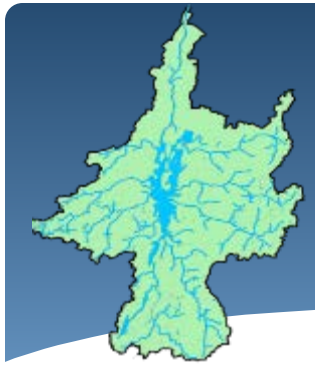
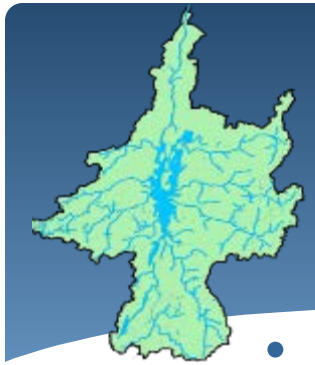
Social, Political and Economic analysis Group (SPE)

Public Technical Webinar



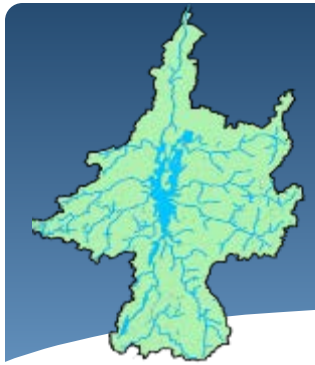
Agenda

- Introduction to the SPE Technical Working Group
- SPE research methods
- Six research questions
- Next steps
- Key messages



Key Messages

- Social, political and economic research provides new insights to guide decision-makers. The addition of SPE is novel and without precident;
- Social, political and economic context of flooding in LCRR is evolving as the study progresses;
- Differences exist among stakeholders in NY, VT and QC;
- Data illustrate a need for a shared vision of the LCRR social-ecological system among NY, VT and QC;
- No single solution exists and stakeholders emphasize need for diversification and integration of several measures;
- Heterogeneity of governance structures in place may inhibit or limit flexibility and innovation;
- Flooding is a basin wide challenge with unique local impacts;



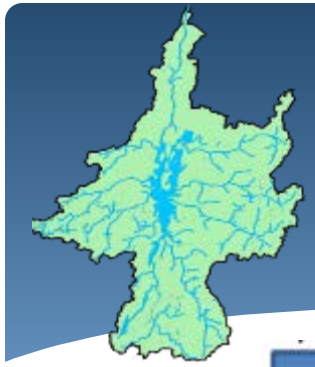
SPE Personnel

Quebec

Marie-Christine Therrien, ENAP
Julie-Maude Normandin, ENAP
Joris Arnaud, ENAP
Michel Poulin, ENAP
Pier-André Bouchard St-Amant, ENAP
Guillaume Dumais, ENAP
Caroline Larrivée, Ouranos
Charles-Antoine Gosselin, Ouranos
Isabelle Thomas, University of Montreal
Alexandre Gagnon, University of Montreal
Rim Chehab, University of Montreal
Anne-Laure Fakiroff, University of Montreal

New York and Vermont

Curt Gervich, SUNY Plattsburgh
Chris Koliba, University of Vermont
Emma Spett, University of Vermont
Shannon Thayer, University of Vermont
Jarlith O'Neil-Dunne, University of Vermont
Charles Rhodes, USGS
Emily Pindilli, USGS



Study Organization

Independent Review Group (IRG)

Study Board (10 members)
IJC support

Public Advisory Group (PAG)

Study Managers (1 Canada, 1 U.S.)
Secretariat support
IJC Communication support

IM / IT Support Group

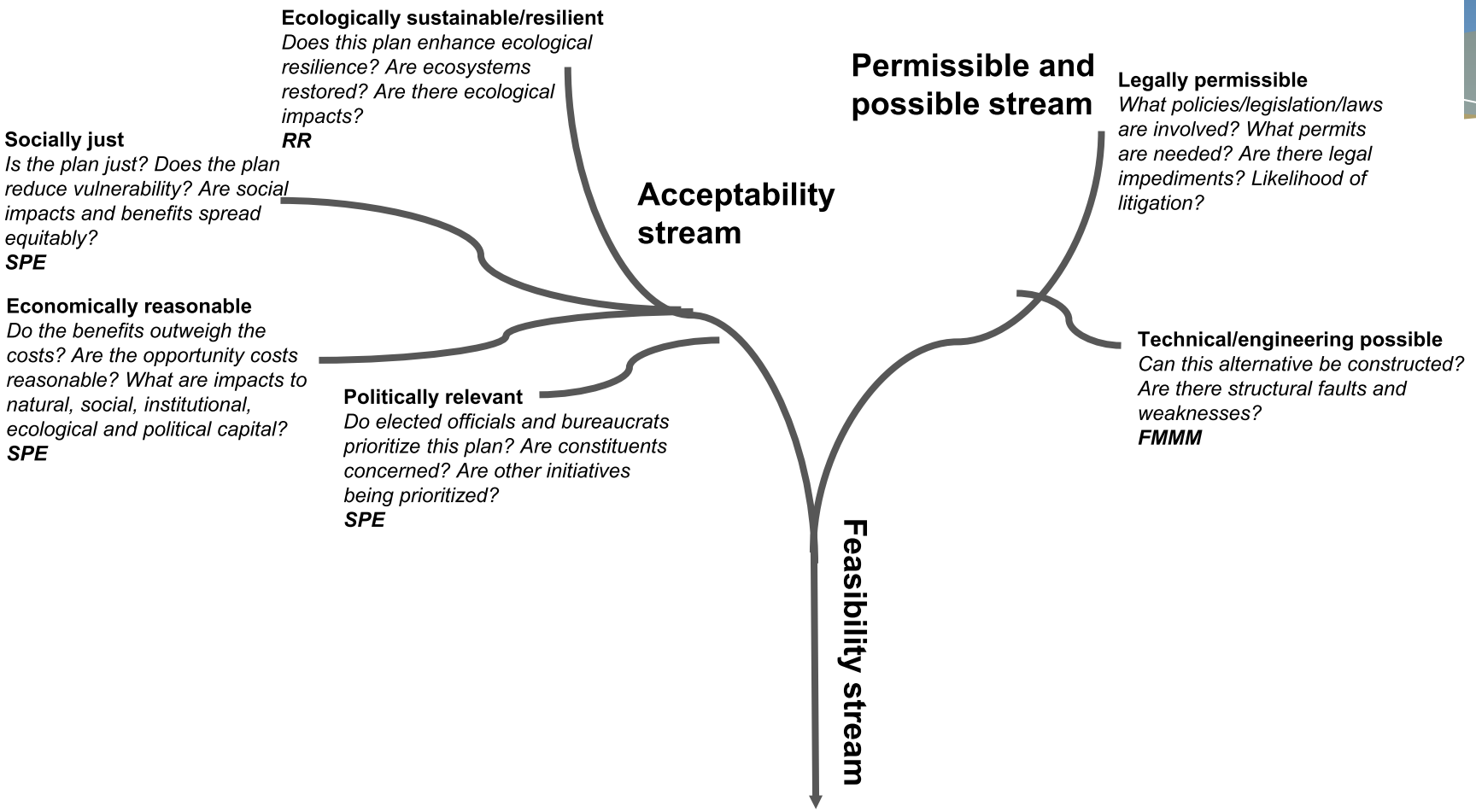
Social, Political and Economic Analysis Group

Hydrology, Hydraulics and Mapping TWG

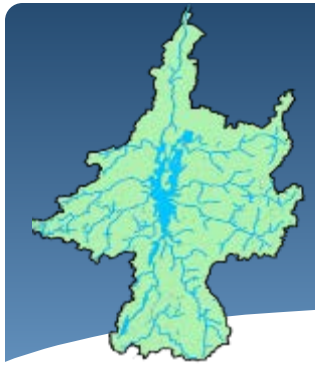
Resource Response TWG

Flood Management and Mitigation Measures TWG

Social, Political and Economic Feasibility



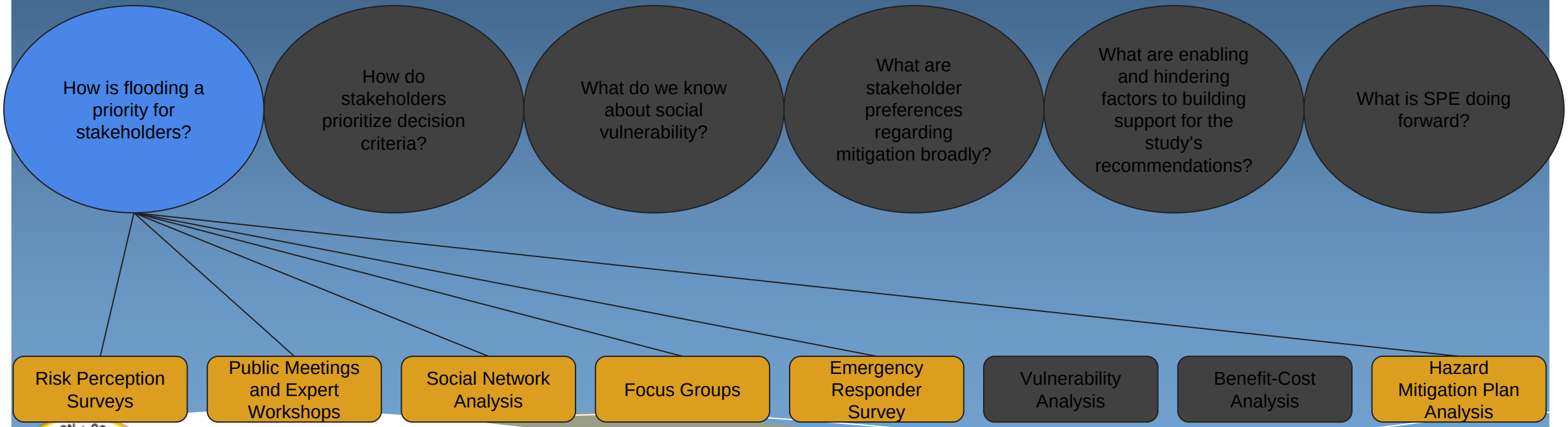
Introducing Six Guiding Questions

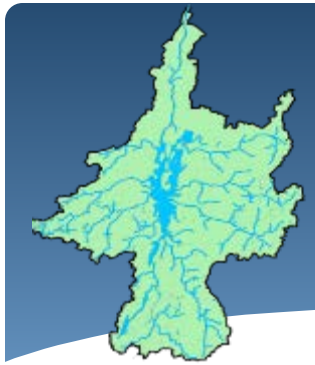


- How is flooding a priority for stakeholders?
- How do stakeholders prioritize decision criteria?
- What do we know about social vulnerability?
- What are stakeholder preferences regarding mitigation broadly?
- What are enabling and hindering factors to building support for the study's recommendations?
- What is SPE doing forward?

