MUNICIPAL SURVEY ON RESILIENCE TO NATURAL HAZARDS

By Lake Champlain Sea Grant

APRIL 2022

Introduction

As the climate is changing, extreme weather events (also referred to as natural hazards) occur more frequently, putting a strain on municipalities. Lake Champlain Sea Grant seeks to help municipalities become more resilient to natural hazards, *i.e.*, "bounce back" quickly after a natural hazard occurs. In November 2021, LCSG sent out a survey to municipal officials in Lake Champlain Basin, to understand their needs regarding natural hazards resilience.

The survey was sent to more than 1,200 municipal officials in the Basin, covering almost every city, town, and village in the basin. We targeted a broad range of municipal officials, including:

Town clerk ● Town supervisor/Mayor ● Town selectboard/City council member ● Emergency manager ● Fire department ● Police department ● Planning/Zoning commission ● Park & Recreation commission ● Conservation commission ● Water & Wastewater department ● Road/Highway department ● Public works department

We received 156 responses (13% response rate), representing 25 municipalities in NY and 76 municipalities in VT. Most of our respondents were town supervisors/mayors (12%), town selectboard/city council members (24 %), and planning/zoning commission members (20%).

Current level of public concern

- **Most respondents (57%) reported a *moderate* level of public concern about natural hazards.**
- **Results for NY-only responses were similar to those presented in Figure 1.**
- **Results for VT-only responses were similar to those presented in Figure 1.**
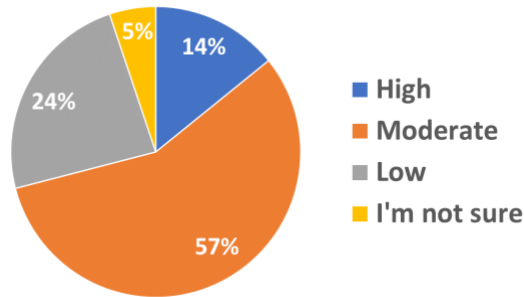

Figure 1: Responses to the question *"What is the current level of public concern about natural hazards in your municipality?"* The diagram includes respondents from both NY and VT.

Top four natural hazards

- **Overall, the top four natural hazards cited by respondents were: flooding, severe winter storm, severe rainstorm, and stream bank erosion (Table 1).**
- **In NY, the top four natural hazards were: severe winter storm (74%), flooding (62%), extreme cold (53%), and severe rainstorm (47%).**
- **In VT, the top four natural hazards were: flooding (70%), severe rainstorm (61%), severe winter storm (58%), and stream bank erosion (53%).**

Table 1: Responses to the question *"Select up to four natural hazards that you perceive your municipality faces."* The table includes respondents from both NY and VT.

Natural hazards	% of respondents citing each natural hazard
Flooding	68
Severe winter storm	62
Severe rainstorm	58
Stream bank erosion	47
Ice jam on rivers	27
Extreme cold	24
Algal bloom	23
Drought	21
Lakeshore erosion	20
Other *	12
Extreme heat	9
Ice cover on lakes	4

Other* included: *Invasive species, stream and lake pollution, erosion and landslides on steep slopes, forest fire, power outage due to severe storms/winds.

Most at-risks sectors

- **Overall, the four most at-risk sectors were: roads, commercial and residential properties, bridges and dams, and natural areas (e.g., wetlands) (Table 2).**
- **The results for NY followed a similar pattern. In NY, the most at-risk sectors were: roads (82%), properties (76%), water infrastructure (50%), bridges and dams (47%), and natural areas (47%).**
- **The results for VT followed a similar pattern. In VT, the most at-risk sectors were: roads (86%), properties (76%), bridges and dams (48%), and natural areas (41%).**

Table 2: Responses to the question "*Please select up to four of the most at-risk sectors in your municipality that are affected by natural hazards.*" The table includes respondents from both NY and VT.

Sectors	% of respondents
Roads	85
Properties (commercial and residential)	76
Bridges and dams	48
Natural areas	42
Water infrastructure (e.g., drinking water, storm, sewer)	37
Socially and economically vulnerable populations	22
Parks and public beaches	15
Marinas/boat launches	5
Other *	3

* Other included *community member ignorance*.

