Recognizing that our Earth’s landscape and climate is continually changing, CARA is working with Adirondack Park stakeholders to understand what this might mean to them and what their options are, and to learn from this experience how to better serve other communities in the mid- and upper-Atlantic region of the United States.

Communities such as New York State’s Adirondack Park are sensitive to land use and climate change (New England Regional Assessment Group, 2001). Stakeholders - those living in, working in or otherwise connected with the Park – can be affected by these sensitivities. Stakeholders are numerous. They will be affected differently by the potential impacts of change. Stakeholders are a part of communities that regularly make choices and plans today with tomorrow in mind. Thus they have the potential to be proactive in enhancing their resiliency to changes.

CARA aims to help stakeholders understand potential impacts to their community and identify choices and actions now that might improve their ability to adapt to change in the future. Stakeholder participation is vital in understanding the issues and finding viable paths for shaping the future and enhancing community resiliency. It is the intention of CARA to make it easier for stakeholders to inform themselves and participate in local decisions affected by changes in land use and climate.

The Adirondack study - one of four ongoing case studies - is designed to show CARA researchers how to improve support to communities in assessment and decision making processes. We hope to learn how to improve the information, tools and support to stakeholders both in the Adirondacks and elsewhere in the mid- and upper-Atlantic region. The “Adirondacks” is a 6 million acre park located in Upstate New York. The land is approximately half privately and half publicly owned. Roughly 150,000 inhabitants reside in 103 communities surrounded by private and state land. There are 46 high peaks creating 5 water sheds. The Adirondack Park Agency was set up to develop the “master plan” for land use.
within the park and is particularly interested in wetlands and rivers.

The Adirondack case study also involves local stakeholder participation in essentially all aspects of CARA activities with the hope of learning how to foster collaboration, reduce conflict and barriers to communication, and foster credibility and trust. Together with our Adirondack participants we are seeking answers to the following questions:

- Which “sensitive” decisions and policies made now will have an effect on the quality of life in the Adirondack Park in the future?
- What needs to be done to enable citizens, leaders and others with a connection to the Adirondack Park to understand the issues and discern what is important with regard to changes in land use and climate?
- What needs to be done to improve the use of scientific information and collaborative decision making in the Adirondack Park?
- What needs to be done to enable Adirondack citizens and leaders to network and act?

This paper specifically addresses the efforts of CARA in the Adirondack Park to support broad-based community involvement now in decisions that will affect resilience to future changes in land use or climate. 1

We met with Adirondack stakeholders - including our local partners and several local authorities - in March, August and September, 2003, to initiate the Adirondack case study. During these meetings much of our attention has been focused on getting to know each other, developing a mutual understanding of the CARA project and the role of the case study, and building a local network of Adirondack stakeholders. The ten or so stakeholders we met with represent academia, special interest groups, local government and business, and citizens. It is expected that the network will grow in number and type of stakeholders involved. Local authorities include the Adirondack Park Agency, responsible for developing the “master plan” for the Park, and the Department of Environmental Conservation, responsible for implementing the master plan. An important partner in the case study is the Wildlife Conservation Society (WCS) which has had a presence in communities throughout the Park for 10 years. WCS is involved in numerous community outreach, education and capacity building activities. WCS takes on much of the on-site responsibility for CARA activities with stakeholders.

Changes in land use and climate matter to Adirondack stakeholders. In talking with stakeholders from the Adirondacks we learned that they are concerned about the future of natural land forms, natural resources, and the local economy. They are concerned about how changes in climate will affect their health and quality of life. We also learned that there are still substantial information gaps. Such gaps make it difficult to feel confident about making sensible choices now that will shape the future. While scientists are working to fill research gaps, the public and decision makers alike are ill at ease with