- Risk Perception Surveys (US:09/2019 CA:10/2020)
- Public Meetings and Expert Workshops (US&CA: continuously)
- Social Network Analysis (CA:02/2020)
- Focus Groups (CA : 07/2019)
- Emergency Responder Survey (US&CA: 02/2020)
- Vulnerability Analysis (2018-2019)
- Benefit-Cost Analysis (Ongoing)
- Hazard Mitigation Plan Analysis (US: 1/2021)

How is flooding a priority for stakeholders?





Preliminary Conclusions

How is flooding a priority for stakeholders?

QC

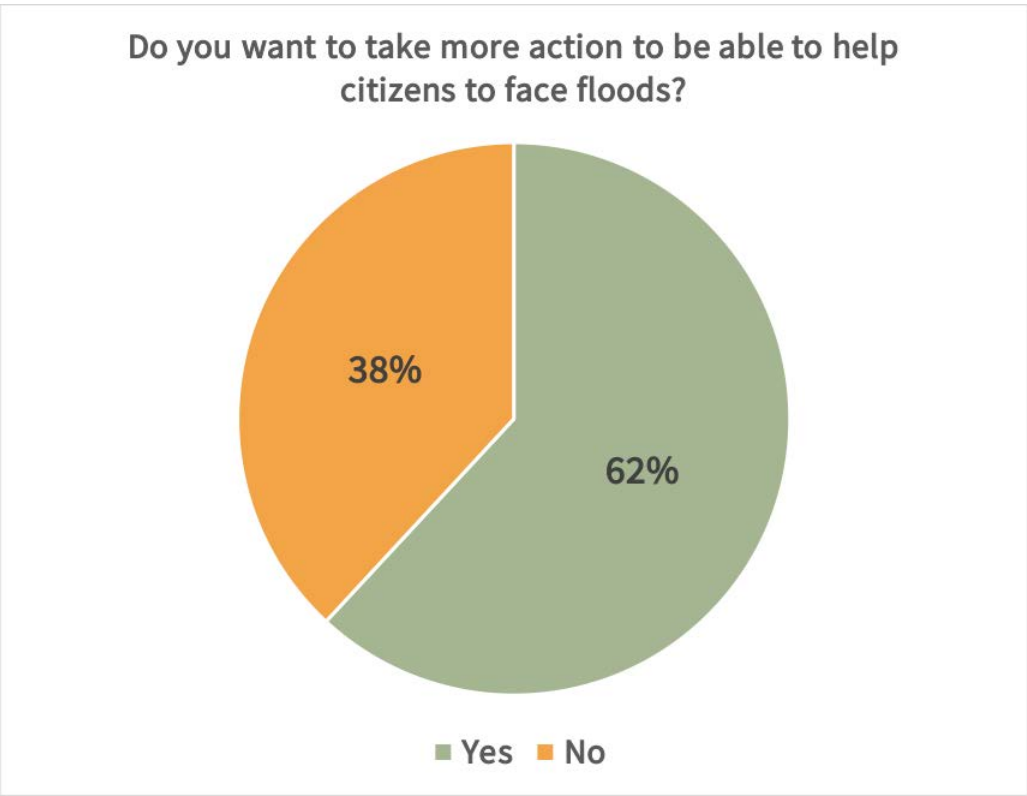
- Still a priority for most stakeholders
- There are major ongoing changes happening in QC regarding flooding
- Other issues considered as priorities by stakeholders are also related to flooding (protecting ecosystems, water quality, erosion, compliance with the guidelines regarding riparian zones).
- Organizations and elected officials will assess the acceptability of the options presented not only in terms of their ability to reduce flooding, but also into their impact on the water quality, ecosystems, erosion and water level.

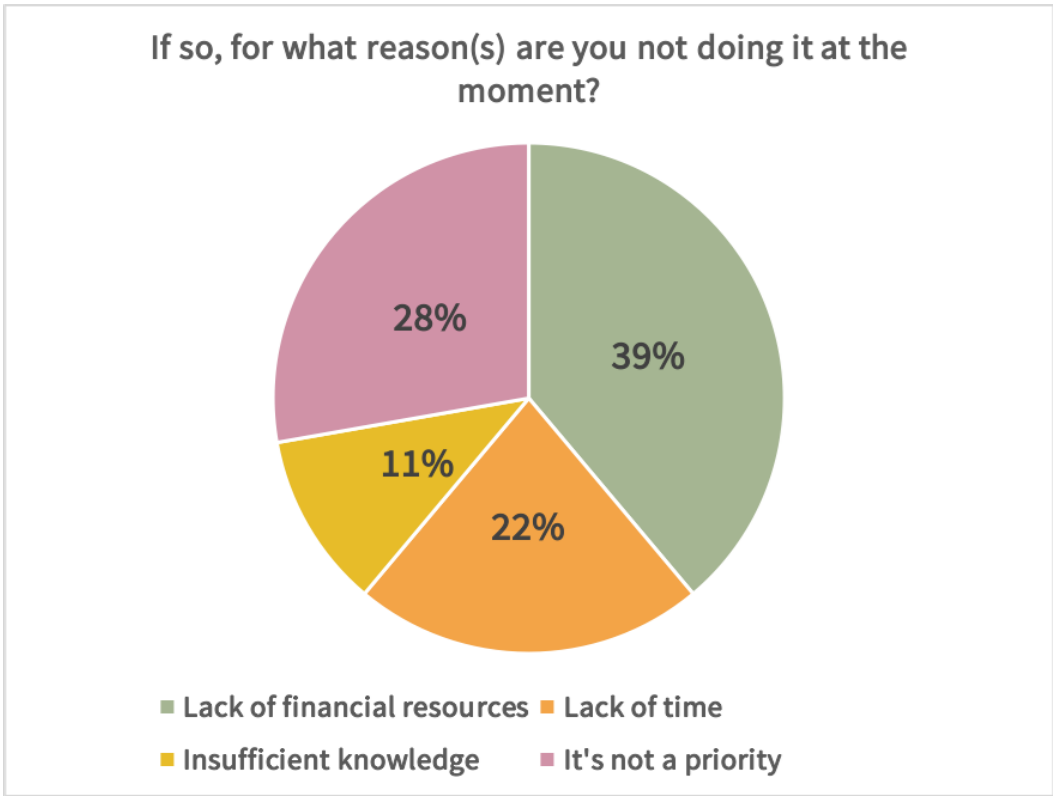
NY/VT

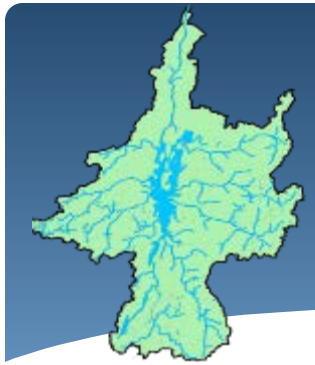
- The public's concern for flooding is contingent upon their past experience with flooding
- Flooding is addressed primarily at the municipal scale in VT and at the county level in NY
- Concern varies across VT and NY and stakeholders prioritize the impacts of tributary flooding over lake flooding

Supporting Evidence: Québec

- Results from interviews to 24 stakeholders from 4 pilot municipalities, RCM, government and NGOs. Dates of study : July 2018-July2019







