

Understanding decision-makers' perception of flooding risks and climate change

FINAL REPORT

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TABLE OF CONTENTS

Overview.....	1
Background.....	1
Survey Description.....	2
Survey Sample.....	2
Survey Results.....	3
Socio-demographics and Geographic Scope.....	3
Respondents' Current Role.....	4
Previous Flood Experiences.....	4
Flood Adaptation Decision-Making Process.....	5
Understating Flood Impacts.....	6
Barriers to Flood Adaptation Information-Gathering and Learning.....	8
Influence of Prior Flood Experiences on Flood Adaptation Information-gathering.....	9
Development of Flood Adaptation Plans.....	9
Barriers to Flood Adaptation Planning.....	11
Influence of Flood Experience on Flood Adaptation Planning.....	12
Implementation of Flood Adaptation Actions.....	13
Barriers to flood adaptation actions.....	15
Influence of Flood Experience on Flood Adaptation Actions.....	16
Impact of Election on Sustainability and Flood Planning Efforts.....	17
New York Rising Community Reconstruction Program.....	17
Flooding Risks and Effects of Climate Change.....	20
Vulnerability to Climate Change.....	28
Conclusions.....	29
References.....	32
Appendix A: Survey with Frequencies for All Questions.....	33

TABLE OF FIGURES

Figure 1. Ideal-type Stages of the Adaptation Decision-making Process.....	2
Table 1. Geographic Scope of Work.....	3
Table 2. Length of Time in Current Region	4
Table 3. Description of Current Role Within Agency/Organization/Municipality (may include multiple roles).....	4
Figure 2. Municipalities’ Preparedness for the 2006 and 2011 Floods	5
Table 4. Amount of progress made in understanding, planning, and managing phases of the flood adaptation process	6
Figure 3. Extent to Which Agencies Collected, Discussed or Used Information on Flooding Impacts (Understanding Phase of Flood Adaptation Process).....	6
Table 5. Extent to Which Agencies, Organizations or Municipalities Collected, Discussed, or Used Information on Flooding Impacts.....	7
Table 6. Barriers to Flood Adaptation Information-Gathering and Learning.....	8
Table 7. Flood Adaptation Information-gathering After Experiencing the 2006 and/or 2011 Floods	9
Figure 4. Extent to Which Agencies Developed Flooding Adaptation Plans (Planning Phase of Flood Adaptation Process)	10
Table 8. Extent to which Agencies, Organizations or Municipalities Developed Flooding Adaptation Plans	11
Table 9. Barriers to Flood Adaptation Planning.....	12
Table 10. Flood Adaptation Planning After Experiencing the 2006 and/or 2011 Floods	12
Figure 5. Extent to which Agencies Implemented Flood Adaptation Actions (Managing Phase of Flood Adaptation Process)	14
Table 11. Extent to which Agencies, Organizations or Municipalities Implemented Flooding Adaptation Actions...14	14
Table 12. Barriers to Implementing Flood Adaptation Actions	15
Table 13. Flood Adaptation Actions.....	16
Table 14. Impact of November 2013 Elections / Changes in Elected Officials and Staff on Sustainability and Flood Planning Efforts.....	17
Table 15. Barriers to Implementing New York Rising Community Reconstruction Program Community Reconstruction Strategies	18
Figure 6: Agency/Personal Actions and Influence on Flooding and Climate Change Risks	20
Figure 7: Agency Expertise in Managing Flood and Climate Change Risks	21
Figure 8: Capability of Agencies to Manage Risks from Flooding and Climate Change	22
Figure 9: Agency Leadership in Managing Flooding and Climate Change Risks	22
Figure 10: Personal Risk to Flooding and Climate Change.....	23
Figure 11: Likelihood of Fatality from Flooding and Climate Change	24
Figure 12. Scientific Knowledge about Flooding and Climate Change	24
Figure 13. Familiarity with Flooding and Effects of Climate Change	25
Figure 14: Fear of Flooding and Climate Change	26
Figure 15: Occurrence of Local Floods and Effects of Climate Change.....	26
Figure 16. Predictability of Floods and the Effects of Climate Change	27
Figure 17. Future Frequency of Floods and the Effects of Climate Change	28
Table 16. Potential Impacts of Climate Change	28

OVERVIEW

In September of 2011, Binghamton, New York experienced record flooding from the Chenango and Susquehanna rivers as a result of Tropical Storm Lee. Many claim it was the worst in their history. We capitalize on the opportunity presented by the 2011 floods to perform a comparison of the decision-maker climate risk perceptions before and after these recent floods, and assess how this experience has affected their planning and decision processes in relation to adaptive measures. This research was conducted under a grant titled “Assessing attitudes to flood risk and climate change before and after the 2011 floods in New York State” from the National Oceanic and Atmospheric Administration (NOAA) Sector Applications Research Program (SARP) NOAA-OAR-CPO-2012-2003041.

BACKGROUND

Adaptation and mitigation strategies to climate change “can range from short-term coping” measures – those “responses to deal with projected [or actual] climate change impacts and return to the status quo” -- “to longer-term, deeper transformations” (Moser and Ekstrom 2010). Strategies may also serve to meet one or multiple goals. Climate change adaptation and mitigation strategies will be unique to each municipality due to differences in their adaptive and mitigative capacity (Yohe 2001). Strategies also differ at the organizational level; for example, a non-governmental organization and a governmental agency will have “different missions, jurisdictions, political interests, funding, etc.” that will affect strategies in dealing with climate change issues (Moser and Ekstrom 2010). In this work, we utilize a framework that focuses on the barriers to climate change actions (Moser and Ekstrom 2012). Ultimately, this framework “provides practitioners with options to pre-emptively intervene or better manage the challenges that may arise in the adaptation [and mitigation] process” (Ekstrom *et al.* 2011).

Barriers are “obstacles that can be overcome with concerted effort, creative management, change of thinking, prioritization, and related shifts in resources, land uses, institutions, etc.” (Ekstrom *et al.* 2011). Moser and Ekstrom (2010) differentiate barriers from “limits” in that limits are “obstacles that tend to be absolute in a real sense;” “limits are common in physical and ecological systems, but some limits have been stretched or overcome with technology” and these now become barriers, for example, use of genetically modified crops (e.g., drought-resistant crops) in an ecological system affected by climate change (e.g., drought-prone region). It is also worth noting that “many seeming limits, especially social ones, are barriers – they can be overcome with sufficient political will, social support, resources, and effort;” this includes existing laws (Moser and Ekstrom 2010).

Within the adaptation decision-making process there are three main phases – Understanding (U), Planning (P), and Managing (M) – and three stages within each phase: detecting the problem (or acknowledging a signal) (U1), gather/use information about the problem (U2), (re)define the problem (U3), develop options to mediate the problem (P1), assess the options (P2), select option(s) (P3), implement the option (M1), monitor the option and environment (M2), and evaluate (M3) (Figure 1). In real-world situations, the decision-making process may skip or re-order stages. Thus, barriers may arise during any stage and may or may not hinder the progress to the next stage. If a barrier causes a stage to be ignored, problems may or may not arise later.

Figure 1. Ideal-type Stages of the Adaptation Decision-making Process

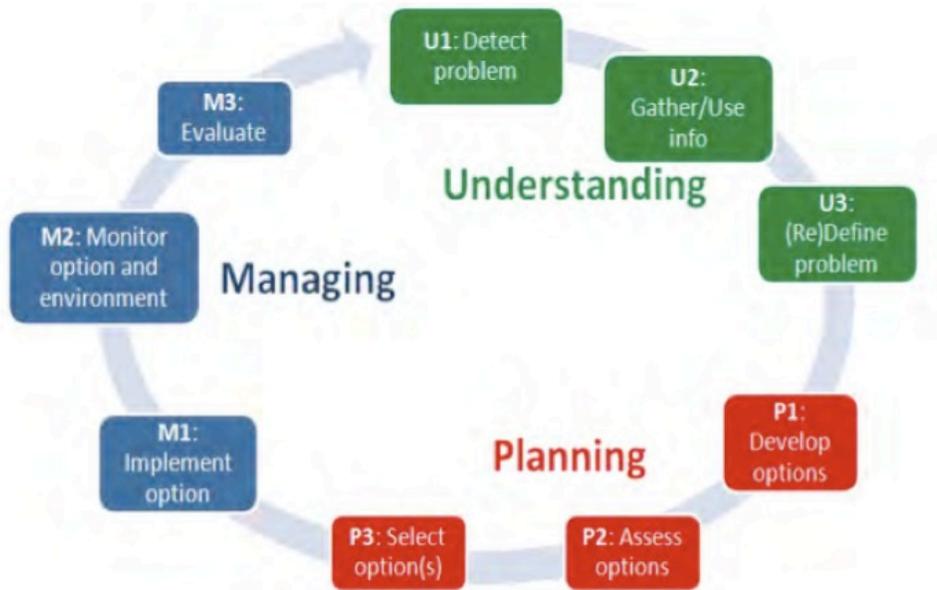


Figure 1: Ideal-type Stages of the Adaptation Decision-making Process

Source: Moser and Ekstrom (2010a, p.15)

SURVEY DESCRIPTION

This was an online survey of current and/or past decision-makers (as well as those that work with or inform decision-makers) who work within Broome and Tioga Counties. The survey was designed to assess personal and agency/organization/municipal risk perception regarding flooding and climate change, as well as determine what mitigation/adaptation actions have been taken and what barriers have risen in the decision-making/action-taking process. The following document presents the results of this survey. The survey implementation dates were April 22, 2014 – June 28, 2014.

SURVEY SAMPLE

The survey sample includes the following types of positions in the Broome and Tioga County region and make or inform decisions regarding flooding/climate change adaptation and/or mitigation (note that this is not a complete list): federal government employees from the National Weather Service, Army Corps of Engineers, and U.S. Geological Survey; state government employees from the Department of Environmental Conservation, Department of Transportation, Department of State, Office of Emergency Management as well as elected government officials such as state senators and assembly members; regional environmental non-governmental organizations and emergency management organizations (e.g., United Way, Red Cross); county employees from the Department of Planning and Economic Development, Emergency Services, Environmental Management, Soil and Water Conservation District; municipal officials and staff such as mayors, planning board members, council members, city departments (e.g., Sustainable Development, Public Works, Water and Sewer), and chambers of commerce. The email addresses for the survey sample were compiled through online searches, recommendations from

key project informants, and past Cornell project participants.

The survey was mailed to a total of 121 e-mail addresses. In total, 47 people completed¹ the survey, yielding a response rate of 41.96% (AAPOR Response Rate #1). There were 11 partial completions (answered less than 70% of survey questions), 4 refusals, and 5 undeliverables.

SURVEY RESULTS

SOCIO-DEMOGRAPHICS AND GEOGRAPHIC SCOPE

Out of forty-four respondents, 68% were male and 32% were female. In terms of the respondents' age, more than two-thirds (68%) were 46-65 years of age; almost one-fifth (18%) was 36-45 years of age; 9% was 66-75 years of age, 2% was over 75 years of age, and 2% was less than 35 years of age. Regarding the highest level of formal education attained, almost half of the respondents (46%) held graduate or professional degrees; 32% held a Bachelor's degree; 21% completed some college or technical school education; and 2% graduated from high school or had earned a G.E.D.

Respondents were asked about the geographic scope in which they primarily worked: 37% worked at the city, town or village level, 26% worked at the county level, 15% worked a regional level within the state, and another 15% worked at the New York State level (Table 1).

Respondents were asked if they resided in the same area where they worked; most did, as 78% (n=37) stated they lived full-time in the same area where they worked, 8% resided part-time in the same area where they work, and 14% responded they did *not* reside in the same area where they worked.

Table 1. Geographic Scope of Work

Region	n=46	Percentage
U.S.	0	0
Multi-State	2	4.3
New York State	7	15.2
Region within New York State	7	15.2
County	12	26.1
City, Town, or Village	17	37.0
Other	1	2.1

Respondents were asked how long they had lived in the region where they reside (Table 2). More than three-quarters (76%) responded they had lived there for more than 20 years, 11% for less than 5 years, 5% between 5-10 years, and another 5% between 11 and 15 years. Almost all respondents (95%, n=37) stated they lived in either Broome or Tioga County, while 5% did not.

¹ Completion was defined as responding to at least 70% of the survey questions.

Table 2. Length of Time in Current Region

Time	n=37	Percentage
Less than 5 years	4	10.8
5-10 years	2	5.4
11-15 years	2	5.4
16-20 years	1	2.7
More than 20 years	28	75.7

RESPONDENTS' CURRENT ROLE

When asked about their current role within their agency, organization or municipality, more than half of respondents (55%) identified themselves as paid staff, 26% as elected officials, 15% as appointed officials, and 4% in volunteer positions (Table 3).

Table 3. Description of Current Role Within Agency/Organization/Municipality (may include multiple roles)

Role	N=47	Percentage
Elected official	12	24.0
Appointed official	7	14.0
Paid staff	26	52.0
Volunteer position (i.e., committee member)	2	4.0
Board member	1	2.0
Consultant	1	2.0
Other	1	2.0

Note: percentages were calculated on a total of 50 responses, as some reported multiple roles

PREVIOUS FLOOD EXPERIENCES

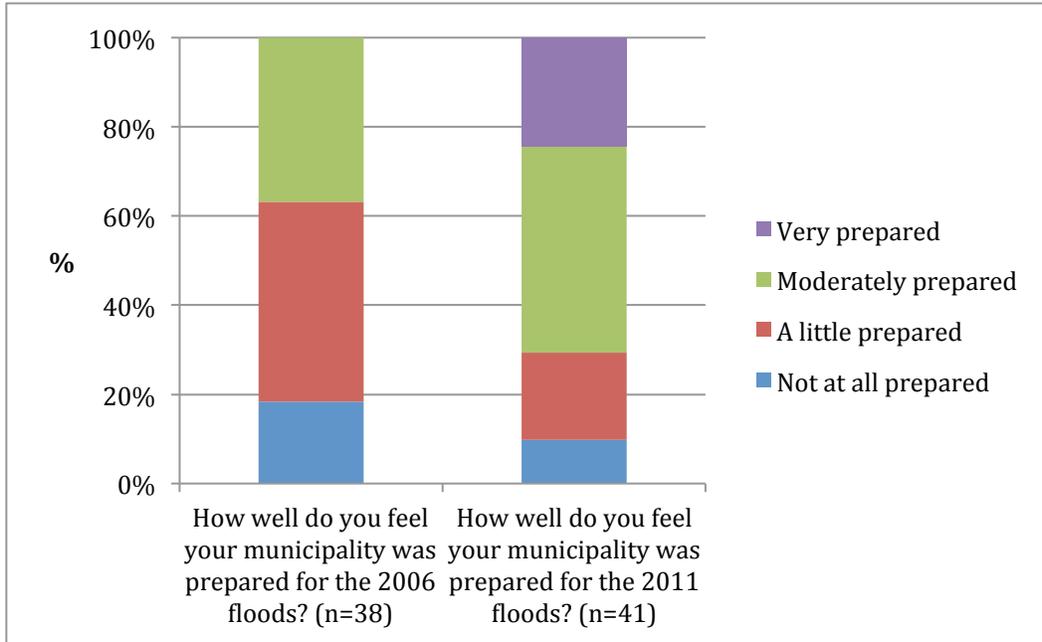
When asked if they had ever experienced flooding, 89% of respondents stated they had, while 11% had not. Of those respondents who had experienced flooding (n=42), 90% had experienced the June 2006 Susquehanna flood, 93% experienced the 2011 Tropical Storm Lee/Hurricane Irene floods in Broome and/or Tioga County, 36% experienced the 2011 Tropical Storm Lee/Hurricane Irene floods outside of Broome/Tioga Counties, and 26% experienced *other* flooding events.

The 38 respondents who experienced the June 2006 Susquehanna flood were asked how well prepared they felt their municipalities had been for the 2006 floods; forty-five percent felt their municipalities were “a little prepared,” 37% felt they were “moderately prepared,” and 18% felt they were “not at all prepared” (Figure 2). Notably, no one replied that their municipalities were “very prepared.”

Respondents who experienced the 2011 Tropical Storm Lee/Hurricane Irene floods were asked how well prepared they felt their municipalities were for those flood events (Figure 2). Forty-six percent felt they were “moderately prepared,” 24% felt they were “very prepared,” 20% felt they were “a little prepared,” and 10% felt they were “not at all prepared.” **These findings suggest**

that from the perspective of respondents who experienced the 2011 floods (and in most cases, the earlier 2006 floods as well), they felt that their municipalities improved in their preparation for these flood events, with almost one-quarter (24%) responding they were “very prepared” by 2011, versus 0% after the 2006 floods.

Figure 2. Municipalities’ Preparedness for the 2006 and 2011 Floods



FLOOD ADAPTATION DECISION-MAKING PROCESS

To understand where decision-makers were in the flood adaptation decision-making process, the survey asked questions about the amount of work done on understanding, planning, and managing for floods (Table 4). Results show that, in terms of significant amounts of progress, the understanding phase of the flood adaptation process is where the most significant amount of progress has been according to respondents. Slightly over a third of respondents are making a significant amount of progress on planning for floods, and almost one-third are doing a significant amount of work on managing for flood impacts.

