next page) represents a few of the keys findings regarding municipal officials' attitudes about climate



change: the majority of respondents agree that there is sufficient scientific evidence of climate change and that it will affect New York and its natural resources, but a large percentage of respondents do not feel that there is sufficient information available to them about how to address climate impacts at the local level.

Figure 1: Municipal officials' knowledge about climate change

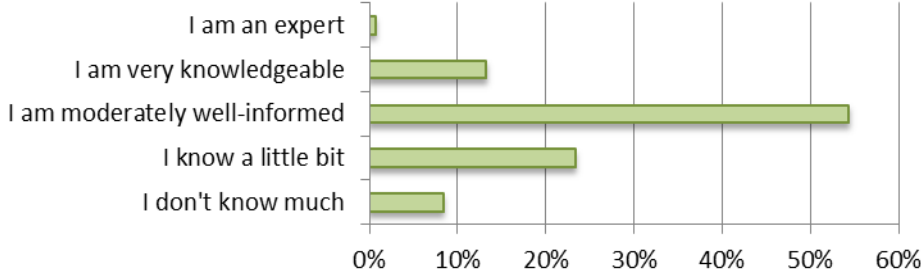
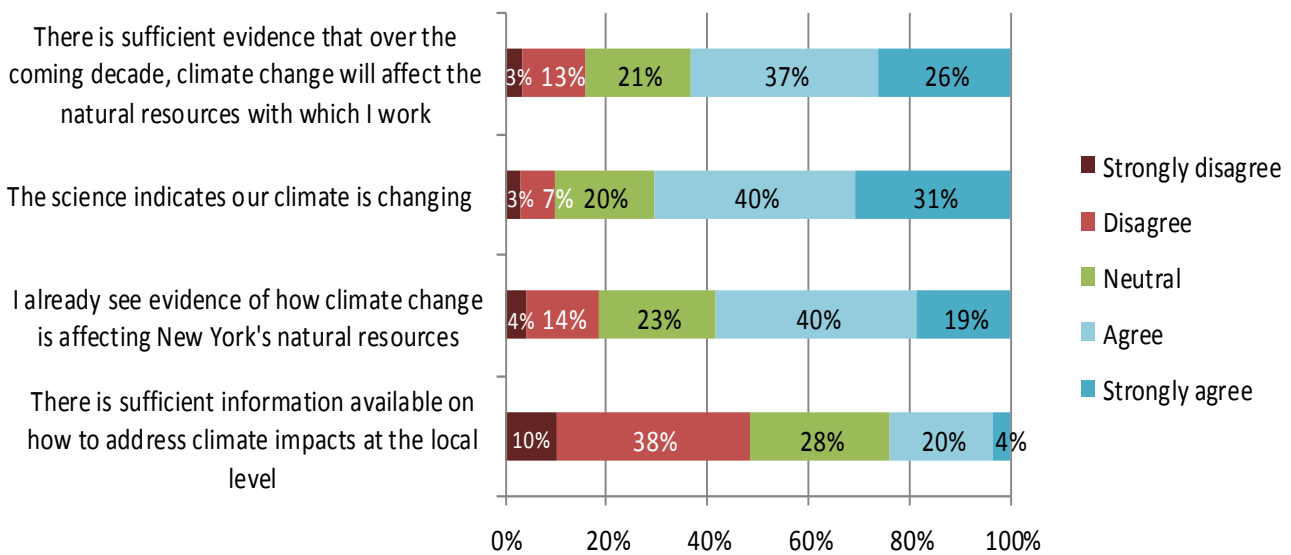


Figure 2: Key findings of municipal officials' attitudes about climate change



Municipal Actions Towards Climate Change

Twenty-four percent of respondents say that their municipality has taken action(s) to address climate change, whereas the majority (67%) have not; 9% said they did not know if their municipality had taken action. The 24% of respondents who said their municipality has taken action were asked a follow-up question regarding what actions their municipalities have taken to **adapt to** (Table 1) and **mitigate** (Table 2) climate change (multiple responses were allowed).

Table 1: Climate change adaptation actions*

Partnering with local groups	42%
Developing flood mitigation plan/program	37%
Planning on long-term horizons (10+ years)	23%
Conducting outreach and education	22%
Practicing adaptive management	22%
Developing climate action plan	20%
Planning for specific adaptations	20%
Implementing a climate action plan	10%

*Actions taken to adapt to anticipated climate change

Table 2: Climate change mitigation actions*

Investing in energy savings in buildings	87%
Planting trees	72%
Investing in green and open space	60%
Investing in energy savings in transportation	40%
Purchasing renewable energy	37%
Adopting Climate Smart Communities	37%
Investing in energy savings in industrial and waste processes	32%
Inventorizing baseline GHG emissions	27%
Developing climate action plan	20%
Adopting emissions reduction target	17%

*Actions taken to influence the causes or drivers of climate change

Barriers to Climate Change Action at the Local Level

The survey respondents were asked to rate barriers to taking action on climate change at the local level in New York; the rating scale ran from ‘not a barrier’ (1), to ‘slight barrier’ (2), to ‘minimal barrier’ (3), to ‘moderate barrier’ (4), to ‘significant barrier’ (5). The results showed that there were four main categories of barriers:

- lack of resources (financial and human), which was rated, on average, at 3.7;
- inaction of government at all levels, which was rated, on average, at 3.2;
- lack of both information and external pressure to act, which was rated, on average, at 3.1; and
- intra-organizational issues, such as lack of authority, conflict within agencies, and that climate change is not within the scope of job duties, which was rated, on average, at 2.4.