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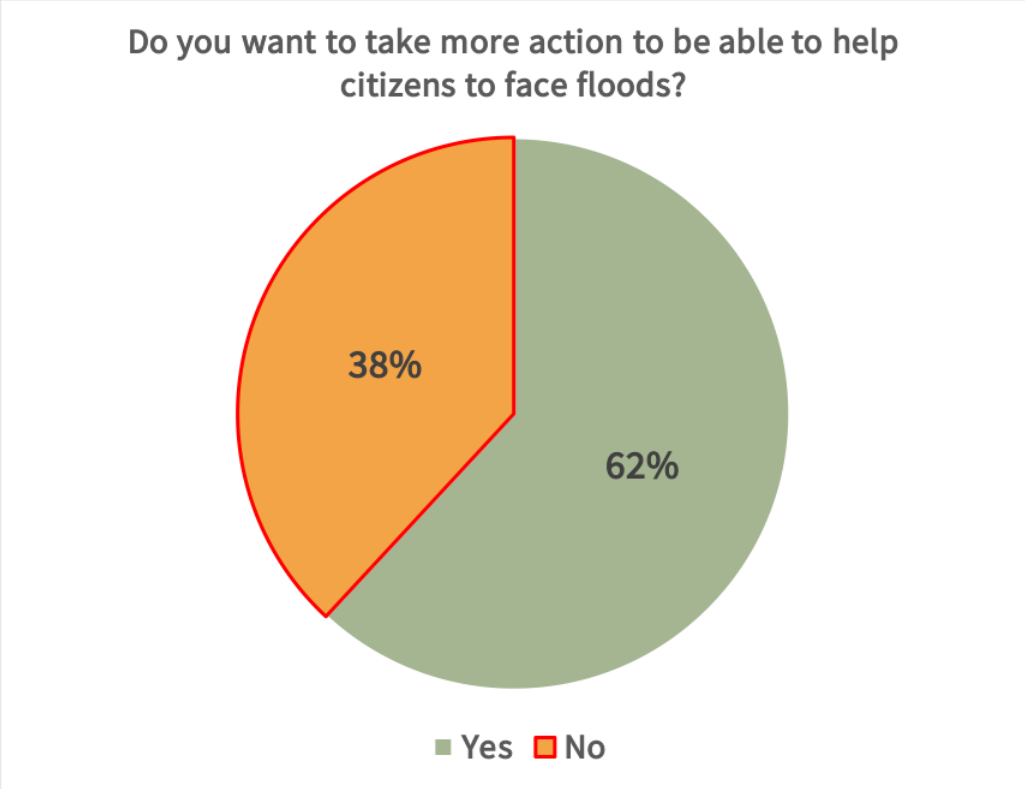

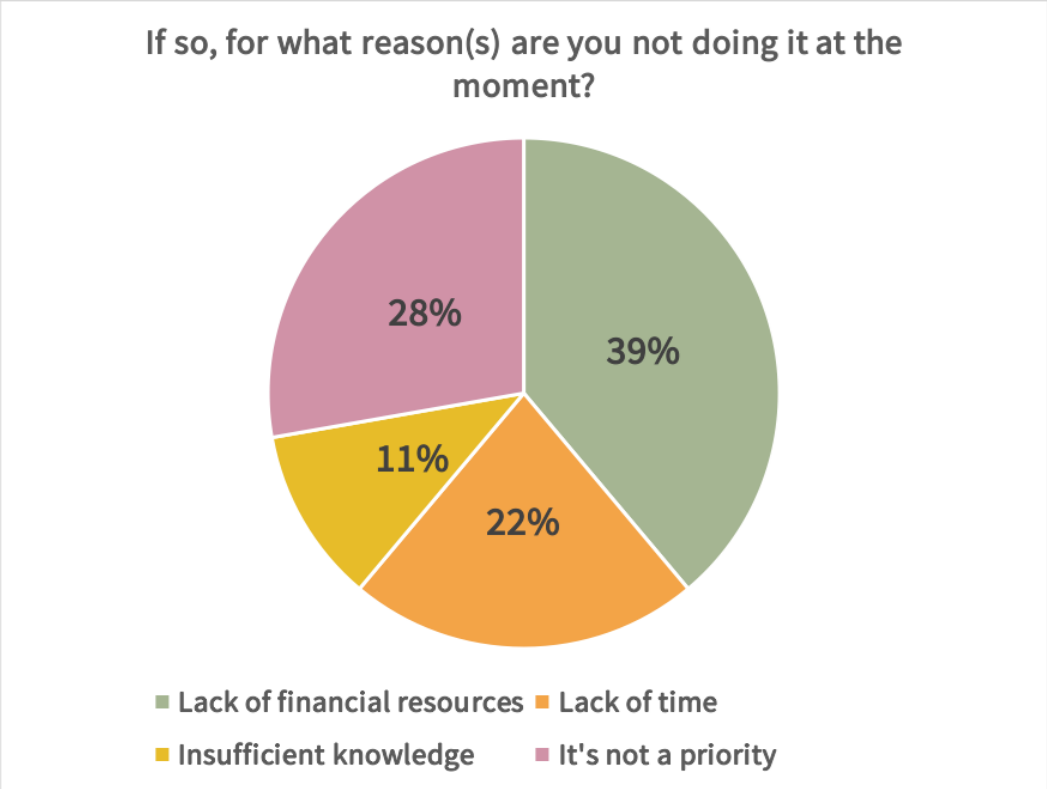

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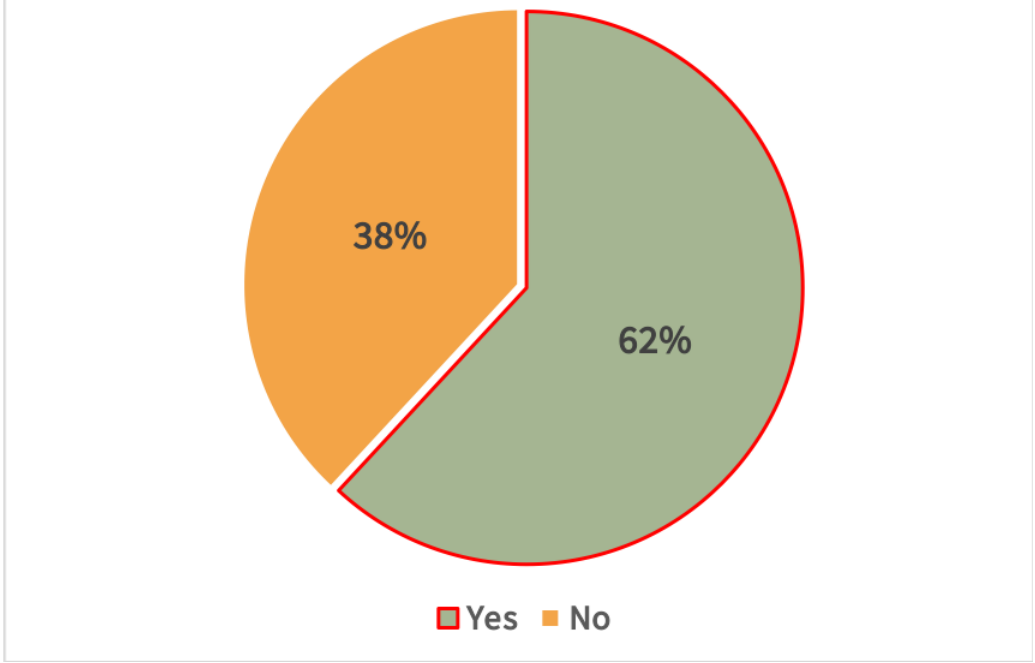
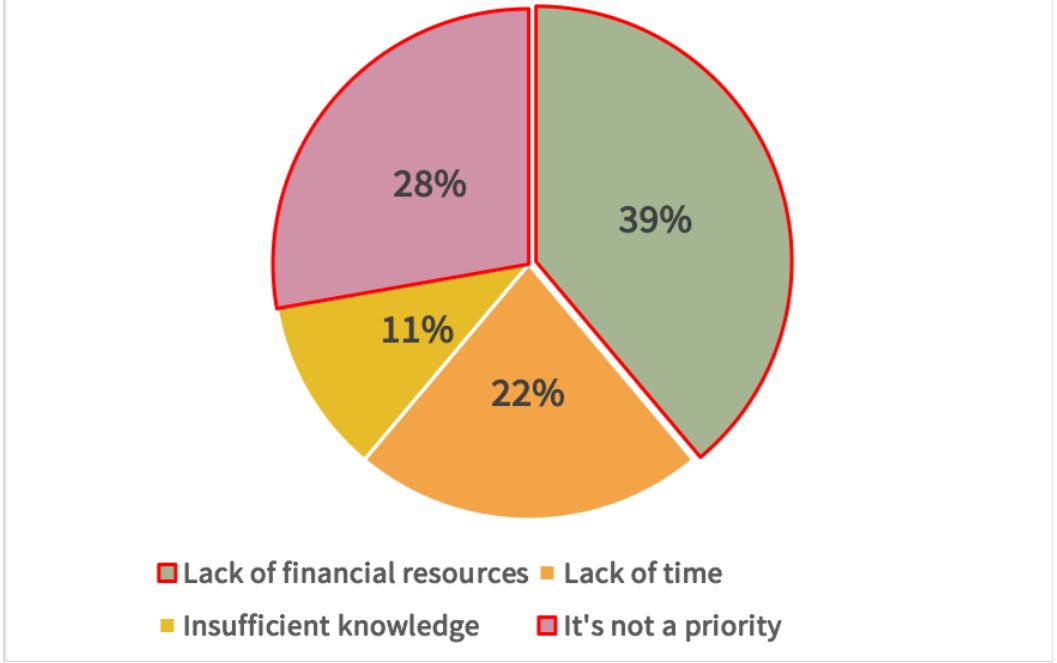
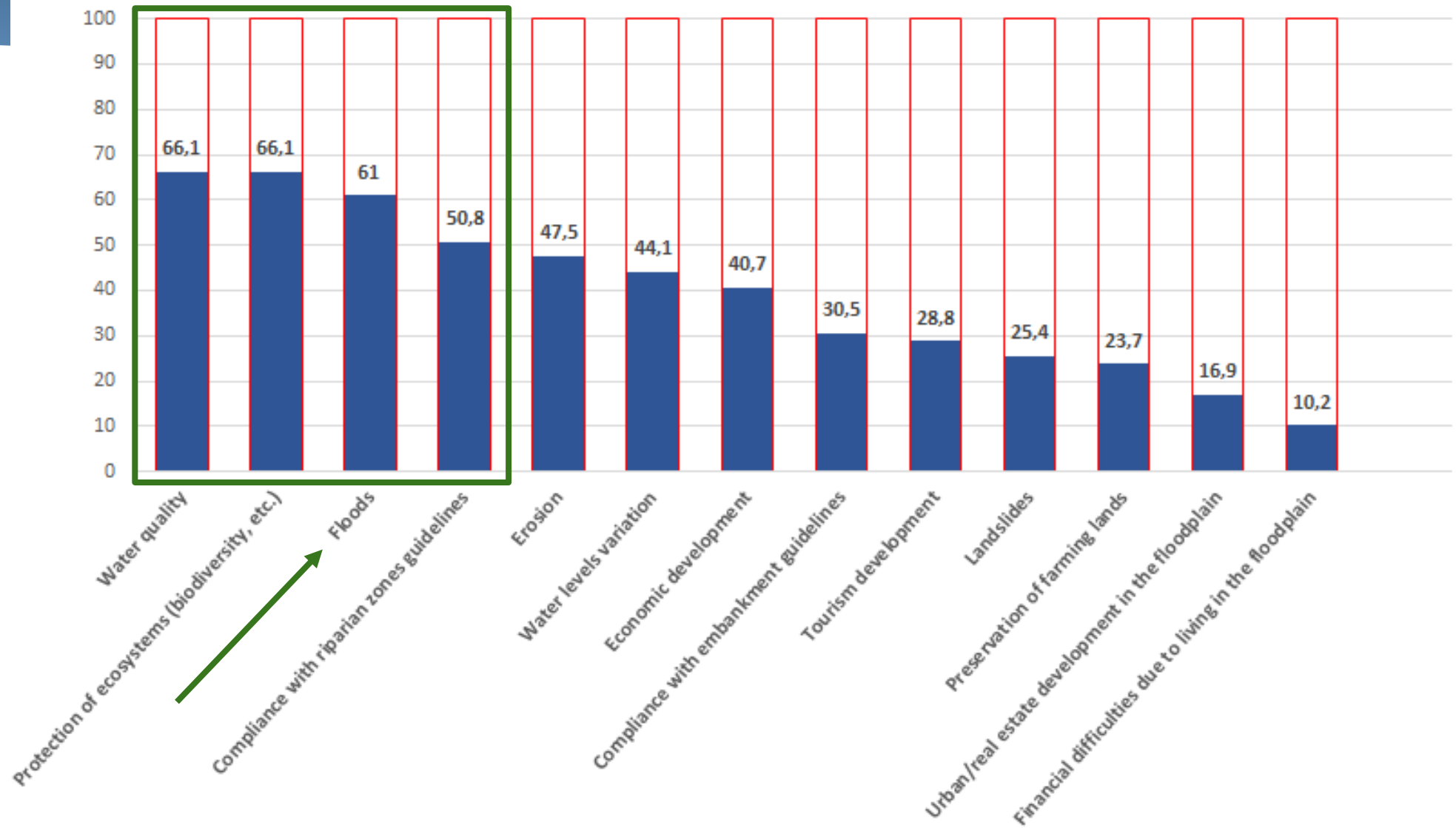