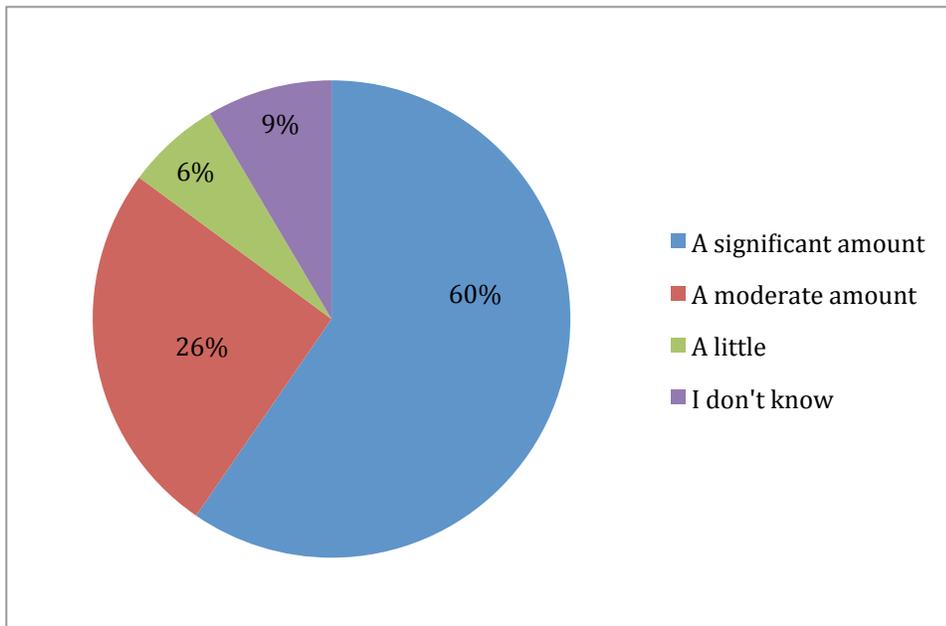
Table 4. Amount of progress made in understanding, planning, and managing phases of the flood adaptation process

	<i>How much Done?</i>				
<i>Phase of Flood Adaptation Decision-making Process</i>	Significant Amount	Moderate Amount	A Little	None	Don't Know
Understanding	60%	26%	6%	0%	9%
Planning	37%	35%	15%	7%	7%
Managing	30%	36%	19%	9%	6%

UNDERSTATING FLOOD IMPACTS

When asked to what extent their agency, organization or municipality had **collected, discussed, or used information on flooding impacts** (such as flooding impact assessments, vulnerability assessments, process of collecting, discussing or using information on flooding impacts, etc.), 60% of respondents stated it was “a significant amount,” 26% stated “a moderate amount,” and 6% stated “a little” and 9% did not know (Figure 3). No one reported that the information had not been used. Qualitative findings from thirty-four respondents are summarized below the graphic.

Figure 3. Extent to Which Agencies Collected, Discussed or Used Information on Flooding Impacts (Understanding Phase of Flood Adaptation Process)



For information collected or gathered, respondents provided twelve examples (Table 4), from undertaking a “watershed level flood mitigation analysis” to “assessed river flows, elevation

patterns and flood risks using technology.” For information discussed and planning activities, respondents described fifteen activities, such as holding community meetings, mitigation planning and working with small businesses to *“prepare their businesses for future flooding.”* There were twelve mentions of information used, applied or shared, from use of gathered data for flood mitigation projects to use of flood zone maps to *“determine the details of mitigation efforts.”*

Table 5. Extent to Which Agencies, Organizations or Municipalities Collected, Discussed, or Used Information on Flooding Impacts

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Information collected / gathered	12	Data collected include assessing river flows, elevation patterns and flood risks, updating hazard mitigation plans, and conducting watershed level flood mitigation analysis	<p><i>“... My role in my agency is the hydraulics engineer for our region. Much time is spent collecting high water data and assessing impacts to infrastructure. We have also proposed location of board gauges at several bridges that are watched during flood monitoring.”</i></p> <p><i>“Several flood reports and indirect measurements of discharge.”</i></p> <p><i>“The Town of Owego has been very involved with updating the Tioga County Hazard Mitigation Plan, as well as HMGP [Hazard Mitigation Grant Program] Acquisitions.”</i></p>
Information discussed / Planning activities	15	Planning activities included leading the charge to discuss flood issues and implement projects, assess communication needs, and convening community meetings	<p><i>“Our department coordinates a local flood task force which aims to disseminate information to elected officials and paid staff on flood risks, regulations, flood insurance and mitigation strategies.”</i></p> <p><i>“Have been assigned to numerous committees to evaluate flooding in Broome County”</i></p> <p><i>“Close contact with Tioga County Soil and Water, State agencies and local agencies”</i></p>
Information used / applied / shared	12	Examples included using flood zone maps to determine details for mitigation efforts, contracting with FEMA to provide detailed flood studies to develop inundation maps, and meeting with the county and working with the local fire department.	<p><i>“NRCS financed and built over 50 PL-566 Flood Attenuation Dams in NYS and we are still in the process of dispersing over 55 M dollars in flooding response and repair dollars under the Emergency Watershed Protection Program.”</i></p> <p><i>“The use of river gauges, emergency management procedures, communication and resource sharing with other municipalities.”</i></p> <p><i>“We have carefully overlaid the anticipated new flood elevations with critical infrastructure and planned or implemented mitigation by relocating facilities.”</i></p>

Note: There may be an overlap in responses from those working in the same office, e.g., a program or policy mentioned more than once may have been cited by employees from the same municipal office, etc. This applies for all qualitative responses described in the report.

Barriers to Flood Adaptation Information-Gathering and Learning

Thirty-three respondents outlined what they considered to be the barriers that their agency, organization or municipality faced in **flood adaptation information-gathering and learning** (Table 5). The highest-referenced barrier was funding, with twelve mentions of this issue. Issues around staff time and personnel resources were raised eight times, while lack of understanding of flooding, climate change, etc., was mentioned seven times. References to governmental agencies or policies were mentioned four times, as was training, education and outreach activities. Information issues/needs was mentioned three times, while reaching vulnerable and at-risk populations such as those living in at-risk communities was mentioned twice. Three respondents stated that they did not see any barriers in gathering information: “we have good cooperation from our partners and cooperating federal agencies.”

Table 6. Barriers to Flood Adaptation Information-Gathering and Learning

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Funding	12	Respondents mentioned lack of funding for information gathering and action plans, in addition to insufficient funding from Congress.	<p>“More money for larger bridges/culverts, floodplain and wetland restoration, and other aspects of design that can help absorb or provide room for water and lessen flood vulnerability.”</p> <p>“More historical flow data for our individual dams would be useful, limited by funding.”</p>
Staff time and personnel resources	8	This included staff time to attend meetings and for information gathering.	<p>“As with other publicly funded agencies, staff time is always an issue.”</p> <p>“We can only devote a limited amount of our resources to this area.”</p>
Lack of understanding of flooding, climate change and related issues; scale of issue	7	Limited understanding of climate change issues by specific audiences, as well as the tendency of residents to forget about flood incidents within a few years of their occurrence.	<p>“Lack of awareness of the flood hazards and risks by architects, designers and planners will often lead to long term vulnerabilities that could otherwise be avoided.”</p> <p>“Continuing lack of understanding by local officials on the realities of climate change.”</p> <p>“Insistence on pursuing non-workable flood mitigation strategies such as dredging by the community and elected officials.”</p>
Government / policy issues, including Congress and federal funding	4	Some respondents considered government bureaucracy / policies, such as allowing building to continue in floodplains, as barriers.	<p>“They do not want to stop people from building in the floodplain.”</p> <p>“Congress dictates our bottom line.”</p> <p>“Tendency for the government to be somewhat insular in its discussions.”</p>
Training, education and outreach, including media	4	The need for more education, training and support, as well as public involvement.	<p>“It could always help to have more training and better information about this issue given to more people within the organization.”</p> <p>“Lack of media support from Broome County media outlets.”</p>

Influence of Prior Flood Experiences on Flood Adaptation Information-gathering

Respondents were asked if experiencing the 2006 and/or 2011 floods had influenced the **flood adaptation information-gathering** of their agency, organization or municipality, and if so, to provide a qualitative response (Table 6). Awareness raising and communications issues, both internally and among organizations and municipalities, were cited eight times. These tasks included “*becoming more sensitive to activities that affect floodplain and flooding*” and “*increased radio communication systems.*” Another four respondents cited information sharing, education/outreach activities and technical assistance, such as “*forming a flood mitigation group that worked to educate [the] public and municipal officials, as well as complete [a] project to assist in the mitigation of floods.*” Survey takers also referenced improved coordination with other municipalities (three instances).

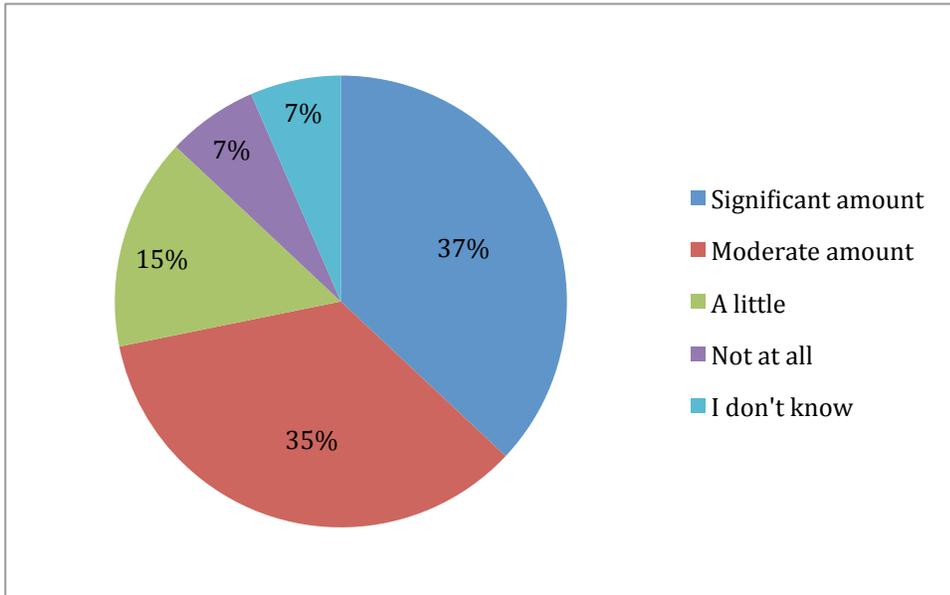
Table 7. Flood Adaptation Information-gathering After Experiencing the 2006 and/or 2011 Floods

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Awareness raising and communication – internally and among organizations / municipalities	8	Ranged from raising awareness of flood risks and improved communication, to increased situational awareness	“... Experience of 2006 flooding created more awareness and preparedness for the 2011 flood.” “Information sharing with other building officials.”
Information sharing / education and outreach / technical assistance	4	Respondents mentioned having formed a flood mitigation group to educate the public and municipal officials, as well as providing technical assistance.	“United Way of Broome County is a member of Broome County Community Organizations Active in Disaster (BCCOAD). We also operate a ‘2-1-1’ information & referral call center. The experiences gained from the 2006 flooding helped us to be better prepared to respond to the 2011 flooding as part of BCCOAD and in our ‘2-1-1’ work during and after the 2011 flooding.”
Coordination with other municipalities, counties, etc.	3	Respondents cited greater interaction among municipalities.	“Works with regional entities to develop Hazard Mitigation Plans, Emergency Management improvements.” “Awarded additional state funding for collaborations with other counties in our region.”

DEVELOPMENT OF FLOOD ADAPTATION PLANS

Planning for Flood Impacts—When asked to what extent their **agency, organization or municipality had developed flooding adaptation plans** (such as plans for improvements to infrastructure, policies, land-use planning, etc.), 37% of respondents stated it was a “significant amount,” 35% stated it was a “moderate amount,” 15% stated it was “a little,” and 7% stated “not at all” (Figure 4). Another 7% of respondents did not know if flooding adaptations plans had been developed. Qualitative findings from twenty-nine respondents are summarized below the graphic.

Figure 4. Extent to Which Agencies Developed Flooding Adaptation Plans (Planning Phase of Flood Adaptation Process)



Respondents described their organizations' flood adaptation plans, focusing on infrastructure improvements (fourteen references) that included green infrastructure efforts (Table 7). There were seven mentions of hazard mitigation plans, primarily in Broome and Tioga counties, and flood committees/working groups convened and planning efforts initiated for flood response (five examples). Among other comments was mention of buyout programs (municipalities buying properties in a flood area).

Table 8. Extent to which Agencies, Organizations or Municipalities Developed Flooding Adaptation Plans

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Infrastructure improvements, including green infrastructure	14	Examples included participation in elevation programs, installing flood-hardening gages, upgrades to maintain potable water system, stormwater control, and mitigation of stream and streambank stabilization issues.	<p><i>“The Town has adopted new floodplain management regulations and through FEMA, has applied for grants to relocate critical infrastructure facilities out of the 100 year floodplain.”</i></p> <p><i>“Have been proactive with items like stand by power at water and sewer pumps, generator added to the Town Hall, reviewed and implementing Emergency Plan.”</i></p> <p><i>“Our most vulnerable properties have been redesigned to raise critical utilities above 500-year flood levels. Usage of building space is managed to minimize the potential for critical information or systems to be impacted by flood waters.”</i></p>
Hazard mitigation plans	7	A number of respondents mentioned hazard mitigation planning in their communities.	<p><i>“Prepared two county wide hazard mitigation plans and we incorporate of flood related comments into land use reviews.”</i></p> <p><i>“We have designed mitigation plans to relocate boilers, electrical panels, phone systems and other mechanical devices needed to operate our agency and provide services during a flood.”</i></p>
Flood committees /working groups /action review; flood response and volunteers	5	Several mentions of the work of flood committees and other groups to address action plans, and sharing of information with among municipalities.	<p><i>“We have a flood working group which meets formally biannually to discuss flooding prevention and promoting our materials to contractors and other municipalities. They also meet informally and have phone discussions frequently.”</i></p> <p><i>“There has been a big effort put into improving flood information and response.”</i></p>
Other – miscellaneous	5	These range from participation in a buyout program to formalizing flood control plans.	<p><i>“Participation in buyout programs.”</i></p> <p><i>“We aren’t involved with making adaptation plans, but our forecasts, warnings and other data help inform people that do create these plans.”</i></p>

Barriers to Flood Adaptation Planning

Respondents outlined what they felt were the barriers their agency, organization or municipality faces in **flood adaptation planning**. Funding was the top-cited barrier (twelve references)(Table 8). The need for additional knowledge, sharing of information and working in partnership was mentioned seven times, while government barriers (from local municipalities to the Federal level) were mentioned five times. Lack of staff and time was mentioned twice; two respondents stated that they felt there were no barriers to flood adaption planning on the part of their agencies/municipalities.

Table 9. Barriers to Flood Adaptation Planning

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Funding	12	Respondents stated lack of funding from both state and federal sources.	<p><i>"Funding for engineering plans and implementation ... don't just replace and fix, build for the next (worst) disaster."</i></p> <p><i>"...Not enough grant or supplemental funds to implement plans."</i></p> <p><i>"Lack of financial support at both the State and Federal levels."</i></p>
Need for increased knowledge / sharing of information / partners	7	Respondents cited the need for greater contacts, increased awareness of flooding hazards, and the need to work more on a regional level.	<p><i>"Getting our engineering/planning on board and having enough people resources to devote time away from normal operating duties. We are still in the recovery phases from last flood."</i></p> <p><i>"...we only encompass a small footprint of land, flood mitigation must be a more regional activity."</i></p>
Government barriers, including Congress and FEMA	5	Some respondents considered FEMA, Congress, other municipalities, along with certain flood policies, as barriers.	<p><i>"Lack of updated FEMA flood maps. New maps were developed, but then dropped by FEMA leaving us in limbo with decades' old maps."</i></p> <p><i>"Other municipalities doing things backwards (stream reaming)."</i></p>

Influence of Flood Experience on Flood Adaptation Planning

Respondents were asked if experiencing the 2006 and/or 2011 floods had influenced the **flood adaptation planning** of their agency, organization or municipality, and if so, to provide a qualitative response (Table 9). The highest number referenced fifteen policy, program and planning decisions; examples included *"updating flood plain regulations"* and *"a larger presence in county/regional planning, preparations and coordination efforts."* There were four references to hazard mitigation plans/programs and three examples of internal organization changes such as *"better staff training for managing these types of events."*

Table 10. Flood Adaptation Planning After Experiencing the 2006 and/or 2011 Floods

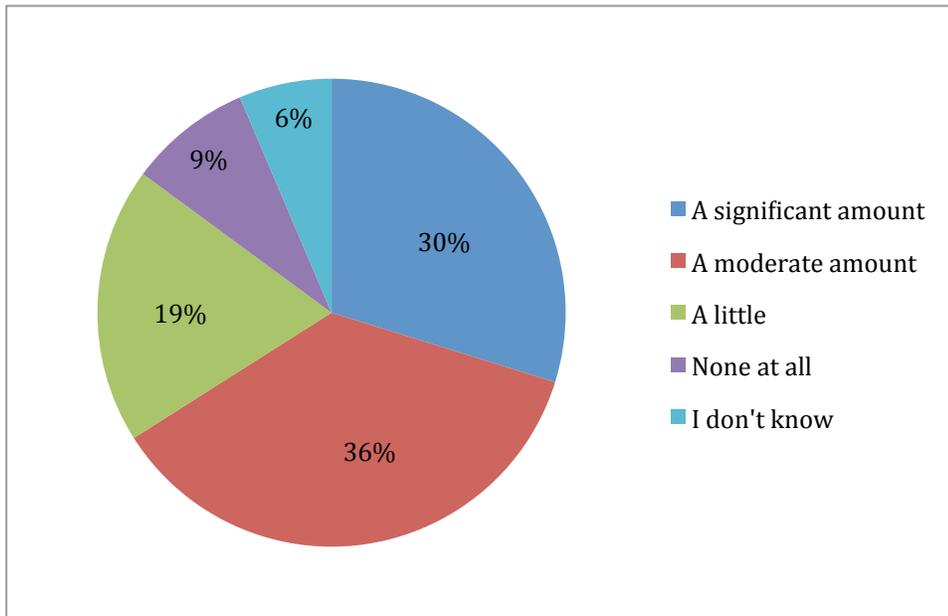
Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
General policy and program plans	15	Ranged from updating flood plain regulations and developing plans for flood resistant infrastructure, to greater involvement in emergency preparedness and planning for response in future disasters	<p><i>"New construction requires elevated structures in flood areas."</i></p> <p><i>"Serves on the NY Rising Reconstruction Program Committee of which I am one of Governor Appointed Co-Chairs for Broome County."</i></p> <p><i>"A larger presence in county/regional planning, preparations and coordination efforts"</i></p>

Hazard mitigation plans or programs	4	Several respondents referenced creating of new plans of updating of existing ones.	<i>“Updated county hazard mitigation plan with input from all municipalities and county.”</i> <i>“Participated in county wide hazard mitigation program.”</i>
Internal organization changes	3	One respondent described identifying a location with communication facilities in the case of future emergencies	<i>“Better staff training for managing these types of events.”</i> <i>“Improved operating procedures.”</i>

IMPLEMENTATION OF FLOOD ADAPTATION ACTIONS

Managing Flood Impacts—When asked to what extent had their agency, organization or municipality implemented **flooding adaptation actions** (such as improvements to infrastructure, policies, land-use planning, etc.), 36% of respondents stated it was “a moderate amount,” 30% stated it was “a significant amount,” 19% stated it was “a little,” and 9% stated “none at all” (Figure 5); 6% did not know if flooding adaptation actions had been implemented. Qualitative findings from twenty-seven respondents are summarized below the graphic.

