Testimony of Lynne M Carter, Ph.D.
Co-Director, Adaptation Network

before the
Senate Committee on Commerce, Science, and Transportation

on
The Global Change Research Improvement Act of 2007

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Mr. Chairman (Senator Kerry) and distinguished Members of the Committee, thank you for your invitation to testify. I am here to strongly support the Global Change Research Improvement Act of 2007 and will center my remarks on where I believe the present day Climate Change Science Program could see improvement in both research focus and communication of results.

My perspective as the former liaison to the regions for the first US National Assessment and the co-Director of the Adaptation Network on improvements to the federal climate change research program, is that regions and local areas are where the impacts of climate changes are felt most and where adaptations will be required. Therefore, I am highlighting four areas of improvement to the federal climate change research program: 1) regional and locally relevant research needs to be undertaken, and the scale of the research must match the scale of the issue for the region; 2.) regional and locally relevant information (not just data) needs to be generated and distributed; 3.) regionally relevant assistance must be available to help regional and local decision makers make use of the information in appropriate ways including identifying and assessing adaptation options; and 4.) a formal mechanism must be established to provide for regular dialogue between regional and local decision makers and federal research planners to identify regional and locally relevant research needs.

To have a more effective communication plan for research findings to be useful to regional and local decision makers would require: a synthesis of information from many sources; delivery of information at appropriate scales for decision making; a delivery mechanism for useful and useable information; and the climate information must be within the public domain, available to all who need it and not just those who have a great deal of expertise or are able to afford it – this could be an important equity issue. All of these facets of a communication effort could be included in a program such as a cooperative extension service for climate.

The basis for my proposed regional approach to improve the federal climate change research program stems from the fact that the regional mosaic in this country is rich and distinct. Working with the 20 regions as the regional liaison for the first US National Assessment, it became increasingly clear to me, that there were some issues where many regions had similar concerns. Also, there were some issues that were completely regionally unique, and only one issue that all regions had in common. That one common issue was water (fresh or salt). However, while water may be a common concern to all regions of the nation, each region still has particular regional water issues and will need to consider appropriate adaptation options. Examples (examples taken from the *US National Assessment of the Potential Consequences of Climate Variability and Change*) of the range of issues around the theme of water follow:

• The Midwest region's water issues related to likely reductions in lake and river levels and the resulting impacts to water supply, water quality, water-based transportation, hydropower generation, recreation, and major changes in freshwater ecosystems.

• Western regional water issues revolved around changes in water resources and that included both concerns about possibilities around too much water (flooding) and too little from such as early spring run-off resulting in summer droughts.

• Alaska water issues included concerns around thawing permafrost and melting sea ice and the resulting impacts of increased erosion, landslides, and sinking as well as impacts of larger storm surges on coastal villages and marine ecosystems.

• Island water issues included impacts on freshwater resources through sea level rise and salt-water intrusion, along with possible droughts and floods and the resulting impacts on tourism, agriculture, fish processing, urban/municipal users, and natural ecosystems.

So averages and broad-brush results as currently being produced do not adequately reflect the rich mosaic of regions and localities in this country, nor do they reflect the variety of perspectives or information needs even on what seems like the same issue.

In terms of useful communication of research results, I would like to focus on an example to show how important it is to have the scale of the climate issue needing to be addressed match the scale of the climate information available to address that issue. The data are taken from the NE Regional Assessment and the example is mine.

The NE region included all of the six NE states and upstate New York. The annual precipitation in the region has increased on average nearly 4% between 1895 and 1999. If we were to tell any planner in the region to be ready to accommodate an increase in precipitation of about 4% in their planning efforts, all of their plans would be incorrect, because the scale of the information that we gave them did not match the scale of the region that they were planning for. If you drill into those data even just to the state average level you will find that a planner in Massachusetts would really have been subject to an increase of probably closer to + 30% and one in Maine would have been subject to a decrease of more like - 12% over that same time period. Recognizing that all future projections have a level of uncertainty in them, efforts to provide the decision maker with more appropriately scaled regional climate change information – information that is as close as possible to their planning areas - should be an integral part of any federal climate change research program. Accomplishing this would not only enable the decision maker to be more effective in planning and adapting to climate change, but it would also improve the effectiveness of this important federal research program.

Thank you again for this opportunity to testify. I would be glad to answer any questions Members of the Committee may have.