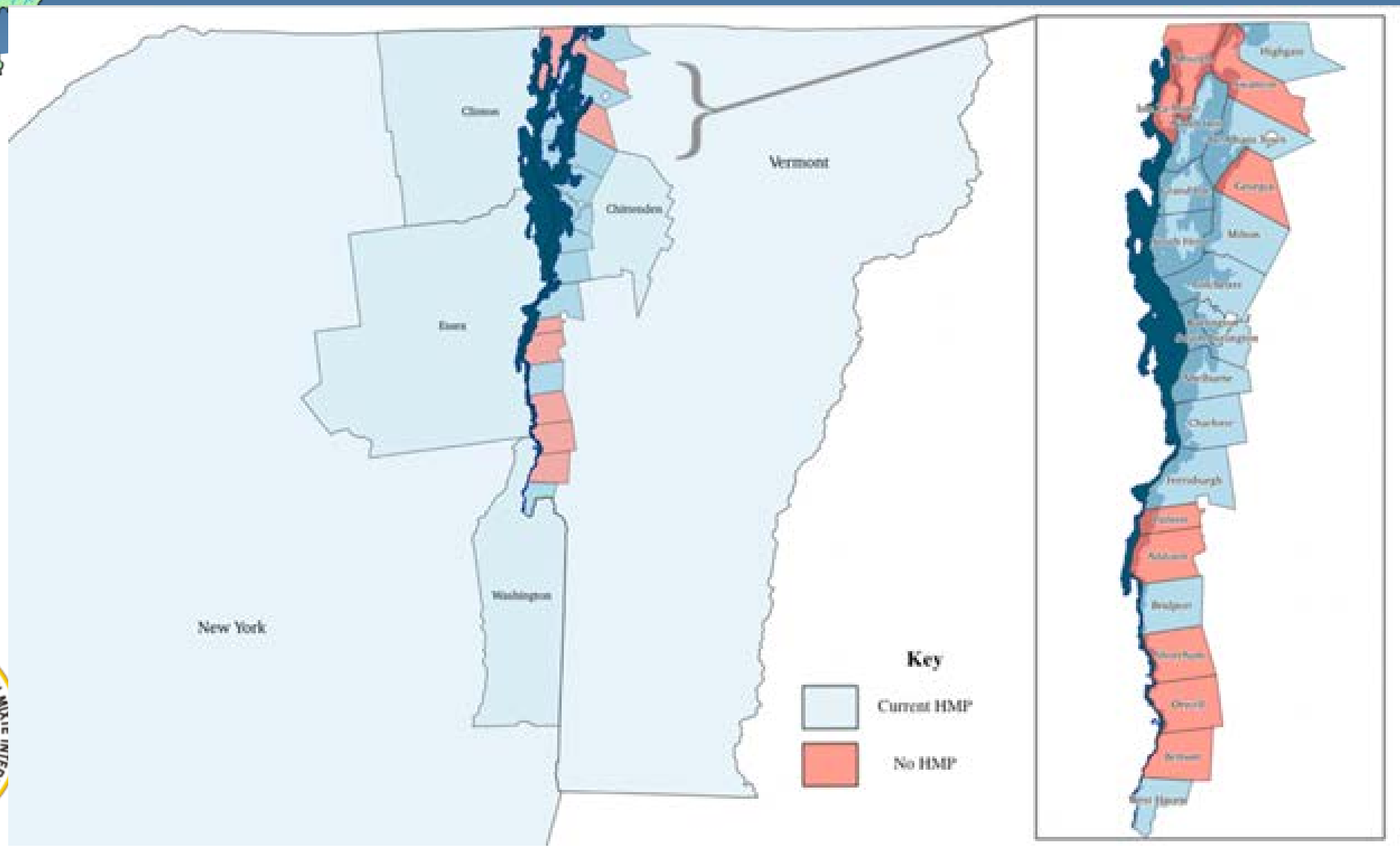


Supporting Evidence: Québec

- Issues considered as priorities (%)
- Results from the social network analysis (02/2020)
- N=58