Figure 5. Extent to which Agencies Implemented Flood Adaptation Actions (Managing Phase of Flood Adaptation Process)



For **flood adaptation actions**, respondents mentioned twelve cases of infrastructure improvements, including green infrastructure and stream rehabilitation/stabilization (“*The construction of the Corps Dams and levees have had a great impact to flood damage reduction in our area.*”)(Table 10). Implementation of plans, such as mitigation plans, flood plans, and programs/policies (e.g., “*new floodplain regulations*” and ordinances) were referenced six times, while education, outreach and communications efforts mentioned four times (“*information pamphlets, public seminars [and] open communication with contractors before work is done.*”). The specific strategy of buyout programs was cited three times.

Table 11. Extent to which Agencies, Organizations or Municipalities Implemented Flooding Adaptation Actions

Category and sub-categories	Number of times activity was reported	Details	Sample Quotations
Infrastructure improvements, including green infrastructure	12	Respondents listed a range of improvements, from construction of dams and levees and installing stand-by power to elevating homes and rehabilitating streams	<p>“<i>Municipally-wise we have flood proofed many buildings and improved utility protection.</i>”</p> <p>“<i>Installed standby power at water and sewer pumps, generator added to the Town Hall, reviewed and implementing Emergency Plan. Mitigating issues to prevent reoccurrences to municipal infrastructure.</i>”</p> <p>“<i>Streambank stabilization, flood control dams, floodplain easements.</i>”</p>

Plans, including mitigation plan, flood plan, etc. and programs / policies	6	Plans encompassed new mitigation and flood plans, a new CEMP (Comprehensive Emergency Management Plan), floodplain ordinances and regulations, etc.	<p><i>"The new floodplain regulations mirror the New York State Building Code requirements for elevation of new residential structures in the 100 year flood plain to 2 feet above base flood elevation."</i></p> <p><i>"EWP [Emergency Watershed Protection] has a floodplain easement program that restores floodways by removing land uses that are incompatible with floodplain functions."</i></p>
Education / outreach / communications	4	Programs included public seminars, staff training and response to public inquiries, as well as production of maps and information pamphlets	<p><i>"Have produced flood inundation maps for more than 20 river forecast points, provide maps to the public via online website, responsive to Community and general public inquiries regarding flood risk."</i></p> <p><i>"Education to our members."</i></p>
Buyout programs	3	Flood buyout programs were mentioned by a few respondents.	<p><i>"We have undertaken a modest number of buyouts. Most are completed at the local level."</i></p> <p><i>"We are finishing up on flood-buyouts of 23 homes, which were substantially damaged as a result of the 2011 flooding."</i></p>

Barriers to flood adaptation actions

Respondents outlined what they consider are the barriers their agency, organization or municipality faces in implementing **flood adaptation actions**. The primary barrier cited was funding (sixteen instances) (Table 11). Staff time and personnel resources (such as having adequate staff to address issues) were mentioned seven times. Government barriers, such as FEMA delays, were mentioned three times. There were three references of the unwillingness of some municipalities to restrict development on (or residents moving from) flood prone areas as a barrier to adopting plans.

Table 12. Barriers to Implementing Flood Adaptation Actions

Category and sub-categories	Number of times activity was reported	Details	Sample Quotations
Funding	16	The primary barrier was funding to implement additional improvements over the long term.	<p><i>"Obtaining more financial support for improvements."</i></p> <p><i>"Lack of funds..." and "long term funding."</i></p>
Staff time and personnel resources	7	Respondents also mentioned limited staff time and staffing shortages.	<p><i>"Lack of staff and time."</i></p> <p><i>"...personnel shortages."</i></p>
Government, including Congress and FEMA	3	Barriers referred to FEMA delays and lack of commitment, among others.	<p><i>"Congress and the participation from the State of NY to allow a cost share measure to move forward."</i></p> <p><i>"Legislative buy in with money and time."</i></p>

Development in flood prone areas	3	Mentioned by a few respondents	"Municipality unwillingness to restrict development of floodplains." "Public unwillingness to stay out of floodplains."
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Influence of Flood Experience on Flood Adaptation Actions

Respondents were asked if experiencing the 2006 and/or 2011 floods had influenced the **flood adaptation actions** of their agency, organization or municipality, and if so, to provide a qualitative response (Table 12). Twenty examples were documented, with the highest number being infrastructure improvements ("*Prepared many potential upgrades to mitigate future flooding disruption to our operation... mostly physical improvements to prevent loss of heat, hot water, electricity, phone service... fire prevention*"). Others included non-infrastructure post-flooding actions ("*encouraged frequently flooded properties to participate in [a] buyout program*") and preparation for future events, such as increased use of GIS services (five examples cited).

Table 13. Flood Adaptation Actions

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Infrastructure improvements	9	Physical improvements ranged from upgrading pumps, hardening gages, and repair and mitigation of flood-impacted structures	"... Upgraded pumps that failed in low line areas due to the controls going underwater. Those controls are higher up and have less risk when the next flood comes. We have upgraded storm sewer pipes, fix or repaired storm water pipes and catch basins." "Address flood issues as it pertains to streams and streambank erosion/stabilization." "We flood hardened several gages on the Susquehanna."
Post-flooding actions / preparation for future floods / hazard mitigation (non-infrastructure)	5	These include non-infrastructure changes such as buyout programs, emergency response (hospital evacuation, etc.), new computer monitoring programs, and disbursement of flood funding	"After the 2006 floods DOT implemented a computer program called RSDA, called for people to be trained on the program, and issued laptops so that data can be collected while out driving the roads after emergency weather events." "Identified multiple special needs shelters (SNS) to accommodate demand...experience with hospital evaluation, planning and preparedness..." "Participated in volunteer management, post response recovery."
GIS/flood maps	4	Increased use of GIS tools and mapping efforts, including updates	"Increased GIS services to the EOC [Emergency Operations Center]" "2006 floods launched inundation mapping project in Upper Susquehanna sub-basin."

IMPACT OF ELECTION ON SUSTAINABILITY AND FLOOD PLANNING EFFORTS

Respondents were asked whether the November 2013 elections and subsequent changes in elected officials and staff would impact **sustainability and flood planning efforts**. More than half of respondents (52%) stated that they did not anticipate changes (“*I don’t feel much will change*”)(Table 13). There were five statements that indicated additional effort, knowledge and partnerships were needed (“*More qualified staff is needed to work diligently on this need alone*”). Two respondents felt that legislators “*finally are getting the climate change/flooding connection,*” while two others mentioned the need for more funding support. Six responses indicated having “no opinion” or being uncertain about the impacts of the recent elections.

Table 14. Impact of November 2013 Elections / Changes in Elected Officials and Staff on Sustainability and Flood Planning Efforts

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Elections would not bring about changes	16	Most respondents did not feel the 2013 elections would change flood planning efforts in their communities.	<i>“I don't really expect many changes at all after the local elections. It's still an area where focus seems limited.”</i> <i>“Believe elections will have limited impact.”</i>
Additional effort /knowledge / partnerships needed	5	Respondents described the need for increased education and qualified staff to work on this issue, as well as cooperation among government agencies.	<i>“Flood planning: this was a big issue for the communities in this region but I am skeptical of how well-informed elected officials are about flooding issues, their causes, and what the best things are to do about it. I hear there were many outcries for dredging the rivers and streams, or raising berms and flood walls in ways that do not actually help or which cause worse problems elsewhere.”</i> <i>“Sustainability? I think not many people understand what this would really require of our society.”</i>
Increased awareness	2	References to increased awareness and knowledge of legislators	<i>“[At the] State level the legislators are finally getting the climate change/flooding connection.”</i>
Funding	2	Funding resources continue to be needed.	<i>“...Do not see major impacts to sustainability but need more financial support.”</i>

NEW YORK RISING COMMUNITY RECONSTRUCTION PROGRAM

The New York Rising Community Reconstruction Program (NYRCR), launched by Governor Cuomo during Fall 2012, provides additional rebuilding assistance to communities impacted by Hurricanes Sandy and Irene and Tropical Storm Lee. The program’s target areas include communities in Broome and Tioga counties. Respondents were asked if they were involved in the program and if so, their level of involvement. Among forty-five respondents, 29% were not familiar with the program; 27% served on a NY Rising Community Planning Committee; 22% did *not* serve on a Planning Committee but was kept informed of the program’s activities; 11% did *not* serve on a Planning Committee and did *not* keep abreast of the program; and 2% led a Planning Committee.

Of the 9% that provided an “Other” qualitative response to this question: one was aware of the program; another provided extensive input and guidance to the NY Rising committee but was not a formal member; and a third stated he/she was *“somewhat familiar with the program and our agency provided input for budget considerations related to same.”* The final respondent stated this was a question for the *“planning dept. head.”* **The fact that almost one-third of respondents was not familiar with the program suggests that further promotion would benefit the NY Rising Community Reconstruction Program and reach a wider range of decision-makers in impacted communities.**

Respondents were asked what they considered to be the barriers to implementing the New York Rising Community Reconstruction Program (NYRCR) Community Reconstruction Strategies (e.g., lack of financial resources, lack of personnel, lack of community support, etc.). The primary barriers were funding and staff time (or staff with the needed specialized skills), each of which were mentioned seven times. Four respondents assessed the program; there were also four references to the fact that some residents may not support the NYRCR program. The issues of politics as well as lack of knowledge or cooperation were mentioned three times; similarly, timing issues were mentioned three times. Six respondents were not familiar or were uncertain about the program. One respondent stated there were no barriers to the program in his/her local area: *“I believe we have the support from the state.”*

Table 15. Barriers to Implementing New York Rising Community Reconstruction Program Community Reconstruction Strategies

Category and sub-categories	Number of times activity was reported	Description	Sample Quotations
Funding	7	Funding and staffing were the highest cited barriers to implementing the NYRCR program.	<i>“Lack of timely funding.”</i> <i>“Lack of financial resources-- there is a lot of work to be completed across the State with limited funding. Most money will flow downstate.”</i>
Lack of staff time and personnel	7	Staff time, as well as staffing with specialized skills to develop grant proposals, and plan, implement and administer programs.	<i>“Lack of personnel with technical expertise at the local level to facilitate and administer the program within the municipalities.”</i> <i>“Time to provide the best possible projects to the program and the need for better education on how to maximize the efficiency of the program.”</i>
Assessment of the program	4	These ranged from delays in starting the program and restrictive eligibility to the fact that the program is not sufficiently comprehensive vis a vis community involvement.	<i>“...the problems start by selecting certain communities, and not others, for assistance. Flooding does not follow municipal borders. Mitigation projects such as wetland construction, may not take place in the same community that has suffered from flood impacts. The emphasis is on quick fix, ready to go projects, not on real solutions.”</i>

<p>Limited support and awareness</p>	<p>4</p>	<p>Respondents cited the fact that not all residents support the program and in certain areas, residents may not aware of it—in one community, turn out to several public forums was low.</p>	<p><i>“NYRCR does have community support with its regional leadership. However, it seems that those involved are those who are repeatedly active in community/regional issues. There does not appear to be support by all the residents.”</i></p> <p><i>“Lack of community support for program based on lack of awareness. I am unaware of the program even though I deal with the effects of flooding / climate change as a primary responsibility of my job.”</i></p>
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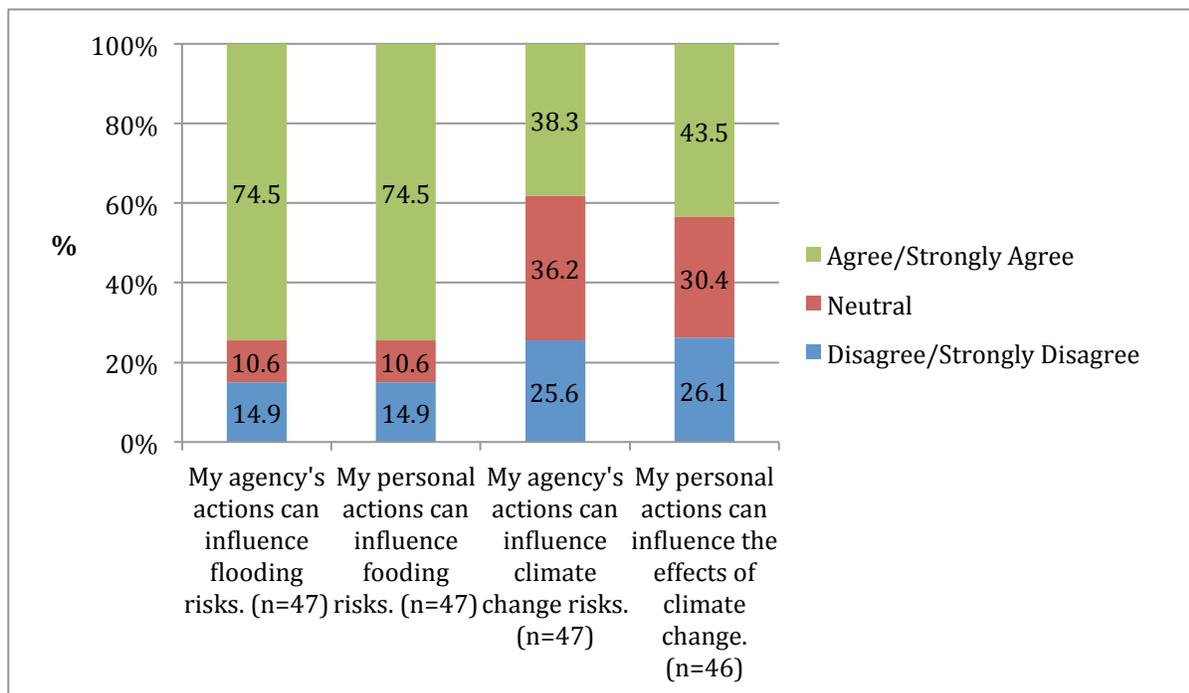
FLOODING RISKS AND EFFECTS OF CLIMATE CHANGE

Respondents were asked about flooding risks and the possible effects of climate change in reference to their places of work and to themselves personally. Below is a summary of those findings.

Regarding the statement, “My agency/organization/municipality’s actions can influence flooding risks,” almost three-quarters of respondents agreed or strongly agreed, 11% were neutral, and almost 15% disagreed or strongly disagreed (Figure 6). In relation to personal actions – “My personal actions can influence flooding risks” – the responses were virtually identical: almost 75% agreed or strongly agreed, 11% were neutral, and almost 15% disagreed or strongly disagreed (Figure 6).

Regarding personal actions influencing the effects of climate change, respondents were more likely to respond neutrally, or disagree or strongly disagree, compared with how they felt about flooding risks (Figure 6). In response to the statement, “My agency/organization/municipality’s actions can influence climate change risks,” 38% agreed or strongly agreed, 36% were neutral, and almost 26% disagreed or strongly disagreed (Figure 6). On a personal level, almost 44% of respondents felt strongly or very strongly about their ability to influence the effects of climate change, 30% were neutral, and 26% disagreed or strongly disagreed.