1 The introduction to this session, “Consortium for Atlantic Regional Assessment (CARA): Complex Coupled Systems” by Dempsey, R. and A. Fisher, gives an overview of CARA. It describes the interactive CARA website, its information, tools and guidance on understanding and using information – despite the uncertainties and gaps.
how to cope with the potential risks and large uncertainties involved. To encourage communication and ongoing public dialog about climate change and its impacts, to reduce conflict, fear and apathy, science needs to be more explicit about the uncertainties and risks involved. The Adirondack case study provides CARA with local input on 1) how to improve the dialog, 2) what information is needed and available local resources, 3) what works well to reach Adirondack stakeholders, 4) what matters most to stakeholders, and 5) how to reach others in the region. The case study also provides feedback on the interactive CARA website, which provides land use and climate information at a county level for the mid- and upper-Atlantic region, plus more detailed information (when available) for case study locations.

The potential changes in land use and climate in the Adirondacks have many facets. Change encompasses development within the Adirondack Park Agency’s master plan as well as extreme weather events, seasonal variability and long-term climatic change. The impacts have physical, ecological and socio-economic dimensions. Many changes will be measurable, but for some it will be difficult to measure the extent of their impact. An example of hard-to-measure impacts is changes to the “quality of life” there. There will be risks and uncertainties to address. There will also be a variety of actions that can be taken in response to expected or observed changes.

CARA researchers met with local stakeholders to discuss how changes in climate and land use could affect the Adirondack Park, and how they perceive opportunities and uncertainties. The discussion led to three basic concerns.

1. How can the Adirondack economic base be safeguarded?
2. How can the health, integrity and resilience of the natural resource base in the Adirondack Park be preserved?
3. How will the infrastructure of Adirondack communities respond and cope?

Making it manageable to consider all facets of change with within the context of local concerns requires selecting a small number of themes. With input from local stakeholders we have selected the winter economy and water. These two were chosen because they are sensitive to change and of interest to other communities in the mid- and upper-Atlantic region, and because both topics offer multiple opportunities to engage residents and visitors in local monitoring, in assessment, and ultimately in planning and decision making.

**Winter economy is a concern** because residents of the Adirondack Park depend heavily on tourism and recreation, which are sensitive to climate. Potential decreases in winter recreation are of concern because winter activities, incomes and the ability to provide government services are under stress.

**Water is a concern** largely because Adirondack Park tourism and recreation depend heavily on water (e.g., for the integrity and appeal of the ecology; community drinking water demand fluctuates because of summer tourism, stressing already vulnerable supplies). Management practices (e.g., salting and sanding of streets in winter) already affect water ecology in the Adirondacks (e.g.,
contaminating surface water and impairing fish egg development). Water and water quality can be affected directly by changes in climate and land-use (water availability due to changes in amount and timing of precipitation, water contamination due to increased waste disposal from additional summer homes or tourist accommodations). Compared to similar areas, the Adirondack Park is well studied and understood, giving an advantage in exploring linkages between water quality and environmental stressors due to changes in climate (and land cover).

Currently, graduate and undergraduate students are identifying the baseline conditions for key physical, environmental, and socio-economic factors. A further step will be to understand how the Adirondacks might evolve in the absence of changes in land use and climate. Then we will look at plausible scenarios for the Adirondacks with change and identify the potential impacts to both natural-physical and human systems.

The Adirondack case study is helping CARA define its tasks more clearly, especially related to opportunities for stakeholders participation. Tasks include providing information citizens need to understand the issues and a systematic approach for discerning what is important. They include providing support to stakeholders for understanding how to use information, how decisions are made, and how to work with others to make decisions and networking.

CARA’s commitment to engage stakeholders reflects CARA’s commitment to conduct science in the service of society. By engaging stakeholders early on and continually throughout assessment and decision making processes, researchers and community leaders learn what matters to the public (compare Beierle & Cayford, 2002). The intent is to make it more likely that public interests/values will be included in those decisions and plans with sensitivities to changes in land use or climate. The intent is to enable more meaningful presentations of science information to the public so it can be incorporated into public decisions. The intent is for the public to become more familiar and knowledgeable on the potential impacts to their community from changes in land use and climate, consequently less fearful and less ambivalent. By enabling the growth of credibility and trust among stakeholders, leaders, decision makers and scientists, conflict may be reduced.