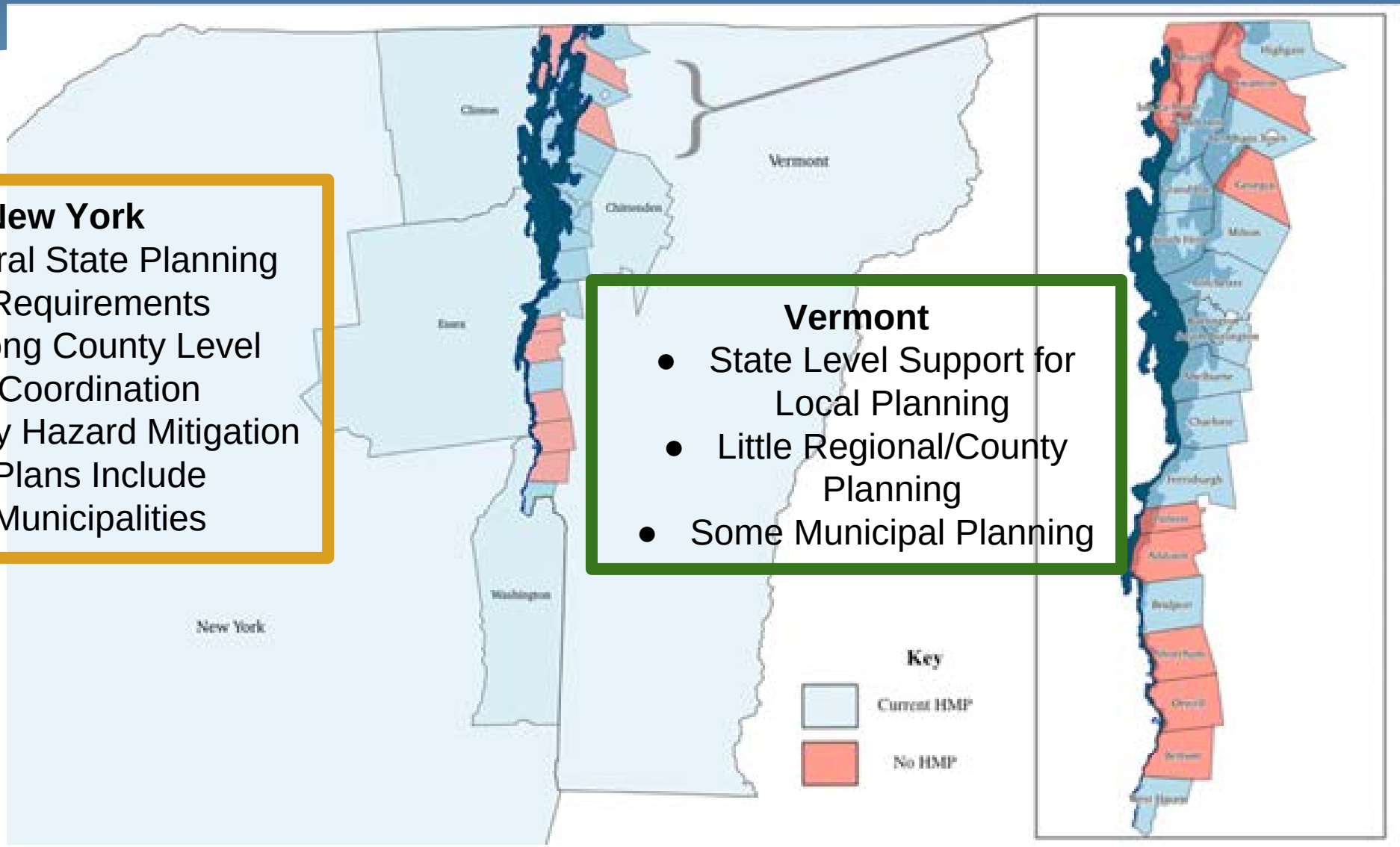


Supporting Evidence: Vermont/New York



Retrieved from hazard mitigation plan analysis (6/2020)

Supporting Evidence: Vermont/New York



New York

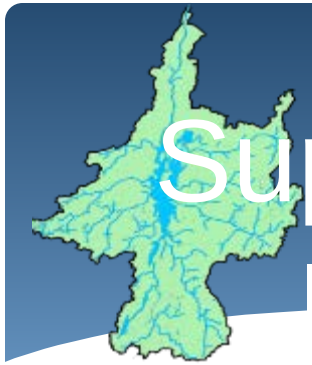
- Central State Planning Requirements
- Strong County Level Coordination
- County Hazard Mitigation Plans Include Municipalities

Vermont

- State Level Support for Local Planning
- Little Regional/County Planning
- Some Municipal Planning

Retrieved from hazard mitigation plan analysis (6/2020)

Supporting Evidence: Vermont/New York



US First Responders Survey		Percent United States
Community affected by flooding in the past	Yes	94.7
Probability of community experiencing a lake/river flood	High risk	31.6
	Low/some risk	57.9
	No risk	5.3
	Other	5.3
Consequences of a lake/river flood in your community	Very high	5.3
	High	31.6
	Neither high nor low	26.3
	Low	5.2
	Very low	21.1
	Other	5.3
Likelihood of community experiencing a lake/river flood in the next ten years	Very high	21.1
	High	47.4
	Neither high nor low	10.5
	Low	5.3
	Very low	5.3
	I don't know	5.3
	Other	5.3

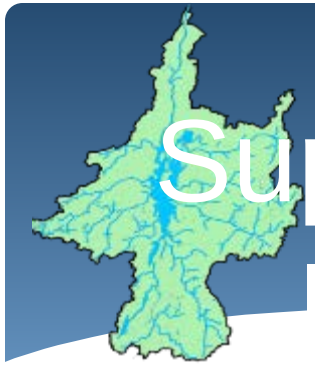
N US=19

US Household Risk Perception Survey		Percent United States
Flood Experience	Yes	19.7
Likelihood of community experiencing a lake/river flood in the next ten years	Very high	3.4
	High	6.8
	Neither high nor low	8.2
	Low	19.7
	Very low	34.7
	I don't know	6.1

N US=136

First Responder Survey 2/2020
US Risk Perception Survey 10/2019

Supporting Evidence: Vermont/New York



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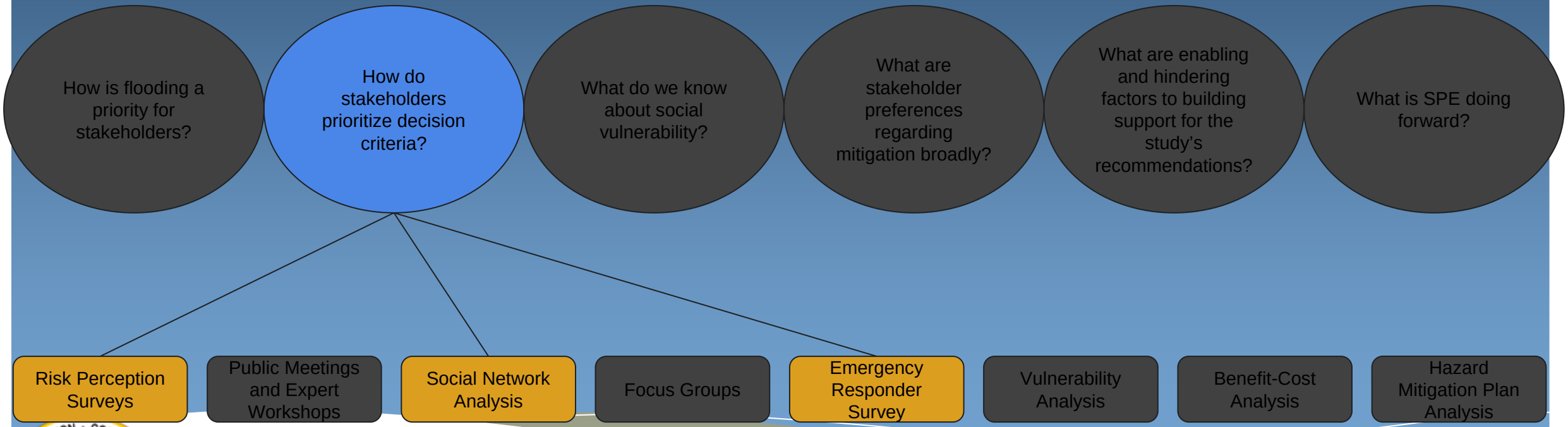
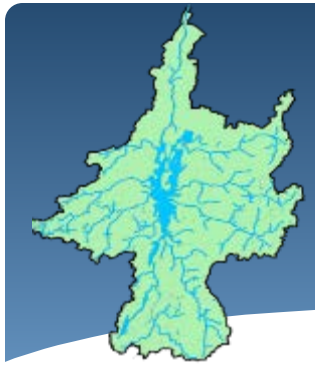
First Responder Survey 2/2020
US Risk Perception Survey 10/2019

Take Home Messages

- First Responders see greater risks than residents
- Concern of residents varies with flood experience
- Wide range of perceptions of consequences

How do stakeholders prioritize decision criteria?

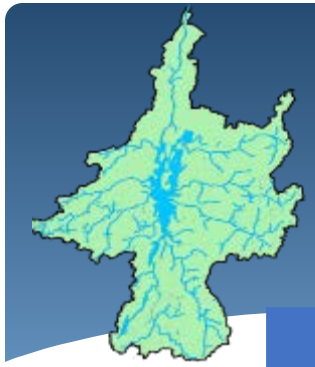




Preliminary Conclusions

How do stakeholders prioritize decision criteria?

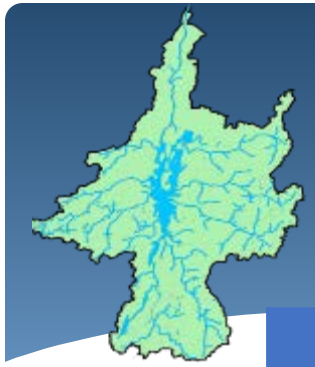
- Some consistency in prioritizations across Quebec, Vermont and New York
- Three general levels of prioritization
  - **High priorities-** human health and safety, including vulnerable residents
  - **Medium priorities-** protecting environmental health and preventing structural damages
  - **Low priorities-** prevent harm to economy, historical/cultural sites, infrastructure.



Supporting Evidence: Québec Vermont/New York

Flood mitigation criteria ranked by importance
(1 is the criterion considered as very important by the most responders)

	Risk Perception Survey (CA) N=450	Risk Perception Survey (US) N=150	Social Network Analysis (CA) N=45	First responder Survey (CA) N=19	First responder Survey (US) N=23
Reduce potential injury, stress, or loss of life due to flooding	1	1	2	2	1
Reduce harm to vulnerable people due to flooding	2	2	5	1	2
Maintain healthy ecosystems, including clean water and thriving biodiversity	4	3	1	3	5
Prevent the spread of aquatic invasive species	6	4	4	6	6
Reduce the number of homes that are impacted by flooding	3	5	7	NA	3
Reduce the financial cost of flood damages	5	6	3	4	4
Reduce harm to economic activity due to flooding	7	7	6	8	7
Reduce harm to historical and culturally sensitive sites due to flooding	8	8	8	7	8
Reduce street closures due to flooding	9	9	9	5	9



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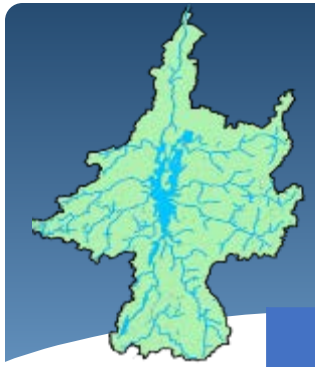

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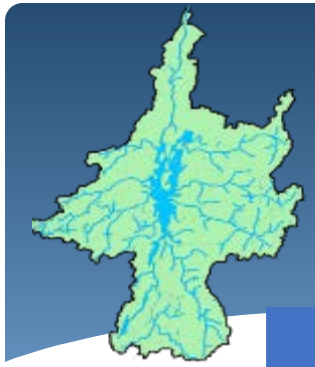

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What do we know about social and community vulnerability?