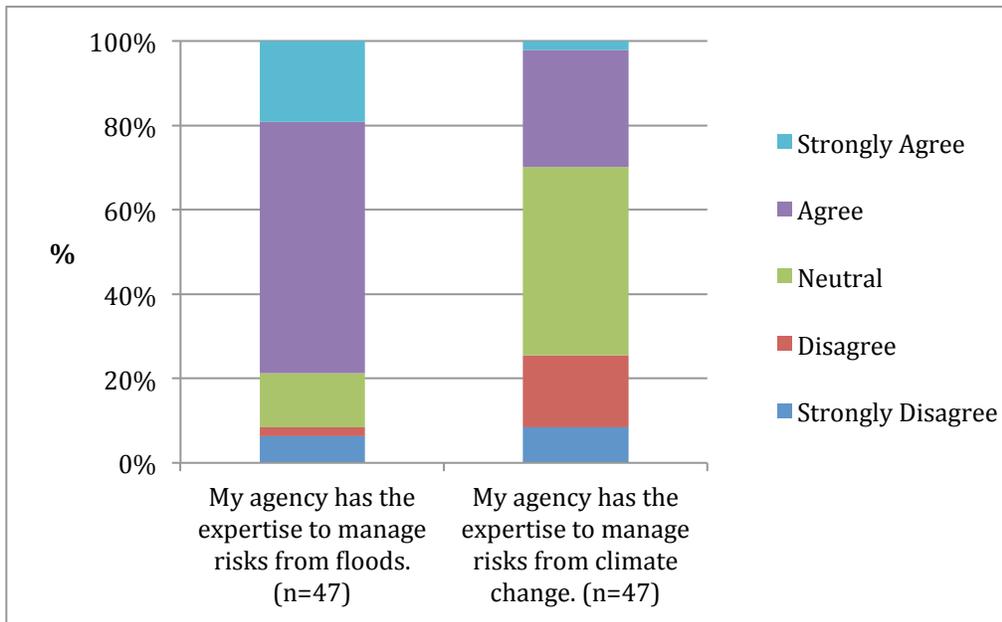
Figure 6: Agency/Personal Actions and Influence on Flooding and Climate Change Risks



Respondents’ views on their agencies’ expertise in managing risks of floods versus climate change varied considerably (Figure 7). Whereas 79% of respondents agreed or strongly agreed that their agencies or organizations have the expertise to manage flood risks, only 30% agreed or strongly agreed that agencies could do so for climate change risks. While 13% provided a

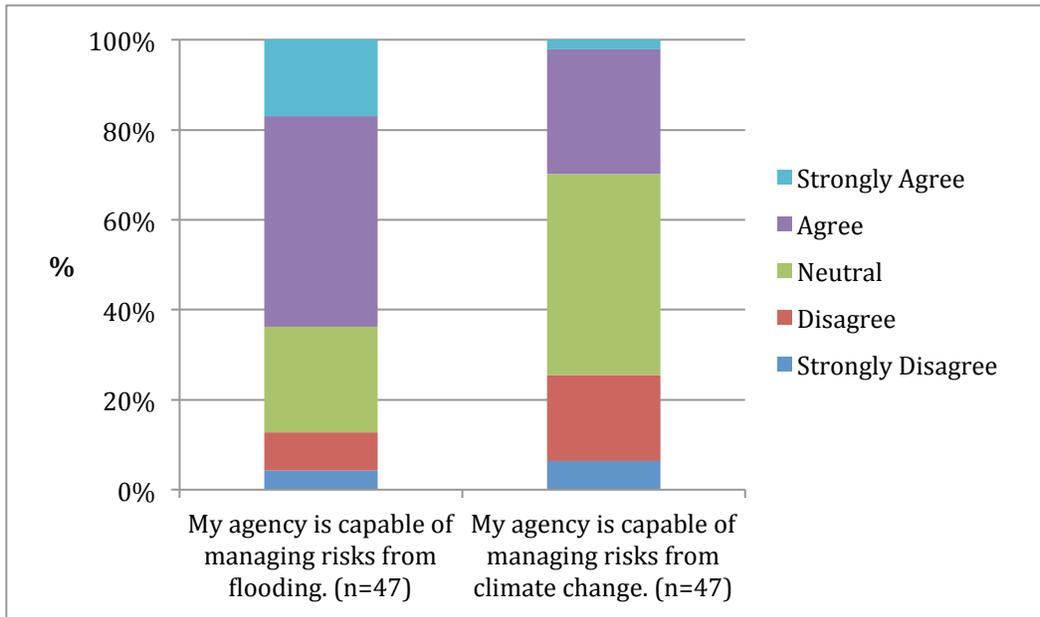
neutral response on flood risks, close to half (45%) did so on climate change risks. Only 9% disagreed or strongly disagreed on flood risks, compared to one-quarter of respondents (26%) on climate change.

Figure 7: Agency Expertise in Managing Flood and Climate Change Risks



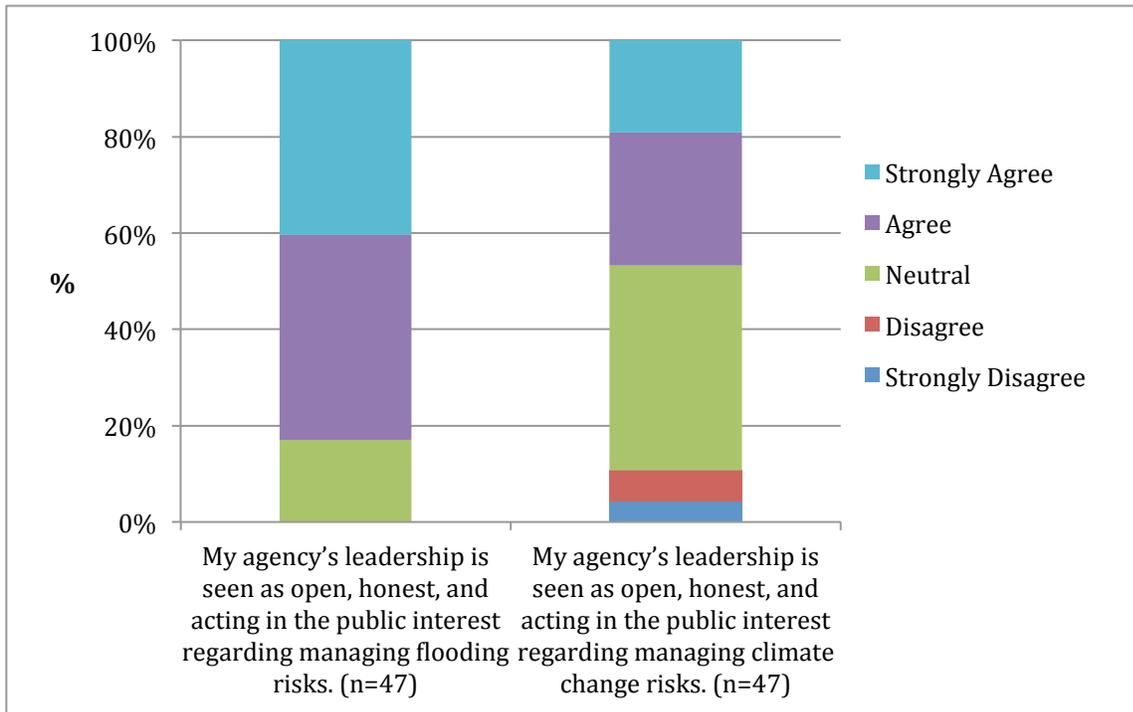
Similarly, almost two-thirds of respondents (64%) felt that their agencies were capable of managing risks from flooding, 23% were neutral, and 13% disagreed or strongly disagreed with this statement (Figure 8). In contrast, about 30% felt their agencies were capable of managing risks from climate change, 45% were neutral, and 26% disagreed or strongly disagreed.

Figure 8: Capability of Agencies to Manage Risks from Flooding and Climate Change



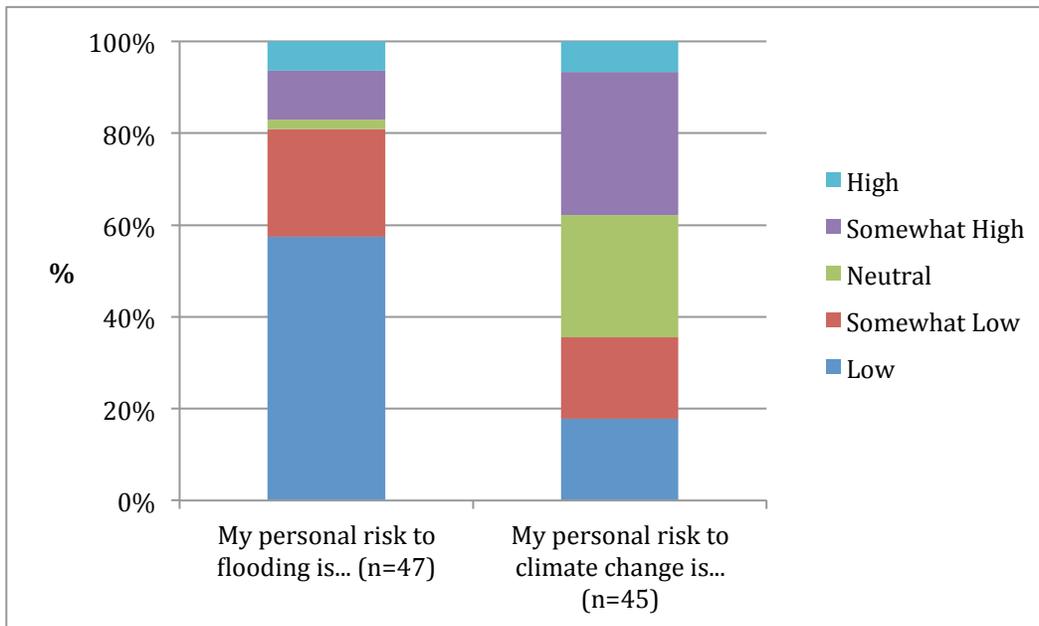
With regard to managing flood risks, respondents felt strongly that their agencies' leadership was open, honest and acting in the public interest: none disagreed or strongly disagreed with this statement, 83% agreed or strongly agreed, and 17% were neutral (Figure 9). Regarding climate change, less than half (47%) agreed or strongly agreed, 43% were neutral, and 11% disagreed or strongly disagreed.

Figure 9: Agency Leadership in Managing Flooding and Climate Change Risks



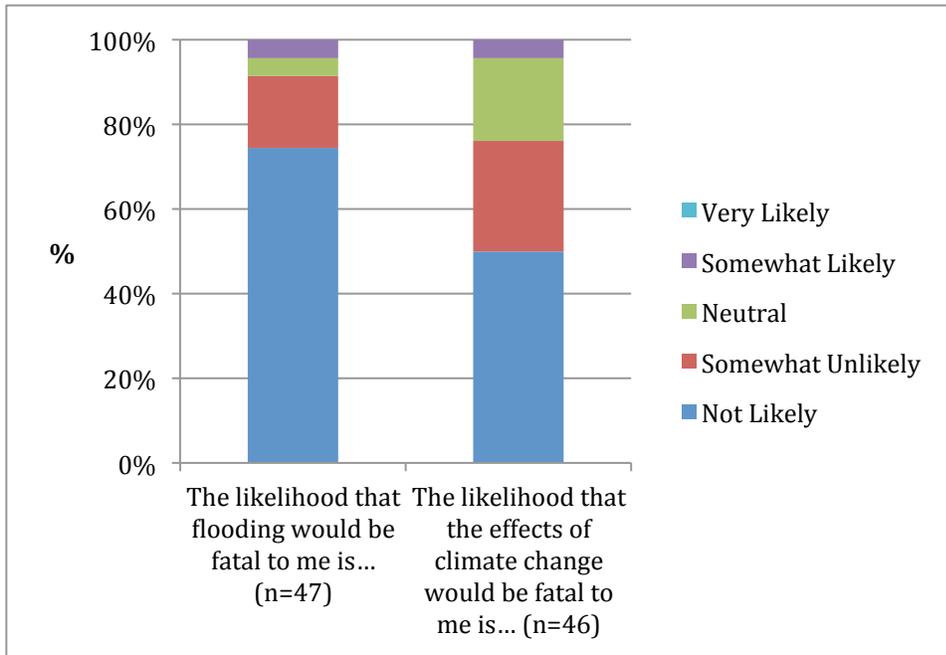
Responses pertaining to personal risk and flooding/climate change effects also differed greatly (Figure 10). Eighty-one percent of respondents felt their personal risk to flooding was “somewhat low” or low, 2% were neutral, and 17% were “somewhat high” or high. In contrast, 36% felt their personal risk to climate change was “somewhat low” or low, 27% were neutral, 38% were “somewhat high” or high.

Figure 10: Personal Risk to Flooding and Climate Change



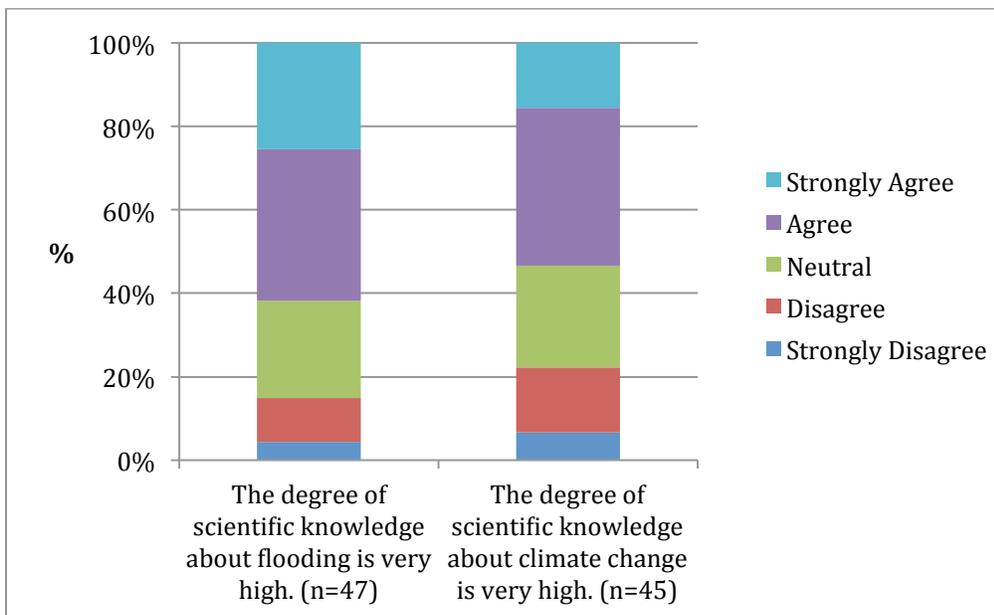
Respondents felt the likelihood that flooding would be fatal to them was low: almost all (92%) felt it was “somewhat unlikely” or not likely, 4% were neutral, and 4% stated it was “somewhat likely” (Figure 11). Regarding the likelihood that the effects of climate change would be fatal, 76% of respondents felt this was “somewhat unlikely” or not likely, 20% were neutral, and 4% stated “somewhat likely” (for both categories, none responded “very likely” that flooding or climate change effects would be fatal to them).

Figure 11: Likelihood of Fatality from Flooding and Climate Change



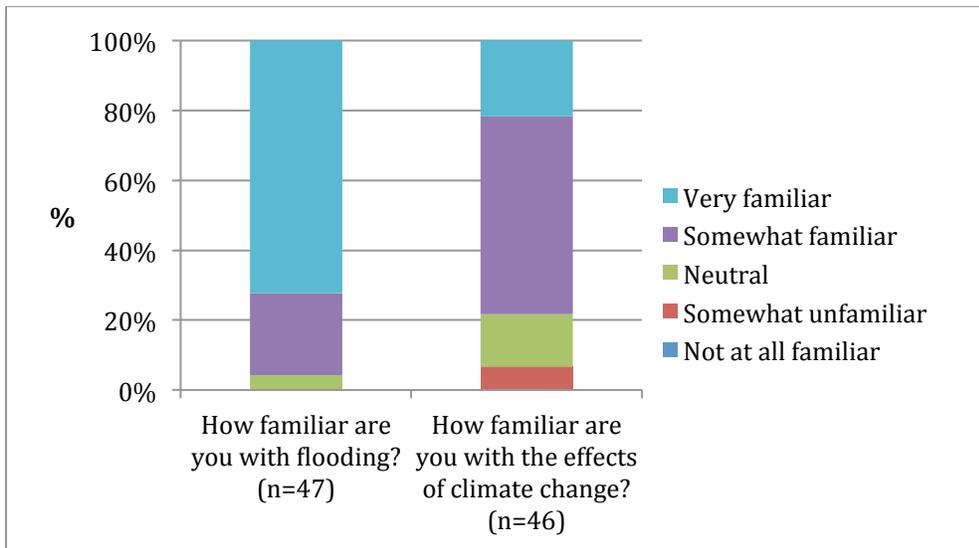
When considering the statement, “The degree of scientific knowledge on flooding / climate change is very high,” respondents had comparable answers (Figure 12). For flooding, 62% of respondents agreed or strongly agreed, 23% were neutral, and 15% disagreed or strongly disagreed. In comparison, for scientific knowledge on climate change, 53% agreed or strongly agreed, 24% were neutral, and 22% disagreed or strongly agreed.

Figure 12. Scientific Knowledge about Flooding and Climate Change



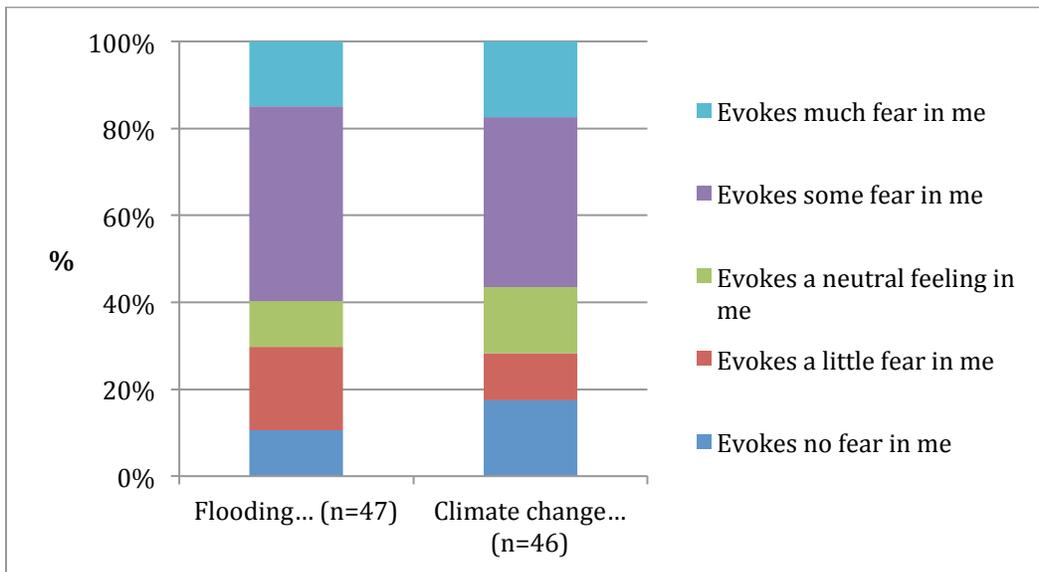
When asked about their own familiarity with flooding and the effects of climate change, most respondents felt they were familiar with these issues: almost all (96%) were somewhat or very familiar with flooding, whereas 78% were somewhat or very familiar with the effects of climate change (Figure 13). 4% were neutral on flooding, compared to 15% on climate change. While no respondents were “somewhat unfamiliar” or “not at all familiar” with flooding, 7% were “somewhat unfamiliar” with the effects of climate change (none was “not at all familiar”).