In talks with Adirondack stakeholders it quickly became evident that to be useful the information, tools and support – the CARA website - must serve a broad spectrum of the Adirondack society including researchers, citizens interested in or sensitive to changes in land use or climate in the Adirondacks, people there who face decisions as part of their job, and communicators, educators and journalists. CARA should strive to reach everyone with a stake in the quality of life in the Adirondacks -- any person, group, organization or institution that might be affected by changes in land use or climate in the Park. CARA should serve decision makers who act on issues as well as individuals and communities who want to be informed about uncertainties, risks, trade-offs and planning options that matter to them.
Because no two communities are the same, communities within the Adirondacks may choose different ways to address potential impacts from changes in land use and climate. Instead of telling communities what they should do, CARA gives information and support so stakeholders can decide themselves. The Adirondacks case study engages stakeholders in addressing these questions in hopes of learning how to serve them and others better with information, tools and support.

**CARA’s goal for informing and involving stakeholders** in local issues sensitive to changes in land use and climate is to ensure that public issues and concerns are understood and considered consistently. CARA informs stakeholders through an interactive website containing information, analytical tools, a systematic approach to decision making and adaptation, and other resources and links.

**An interactive website** makes information, tools and a systematic approach accessible to stakeholders for conducting their own local integrated assessments and making decisions on matters that are sensitive to potential changes in land use and climate. Conventional handbooks, workshops and facilitators are used when such an approach is taken. But CARA does not have the resources to facilitate workshops over the entire region. We are modifying the handbook approach. On the CARA website we intend to lead users through guided inquiry linked to live web-based tools (and information resources etc.) where they are available. We also expect the CARA website to serve as a platform for collaboration among multiple stakeholders. We intend the CARA website to facilitate, build in tools, train, track, document… all in one. We do not suggest that the website can or should replace person-to-person based group facilitation, but that it could enhance a group’s ability to manage their own planning. (Obviously, to safeguard against misunderstanding and misrepresentation – as well as to preserve our own credibility – we must be explicit about the capabilities and limitations of our approach.) Furthermore, because the decision making process is such a feat in itself, CARA intends to enable users of the website to capture their outputs and track their efforts and wrap it up in an attractive, useful, presentable form for demonstrating it to others.

**Tools to help improve how information is used in decision making** are being developed. Currently the “decision making landscape” for the Adirondack Park is being mapped by a graduate student focusing on water quality and supply for the towns of Lake Placid and Wilmington along New York’s Ausable River. The idea of this analytical tool is to understand how decisions are made. The decision making landscape will include climate and land use forces, water resources, the community infrastructure and services, and the flow of water. It will show how the material side of things intersects with practices and cultural elements, the stakeholders, public policies, and the flow of information and science knowledge. It will be meshed with a decision making framework intended to make the current opportunities for public involvement, options and trade-offs, and response mechanisms more transparent. One such decision making framework is presented in the 1997 report by the Presidential/Congress Commission on Risk Assessment and Risk Management (available at: [http://www.riskworld.com/Nreports/nr7me001.htm](http://www.riskworld.com/Nreports/nr7me001.htm)) When stakeholders understand how things are done, it is hoped that it will be easier to uncover untapped potential as well as
identify innovative opportunities for improvement in water supply and quality, the way
decisions are made and how stakeholders are involved.

**CARA’s commitment to public partnerships in decision making** - identifying options,
deliberating trade-offs, and selecting the preferred solution – has necessitated the
development of a systematic approach to guide stakeholders through collaborative
decision making on issues sensitive to land use and climate change. CARA sees
Adirondack stakeholders as an essential resource for advice in implementing the decision
making approach on the CARA website.