Progress to date

We asked respondents to tell us about the actions taken to mitigate or adapt to natural hazards. Considering the actions both *completed* and *in-progress* (blue bars in Figure 2):
- **80% of respondents mentioned *improving ditching along roads***
- **75% of respondents mentioned *updating their comprehensive/town plan***
- **70% of respondents mentioned *upsizing bridges and culverts***
- **Note that only 20% of respondents mentioned *public education on climate adaptation*.**

- **The results for NY-only responses were similar to those in Figure 2.**
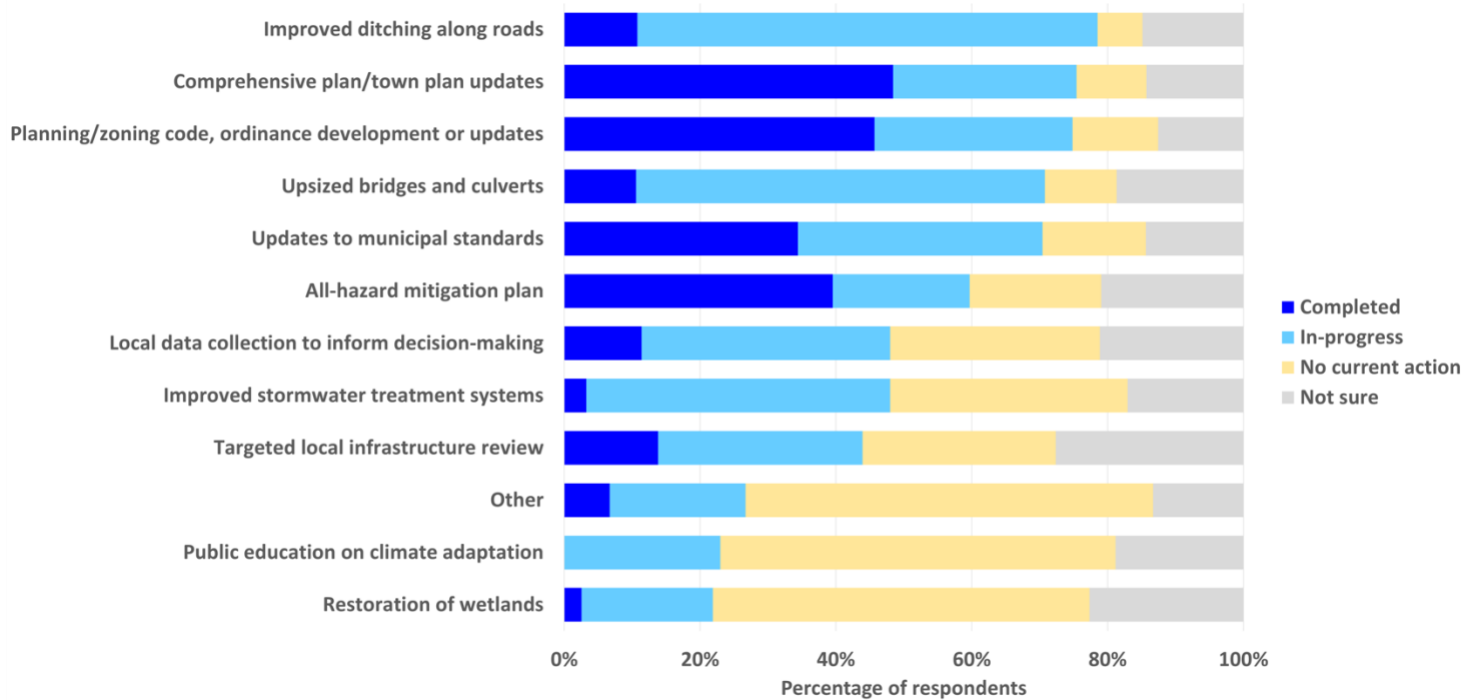- **The results for VT-only responses were similar to those in Figure 2.**

Figure 2: Responses to the question "*What has your municipality done so far to mitigate or adapt to natural hazards?*" The figure includes respondents from both NY and VT.

Other included *salt reduction/brine, increased taxpayer impacts, designated as NYSERDA Clean Energy Community*.

