

The Future of WICCI

Introduction

In the three years that the Wisconsin Initiative on Climate Change Impacts (WICCI) has been working, we have made spectacular progress. Among our accomplishments are the following:

- Engaged more than 200 scientists, natural resource managers and decision-makers from more than 70 institutions across the state
- Raised more than \$3 million in new research funding
- Compiled detailed historical and downscaled climate data sets for the entire state
- Prepared the State's first assessment of the risks and opportunities presented by the ongoing changes in our climate.

With the February 2011 release of Wisconsin's first climate impact and adaptation assessment, WICCI will begin the second phase of its institutional existence. This white paper lays out some important considerations as we embark on our next efforts.

History

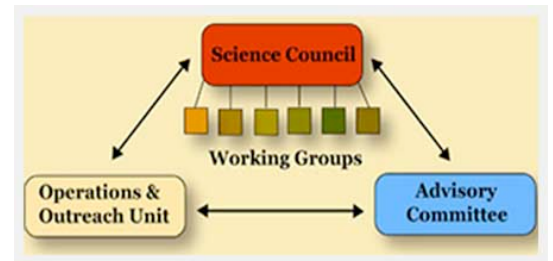
WICCI emerged from an important question asked by a state legislator and the serendipity of two state agencies recognizing the importance of building capacity to address that senator's concerns. The partnership that has grown up between the University of Wisconsin-Madison (UW) and the Wisconsin Department of Natural Resources (DNR) is a key to the success that we have achieved thus far.

The potential of this partnership was clear from the very first meeting in the summer of 2007. At this meeting the complementing expertise of UW and DNR scientists was clear and as the summer progressed, the ground work for a partnership was laid and a diagram was drawn to capture the integrating and boundary character of the effort we were trying to launch.

By the end of that summer we knew that we needed an organization that would:

- foster bottom-up development of scientific working groups that focus on particular aspects of climate impacts;
- ensure the quality of the work that the working groups produced;
- garner input from stakeholders from around the state; and
- provide infrastructure for logistics and outreach activities.

Early on we also recognized the need for a special working group that would focus on producing the best possible downscaled climate data sets and that "best possible" had at least two considerations. First our downscaled data sets should be rooted in global climate models that are heavily vetted by the global scientific community and our data products should reflect the uncertainty that exists in among the climate modeling community. Second, and perhaps more importantly, the outputs of our downscaling needed to reflect precisely the knowledge needs of decision-makers and managers; hence, the climate working group spent



significant time and effort, before they ever did a calculation, talking with people who we hoped would use our data to ensure that our first outputs would be those most in need.

Our initial modeling effort culminated in the release of the WICCI historical and downscaled data sets in the Fall of 2009. The historical data analysis calculated trends in the climate over the last 50 years and illuminated many of the climatic trends that we expect to continue in our region.

The downscaled data is rooted in the historical analysis and is available on an 8 km grid and for each of the 4 seasons. Results and analysis of this work can be found at wicci.nelson.wisc.edu

In the intervening time, our working groups have been using that data to explore their implications on a wide range of topics. The results of that work is our upcoming assessment report.

Now what?

We are now nearly the release of our first assessment of climate impacts for our state. With the completion of that project, we have the opportunity to embark on a new endeavor and to make adjustments to how we go about our work.

The climate group is continuing to develop climate projections and we are continuing to explore partnerships with other states beyond our own and with other entities within the state. Many of our working groups continue to use our data sets to explore the risks we face and to illuminate options available to decision makers from all walks of our society.

It is clear that there is still much work to be done with respect to both understanding potential impacts and translating that understanding into actions that reduce our vulnerability to the climate system. An example of the latter is the need for engagement at the township scale. Current downscaling techniques allow us to make useful statements about climate at physical scales that could be of use to townships and townships are often the relevant planning authority with respect to infrastructure that has depreciation times that are important relative to climate change.

In addition to the scientific and engagement work to be done, our growing success calls for increased institutional support and for the concomitant financial resources. Our startup resources have been drawn close to the bottom of the barrel and our in-kind contributions are wearing thin.

The remainder of this white paper lays out some of the challenges we face and suggests some frameworks for addressing them.

Mission Development

Within Wisconsin

With the completion of the assessment report, we are in a position to take on the challenge of using that report to help the citizens, communities and policy makers address the risks that they face as the air, water and weather of our state respond to changes in the global environment. As noted above, our current understanding suggests that tremendous leverage

can be gained at the scale of local communities and in decision-making that has implications over many years.

Many of our State's natural resource managers are already thinking about the implications of historical trends and projections of future conditions as they make forestry, wildlife and fisheries decisions. Hence one area where our efforts might be most beneficial is engagement at the township / community planning scale. The Science Council has noted that while we have a fairly well rounded portfolio of natural science working groups, we are not as well positioned with respect to the social sciences.

Questions we might consider:

- What expertise might we add to the Science Council to address the challenges of helping stakeholder groups use the report that we have compiled?
- What new working groups might we consider in order to best support decision-making related to climate-risk?
- What are the next steps for Wisconsin-specific working groups (e.g. Central Sands, Green Bay, Milwaukee)?