Figure 13. Familiarity with Flooding and Effects of Climate Change



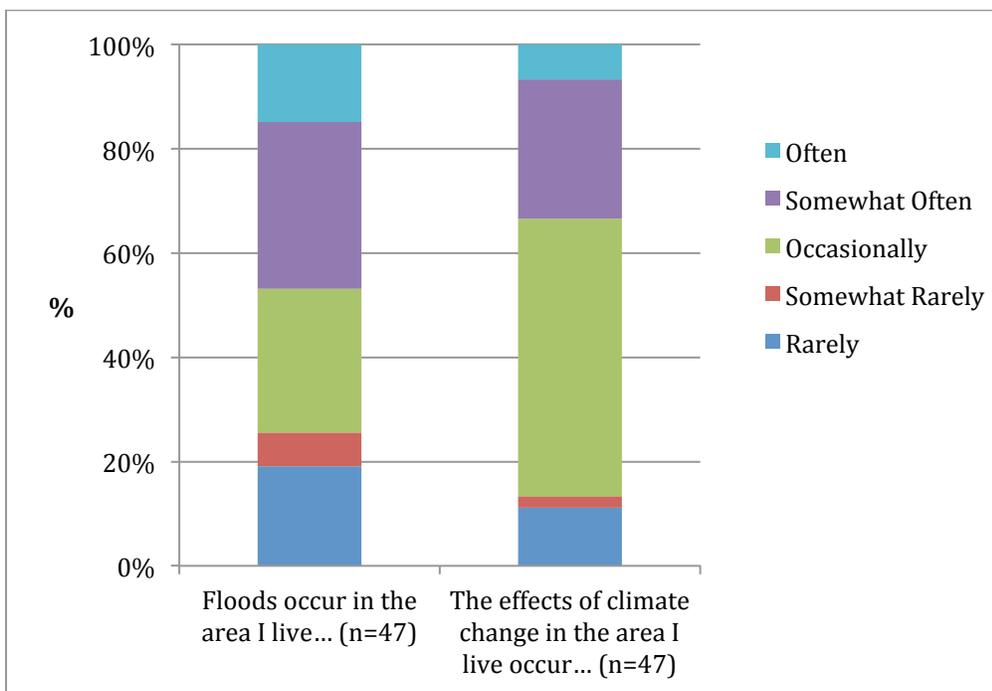
Respondents provided similar answers when asked about their fears around flooding and climate change (Figure 14). 60% stated flooding evokes some or much fear in them, compared to 57% on climate change. 11% stated that flooding evoked a neutral feeling, compared to 15% on climate change. 30% stated flooding evoked a little or no fear, compared to 28% on climate change.

Figure 14: Fear of Flooding and Climate Change



When asked about how often floods or the effects of climate change occur where they live, almost half of respondents (47%) stated that floods occur somewhat often or often, 28% stated occasionally, and 26% stated somewhat rarely or rarely (Figure 15). For the effects of climate change where they live, one-third of respondents (33%) stated they occurred somewhat often or often, 53% occasionally, and 13% somewhat rarely or rarely.

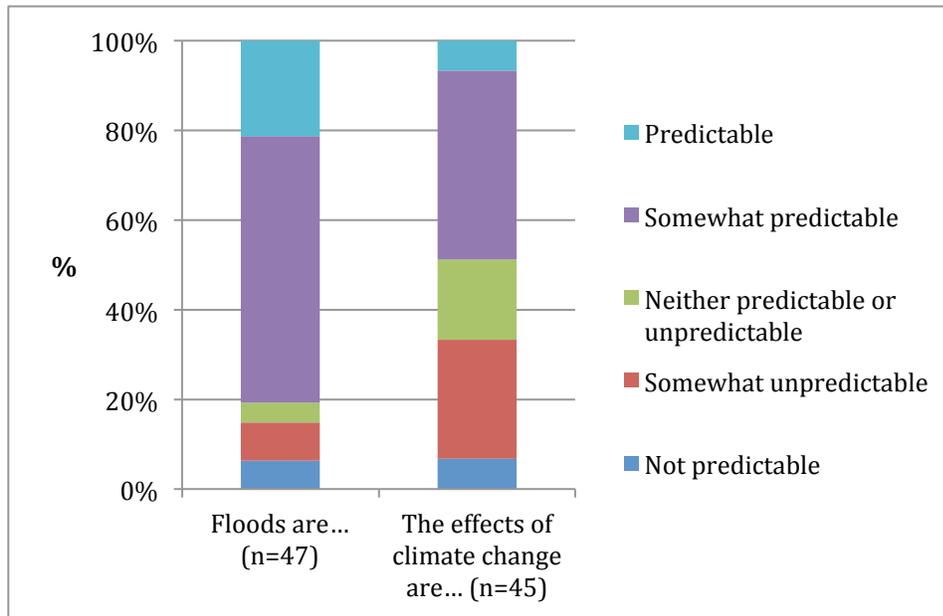
Figure 15: Occurrence of Local Floods and Effects of Climate Change



When asked about the predictability of floods and the effects of climate change, respondents felt that floods were much more predictable than the effects of climate change: 81% considered

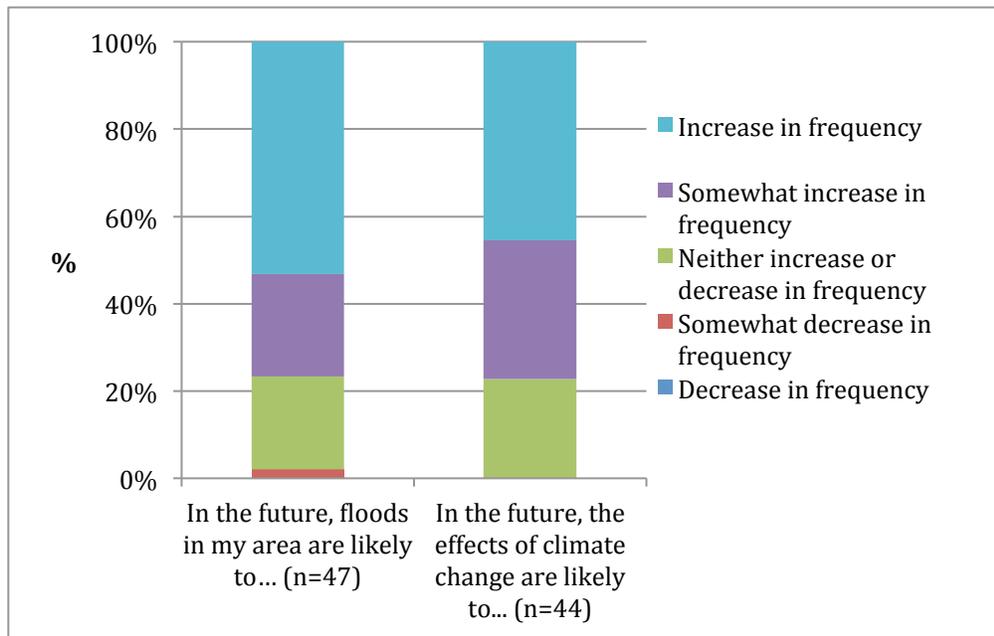
floods to be “somewhat predictable” or predictable, compared to 49% for climate change (Figure 16). 15% of respondents felt floods were “somewhat unpredictable” or not predictable, compared to one-third (33%) for climate change effects. 4% felt floods were neither predictable nor unpredictable, compared to 18% for climate change.

Figure 16. Predictability of Floods and the Effects of Climate Change



In terms of the frequency of local floods and the effects of climate change in the future, survey takers provided consistent responses for both types of events: more than three-quarters of respondents (77%) felt that flooding and the effects of climate change would “somewhat increase” or increase in frequency. 21% of respondents felt that flooding would neither increase nor decrease in frequency, compared to 23% for climate change effects. Only 2% felt that floods in their area may “somewhat decrease” in frequency; 0% felt similarly for climate change. (None responded “decrease in frequency” for both types of events.)

Figure 17. Future Frequency of Floods and the Effects of Climate Change



VULNERABILITY TO CLIMATE CHANGE

Respondents were asked to assess and rate five potential impacts of climate change, on a scale of 1 to 5, with 1 indicating “not at all vulnerable,” and 5, “very vulnerable” (Table 15) The impact with the highest mean (4.1) was increased precipitation and flooding, followed by increased severity or frequency of other extreme weather events (frost, wind, hail), with a mean of 3.9, and increase temperature in summer, higher heat index, and summer heat stress, with a mean of 3.3. **These results suggest that respondents associated increased flooding with climate change and from their perspective, flooding poses the greatest vulnerability to their region relative to the other potential impacts outlined.**

Table 16. Potential Impacts of Climate Change

Potential Impacts	Number of respondents	Mean
Increased precipitation, flooding	45	4.1
Increased severity or frequency of other extreme weather events (frost, wind, hail)	45	3.9
Increased temperature in summer, higher heat index, summer heat stress	44	3.3
Increased summer drought	42	3
Increased temperature in winter with reduced freezing	39	2.7

(Scale: 1=Not at all vulnerable, 5=Very vulnerable)

CONCLUSIONS

Progress in Flood Adaptation Process—

Respondents provided thorough and informative examples of the types of activities their agencies, organizations or municipalities have implemented to address flooding risks. Most felt their agencies had gathered and applied/shared relevant information (such as flood reports, watershed flood mitigation analyses, etc.) to address flooding impacts. While there was some overlap in terms of discussion on development of flood adaptation *plans* and implementation of *actions* (e.g., hazard mitigation plans may also be considered a type of action), most respondents generally felt that infrastructural, committee and education program plans were in place and actions underway.

Prior flood experiences in 2006 and 2011 also prompted agencies and organizations to better prepare for future events. These experiences resulted in increased awareness and understanding of floods, greater information sharing, education/outreach, technical assistance, and coordination with other municipalities, as well as policy and program decisions, improved organization practices, and infrastructural/non-infrastructural improvements, such as green infrastructure and increased or better use of technologies (mapping, GIS, etc.).

The top barriers cited to making progress on flood adaptation process were funding, staff time, and personnel resources. Other barriers were the need for more information, greater knowledge and contacts, in addition to increased regional coordination and some government program/policy barriers. **While agencies, organizations and municipalities have been proactively working towards preparing for future flood events, including new partnerships, there are areas for improvement. These include a need for additional funding and staffing resources with specific skills, as well as increased access to information and knowledge. For example, one funding program (NY Rising Community Reconstruction Program) could be more widely promoted, but support is also needed for skills development to be able to submit proposals and manage funded projects. Moreover, respondents recognized that flooding is not limited by municipal boundaries and regional-scale coordination of plans, development policies, etc., would be beneficial for combating future flood events.**

Familiarity, Personal risk, and Predictability of Flooding and Climate Change—

In general, respondents felt that flooding was more familiar to them than climate change. For personal risk, there was a similar relationship, with greater risk from climate change than flooding. **In part, this may be due to the perception that climate change effects are less well defined at the present time, but more than one-third of respondents anticipate some personal risk from the rise in temperature, etc., in the future.**

Most respondents considered floods to be somewhat predictable, compared to only half for climate change. **This finding reflects respondents' uncertainty of predicting the effects of climate change beyond flooding.**

Scientific knowledge and Fear about Flooding and Climate Change—

More than 60% of respondents felt that scientific knowledge of flooding was very high. While half felt similarly for climate change, more than one-fifth disagreed. **More respondents felt that scientific knowledge on flooding is better understood than climate change.**

Similar numbers of respondents reported that floods and climate change evoked some or much fear in them (60% and 57%, respectively). However, almost all felt it was unlikely that flooding would be fatal to them, while three-quarters felt similarly for climate change. **From an emotional perspective, respondents felt both types of events evoked some fear, but neither event would likely result in their fatality.**

Current and future frequency of Flooding and Climate Change—

Almost half of respondents felt that floods occurred somewhat often or often, while one-third had a comparable response on the effects of climate change. For future frequency, more than three-quarters of respondents felt that both flooding *and* the effects of climate change would increase in frequency. **For current flood or climate change events, some respondents may have evaluated flooding independently rather than as a result of climate change. For the future, respondents recognized that flooding and climate change effects are likely to increase.**

Overall Influence—

Three-quarters of respondents felt that their agencies, and they themselves, largely have the ability to influence flooding risks. Many experienced the recent flood events and recognized and/or benefitted from the follow-up actions and policy changes implemented by municipalities and non-profit organizations to minimize flooding risks for the future. On a personal level, respondents felt they understood the strategies needed to minimize risks to their homes and properties.

In contrast, responses to climate change risks were much less definitive, both in regard to their agency and their own actions: 38% agreed or strongly agreed that their agencies' actions can influence climate change, while 44% felt their personal actions can influence the effects of climate change). **These responses illustrate a greater ambivalence toward climate change risks, and that respondents have more self-efficacy when addressing flooding risks. In part, this may be explained by the fact that flooding is a defined event, while climate change has multiple possible effects to communities. Some impacts, such as increased flooding, may already be underway, while others are progressing incrementally (e.g., greater extreme weather events and variations in temperatures, rising sea levels, multiple public health impacts, ecosystem shifts, etc.). Overall, these and the prior findings suggest there are opportunities for additional education or training to better understand climate change risks and strategies, including emphasizing linkages of flooding to climate change, both for professionals working at the municipal level and non-profit organizations, as well as residents.**

Decision-maker Expertise to Address Climate Change Flooding—

There was significant divergence in respondent assessment of expertise and capability to address flooding and climate change. While most respondents agreed that their agencies or organizations or municipalities have the expertise and the capability to manage flood risks (almost 80% and

64% agreed on expertise and capability, respectively), only 30% agreed or strongly agreed that their agencies have the expertise and capability to manage climate change risks. When managing flood risk, most felt that their agency leadership was open, honest and acting in the public interest, while less than half felt similarly for climate change risks. **These findings suggest that while agencies and municipalities are becoming better prepared to manage flood risks, respondents believe agencies and municipalities have far less expertise or capability in managing climate change risks. As mentioned earlier, this may be due to the evolving nature of impacts associated with climate change compared to flooding; also, municipalities have been able to draw on existing scientific knowledge base and their own past experiences to more effectively manage floods through new policies and programs.**

Regarding climate change, although half of respondents felt that scientific knowledge was very high, less than one-third felt their agencies or organizations had the expertise or capacity to manage climate change risks. Further, compared to flooding, respondents were more ambivalent about whether their agencies' leadership was open, honest and acting in the best interest of the public. **Given these responses, there is an opportunity for agencies to proactively address concerns by prioritizing climate change risks and strategies, requesting technical assistance, providing education and training to staff, community leaders (including elected officials) and residents, and convening additional community meetings on this subject. Doing so will enable municipalities to open and maintain lines of communication with residents and organizations on this complex, multi-faceted issue, and begin to establish a framework for the many ways climate change will need to be addressed now and into the future.**

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APPENDIX A: SURVEY WITH FREQUENCIES FOR ALL QUESTIONS

All Survey Results (text highlighted in blue identifies skip pattern)

Q1.1 Welcome to the survey of “Understanding decision-makers’ perception of flooding risks and climate change.” Cornell University’s Department of Natural Resources and Department of Earth and Atmospheric Sciences are undertaking a project focusing on extreme weather and flooding risk perception and the actions of current/past decision-makers as well as those that work with or inform decision-makers. The study is focused on Broome and Tioga Counties and will help us to better understand what information decision-makers have about extreme weather and flooding, the effects of flooding in local communities, the actions being taken at the local level, and information needs. We would appreciate it if you would fill out the following survey. Near the end of the survey, we ask if you would be willing to talk with us about the impacts of extreme weather and flooding in your community. We hope that you will agree to further discuss these topics -- discussions like this will help us grasp the challenges being faced by decision-makers and how Cornell University can help you in the future. All information provided on the survey will be kept confidential and will never be associated with your name.

Q1.2 What is the geographic scope in which you primarily work? (n=46)

- U.S. **0**
- Multi-State **2 (4.3%)**
- New York State **7 (15.2%)**
- Region within New York State **7 (15.2%)**
- County **12 (26.1%)**
- City, Town, or Village **17 (37%)**
- Other _____ **1 (2.2%)**

(State University Campus)

Answer If What is the geographic scope in which you primarily work? Region within New York State Is Selected Or What is the geographic scope in which you primarily work? County Is Selected Or What is the geographic scope in which you primarily work? City, Town, or Village Is Selected Or What is the geographic scope in which you primarily work? Other Is Selected

Q1.3 Do you reside in the same area you indicated you work above? (n=37)

- Yes, full time **29 (78.4%)**
- Yes, part time **3 (8.1%)**
- No **5 (13.5%)**

Answer If What is the geographic scope in which you primarily work? Region within New York State Is Selected Or What is the geographic scope in which you primarily work? County Is Selected Or What is the geographic scope in which you primarily work? City, Town, or Village Is Selected Or What is the geographic scope in which you primarily work? Other Is Selected

Q1.4 How long have you lived in the region you currently reside in? (n=37)

- Less than 5 years 4 (10.8%)
- 5-10 years 2 (5.4%)
- 11-15 years 2 (5.4%)
- 16-20 years 1 (2.7%)
- More than 20 years 28 (75.7%)

Answer If What is the geographic scope in which you primarily work? Region within New York State Is Selected Or What is the geographic scope in which you primarily work? County Is Selected Or What is the geographic scope in which you primarily work? City, Town, or Village Is Selected Or What is the geographic scope in which you primarily work? Other Is Selected

Q1.5 Do you live within Broome or Tioga County? (n=37)

- Yes 35 (94.6%)
- No 2 (5.4%)

Q1.6 Which of the following best describes your current role within your agency/organization/municipality? (Please check all that apply) (n=47)

- Elected official 12
- Appointed official 7
- Paid staff 26
- Volunteer position (i.e., committee member) 2
- Board member 1
- Consultant 1
- Other _____ 1

(Government employee)

Q2.1 The following section relates to flooding risks and you in your agency/organization/municipality; later you will be asked about how flooding risks relate to you personally. Please let us know how you would rate the following statements regarding flooding:

Q2.2 How much do you agree with the following statement? "My agency/organization/ municipality's actions can influence flooding risks."

(n=47)

- | | |
|---|-------------------|
| <input type="radio"/> Strongly disagree (influence is not possible) | 1 (2.1%) |
| <input type="radio"/> Disagree (influence is somewhat impossible) | 6 (12.8%) |
| <input type="radio"/> Neutral (influence is neither possible or impossible) | 5 (10.6%) |
| <input type="radio"/> Agree (influence is somewhat possible) | 17 (36.2%) |
| <input type="radio"/> Strongly Agree (influence is possible) | 18 (38.3%) |

Q2.3 How much do you agree with the following statement? "My agency/organization/ municipality has the expertise to manage risks from floods."