Collaborations

- **Municipalities in both NY and VT mostly collaborate with federal (e.g., FEMA) and state agencies (e.g., DEC, ANR) (Figure 3).**
- **Municipalities in VT rely heavily on regional planning organizations (e.g., Addison County Regional Planning Commission). In NY, municipalities rely more on counties (e.g., Warren County). This difference reflects different local governance structures in the two states. <u>Note:</u> it is surprising to us that some Vermont respondents selected "County" as collaborators since there is no county government in Vermont. We believe that respondents actually meant "county <u>planning</u> commissions."**
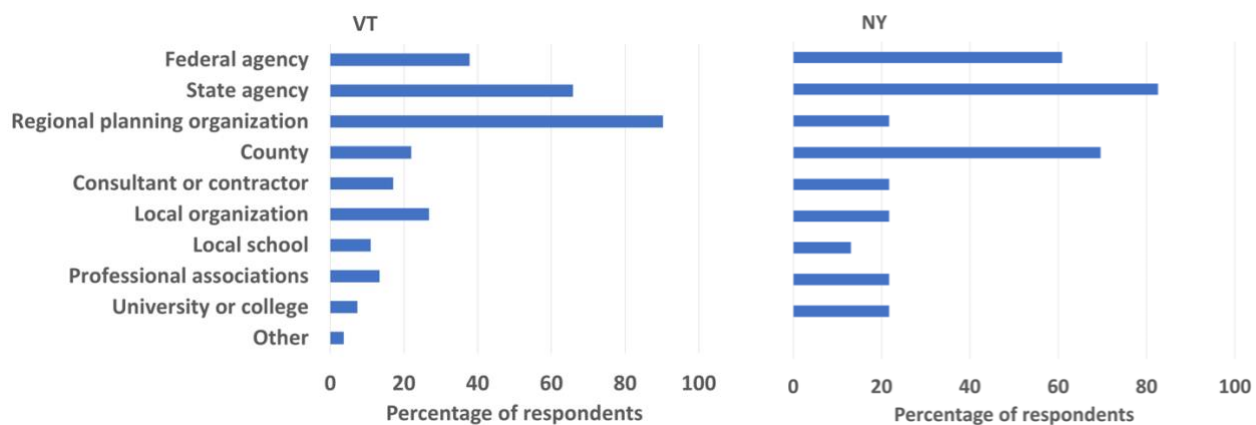
Figure 3: Responses to the question "*Which entities, if any, do you collaborate with in planning for natural hazards?*" Results are presented by state.

Resources needed

When considering both *definite* and *probable* needs (blue bars in Figure 4), in NY and VT:
- **Most respondents need *better funding opportunities awareness*, *dedicated funding for mitigation projects*, and *opportunities to share experiences with other municipalities*.**
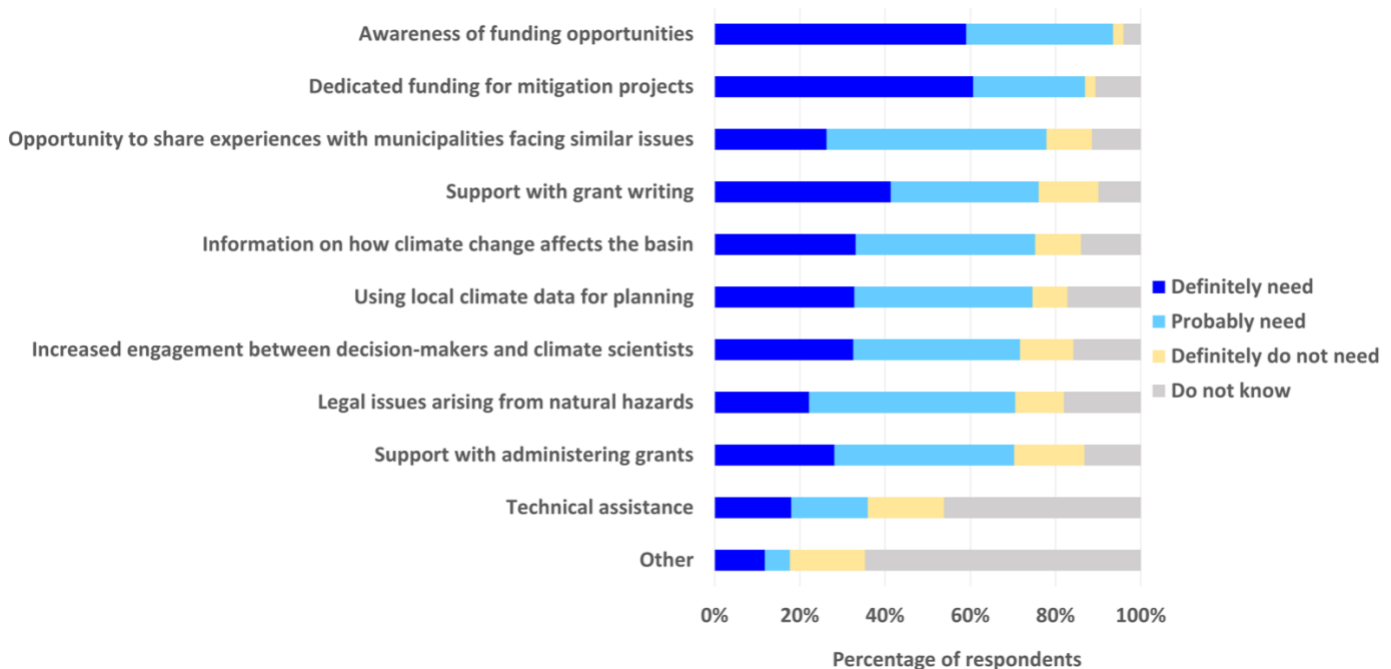- **Surprisingly, *technical assistance* was ranked low.**

Figure 4: Responses to the question "*To what extent does your municipality need the following resources?*" The figure includes responses from both NY and VT.

