

RACC Question 3

Adaptive Management of Complex
Governance Networks in the Lake
Champlain Basin

Question 3: In the face of uncertainties about climate change, land use and lake response scenarios, how can adaptive management interventions (e.g. regulation, incentives, treaties) be designed, valued and implemented in the multi-jurisdictional Lake Champlain Basin?

” Ineffective watershed governance networks may drive watershed to a relatively lower-valued stable state, just as effective watershed governance networks may induce watershed to a stable state that is valued relatively higher by society and policy makers.”

HYPOTHESIS STATED IN PROPOSAL:

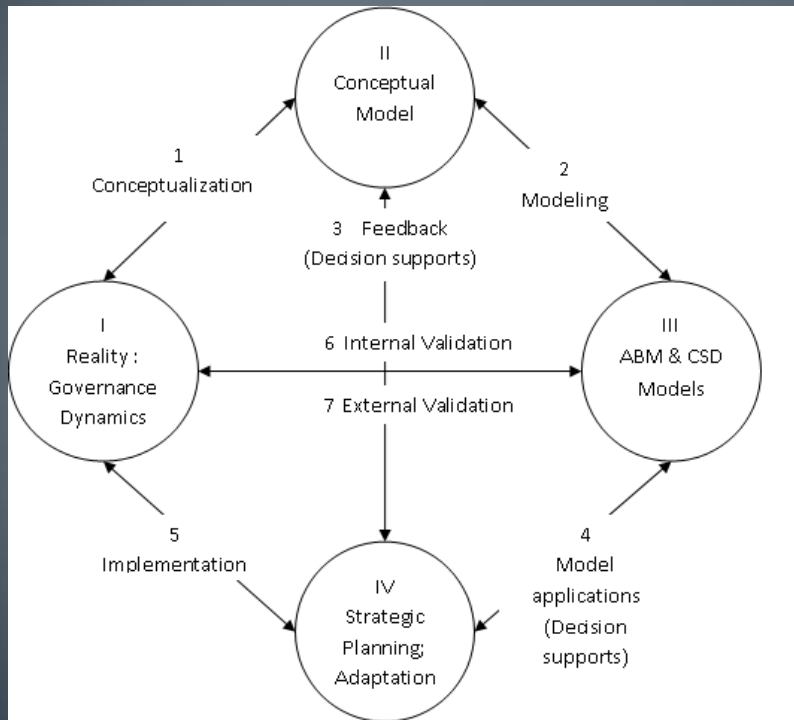
Under business-as-usual policy scenarios, societal actors in the Basin have limited adaptive capacity, and display inertia and lags in responding to climate-driven land use and lake response scenarios. In contrast, under sustainable policy development scenarios, societal actors in the Basin have enhanced resiliency, and overcome inertia and lags.

Adaptive management

Adaptive management is a systematic process for improving management policies and practices by learning from the outcomes of management strategies that have already been implemented. Adaptive water management aims to increase the adaptive capacity of the water system by putting in place both learning processes and the conditions needed for learning processes to take place.

Adaptive management requires a process of active learning by all stakeholders, and continuous improvement of management strategies by learning from the outcomes of implemented policies (Geldof 1995, Pahl-Wostl 2004, 2007).

Conjoint Modeling and Decision Support Processes:



		Degree of Consensus among Stakeholders	
		Low	High
Degree of Understanding of the System Dynamics	Low	Status Quo Typical result: Confrontational debate and no improvement	Mediated Discussion Typical result: Consensus on goals or problems but no help on how to achieve the goals or solve the problems
	High	Expert Modeling Typical result: Specialized model whose recommendations never get implemented because they lack stakeholder support	Mediated Modeling Typical result: Consensus on both problems/goals and process leading to effective and implementable policies

A Systems View of Problem Solving: Modeling for Decision Support
 (Adapted from: Mitroff et al., 1974)

Van den Belt, 2004, p.18

Mediated modeling

Mediated modeling helps to build consensus in small increments by finding common ground regarding the goal of the model, constructing a simulation model, and running scenarios to evaluate the desirability of the potential outcomes of various actions.