How is flooding a priority for stakeholders?

How do stakeholders prioritize decision criteria?

What do we know about social vulnerability?

What are stakeholder preferences regarding mitigation broadly?

What are enabling and hindering factors to building support for the study's recommendations?

What is SPE doing forward?

Risk Perception Surveys

Public Meetings and Expert Workshops

Social Network Analysis

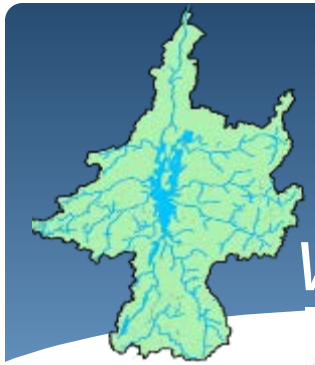
Focus Groups

Emergency Responder Survey

Vulnerability Analysis

Benefit-Cost Analysis

Hazard Mitigation Plan Analysis



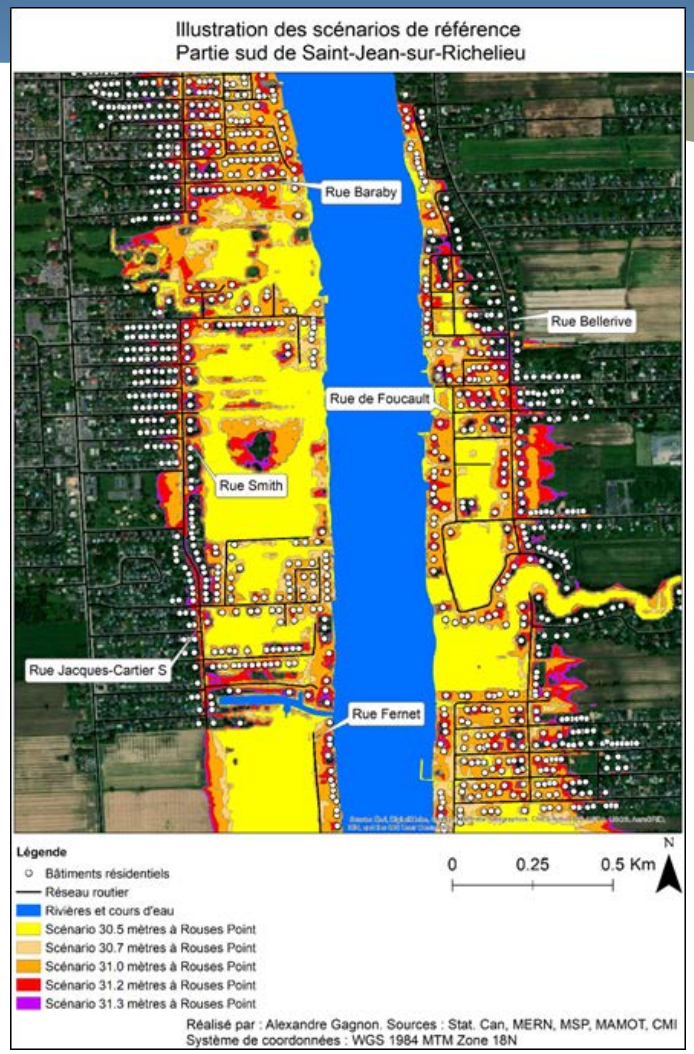
Preliminary Conclusions

What do we know about social and community vulnerability?

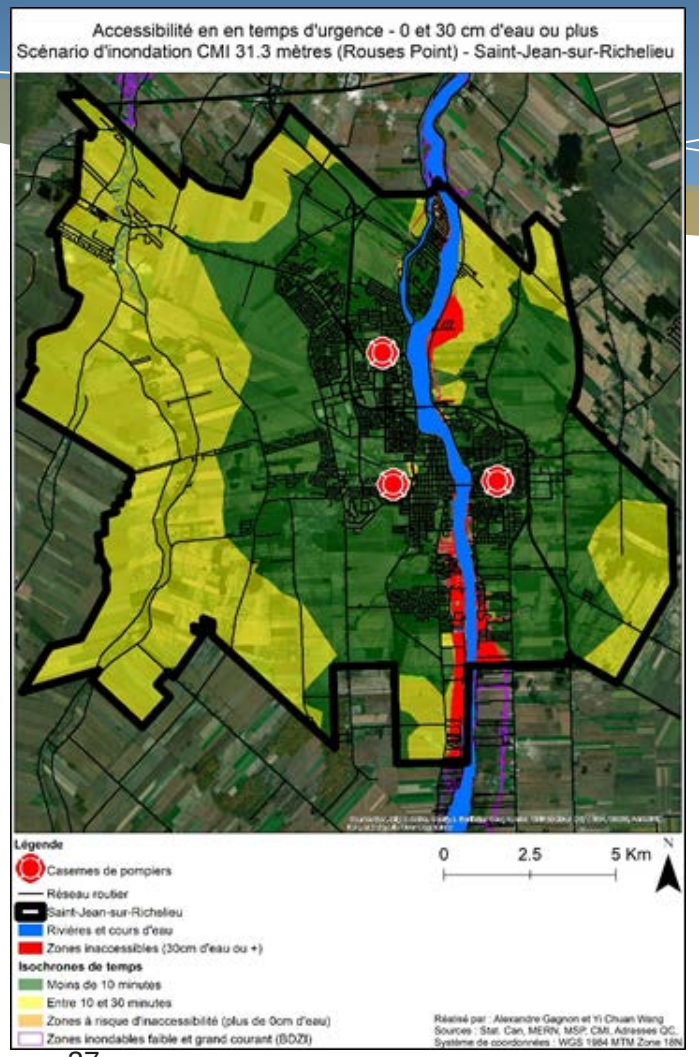
*Mitigation measures would benefit from considering exposure throughout the study area, but also **take into account local contexts in exposure** to flooding.*	*There is a need for a **preventative approach to flooding** and support for **vulnerable people** before, during and after the disaster.*	*Provide knowledge, resources, and support for citizens to **adapt their household and property to potential floods.***	*Identifying **flooded roads** and providing good preparation resources are key factors in ensuring accessibility and safe flood management.*
Exposed areas : • **Southern residential neighbourhoods** of Saint-Jean-sur-Richelieu • **Campsites** in Venise-en-Québec • **Isolated houses** in Sainte-Anne-de-Sabrevois • Artificial canals area in Saint-Paul-de-l'Île-aux-Noix	*Many areas with **high and medium social sensitivity are exposed**.*	*Some municipalities contain **hundreds of infrastructures (buildings / roads)** that could be affected by the flooding.* *Prevention and adaptation will ensure resilient urban planning*	At risk of inaccessibility : • **Île Sainte-Thérèse** in Saint-Jean-sur-Richelieu • **Route 202** in Venise-en-Québec • **Dead ends in Sainte-Anne-de-Sabrevois** • **Beaver Street in Noyan**

Supporting Evidence: Québec

Understanding **where** the flooding occurs



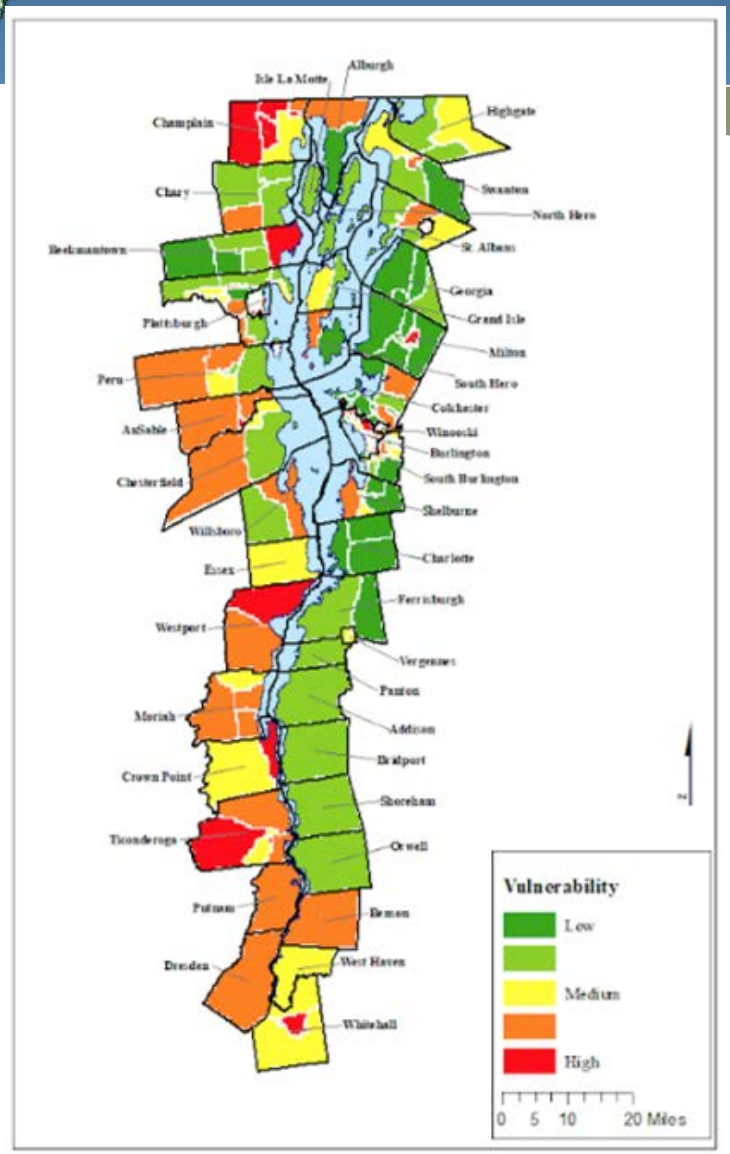
Flood map (example)