**A systematic approach to decision making** makes transparent to stakeholders how to
map the decision making ‘landscape’ for specific places and issues, and how to walk
through it with specific concerns in mind. But such an approach does not indicate
precisely how to go about the nitty-gritty of decision making. It alone does not spell out
*which* questions are the priority ones for a specific community to address, *how* to get at
specific answers, and what to do when information is unavailable. Stakeholders seeking
adaptation strategies to changes in land use and climate are likely to require supplemental
guidance. To support and guide users of CARA, a guided inquiry process is envisioned
that is directly linked to a suite of tools and information resources. Guided inquiry breaks
the problem into more manageable pieces, divulges a thought process, enables
participants to *talk* through the reasoning process pertinent to a specific theme, in this
case land use or climate change. Furthermore, if the decision making process is to be a
collaboration among multiple stakeholders, then the process – the systematic approach -
must communicate this too. It must incorporate multiple perspectives and collaborative
problem solving and planning. It must help people find common ground and overcome
barriers to communication.

Crafting questions to guide inquiry is an art and a science. Fortunately we have a very
good basis on which to build. A University of Oxford initiative known as UK Climate
Impacts Programme ([http://www.ukcip.org.uk/index.html](http://www.ukcip.org.uk/index.html)) has generated such a list of
questions for guiding the inquiry process, based on ten regional assessments in the UK
over the last decade that were conducted with multiple stakeholders. It is a list of
questions derived from experience with the expressed intent to arrive at a common
solution by accommodating multiple “voices” for a common future – with adaptation to
climate change in mind. (There is a sample application of the guided inquiry in Appendix
1 of the UKCIP report.)

**Our current activities** focus on network building, baseline assessments, and outreach
opportunities. WCS is taking the lead on building the Adirondack stakeholder network
and identifying its needs. In early 2004 a meeting is envisioned between stakeholders,
WCS and CARA case study team members to determine which stakeholders need
representation in the group, update participants on CARA website activities and case
study progress, collect input and feedback on selected topics, and define the next steps.
We will be giving much attention to future stakeholder engagement and outreach
opportunities, the development of the Adirondack case study website component, and
developing a values map of stakeholder adaptation preferences.
We also shall be gathering information on data, resources and gaps for developing current baseline conditions of the Adirondack climate, land use, environmental quality and its socio-economic factors. Several students are conducting research to gain a baseline understanding of existing climate, land use and environmental quality conditions as they relate to the Adirondack economy. WCS will take the lead on generating a common list or database of existing relevant data sets for the Adirondacks.

Another activity addresses informing the public about the case study and outreach. We will consider printed publications, public presentations, other outreach activities, and the stakeholder network in addition to the Adirondack section of the CARA website. CARA is also partnering with Forest Watch!, an existing community-based program to help stakeholders make the link between our living landscapes and climate change. Forest Watch! participants study forest health and perform scientific monitoring that generates data. By interpreting the data, participants understand the relationships between forest health and sustainability, between forest health and long term consequences, and ultimately between forest health, decisions and wellbeing. Not only are the activities educational for the participants, the data and research generated on forest conditions is being shared with both scientific and local communities.

This past summer CARA supported the development of Forest Watch-based educational materials for use in Adirondack youth camps activities. We are considering whether we might expand this outreach activity next summer as well as to expand the public audience by targeting visitors to the Adirondacks at the three major Park visitor centers. While we might do some facilitating, we do not plan to train the teachers. Our facilitation would help to build more climate considerations into the Forest Watch materials.

We are optimistic that the Adirondack case study will give us valuable insights and input to ensure that our approach will be useful to stakeholders in the Adirondacks and in the mid- and upper-Atlantic region. We are optimistic that stakeholders who use the CARA website will be better informed about the impacts from changes in land use and climate on their way of life and able to identify adaptation strategies that will enhance resiliency to future change. We also hope that our approach will enhance the use of information and the participation of stakeholders in decision making on public issues, and that multiple stakeholders with multiple perspectives and agendas find ways to work together on issues that matter to them all.
References