Goals of mediated modeling:

- Increase the level of shared understanding among the group
- Builds consensus about the structure of a complex topic and its dynamics
- Provides a strategic and systemic foundation or backbone for investing policy, research, or management alternatives
- Serves as a tool to disseminate insights gained by the participants.
(van den Belt, 2004)

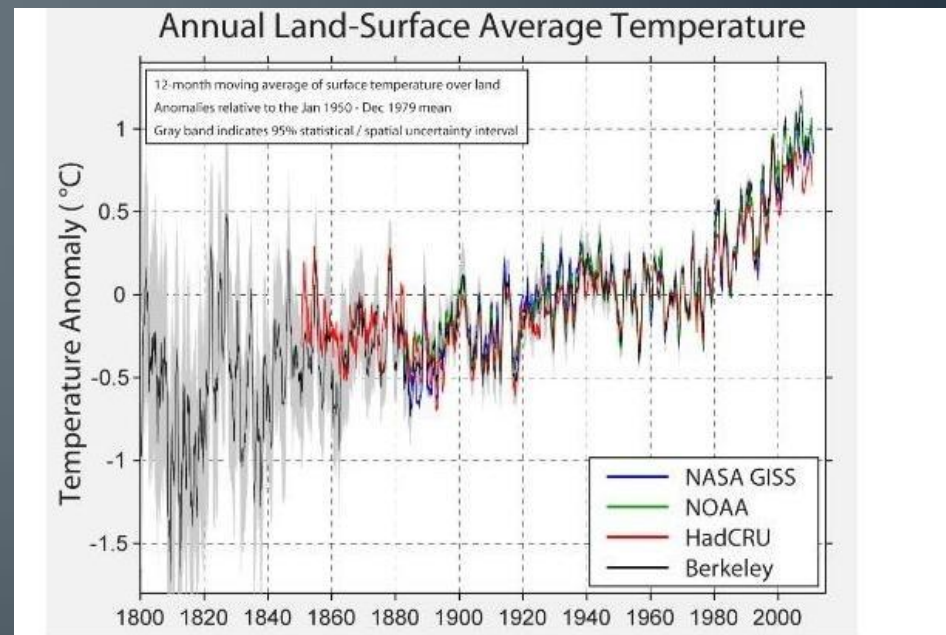
Mediated Modeling

- Climate change scenarios
- Generation of alternate scenarios
- Multi-criteria decision making to determine valuable adaptive management interventions
- Use to refine IAM model



Climate Scenario Storylines

- Develop a shared mental model of possible climate change scenarios
- Identify parameter ranges; categories of analysis
- Undertake with partners



Watershed Governance Models

"Over the course of the five years of the grant, [Watershed Governance] ABM(s) will be refined, validated and shared with the stakeholders during mediated modeling sessions. The decision rules and heuristics embedded in the ABM(s) will be modified as part of this mediation process until validated and calibrated ABM(s) are identified that simulate the BAU scenario by generating macro-level observed policy and socio-economic patterns from the micro-level decision heuristics and decision rules."

Governance networks

Governance: “The means by which an activity or ensemble of activities is controlled or directed, such that it delivers an acceptable range of outcomes according to some established social standard” (Hirst, 1997, 3).

Governance processes are shaped by: 1.) *Interdependence* between organizations. Governance is broader than government, covering non-state actors as well as state actors; 2.) *Continuing interactions* between network members, caused by the need to exchange resources and negotiate shared purposes; and 3.) *Game-like interactions*, rooted in trust and regulated by rules of the game negotiated and agreed by network participants (Rhodes, 1997).

Governance network as the unit of analysis: Relatively stable pattern of coordinated action and resource exchanges; involving policy actors crossing different social scales, drawn from the public, private or non-profit sectors and across geographic levels; who interact through a variety of competitive, command and control, cooperative, and negotiated arrangements; for purposes anchored in one or more facets of the policy stream. (Koliba, Meek & Zia, 2010)