Accessibility map (example)

And **who** and **what** is affected and how are they **affected**

Supporting Evidence: Vermont/New York



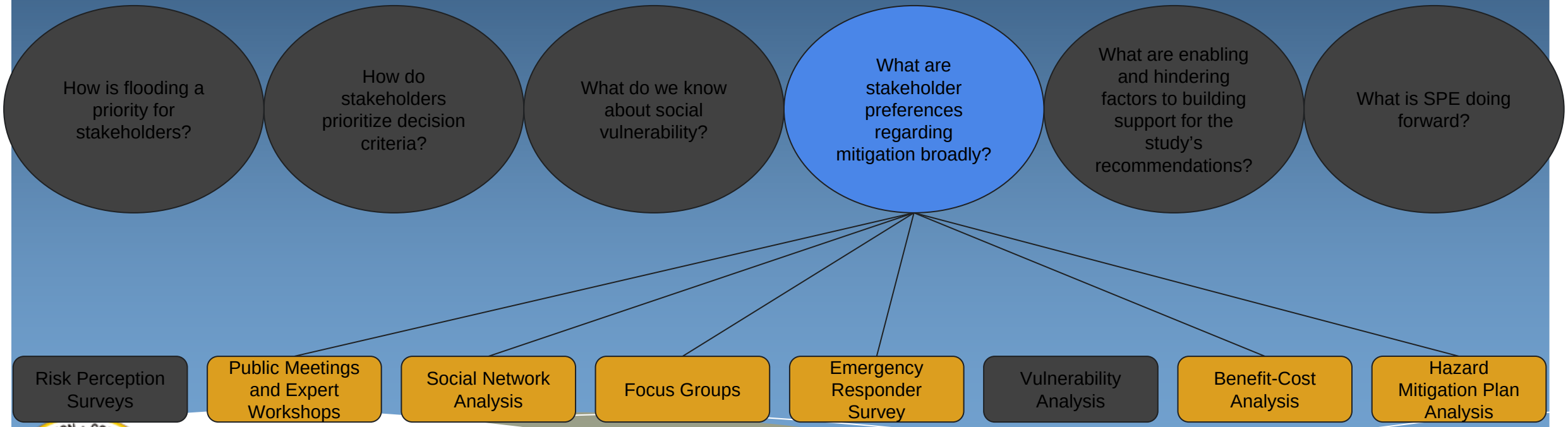
Social vulnerability analysis helps to target resources to areas of greatest impact

Social sensibilities scores aggregate three categories of indicators and give an overview of sensitive areas

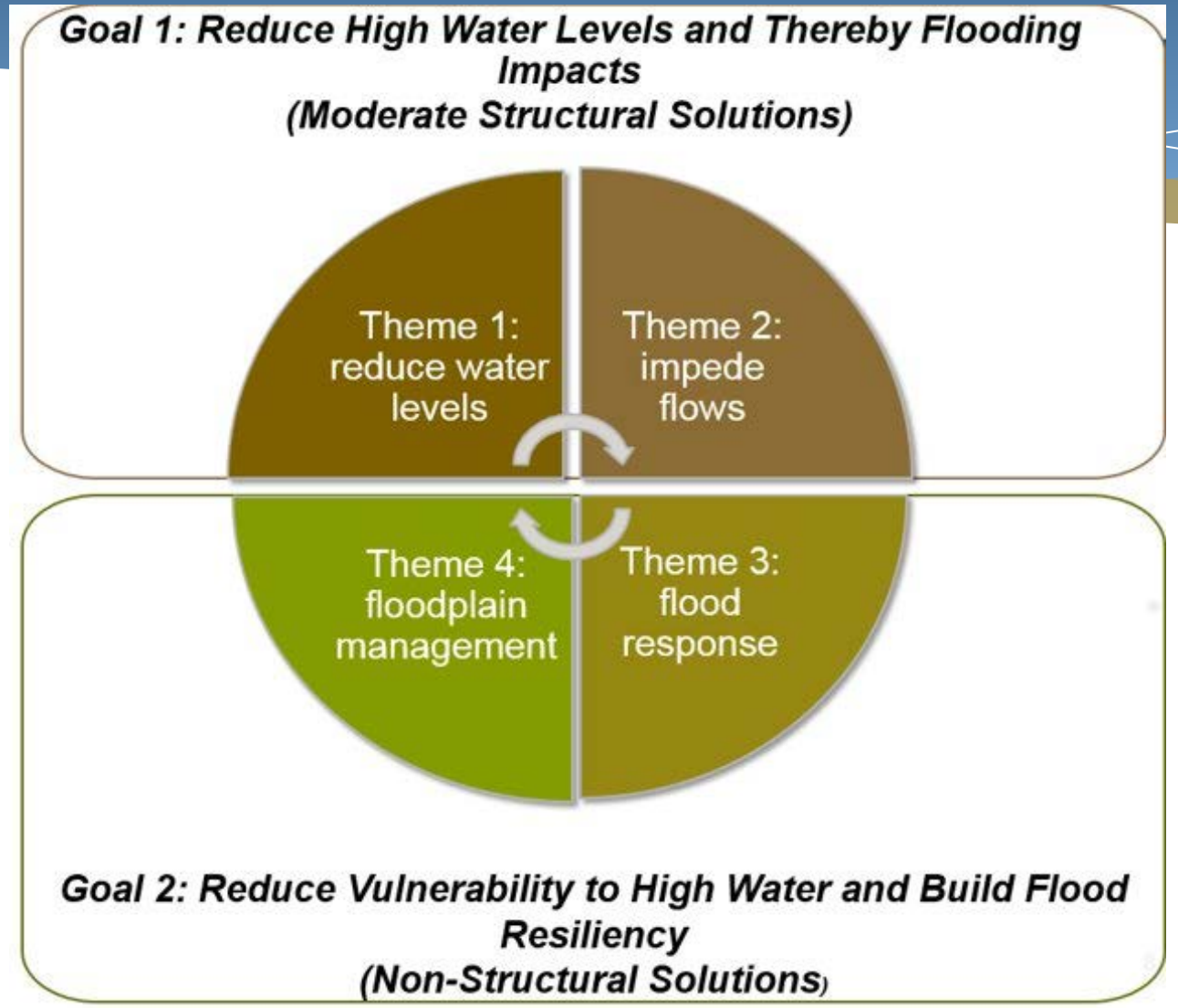
- **Sensitive populations**
  - Response phase
- **Precarious situations**
  - Recovery phase
- **Limited resources**
  - Mitigation phase

Assist emergency personnel and decision-makers with allocation of resources

What are stakeholders' reactions and preferences to mitigation measures within the four themes?



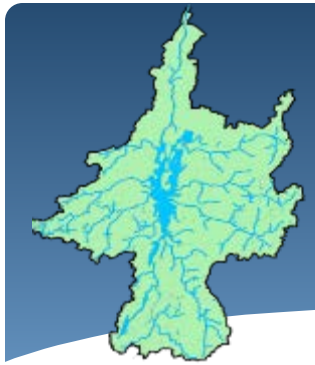
Four Themes of Flood Mitigation



Preliminary Conclusions

What are stakeholders reactions and preferences to mitigation measures within the four themes?

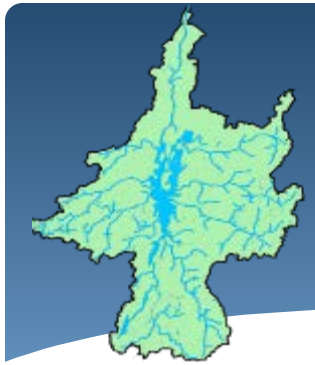
- The results presented here are preliminary as we weren't able to provide stakeholders with detailed information on the measures explored (not available at the time);
- Preliminary conclusions:
  - Actors find it difficult to state preferences without having a better sense of the costs, implementation issues, impacts and effects upstream and downstream;
  - Most respondents express that it is necessary to use a combination and diversification of several measures to mitigate floods;
  - Respondents emphasize interdependence between the four themes.



Preliminary Conclusions

Theme 1 (Reduce water levels)

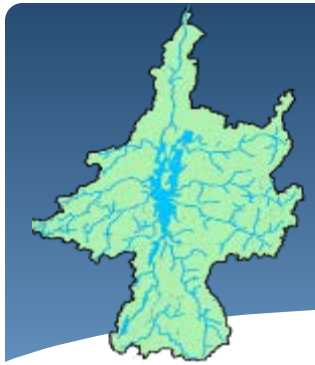
- In QC- Concerns about the impacts downstream and upstream
  - Importance of not lowering water level and increasing floods downstream
  - There is little opposition to the Chambly Canal, but not necessarily a high level of acceptability
  - Concerns regarding the heritage integrity of the canal
- In US- survey of first responders show evidence for support for structural solutions to flooding.
  - From the risk perception survey, public respondents who had flood experience were also supportive of these measures. The general public were less supportive of measures that would negatively impact ecosystem health and water quality.