(n=47)

- | | |
|---|-------------------|
| <input type="radio"/> Strongly disagree | 3 (6.4%) |
| <input type="radio"/> Disagree | 1 (2.1%) |
| <input type="radio"/> Neutral | 6 (12.8%) |
| <input type="radio"/> Agree | 28 (59.6%) |
| <input type="radio"/> Strongly Agree | 9 (19.1%) |

Q2.4 How much do you agree with the following statement? "My agency/organization/ municipality is capable of managing risks from flooding."

(n=47)

- | | |
|---|-------------------|
| <input type="radio"/> Strongly disagree | 2 (4.3%) |
| <input type="radio"/> Disagree | 4 (8.5%) |
| <input type="radio"/> Neutral | 11 (23.4%) |
| <input type="radio"/> Agree | 22 (46.8%) |
| <input type="radio"/> Strongly Agree | 8 (17%) |

Q2.5 How much do you agree with the following statement? "My agency/organization/ municipality's leadership is seen as open, honest, and acting in the public interest regarding managing flooding risks."

(n=47)

- | | |
|---|-------------------|
| <input type="radio"/> Strongly disagree | 0 |
| <input type="radio"/> Disagree | 0 |
| <input type="radio"/> Neutral | 8 (17%) |
| <input type="radio"/> Agree | 20 (42.6%) |
| <input type="radio"/> Strongly Agree | 19 (40.4%) |

Q2.6 Have you ever experienced flooding?

(n=47)

- | | |
|---------------------------|-------------------|
| <input type="radio"/> Yes | 42 (89.4%) |
| <input type="radio"/> No | 5 (10.6%) |

Answer If Have you ever experienced flooding? Yes Is Selected

Q2.7 Did you experience the following flooding events? Please check all that apply.
(n=42)

- | | |
|--|----|
| <input type="checkbox"/> June 2006 Susquehanna flood | 38 |
| <input type="checkbox"/> 2011 Tropical Storm Lee/Hurricane Irene floods in Broome and/or Tioga County | 39 |
| <input type="checkbox"/> 2011 Tropical Storm Lee/Hurricane Irene floods outside of Broome/Tioga County | 15 |
| <input type="checkbox"/> Other | 11 |

Answer If Did you experience the following flooding events? Please check all that apply. June 2006 Susquehanna flood Is Selected

Q2.8 How well do you feel your municipality was prepared for the 2006 floods? (n=38)

- | | |
|---|------------|
| <input type="radio"/> Not at all prepared | 7 (18.4%) |
| <input type="radio"/> A little prepared | 17 (44.7%) |
| <input type="radio"/> Moderately prepared | 14 (36.8%) |
| <input type="radio"/> Very prepared | 0 |

Answer If Did you experience the following flooding events? Please check all that apply. 2011 Tropical Storm Lee/Hurricane Irene floods in Broome and/or Tioga County Is Selected Or Did you experience the following flooding events? Please check all that apply. 2011 Tropical Storm Lee/Hurricane Irene floods outside of Broome/Tioga County Is Selected

Q2.9 How well do you feel your municipality was prepared for the 2011 floods? (n=41)

- | | |
|---|------------|
| <input type="radio"/> Not at all prepared | 4 (9.8%) |
| <input type="radio"/> A little prepared | 8 (19.5%) |
| <input type="radio"/> Moderately prepared | 19 (46.3%) |
| <input type="radio"/> Very prepared | 10 (24.4%) |

Answer If Did you experience the following flooding events? Please check all that apply. June 2006 Susquehanna flood Is Selected Or Did you experience the following flooding events? Please check all that apply. 2011 Tropical Storm Lee/Hurricane Irene floods in Broome and/or Tioga County Is Selected Or Did you experience the following flooding events? Please check all that apply. 2011 Tropical Storm Lee/Hurricane Irene floods outside of Broome/Tioga County Is Selected

Q2.10 Did experiencing the 2006 and/or 2011 floods influence flood adaptation information-gathering, planning, or actions by your agency/organization/municipality (e.g., infrastructure improvements, policy, planning decisions, preparations for future floods, coordination with other municipalities, etc.)? If so how? (n=30)

Answers are listed on page 14.

Q3.1 This next section pertains to your personal flooding risks. Please let us know how you would rate the following statements regarding flooding:

Q3.2 My personal risk to flooding is:	(n=47)
<input type="radio"/> Low	27 (57.4%)
<input type="radio"/> Somewhat low	11 (23.4%)
<input type="radio"/> Neutral	1 (2.1%)
<input type="radio"/> Somewhat high	5 (10.6%)
<input type="radio"/> High	3 (6.4%)
Q3.3 The likelihood that flooding would be fatal to me is:	(n=47)
<input type="radio"/> Not likely	35 (74.5%)
<input type="radio"/> Somewhat unlikely	8 (17%)
<input type="radio"/> Neutral	2 (4.3%)
<input type="radio"/> Somewhat likely	2 (4.3%)
<input type="radio"/> Very likely	0
Q3.4 How much do you agree with the following statement? "The degree of scientific knowledge about flooding is very high."	(n=47)
<input type="radio"/> Strongly disagree	2 (4.3%)
<input type="radio"/> Disagree	5 (10.6%)
<input type="radio"/> Neutral	11 (23.4%)
<input type="radio"/> Agree	17 (36.2%)
<input type="radio"/> Strongly Agree	12 (25.5%)
Q3.5 How familiar are you with flooding?	(n=47)
<input type="radio"/> Not at all familiar	
<input type="radio"/> Somewhat unfamiliar	
<input type="radio"/> Neutral	2 (4.3%)
<input type="radio"/> Somewhat familiar	11 (23.4%)
<input type="radio"/> Very familiar	34 (72.3%)
Q3.6 Flooding:	(n=47)
<input type="radio"/> Evokes no fear in me	5 (10.6%)
<input type="radio"/> Evokes a little fear in me	9 (19.1%)
<input type="radio"/> Evokes a neutral feeling in me	5 (10.6%)
<input type="radio"/> Evokes some fear in me	21 (44.7%)
<input type="radio"/> Evokes much fear in me	7 (14.9%)
Q3.7 How much do you agree with the following statement? "My personal actions can influence flooding risks."	(n=47)
<input type="radio"/> Strongly disagree (influence is not possible)	4 (8.5%)
<input type="radio"/> Disagree (influence is somewhat impossible)	3 (6.4%)
<input type="radio"/> Neutral (Influence is neither possible or impossible)	5 (10.6%)
<input type="radio"/> Agree (influence is somewhat possible)	24 (51.1%)
<input type="radio"/> Strongly Agree (influence is possible)	11 (23.4%)

Q3.8 Floods occur in the area I live:	(n=47)
<input type="radio"/> Rarely	9 (19.1%)
<input type="radio"/> Somewhat rarely	3 (6.4%)
<input type="radio"/> Occasionally	13 (27.7%)
<input type="radio"/> Somewhat often	15 (31.9%)
<input type="radio"/> Often	7 (14.9%)

Q3.9 Floods are:	(n=47)
<input type="radio"/> Not predictable	3 (6.4%)
<input type="radio"/> Somewhat unpredictable	4 (8.5%)
<input type="radio"/> Neither predictable or unpredictable	2 (4.3%)
<input type="radio"/> Somewhat predictable	28 (59.6%)
<input type="radio"/> Predictable	10 (21.3%)

Q3.10 In the future, floods in my area are likely to:	(n=47)
<input type="radio"/> Decrease in frequency	0
<input type="radio"/> Somewhat decrease in frequency	1 (2.1%)
<input type="radio"/> Neither increase or decrease in frequency	10 (21.3%)
<input type="radio"/> Somewhat increase in frequency	11 (23.4%)
<input type="radio"/> Increase in frequency	25 (53.2%)

Q4.1 The following section relates to flooding and your agency/organization/municipality.

Q4.2 To what extent has your agency/organization/municipality collected, discussed, or used information on flooding impacts (e.g., flooding impact assessments, vulnerability assessments, process of collecting/discussing, or using information on flooding impacts)? (n=47)

<input type="radio"/> Not at all	0
<input type="radio"/> A little	3 (6.4%)
<input type="radio"/> A moderate amount	12 (25.5%)
<input type="radio"/> A significant amount	28 (59.6%)
<input type="radio"/> I don't know	4 (8.5%)

Q4.3 Please tell us more about what/how your agency/organization/municipality has collected, discussed, or used information on flooding impacts: (n=34)

Answers are listed on page 16.

Q4.4 What do you feel are the barriers your agency/organization/municipality faces in flood adaptation information-gathering and learning? (n=33)

Answers are listed on page 18.

Q4.5 To what extent has your agency/organization/municipality developed flooding adaptation plans (e.g., plans for improvements to infrastructure, policies, land-use planning, etc.)? (n=46)

- | | |
|--|------------|
| <input type="radio"/> Not at all | 3 (6.5%) |
| <input type="radio"/> A little | 7 (15.2%) |
| <input type="radio"/> Moderate amount | 16 (34.8%) |
| <input type="radio"/> Significant amount | 17 (37%) |
| <input type="radio"/> I don't know | 3 (6.5%) |

Q4.6 Please tell us more about your agency/organization/municipality's flood adaptation plans: (n=29) **Answers are listed on page 20.**

Q4.7 What do you feel are the barriers your agency/organization/municipality faces in flood adaptation planning? (n=30)
Answers are listed on page 21.

Q4.8 To what extent has your agency/organization/municipality implemented any flooding adaptation actions (e.g., improvements to infrastructure, policies, land-use planning, etc.)?

- | | |
|--|------------|
| | (n=47) |
| <input type="radio"/> None at all | 4 (8.5%) |
| <input type="radio"/> A little | 9 (19.1%) |
| <input type="radio"/> A moderate amount | 17 (36.2%) |
| <input type="radio"/> A significant amount | 14 (29.8%) |
| <input type="radio"/> I don't know | 3 (6.4%) |

Q4.9 Please tell us more about how your agency/organization/municipality has implemented flooding adaptation actions: (n=27)

Answers are listed on page 22.

Q4.10 What do you feel are the barriers your agency/organization/municipality faces in implementing flood adaptation actions? (n=24)

Answers are listed on page 24.

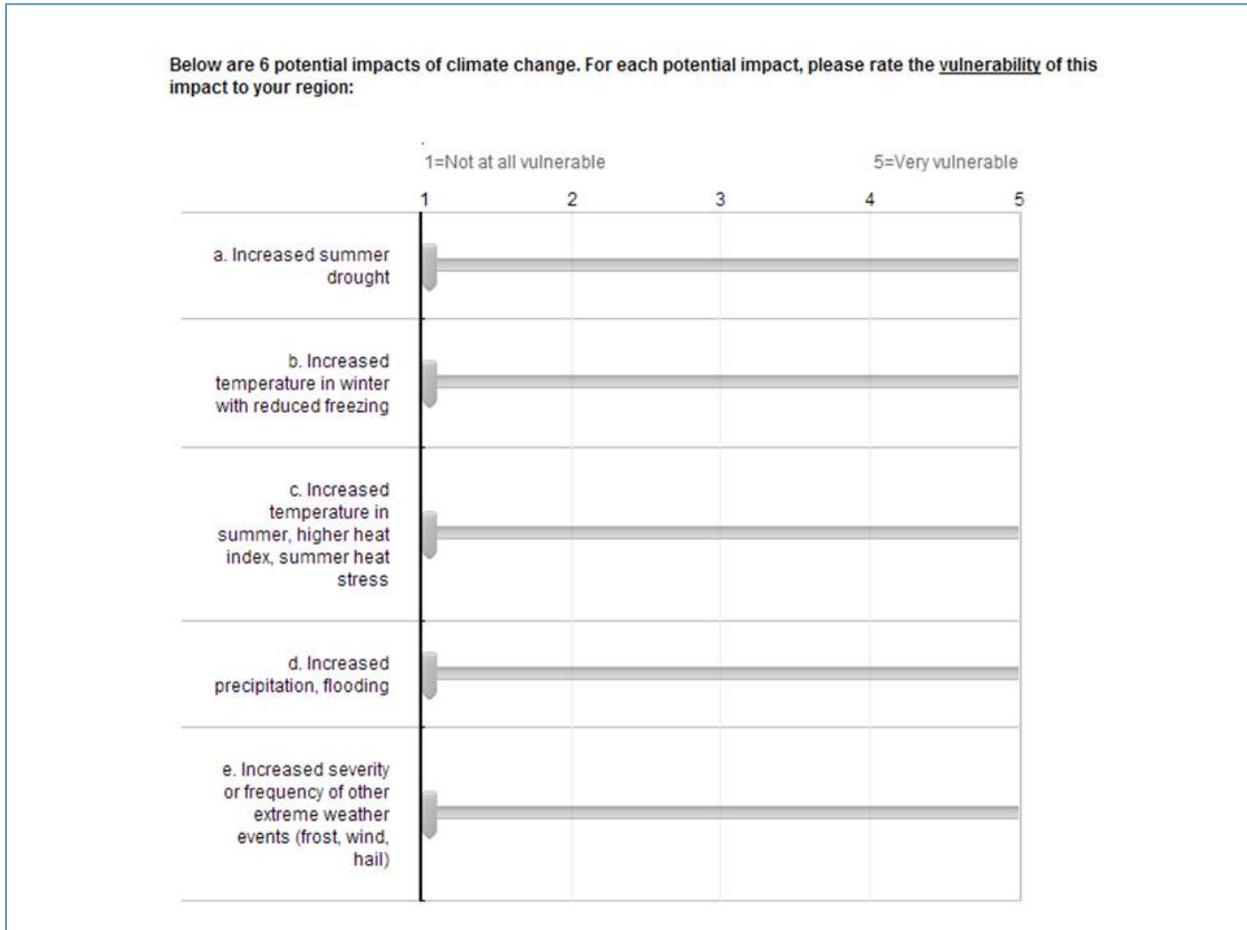
Q4.11 How (if at all) do you anticipate the local November 2013 elections and subsequent changes in elected officials and staff will impact sustainability and flood planning efforts? (n=31)

Answers are listed on page 24

Q5.1 Now, we will ask a few questions related to climate change.

Q5.2 Below are 5 potential impacts of climate change. For each potential impact, please rate the vulnerability of this impact to your region: (See use of sliding scale below, 1=Not at all vulnerable, 5=Very vulnerable)

- a. Increased summer drought **(n=42) mean=3.0**
- b. Increased temperature in winter with reduced freezing **(n=39) mean=2.7**
- c. Increased temperature in summer, higher heat index, summer heat stress **(n=44) mean=3.3**
- d. Increased precipitation, flooding **(n=45) mean=4.1**
- e. Increased severity or frequency of other extreme weather events (frost, wind, hail) **(n=45) mean=3.9**



Q6.1 The following section relates climate change risks in the region to your position in your agency/organization/municipality. Please let us know how you would rate the following statements regarding climate change.

Q6.2 How much do you agree with the following statement? "My agency/organization/ municipality's actions can influence climate change risks."
(n=47)

- | | |
|---|------------|
| <input type="radio"/> Strongly disagree (influence is not possible) | 6 (12.8%) |
| <input type="radio"/> Disagree (influence is somewhat impossible) | 6 (12.8%) |
| <input type="radio"/> Neutral (influence is neither possible or impossible) | 17 (36.2%) |
| <input type="radio"/> Agree (influence is somewhat possible) | 13 (27.7%) |
| <input type="radio"/> Strongly agree (influence is possible) | 5 (10.6%) |

Q6.3 How much do you agree with the following statement? "My agency/organization/ municipality has the expertise to manage risks from climate change." (n=47)

- | | |
|---|------------|
| <input type="radio"/> Strongly disagree | 4 (8.5%) |
| <input type="radio"/> Disagree | 8 (17%) |
| <input type="radio"/> Neutral | 21 (44.7%) |
| <input type="radio"/> Agree | 13 (27.7%) |
| <input type="radio"/> Strongly Agree | 1 (2.1%) |

Q6.4 How much do you agree with the following statement? "My agency/organization/ municipality is capable of managing risks from climate change."
(n=47)

- | | |
|---|------------|
| <input type="radio"/> Strongly disagree | 3 (6.4%) |
| <input type="radio"/> Disagree | 9 (19.1%) |
| <input type="radio"/> Neutral | 21 (44.7%) |
| <input type="radio"/> Agree | 13 (27.7%) |
| <input type="radio"/> Strongly Agree | 1 (2.1%) |

Q6.5 How much do you agree with the following statement? "My agency/organization/ municipality's leadership is seen as open, honest, and acting in the public interest regarding managing climate change risks."
(n=47)

- | | |
|---|------------|
| <input type="radio"/> Strongly disagree | 2 (4.3%) |
| <input type="radio"/> Disagree | 3 (6.4%) |
| <input type="radio"/> Neutral | 20 (42.6%) |
| <input type="radio"/> Agree | 13 (27.7%) |
| <input type="radio"/> Strongly Agree | 9 (19.1%) |

Q7.1 This section pertains to you and climate change risks. Please let us know how you would rate the following statements regarding climate change:

Q7.2 My personal risk to the effects of climate change is:	(n=45)
<input type="radio"/> Low	8 (17.8%)
<input type="radio"/> Somewhat low	8 (17.8%)
<input type="radio"/> Neutral	12 (26.7%)
<input type="radio"/> Somewhat high	14 (31.1%)
<input type="radio"/> High	3 (6.7%)
Q7.3 The likelihood that the effects of climate change would be fatal to me is:	(n=46)
<input type="radio"/> Not likely	23 (50%)
<input type="radio"/> Somewhat unlikely	12 (26.1%)
<input type="radio"/> Neutral	9 (19.6%)
<input type="radio"/> Somewhat likely	2 (4.3%)
<input type="radio"/> Very likely	0
Q7.4 How much do you agree with the following statement? "The degree of scientific knowledge about climate change is very high."	(n=45)
<input type="radio"/> Strongly disagree	3 (6.7%)
<input type="radio"/> Disagree	7 (15.6%)
<input type="radio"/> Neutral	11 (24.4%)
<input type="radio"/> Agree	17 (37.8%)
<input type="radio"/> Strongly Agree	7 (15.6%)
Q7.5 How familiar are you with the effects of climate change?	(n=46)
<input type="radio"/> Not at all familiar	0
<input type="radio"/> Somewhat unfamiliar	3 (6.5%)
<input type="radio"/> Neutral	7 (15.2%)
<input type="radio"/> Somewhat familiar	26 (56.5%)
<input type="radio"/> Very familiar	10 (21.7%)
Q7.6 Climate change:	(n=46)
<input type="radio"/> Evokes no fear in me	8 (17.4%)
<input type="radio"/> Evokes a little fear in me	5 (10.9%)
<input type="radio"/> Evokes a neutral feeling in me	7 (15.2%)
<input type="radio"/> Evokes a little fear in me	18 (39.1%)
<input type="radio"/> Evokes fear in me	8 (17.4%)
Q7.7 How much do you agree with the following statement? "My personal actions can influence the effects of climate change."	(n=46)
<input type="radio"/> Strongly disagree (influence is not possible)	7 (15.2%)
<input type="radio"/> Disagree (influence is somewhat impossible)	5 (10.9%)
<input type="radio"/> Neutral (influence is neither possible or impossible)	14 (30.4%)
<input type="radio"/> Agree (influence is somewhat possible)	17 (37%)
<input type="radio"/> Strongly agree (influence is possible)	3 (6.5%)

Q7.8 The effects of climate change in the area I live occur:	(n=45)
<input type="radio"/> Rarely	5 (11.1%)
<input type="radio"/> Somewhat rarely	1 (2.2%)
<input type="radio"/> Occasionally	24 (53.3%)
<input type="radio"/> Somewhat often	12 (26.7%)
<input type="radio"/> Often	3 (6.7%)

Q7.9 The effects of climate change are:	(n=45)
<input type="radio"/> Not predictable	3 (6.7%)
<input type="radio"/> Somewhat unpredictable	12 (26.7%)
<input type="radio"/> Neither predictable or unpredictable	8 (17.8%)
<input type="radio"/> Somewhat predictable	19 (42.2%)
<input type="radio"/> Predictable	3 (6.7%)

Q7.10 In the future, the effects of climate change are likely to:	(n=44)
<input type="radio"/> Decrease in frequency	0
<input type="radio"/> Somewhat decrease in frequency	0
<input type="radio"/> Neither increase or decrease in frequency	10 (22.7%)
<input type="radio"/> Somewhat increase in frequency	14 (31.8%)
<input type="radio"/> Increase in frequency	20 (45.5%)

Q8.1 The following section pertains to your familiarity with the New York Rising Community Reconstruction Program.