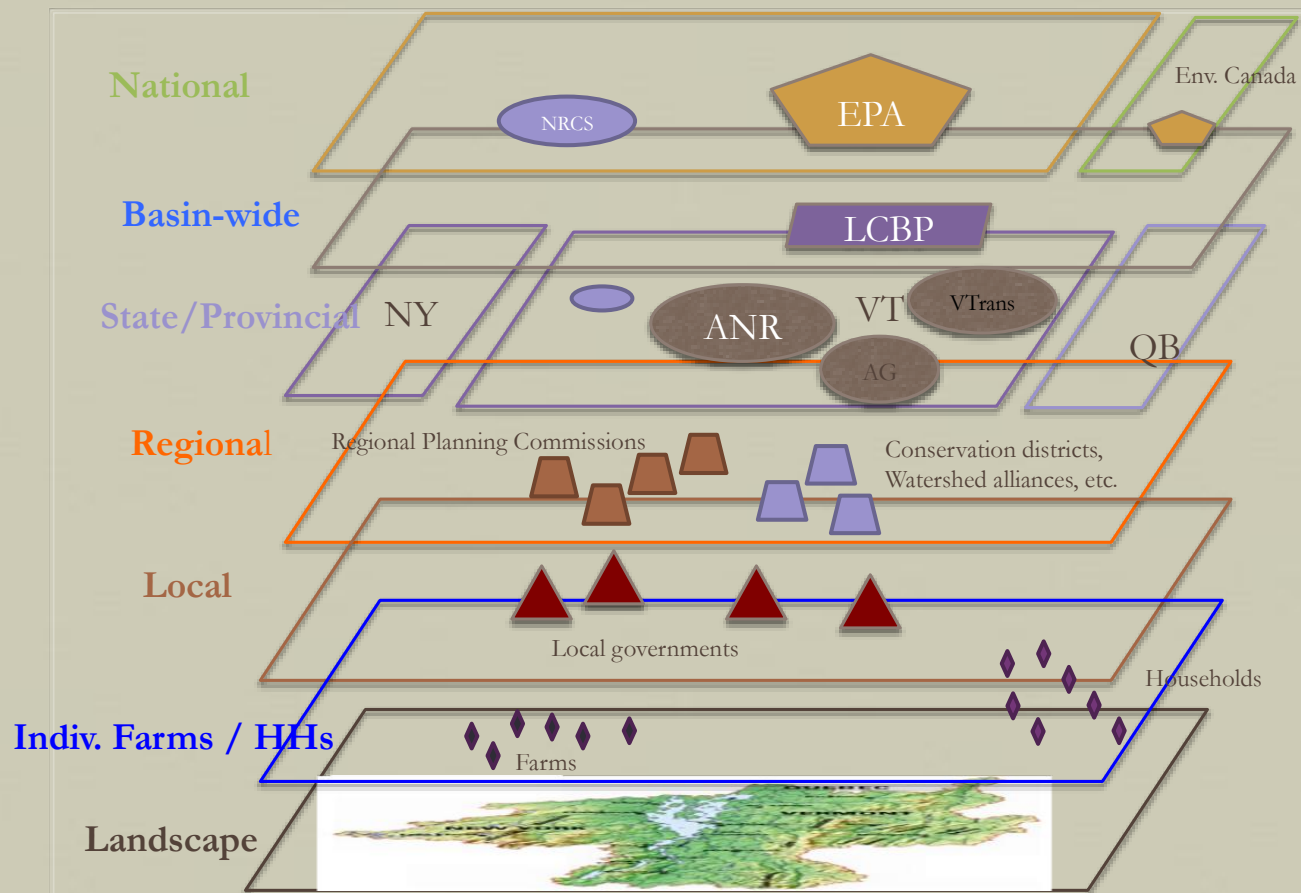


Figure 1. Initial Conceptual Model of Lake Champlain Watershed Governance

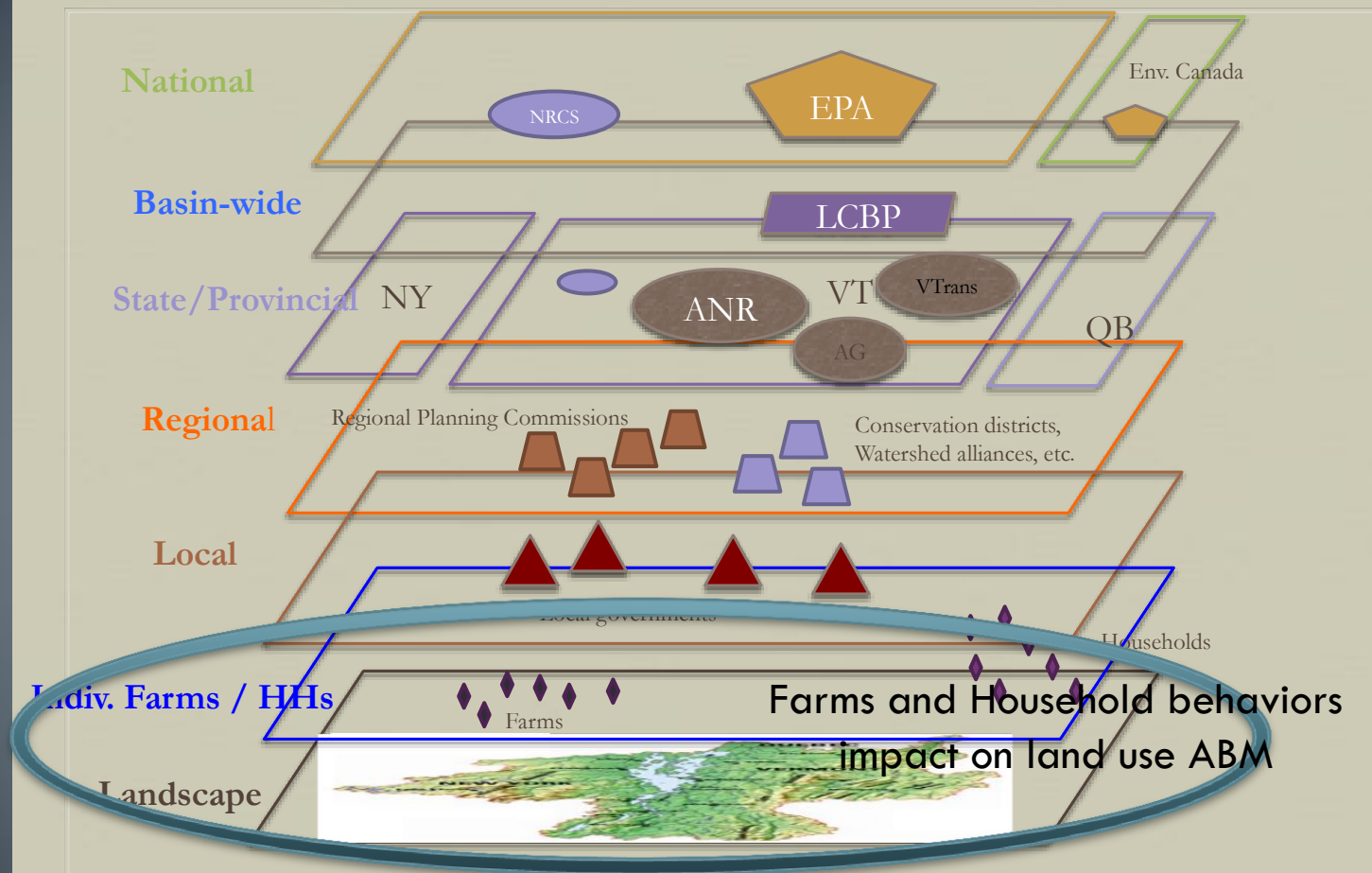


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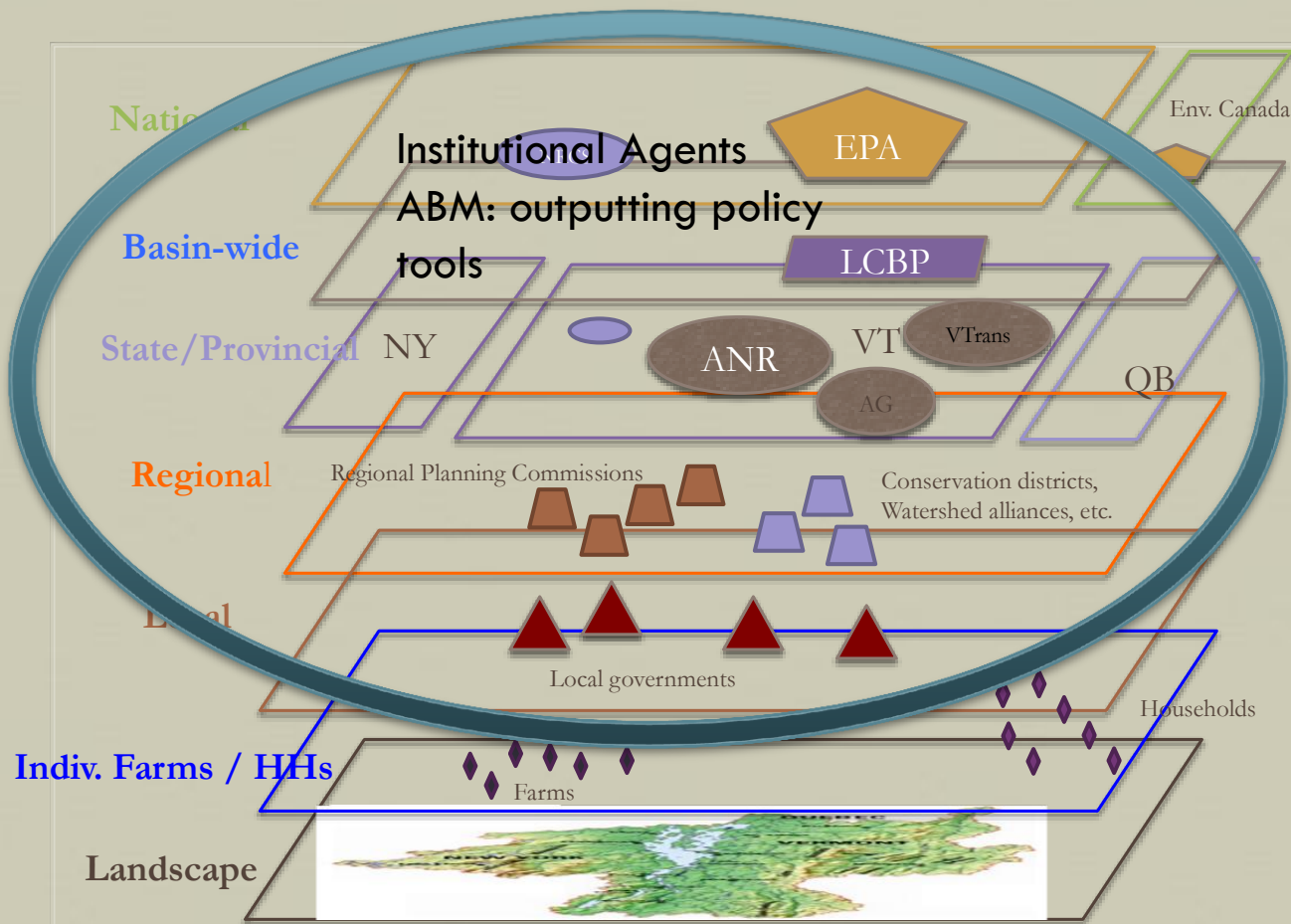


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Range of methods to be employed:

- Risk perception surveys
- Current practices inventory (ag.)
- Interviews
- Focus groups
- Meeting minutes
- White paper review
- Strategic plans review
- Policy implementation studies
- Historical documents review
- Newspaper accounts
- Website postings
- Inventory of environmental laws

Will be triangulated to track watershed governance policies and validate and calibrate the ABM design and produce a comprehensive picture of the evolution of watershed governance in the region. These methods include the analysis of survey data, participant observation, interviews and focus group analysis (138); qualitative comparative methods (139); as well as content analysis and source document analysis (140). These data will yield a detailed critical path analysis (141) of Basin governance activities since 1988."

Avenues for additional discrete project development:

- Agriculture
- Residential
- Transportation

Recent activities:

- Post doc recruitment (have offer out)
- Ph.D student recruitment (making progress)
- Preliminary data analysis commenced
 - Basin Program plans
- Outreach to stakeholders/stakeholder groups:
 - ANR
- Additional grants pursued
 - AFRI
 - UVM-food systems
- Meetings around specific topics being set:
 - Climate storylines
 - Tetra Tech
 - Climate Cabinet
 - Etc.