Preliminary conclusions

Theme 2 (Impede flows)

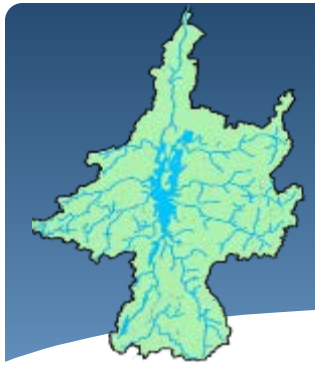
- In QC, Theme 2 seen as a way to address flooding and other issues
  - Water quality, preservation of ecosystems
  - Local actors in QC understand and promote the conservation of existing wetlands but think that Theme 2 is not an option for reducing flooding because land is saturated with water, has little retention capacity and there are already many wetlands.
- In US, Theme 2 seen as a way to address lake and tributary flooding in addition to water quality issues



Preliminary conclusions

Theme 3 (Flood response)

- The majority of first responders are satisfied with the level of information received
- Communication of flood information to the public
  - In the US, police and fire are most trusted but not most utilized
  - In QC, the public trust and rely mostly on municipalities' websites to get information. Local television is also used although less trusted than the government website.
- Municipalities like Saint-Jean-sur-Richelieu already have tools for forecasting, interventions and the safety of citizens
- Citizens understand they have a responsibility but may feel helpless to actually adapt or not understand well the risk (QC)
- Governance in place:
  - Importance of the Ministry of Public Security (MSP) in the network of organizations related to flood management (QC)
  - Strong central state in VT and NY; Counties in New York and Municipalities in Vermont

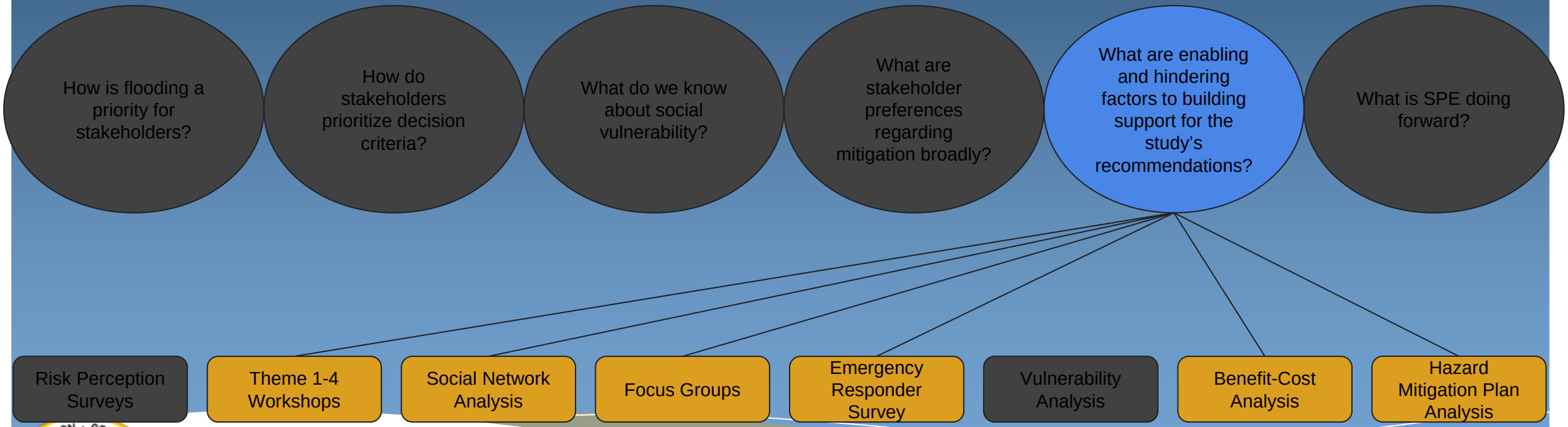


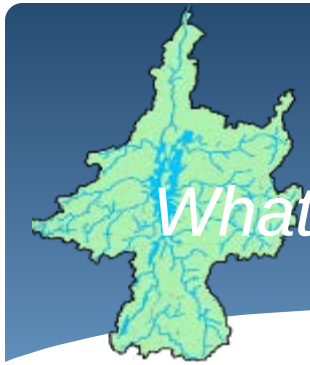
Preliminary conclusions

Theme 4 (Floodplain management)

- SPE data collection reveals importance of policies, building adaptation, backfilling
- Concern from 2011 floods and practice around flooding is evolving. New tools are available, policies are being adjusted, and mindsets are changing
- Recent floods in QC (2017 & 2019) have been a catalyst for change
  - SPE is following developments around policies, insurance, floodplain management and is taking these into account

What are the enabling and hindering factors to building support for the study's recommendations?





Preliminary Conclusions

What are the enabling and hindering factors to building support for the study's recommendations?

Hindering factors to adoption...

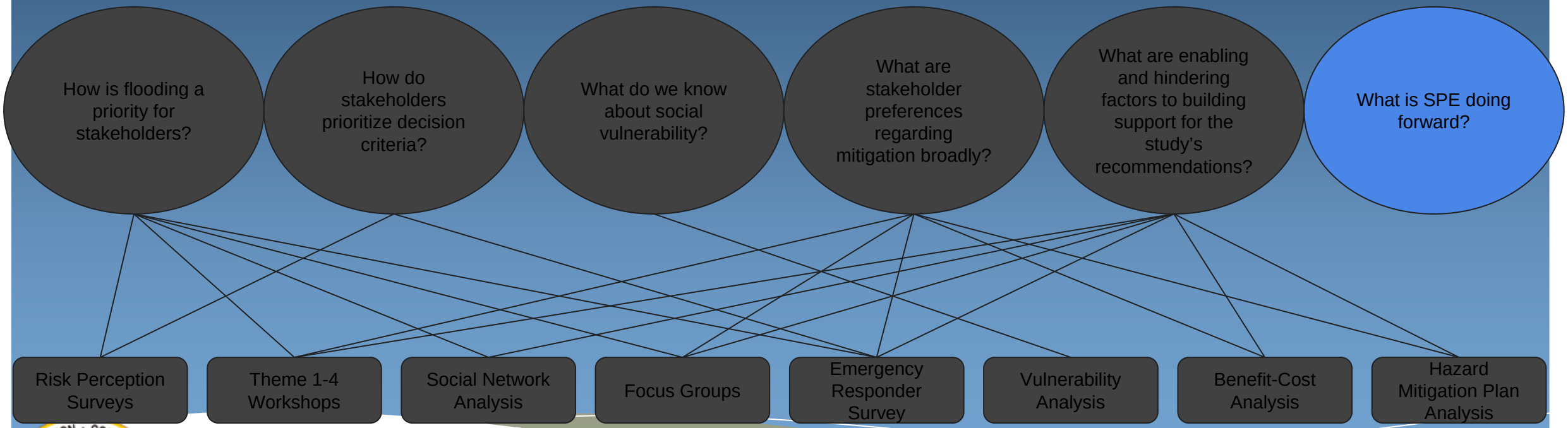
- Entrenched perspectives and positions;
- Frequent drought or other non-flood related climate/weather events;
- Shifting political priorities and distractions;
- Lack of consensus on problem definition;
- Real and/or perceptions of inequity in costs and benefits of mitigation measures;
- Sunk costs in prior flood management/mitigation measures.

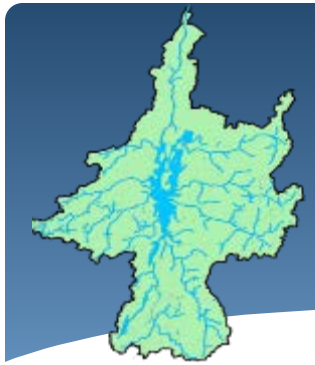
Enabling factors to adoption...

- Stakeholder pressure;
- Frequent flooding and other flood related climate/weather events;
- Political initiatives such as maximizing climate and resilience planning in flood prone areas;
- Media attention;
- Alignment between stakeholder concerns and mitigation measures, including those indirectly related to flooding;
- Minimization of negative unintended consequences.

Less Feasible ⟷ **More Feasible**

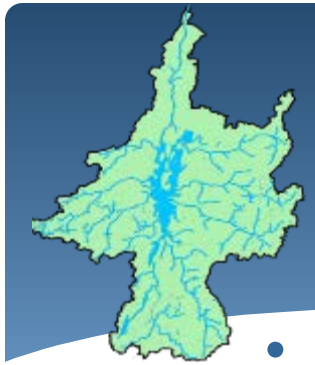
What is SPE doing forward?





SPE's Agenda 21

- Observation/data collection during webinars and meetings with the public and organizations;
- Involvement in the development of measures (Theme 3 and 4);
- Interviews on political acceptability of measures with organizations and elected officials;
- Analyze and provide recommendations, write Integrative report.



Key Messages

- Social, political and economic research provides new insights to guide decision-makers. The addition of SPE is novel and without precident;
- Social, political and economic context of flooding in LCRR is evolving as the study progresses;
- Differences exist among stakeholders in NY, VT and QC;
- Data illustrate a need for a shared vision of the LCRR social-ecological system among NY, VT and QC;
- No single solution exists and stakeholders emphasize need for diversification and integration of several measures;
- Heterogeneity of governance structures in place may inhibit or limit flexibility and innovation;
- Flooding is a basin wide challenge with unique local impacts;

Questions

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