What Climate Change Information is Needed by Municipal Officials and How Would They Like To Receive That Information?

Table 3 shows what information municipal officials are interested in regarding climate change (officials were allowed to choose multiple responses).

Table 3: The types of climate change information municipal officials are interested in

How likely or severe the effects will be	52%
Things they can do to prevent it	51%
General information about climate change	44%
Available responses to the effects of climate change	41%
The process of climate change	27%

When asked what research needs the respondents would like to see addressed, the answers ranged from municipality-specific information such as detailed maps of projected water-level rise, projected costs of climate change effects on the community and crops, or the economic impact of doing nothing, to CO₂ capture technologies and “green” energy development, to wanting more research on why the current change in climate is different from past, historic climate changes (i.e., why this is not a natural cycle and is human-caused climate change).

“Research and information is needed on impact of climate change on the local level and what communities can do to prepare for and mitigate that change.” - NY Town Supervisor

“Identifying and localizing the impacts so communities can see specifically how they are affected and can better identify appropriate mitigation strategies. Too much of what is out there is global, national, statewide and is too abstract for local residents to grab on to and act on.” - NY Town Supervisor

We asked municipal officials to rank which climate change topics would be most useful to them. Funding sources and incentive programs were most often ranked as being “very useful,” followed by information and planning resources (e.g., vulnerability assessments, management plans, model ordinances), research and data resources (e.g., monitoring programs, adaptation research), education and communication resources, and resources on EPA and state regulations.

We asked municipal officials to choose whom they would like to receive climate change information from (Table 4); multiple responses were allowed. The open responses under the “Other” category emphasized that regardless of the source, climate change information needs to be nonbiased.

Table 4: Whom municipal officials would like to receive climate change information from

Cooperative Extension	55%
University Scientists	49%
State Government	43%
Federal Government	43%
Environmental Groups	31%
Local Government	22%
Industry	19%
Other	4%

We asked officials to choose how they would like to receive climate change information (Table 5) (multiple responses were allowed).

Table 5: How municipal officials would like to receive climate change information

Written materials (fact sheets/reports)	52%
Email	47%
Websites	42%
Workshops	39%
Newsletters	39%
Newspaper articles	25%
Public meetings	22%
Webinars	20%
Displays at public events	12%
Podcasts	4%

Summary of Results

As flooding, extreme weather events, and timing of seasonal changes continue to impact communities throughout New York, municipal governments will most likely feel an increasing responsibility to constituents to address climate change and its effects. While New York may already be considered a leader in climate change at the state level, our findings indicate that only 24% of the municipal officials surveyed have begun addressing climate change in their community. To properly address climate change in their community, municipal officials need to be well-informed about climate change: what it is, current projected changes, how those changes will affect their community, and how to mitigate or adapt to the changing climate.

The following provides a summary of the findings:

- Municipal officials have some knowledge about climate change (Figure 1), but they would like to know more about the likeliness and severity of the predicted climate change effects *in their community*, how they can prevent and/or respond to these effects, as well as learn more about climate change in general (Table 3).
- Approximately three-quarters of the surveyed municipal officials do not feel that there is sufficient information available on how to address climate impacts at the local level (Figure 2).
- 24% of surveyed municipalities have taken action towards climate change. The most frequent actions toward adapting to climate change were creating and working through partnerships and developing flood mitigation plans (Table 1). The most frequent actions towards mitigating climate change were investing in energy-saving building improvements and planting trees (Table 2).
- The most important barrier to action was lack of resources (financial and human), which was rated as a ‘moderate barrier.’ The next most important barriers, rated as ‘slight barriers,’ were the inaction of government at all levels and a lack of perceived threat and understanding by their constituency.



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Recommendations

The results of the “Local Climate Change Challenges and Opportunities: Understanding Municipal Official Perspectives” survey have provided us with important insights into how we can move forward in developing education and outreach materials for municipal officials regarding climate change and strategies to disseminate this information.

The following provides a summary of recommendations:

- Development of **localized information** for municipal officials on the topics of local climate change impacts and local adaptation and mitigation strategies (Table 3). To provide localized information, climate models need to be downscaled from the global/regional geographic range; this requires collaboration between scientists and policy makers. Once this information is developed, it should be delivered via trusted sources (Table 4).
- Provide municipal officials with access to resources about **funding sources and incentive programs**, climate change information and data (e.g., monitoring programs, vulnerability assessments, adaptation research), and management plans (e.g., model ordinances, hazard mitigation plans). One such resource and program is the Climate Smart Communities initiative which includes financial support and provides information on additional **funding opportunities**, as well as an active community of members who communicate via listserve. Lists of federal funding opportunities via EPA/DOE and other organizations could also be provided resources.

“[We need] education and information on specific local vulnerabilities and help with funding to mitigate the impacts.” - NY Town Supervisor

References

Rosenzweig, C., W. Solecki, A. DeGaetano, M. O’Grady, S. Hassol, P. Grabhorn (Eds.). 2011. *Responding to Climate Change in New York State: The ClimAID Integrated Assessment for Effective Climate Change Adaptation*. Synthesis Report. New York State Energy Research and Development Authority (NYSERDA), Albany, New York.

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