Q8.2 The New York Rising Community Reconstruction Program (NYRCR) -- launched by Governor Cuomo last Fall -- includes communities in Broome and Tioga Counties. What is your level of involvement in the NY Rising Program? (please check the response that best describes you)

	(n=45)
<input type="radio"/> I am not familiar with the New York Rising Community Reconstruction Program (NYRCR)	13 (28.9%)
<input type="radio"/> I am serving on a NY Rising Community Planning Committee	12 (26.7%)
<input type="radio"/> I am leading a NY Rising Community Planning Committee	1 (2.2%)
<input type="radio"/> I am not serving on a NY Rising Community Planning Committee, but I do keep informed of what the Program is doing	10 (22.2%)
<input type="radio"/> I am not serving on a NY Rising Community Planning Committee and I do not keep abreast of what the Program is doing	5 (11.1%)
<input type="radio"/> Other _____	4 (8.9%)
(Aware; I have provided extensive input and guidance to the NY Rising committee, but I am not a formal member; Question for our planning dept head; Somewhat familiar with program and our agency provided input for budget considerations related to same.)	

Q8.3 What do you think are the barriers to implementing the New York Rising Community Reconstruction Program (NYRCR) Community Reconstruction Strategies (e.g., lack of financial resources, lack of personnel, lack of community support, etc.)? Please explain. (n=28)

Answers are listed on page 26.

Q9.1 About You

Q9.2 What is your gender? (n=44)

<input type="radio"/> Male	30 (68.2%)
<input type="radio"/> Female	14 (31.8%)

Q9.3 What was your age, in years, on your last birthday? (n=44)

<input type="radio"/> Less than 35	1 (2.3%)
<input type="radio"/> 36-45	8 (18.2%)
<input type="radio"/> 46-55	14 (31.8%)
<input type="radio"/> 56-65	16 (36.4%)
<input type="radio"/> 66-75	4 (9.1%)
<input type="radio"/> Over 75	1 (2.3%)

Q9.4 What is the highest level of formal education you have attained? (n=44)

<input type="radio"/> High school graduate or G.E.D.	1 (2.3%)
<input type="radio"/> Some college or technical school	9 (20.5%)
<input type="radio"/> Bachelor's degree	14 (31.8%)
<input type="radio"/> Graduate or professional degree	20 (45.5%)

Q9.5 May we follow up with you to participate in an interview at a time of your convenience?

	(n=44)
<input type="radio"/> Yes	22 (50%)
<input type="radio"/> Maybe	10 (22.7%)
<input type="radio"/> No	12 (27.3%)

Answer If Yes Is Selected Or Maybe Is Selected

Q9.6 Please provide your email address. Once the survey is complete, the data is unlinked from your contact information. Responses to this question will be downloaded separately from your survey responses to keep the survey data separate from your contact information. Providing your email address does not affect the confidentiality of your survey responses.

Q9.7 Is there anything else you would like to tell us? (n=12)
Answers are listed on page 27.

Open-ended Responses (responses are in no particular order; numbering does not coincide with survey participant identification.)

Q2.10 Did experiencing the 2006 and/or 2011 floods influence flood adaptation information-gathering, planning, or actions by your agency/organization/municipality (e.g., infrastructure improvements, policy, planning decisions, preparations for future floods, coordination with other municipalities, etc.)? If so how? (n=30)

1. The two floods in 2006, and the major flooding in 2011, certainly raised the awareness of flood risks in Broome County. Prior to these events, we had difficulty engaging community members in mitigation planning and project development. Post flooding, there is a great deal of interest in these activities.
2. Yes. Flood maps have been updated, as well as flood plain regulations as Tioga County Hazard Mitigation Plan.
3. I work for Tioga SWCD so your questions do not really fit / / We work very hard on flooding issues but it is the municipalities that have the regulatory power to do something, not us
4. Due to the flood of 2006 my County enacted several times to improve response to a flood incident. Increased warning potential, changed sop's for EOC operation, increased radio communication systems, increased GIS services to the EOC and increased situational awareness
5. Our agency is most involved with flood issues as it pertains to streams and streambank erosion/stabilization. But we also provide technical assistance to citizens and municipalities regarding flood issues and flood risk. The only difference we experienced is a larger presence in county/regional planning, preparations and coordination efforts than prior to the recent flood events.
6. Improvements have been done because of the past flooding and experience with handling floods was increased so next time we should be better prepared
7. Yes. We are more actively involved in briefings now.

8. My agency has prepared many potential upgrades to mitigate future flooding disruption to our operation. These upgrades are mostly physical improvements to prevent loss of heat, hot water, electricity, phone service, elevator service and fire prevention.
9. Sought help with evaluating damaged buildings from other officials to cover the area fast and more timely. More sensitive to activities that effect floodplain and flooding. Encouraged frequently flood properties to participate in buy-out program. Information sharing with other building officials.
10. Communication and operating procedures during and after such significant events are always being looked at for potential "lessons learned" and ways to adapt to any challenges we face. I personally make a strong effort to support local Government and improve communication with all impacted by these events.
11. Yes. County did GIS mapping updates. Applied and distributed flood funding. Works with regional entities to develop Hazard Mitigation Plans, Emergency Management improvements and currently serves on the NY Rising Reconstruction Program Committee of which I am one of Governor Appointed Co-Chairs for Broome County. Yesterday we were awarded additional state funding for collaborations with other counties in our region. Many projects are identified in the Plan to reduce or mitigate future flooding impacts and better protection of infrastructure.
12. After the 2006 floods, DOT implemented a computer program called RSDA, called for people to be trained on the program, and issued laptops so that data can be collected while out driving the roads after emergency weather events. I am one of the people trained to use the program and have participated in entering data after weather emergencies. RSDA was used to keep track of road damage and plan repairs during and after future storms such as Irene and Lee. / There is more information about this program here: / <http://www.esri.com/news/arcnews/spring10articles/road-status.html> /
13. Yes, there has been some planning and trying to decide what might happen in future years.
14. Updated county hazard mitigation plan with input from all municipalities and county. As well as formed flood mitigation group that worked to educate public, and municipal officials as well as complete project to assist in the mitigation of floods /
15. Identified multiple special needs shelters (SNS) to accommodate demand / / Used predefined staffing models for the shelters-activated plans with local hospitals to provide medical staff for SNS / / Activated plans to handling mental health issues in the community and at shelters / / Experience with hospital evacuation, planning and preparedness / / Experience with hospital surge to handle additional ER patient flow-facilitated Medicaid/Medicare waivers through CMS / to house SNF patients in unconventional locations / / Activated contracts with nursing agencies to meet long term staffing (24/7) for SNS shelters-for 99 days. / / Requested and obtained federal medical teams for SNS / / Participated in volunteer management, post response recovery / /
16. My agency was involved in disaster relief and long term recovery efforts as well as planning for response in future disasters.
17. Yes in some degree. We have upgraded pumps that failed in low line areas due to the controls going underwater. Those controls are higher up and have less risk when the next flood comes. We have upgraded storm sewer pipes, fix or repaired storm water pipes and

catch basins. / New construction requires elevated structures in flood areas. / We have a location where we can move our office staff in case of flooding with phone lines, communication and a large meeting area for residents to get information. / Things we are looking at but not yet have acted, / 1. Water retention ponds / 2. Sewer back flow valves in areas that had sewage backups. /

18. Yes USGS hardened our gages in several locations that were flooded and also made our tide gage network more robust on Long Island, among many other procedural and infrastructure changes within our agency and State office.
19. After the flood in 2006 a Tioga Area Recovery Project (TARP) was instituted to coordinate volunteer efforts. / After the 2011 flood a new county hazard mitigation plan was developed and multiple hazard mitigation efforts were started and are still actively underway.
20. Yes -- mitigation and not just repair to preexisting for infrastructure repairs.
21. The 2006 event forced planning. The 2011 event used the enhanced plans. There is much to do to prepare for the next event.
22. Our organization (United Way of Broome County) is a member of Broome County Community Organizations Active in Disaster (BCCOAD). We also operate a 2-1-1 information & referral call center. The experiences gained from the 2006 flooding helped us to be better prepared to respond to the 2011 flooding as part of BCCOAD and in our 2-1-1 work during and after the 2011 flooding. We had better information systems in place in 2011 and did a better job of handling donated funds to help flood victims.
23. Yes More interaction with other municipalities and repair and mitigation of flood impacted structures to try and lessen impacts in future flood events.
24. Yes. Mitigation activities were completed following the 2011 flood. The 2006 flood directly resulted in better planning as well as staff training for managing these types of events.
25. We flood hardened several gages on the Susquehanna.
26. 1) Raised awareness that these will be repeatable incidents / 2) Developed plans for flood resistant infrastructure / 3) participated in county wide hazard mitigation program / 4) Implemented some of the infrastructure improvements
27. Yes, more involved with emergency preparedness
28. Yes, 2006 floods launched inundation mapping project in Upper Susquehanna subbasin.
29. A much better and organized approach was developed for 2011 flood based from the unanticipated 2006 flood. Mitigation and response improved considerably in 2011.
30. Experience of 2006 flooding created more awareness and preparedness for the 2011 flood.

Q4.3 Please tell us more about what/how your agency/organization/municipality has collected, discussed, or used information on flooding impacts: (n=34)

1. Our department coordinates a local flood task force which aims to disseminate information to elected officials and paid staff on flood risks, regulations, flood insurance and mitigation strategies. We have held workshops for the community on flood preparedness, flood mitigation and other issues. We are currently undertaking a watershed level flood mitigation analysis.

2. New floodplain maps and updates to regulations are more stringent.
3. I work for Tioga SWCD and the Upper Susquehanna Coalition. We lead the charge discussing flood issues and implement projects to reduce flooding, wetlands for example. / Note I live on a hill in Schuyler County so y response to me personally are not relevant
4. We gather data to be used for FEMA and Presidential Declarations. We also use this data for flood mitigation projects
5. We have collected info on the relative erosion risks on area streams.
6. The NYS Small Business Development Center has been active in working with small businesses to prepare their businesses for future flooding. Our lead office has provided training the SBDC Small Businesses Advisors across the state to provide training to our clients.
7. Have been assigned to numerous committees to evaluate flooding in Broome County
8. NWS Service Hydrologists work with local officials to identify roads, buildings, etc. that are damaged at certain river flood levels. This information is available to all on our water.weather.gov website. It is also used in the NWS warning messages.
9. We have participated in flood mitigation planning for the city and county.
10. The information we collect during and after flood events is passed on within my organization and used but I am not briefed in the manner with which it is used.
11. I retired as Chief Planner for Broome County at the end of 2011. the staff is limited but I believe the Departments of Planning, Public Works and Emergency Management have all done what they could to assess what needs there are for future events. Multi-millions are needed to IMPROVE flood resiliency and FEMA does not provide funds for improvements only replacement. This is true for residential structures as well as businesses and public facilities, roads, culverts, water-pump systems, etc.
12. I know that all our design jobs are screened to see which areas are in flood plains, and that there has been discussion about whether specific bridges and culverts need to be designed bigger if they are at an age or in a state of condition where they need to be replaced. I know this happens because I hear about it, but I am not involved with that part of the design process and do not make decisions about that issue.
13. We used the information that our agency obtains to discuss with our members in order to educate them on what they might be able to prepare in the future.
14. Update of County Hazard Mitigation Plan. / Completion of NY Rising Community Reconstruction Program Plan / completion of Long Term Recovery plans for several communities within Tioga County
15. Just completed a federal exercise using CMS Medicare data to identify oxygen dependent people in the area 65 and older for rapid evacuation and shelter planning. / Assessed river flows, elevation patterns and flood risks using technology / Reached out to visually and hearing impaired to assess communication needs during an emergency / Tested the use of language lines for non-English speaking people.
16. Only in reference to preparation for future response if it recurs.
17. NRCS financed and built over 50 PL-566 Flood Attenuation Dams in NYS and we are still in the process of dispersing over 55 M dollars in flooding response and repair dollars under the Emergency Watershed Protection Program

18. The use of river gauges, emergency management procedures, communication and resource sharing with other municipalities. Meetings with the county. Early evacuation notices with residents and working with our local fire departments.
19. Have talked with the Army Corps
20. USGS works with NOAA and NWS supplying the gage height and discharge information for their flood forecasting models. We also produce detailed flood-inundation maps in cooperation with communities that can help fund these efforts. USGS partially funds flood mapping and gages through several appropriated federal funding mechanisms at the USGS's disposal.
21. Updated Hazard Mitigation Plan last year and currently working on a watershed flood mitigation analysis
22. Mitigation planning and plans for the counties, response plans for the counties, local government and citizen preparedness for flooding in the Southern Tier.
23. Will discuss in follow-up interview
24. Held community meetings on how to handle a flood occurrence.
25. Our 2-1-1 call center has gathered a significant amount of information to help people prepare for flooding and to help people who might be impacted by flooding. We also have worked more closely with other organizations in the area to respond to flooding.
26. The Town of Owego has been very involved with updating the Tioga County Hazard Mitigation Plan, as well as HMGP Acquisitions.
27. Close contact with Tioga County Soil and Water, State agencies and local agencies
28. FEMA maps in GIS for planning / Stream restoration for flood prevention
29. Flood zone maps were used to determine the details of mitigation efforts (i.e. level to raise critical equipment above potential flood levels).
30. Several flood reports and indirect measurements of discharge.
31. We have carefully overlaid the anticipated new flood elevations with critical infrastructure and planned or implemented mitigation by relocating facilities. We understand specific homes that are vulnerable to future flooding, and we are aware of our effects on land use legislation and the effects of flooding
32. We have been involved in mapping flood risks from contracting with FEMA to provide detailed flood studies to developing stage based inundation maps.
33. We have used our flood experience to prepare for preserving vital documents and records in the event of major flooding.
34. My role in my agency is the hydraulics engineer for our region. Much time is spent collecting high water data and assessing impacts to infrastructure. We have also proposed location of board gauges at several bridges that are watched during flood monitoring.

Q4.4 What do you feel are the barriers your agency/organization/municipality faces in flood adaptation information-gathering and learning? (n=33)

1. Lack of information that is actionable. Too much academic data that is not related to local conditions. Continuing lack of understanding by local officials on the realities of climate change. Insistence on pursuing non-workable flood mitigation strategies such as dredging by the community and elected officials.