Beyond Wisconsin

As we have explored the development of WICCI's intellectual agenda, the ecological arbitrariness of state boundaries in our region has become clear. Our two Great Lakes neighbors share in large part our ecosystem characteristics and many of our economic and political characteristics. Climate group researchers are already working with groups in Michigan to develop climate data sets analogous to those upon which our report is based.

As part of our efforts to win a RISA grant, we have built a number of connections with research groups in Minnesota. In addition some of our working groups are also exploring collaborative efforts with the counterparts to the northwest.

Questions we might consider:

- What are our aspirations with respect to regional development of climate impacts studies?
- What are the best strategies for pursuing these aspirations?

Our Next Report?

Creation of our current report has taken tremendous effort on everyone's part. It was at this time last year that we formally set ourselves with the task, but it had been simmering in the Science Council for some time ahead of the formal charge to the working groups. These considerations dictate that such a report is not an annual affair.

We have often used the IPCC as an analog to what we trying to develop; IPCC issues reports on a roughly 5-year cycle. Similarly, the Federal authorizing legislation has in the past called for roughly 5-year reporting on the state of our nation's climate. The National Academy of Sciences has recently released the latest set of documents on that front.

Questions we might consider:

- Do we want to set a nominal time frame for updating our report?
- Do we want to coordinate the timing of our efforts with that of national and international bodies?

Institutional Development

Structure

WICCI's original structure, illustrated above, reflected the resources and challenges we faced at the beginning of our endeavor. At that time our primary task was to organize research groups that could shape the production of a climate data set and that could apply climate history and projections to priority management tasks within the state. It was clear that we needed advice from beyond our own knowledge communities and that we would need strong connections to institutions beyond those of our earliest partnerships; hence we carefully organized our Advisory Committee in hopes that they would guide us in choosing important problems and that they would provide us with wisdom from their unique perspectives. Finally, the Nelson Institute was able to bring some staff and other resources to the table that provided logistical support and a certain amount of glue to hold our efforts together as we gained momentum.

Out of this structure, a couple of things have emerged. The first is the creation and increasingly vital Outreach Committee. As suggested above, many of our challenges in the near-term look to be related to engaging a broad spectrum of decision makers in the application of our report; this is clearly the purview of the Outreach Committee.

The Advisory Committee has begun to assume an identity of its own, but with semi-annual meetings its progress is understandably slower.

In our original diagram, operations and outreach are lumped together. With the growing momentum of our Outreach Committee (OC) and the increasing importance of extension / outreach / engagement activities it may be time to consider separating Outreach and Operations in our operational images.

Funding

A huge element of our success to date has been the decentralized fund raising that the WICCI brand has facilitated. Flexibility with partner institutions and strong support from external funding agencies facilitated rapid expansion of our research effort. In addition, early success in capturing some internal UW-Madison discretionary resources to support the Wisconsin Idea has provided for UW staff support and flexible resources to fund conferences and meetings.

As we have grown, the need for coordination has also grown. Thus our funding challenges are two fold:

- Working groups need to continue to attract research funds from a broad portfolio of public and private sources;
- We need to find new sources to support the operations and logistics elements of our institution.

Governance

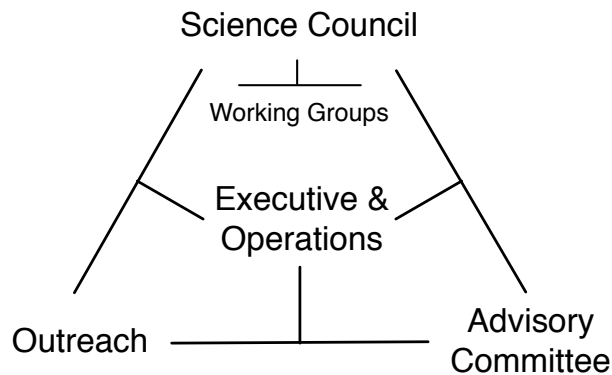
Up to this point, the Science Council (SC) has been the focal points of our institutional governance. The SC has developed a set of documents that guide its basic operations and it has functioned as our quality control agent.

While the SC formally oversees the working groups, those groups have functioned with large amounts of independence. Most have been formed from the bottom up. Even in topics where the SC pushed to address a need, working groups have developed autonomously once sufficient coercion had been exerted on the group leaders. SC oversight amounts to managing peer-review and providing an overarching framework to guide the work of the groups.

As outreach becomes more important to achieving our goals and as our working group enterprises grow more complex through regional partnerships, more tasks and decisions will arise that call for management beyond the scientific purview of the SC.

Questions to Consider:

- What is the best way to manage the continued growth and evolution of WICCI?
- Should we consider modifying our institutional structure to enhance the prominence of outreach in our efforts and respond to the growing need for management and clear executive function (e.g. something like the figure below)?



Conclusion

In a very short time WICCI has become a nationally recognized model for climate impact studies. With the publishing of our first assessment report, we pass an important milestone and have an opportunity to reflect upon and adjust our operations and mission. The summit on 8 Feb 2011 provides an important opportunity to gain feedback and to set the stage for future deliberations. This short report outlines a few of the things we might talk about at that time.