Technical assistance included: *Educate the public (e.g., on how to reduce erosion and protect roads)*; *Help towns develop strategic plan and prioritization*; *Coordinate with funding sources to simplify procurement requirements*; *Get data for specific towns*: *FEH field verification*; *Support in updating regulations*; *Access to*

engineer to determine safety of culvert and size of replacement bridge.

Other included: *Educate the public (e.g., to understand what role town leadership can play, how to get involved, and how to engage young people); Assist with implementation and accessing money recognizing that many municipal officials are volunteers; Leverage partnerships & capitalize on overlapping areas of interest/priority*.

Considering each state individually (Figure 5):
- *Better awareness of funding opportunities* and *having dedicated funding for mitigation projects* were highly ranked in NY as well as in VT.
- The most notable difference between the 2 states was a bigger *need for technical assistance* in NY than VT.
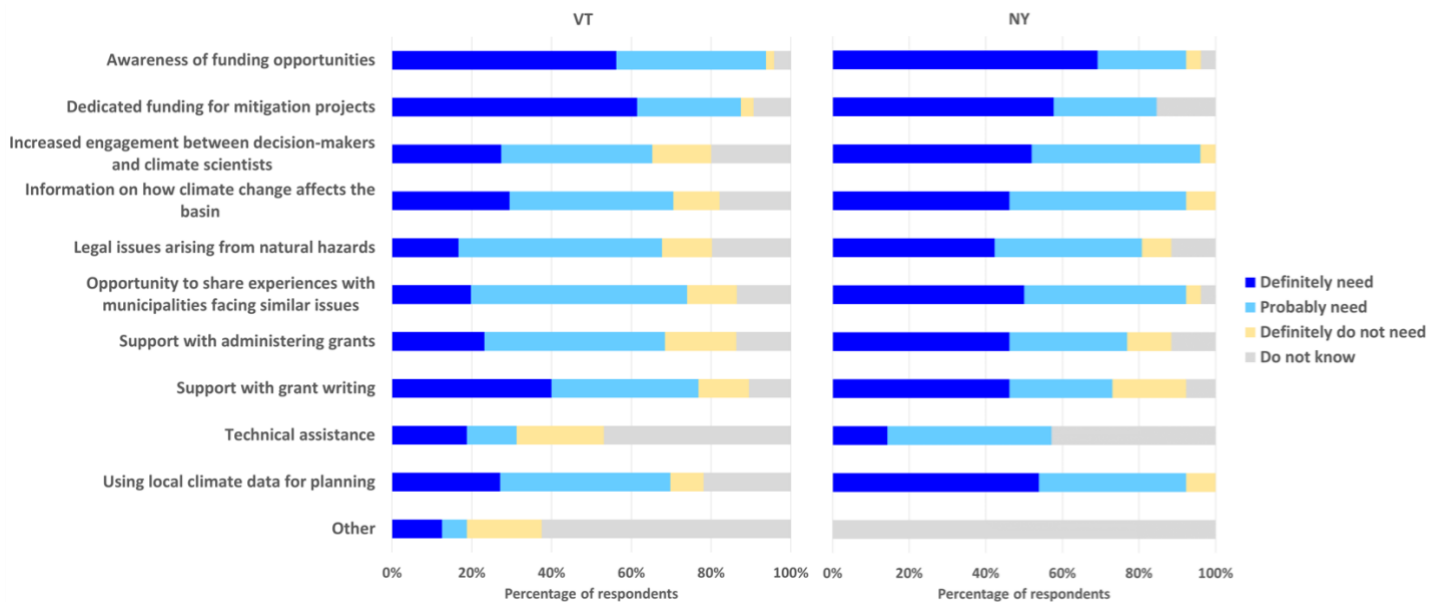

Figure 5: Responses to the question *"To what extent does your municipality need the following resources?"* **Results are presented for each state.**

Preferred ways to receive information

- **Overall, respondents preferred information received via webinars, websites, and newsletters (Figure 6).**

Figure 6: Responses to the question "*Identify your preferred ways to receive information related to natural hazards resilience*". The figure includes responses from both NY and VT.