2. The tendency to forget about the significance of previous flooding events. Typically it takes approximately 1.5-2 years for people to start buying homes in the floodplain again, with the hope that it flooding won't happen again.
3. They do not want to stop people from building in the floodplain. Then they react to complaints from flooded residents by foolishly dredging stream and building berms in floodplains, both of which make things worse.
4. Time and money
5. Staff time
6. As with other publicly funded agencies, staff time is always an issue.
7. I don't see barriers in gathering information
8. Every individual and business has their own threshold for flooding impacts. How can you provide everyone the information they need to act...in the form they need it and when they need it?
9. We are sometimes not recognized as an essential partner in flood mitigation discussions.
10. Congress dictates our bottom line. We do what we are funded to do by Congress. Nothing more, nothing less.
11. I think the just completed DOS draft of the NY Rising Reconstruction Program for area counties has collected the most current information from the most "at risk" communities at the present time. MANY public meetings were held and one-on-one meetings with field trips with each of the affected municipal leaders and public engineers.
12. It could always help to have more training and better information about this issue given to more people within the organization. Also, money for larger bridges/culverts, floodplain and wetland restoration, and other aspects of design that can help absorb or provide room for water and lessen flood vulnerability.
13. Lack of funds
14. Perception vs. reality of the public
15. Federal bureaucracy to allow local emergency manager to have access to cell blasting during a disaster / / Identifying electricity dependent individuals and locating them using GIS mapping
16. Tendency for the government to be somewhat insular in its discussions.
17. No significant barriers. We have good cooperation from our partners and cooperating federal agencies. More historical flow data for our individual dams would be useful, limited by funding.
18. I don't think there are barriers but time to attend, prepare and fund action plans.
19. Stool gathering info
20. FUNDING FROM CONGRESS !!!!!!!!!!!!!!!!!!!!!!!!!!!!!
21. Lack of staff and time
22. None
23. Education and public willingness to participate
24. We can only devote a limited amount of our resources to this area.
25. Lack of media support from Broome County media outlets.
26. Funding
27. Technical event information, and historical information is limited

28. Financial constraints place limits on projects that may not be eligible for grant funding. / Lack of awareness of the flood hazards and risks by architects, designers and planners will often lead to long term vulnerabilities that could otherwise be avoided.
29. FUNDING!!!!!!!
30. The flood event in 2006 was greatly different from 2011. Although the Susquehanna River levels were virtually identical in each event, we experienced much greater local flooding in 2006 due to stream damage. We do not feel that this nuisance is understood outside our municipality, nor is it within our ability to control stream bank activities outside our municipal boundaries. Most of the focus within Broome County is related to concerns with the river, and not mitigation of small streams.
31. Lack of funds and personnel resources to do the information gathering
32. Size and scope
33. Money & time.

Q4.6 Please tell us more about your agency/organization/municipality's flood adaptation plans: (n=29)

1. We have prepared two county wide hazard mitigation plans and we incorporate of flood related comments into land use reviews.
2. The Tioga County Hazard Mitigation Plan outlines areas in which future mitigation projects would be appropriate.
3. We develop plans and implement projects for municipalities and on private property and state lands.
4. After each flooding event we hold an after action review and we make improvement on topics from the review
5. This is through input we have provided to the various flood committees we are involved with.
6. We stress more stormwater control on developments then in the past
7. We aren't involved with making adaptation plans, but our forecasts, warnings and other data help inform people that do create these plans.
8. We have designed mitigation plans to relocate boilers, electrical panels, phone systems and other mechanical devices needed to operate our agency and provide services during a flood.
9. This would be, I believe, within the Planning Division. As they are based in Baltimore and have a completely separate branch of employees, I know very little about their activities.
10. Besides the hazard mitigation plan for Broome County, I am unaware of other work the County Planning Dept. is involved in regarding flooding at this time. Possibly working with Emergency Management on the Hillcrest Depot site as a large emergency supply and shelter site.
11. There has been a big effort put into improving flood information and response. I know there has been discussion in specific areas about providing more room for water, but there may be other policies or infrastructure initiatives happening that I don't know about.
12. Utilized funds from FEMA to repair and mitigate stream bank stabilization issues. Also worked with county on mitigation efforts in regards to buildings, and infrastructure, etc.
13. CEMP has response plans and our Planning Department has comprehensive flood mitigation plan

14. We are in process of formalizing our plans after having been through the experiences.
15. The Small Watershed Rehabilitation Program provides federal funds for rehabilitating PL-566 dams to meet revised design standards. The EWP program provides for financing and design work to repair/address imminent threats to Public Safety and critical infrastructure that constitute significant watershed impairment in flood damaged waterways.
16. Plans for water retention, back flow valves for customers. These are in the early planning and or discussion phase.
17. More brown space or green where major flooding has occurred
18. USGS provides much, if not almost all, of the stream-flow information that is used by other agencies like NOAA, NWS, COE, FWS, and SEMO in their flood forecasting and remediation efforts.
19. Mitigation planning and plans for the counties that have been impacted by the 2005, 2006, 2011 floods.
20. Stream stabilization; may be seen as improving infrastructure or moving the problem downstream. Floodplain easement programs. Flood control dams.
21. We are working to obtain funding to install a back-up generator that would allow us to continue our work when/if electric power is interrupted for any reason. Information provided through our 2-1-1 center is critical when disasters like flooding impact our area, so keeping that information available when power is lost is critical. We are also working closely with BCCOAD and the state in the area of volunteer response to disasters - the objective is to identify and train volunteers to respond to disasters in our area.
22. The Town has adopted new floodplain management regulations and through FEMA , has applied for grants to relocate critical infrastructure facilities out of the 100 year floodplain.
23. Have been proactive with items like stand by power at water and sewer pumps, generator added to the Town Hall, reviewed and implementing Emergency Plan. Mitigating issues to prevent reoccurrences to municipal infrastructure. Participation in buyout and elevation programs.
24. We have a flood working group which meets formally biannually to discuss flooding prevention and promoting our materials to contractors and other municipalities. They also meet informally and have phone discussions frequently.
25. Our most vulnerable properties have been redesigned to raise critical utilities above 500-year flood levels. Usage of building space is managed to minimize the potential for critical information or systems to be impacted by flood waters (i.e. not storing records in basements, keep computer servers at high levels, etc.).
26. Flood hardening gages, future gages to be installed above the 0.5 percent frequency stage.
27. Primarily focused on infrastructure upgrades to maintain potable water system operations, and minimize damage to operating equipment
28. Not really sure what a "flood adaptation planning" is but we have been involved with hazard mitigation planning.
29. See what has been mentioned three questions above.

Q4.7 What do you feel are the barriers your agency/organization/municipality faces in flood adaptation planning? (n=30)

1. Lack of updated FEMA flood maps. New maps were developed, but then dropped by FEMA leaving us in limbo with decades old maps.
2. Probably the public's tendency to forget about previous flooding events, although the September 2011 flooding impacted many more people than ever before.
3. Foolish municipal officials who want to dredge (actually getting less so) and lack of sufficient regulations to get out of the floodplain and lack of sufficient funds
4. Money which comes from the lack of legislative bodies complete support
5. We don't see barriers in developers doing the more stormwater control, but it is a problem for residential lots
6. Not having contacts for everyone making these plans. Them not knowing what info we have that could help.
7. The main barrier has been the incompetence of FEMA.
8. Congress
9. Funding for engineering plans and implementation that are beyond what obviously currently doesn't work. Don't just replace and fix, build for the next (worst) disaster.
10. Knowledge is half the battle. Beyond that, funding.
11. Lack of funds
12. Funding
13. Economic barriers can only have what you have money for. Not enough grant or supplemental funds to implement plans
14. Lack of specific information that might impact our plans.
15. Barriers to cooperating by local sponsors (who need to cost share rehabilitation or dams and repairs, protections installed under EWP are related to finances, i.e. availability of money to finance their share of cost)
16. Getting our engineering/planning on board and having enough people resources to devote time away from normal operating duties. We are still in the recovery phases from last flood.
17. Plans to raise properties or demo housing in flood prone zones
18. FUNDING FROM CONGRESS!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
19. Lack of staff and time
20. None
21. I don't know.
22. Financial resources are needed.
23. Lack of financial support at both the State and Federal levels.
24. Limited funding
25. Other municipalities doing things backwards (stream reaming) / Funding / Time /
26. Building occupants not being aware of the hazards and placing critical items in floor risk areas (i.e. basements).
27. Funding.
28. the only barrier is that we only encompass a small footprint of land, flood mitigation must be a more regional activity

29. Again probably first need better definition of "flood adaptation planning" but fairly confident with appropriate need and budget there would be few barriers.
30. Same as mentioned earlier

**Q4.9 Please tell us more about how your agency/organization/
municipality has implemented flooding adaptation actions: (n=27)**

1. We have undertaken a modest number of buyouts. Most are completed at the local level. We have upgraded infrastructure and assisted local municipalities in seeking mitigation funds.
2. The new floodplain ordinance requires new construction is elevated to 2 feet above the base flood elevation. We are finishing up on flood-buyouts of 23 homes, which were substantially damaged as a result of the 2011 flooding. We are working with 6 homeowners on FEMA grants for elevation of their homes, which are located within the floodplain.
3. We rehabilitate streams, build wetlands, support grazing (rather than row crops), plant riparian buffers.
4. New mitigation plan and new CEMP
5. Municipally wise we have flood proofed many buildings and improved utility protection
6. Our agency's actions are limited to construction design
7. The construction of the Corps Dams and levees have had a great impact to flood damage reduction in our area.
8. This would be something the County Public Works Dept. would need to answer. I know they are supposed to clean out the culverts each year, but do not have the manpower to do that and can only rotate when possible.
9. See previous response about RSDA implementation and bridge and culvert replacements being designed in larger sizes, when necessary and feasible.
10. education to our members
11. Streambank stabilization projects through state funding, held emergency stream intervention trainings for highway personnel and contractors.
12. Through the County Flood Plan
13. Procedures for response have been developed but need to be formalized.
14. EWP has a floodplain easement program that restores floodways by removing land uses that are incompatible with floodplain functions
15. Still in planning stages
16. Mitigation planning and plans for the counties.
17. Streambank stabilization, flood control dams, floodplain easements.
18. Home buy-out program
19. Continued training for staff, partnering more closely with BCCOAD, obtained funding for disaster work from Community Foundation, working to obtain grant to install back-up generator.
20. The new floodplain regulations mirror the New York State Building Code requirements for elevation of new residential structures in the 100 year flood plain to 2 feet above base flood elevation.

21. Installed stand by power at water and sewer pumps, generator added to the Town Hall, reviewed and implementing Emergency Plan. Mitigating issues to prevent reoccurrences to municipal infrastructure
22. Informational pamphlets / Public seminars / Open communication with contractors before work is done.
23. See above.
24. Modified infrastructure to be resilient to flood conditions
25. Have produced flood inundation maps for more than 20 river forecast points, provide maps to the public via online website, responsive to Community and general public inquiries regarding flood risk.
26. We relocated/backed-up vital documents during potential flooding events.
27. As mentioned earlier, we've installed board gages at selected bridges and can relay flood elevation information to the National Weather Service. This is particularly beneficial regarding flash flooding.

Q4.10 What do you feel are the barriers your agency/organization/municipality faces in implementing flood adaptation actions? (n=24)

1. See above
2. Legislative buy in with money and time
3. Funding to do more
4. The barriers are funding and FEMA delays.
5. Congress and the participation from the State of NY to allow a cost share measure to move forward.
6. Funding
7. Funding, personnel.
8. Lack of funds
9. Long term Funding
10. Obtaining more financial support for improvements
11. Not sure
12. Getting people to move out of the floodplain
13. Time and money
14. Lack of staff and time and money
15. None
16. Public unwillingness to stay out of floodplains. Municipality unwillingness to restrict development of floodplains.
17. Funding
18. Lack of funding
19. Limited funding
20. Funding & time / ...and a way to get to all municipalities/contractors at once with communications
21. See above for "planning"
22. Resources
23. Cost

24. Same two biggies - money & time, but also personnel shortages.

Q4.11 How (if at all) do you anticipate the local November 2013 elections and subsequent changes in elected officials and staff will impact sustainability and flood planning efforts? (n=31)

1. Did you mean November 2014?
2. Not at all.
3. State level the legislators finally are getting the climate change/flooding connection. / / The Gov actually stated that we must restore natural infrastructure in a Sandy Speech. / / Even locally legislators are getting it
4. None
5. A new group to educate with no time to do it.
6. No idea really. I question the election on normal days
7. No opinion.
8. They may strengthen the planning efforts.
9. I do not anticipate much from our elected officials. That can get one in a lot of trouble.
10. I don't feel much will change. More qualified staff is needed to work diligently on this need alone
11. Flood planning: this was a big issue for the communities in this region but I am skeptical of how well-informed elected officials are about flooding issues, their causes, and what the best things are to do about it. I hear there were many outcries for dredging the rivers and streams, or raising berms and flood walls in ways that do not actually help or which cause worse problems elsewhere. / Sustainability? I think not many people understand what this would really require of our society.
12. Not much to flooding. Could be some extra funds from the REDC, but would still need some cooperation between government agencies to get work done to better prepare for the future.
13. Don't expect a change /
14. Do not anticipate any changes among elected officials-do not see major impacts to sustainability but need more financial support.
15. Not sure
16. Not much
17. I don't think it will impact our current elected officials as flooding action planning is an often discussion.
18. Hopefully they will get more FUNDING to the USGS for more stream-flow gages and other infrastructure adaptations of the gages (flood hardening).
19. Not at all
20. None
21. None.
22. No change anticipated
23. I don't think it will change anything.
24. Believe elections will have limited impact
25. Hopefully, no impact.

26. No clue/comment
27. None. We are a state agency and typically not eligible for grants / funding opportunities that are offered to local governments and municipalities.
28. None
29. ?
30. Not sure
31. I don't really expect many changes at all after the local elections. It's still an area where focus seems limited.

Q8.3 What do you think are the barriers to implementing the New York Rising Community Reconstruction Program (NYRCR) Community Reconstruction Strategies (e.g., lack of financial resources, lack of personnel, lack of community support, etc.)? Please explain. (n=28)

1. NY Rising is a misguided, top down program. The problems start by selecting certain communities, and not others, for assistance. Flooding does not follow municipal borders. Mitigation projects such as wetland construction, may not take place in the same community that has suffered from flood impacts. The emphasis is on quick fix, ready to go projects, not on real solutions. The consultants selected by State government have little knowledge of local issues, even though other consultants selected for other regions have experience working in our community. The time frame for developing the NY Rising plan was far too short, and the result was a poorly thought out document. The projects recently announced for funding appear unconnected to true local priorities. And finally, FEMA, NYSDEC and Army Corps, the entities that truly understand flooding, were not part of the process. At best, NY Rising is a massive missed opportunity.
2. The primary barrier to implementing NYRCR community reconstruction strategies might be in obtaining the funding, due to lack of personnel with grant writing experience in the smaller communities.
3. Time to provide the best possible projects to the program and the need for better education on how to maximize the efficiency of the program.
4. NYRCR does have community support with its regional leadership. However, it seems that those involved are those who are repeatedly active in community/regional issues. There does not appear to be support by all the residents. Because the major storms, Hurricane Irene and Tropical Storm Lee, occurred so long ago I think that people have both lost interest and feel that this is a 'Super Storm Sandy' issue.
5. It is a start, but should be done on regular bases to keep up with issues,, maybe every 5 years or so update the plan and provide new funding
6. Don't know anything about it. Can't answer this.
7. Lack of financial resources, bad land use decisions by local governments, lack of strong community support-not everyone effected by flooding therefore not all care about it-people unaffected by flooding ignored warnings in 2006 about water usage, didn't understand why their garbage didn't get collected during flooding because DPW tied up doing other things like evacuating their own building.

8. Funding. New York has very little tax base left and people willing to work and pay taxes therefore projects that are a great idea die on the vine.
9. Considering the enthusiasm of the elected and municipal leaders, I think there are high hopes that recent funding will START the process of addressing these many needed improvements. My greatest fear is that it has taken so long to actually get going on this and that even with some quick implementations and further resiliency planning, another flood is going to hit and the community will suffer again.
10. I don't know.
11. Lack of personnel and a lack of government cooperation
12. Lack of personnel with technical expertise at the local level to facilitate and administer the program within the municipalities. Funding is also a concern, as without staff to do the work funding will likely slip through our fingers. Politics is another concern, planning has moved forward implementation needs to occur and funds from the state need to support plans developed by municipalities, not select those that the state feels are important.
13. Eligibility is too restrictive does not assume a larger infrastructure picture such as enhancements to local environmental and medical IT software. / / Most elected officials that are deciding how to use the funds do not really understand the science behind climate change-they are using out dated tools to make financial decisions with the hopes of producing some positive outcomes.
14. Not sure
15. Lack of community support for program based on lack of awareness. I am unaware of the program even though I deal with the effects of flooding / climate change as a primary responsibility of my job.
16. I don't think they will be any barriers in our area. I believe we have the support from the state.
17. Lack of local planning & implementation capacity
18. Not enough time, staff or resources.
19. I think it is too early to identify barriers to implementing strategies as the particular programs have not been identified or awarded funding, yet.
20. Lack of timely funding.
21. Lack of financial resources--There is a lot of work to be completed across the State with limited funding. Most money will flow downstate
22. All of the above. And the fact that Cuomo came out with it, which doesn't really "hold water" for a lot of people in upstate.....
23. The committee hosted several public forums for the purpose of hearing comments from the general public. Although these meetings were all advertised, public turnout was very poor. The lack of diverse thought, experience and opinion limited the initiatives embraced by the committee.
24. No input
25. Lack of financial resources
26. Not integrated enough with the program to know.
27. Not sure
28. Money, Knowledge & assets.

Q9.7 Is there anything else you would like to tell us? (n=12)

1. No
2. I have come to believe that climate change is inevitable and that humans are too stupid to deal with it in any meaningful manner because they are either too "conservative", are rich people thinking they can buy their way out and the mass of people do not understand how sensitive real infrastructure is to degradation that will greatly affect very simple human living.
3. The way the questions were worded, it was difficult for me to answer. I work for the NWS and do not live in NY. Nor do I have any involvement in managing floods.
4. This should be sent to Paul Nelson, Town of Union Planner also at pnelson@townofunion.com
5. GOOD LUCK and Thank You for doing this for us.
6. Not that I can think of.
7. On your sliding scale of climate change impacts you should have included drought/wildfire which I believe is one of the most serious potential impacts to residents in Broome/Tioga Counties and all residents of NYS. If we have an infestation of forest pests that cause widespread mortality of significant numbers of common forest tree species (e.g. hemlock wooly adelgid) and followed by a very dry summer, we could have a serious problem with forest fires in NY and throughout the NE
8. Thank you for the survey, I found it to be very interesting and I believe you have asked some great questions. Please feel free to contact me for a follow up.
9. No.
10. No
11. Not at this time.
12. I think are there too many variables and varied opinions, to pinpoint the effects of climate change. I think when it's expedient, attention is given at elected levels. When it's not expedient, it is mostly ignored. Either way, assets are not doled out to the extent they need to be, to deal with disasters, nor are they doled out efficiently. A reserve should definitely be continuously funded, so disaster response is there when the need arises.