TESTIMONY OF
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***PREVIOUSLY (APRIL 2, 2002 – MARCH 30, 2006):**

ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE
U.S. DEPARTMENT OF COMMERCE;

DEPUTY ADMINISTRATOR OF THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; AND

DIRECTOR, U.S. CLIMATE CHANGE SCIENCE PROGRAM

BEFORE THE
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
OF THE
COMMITTEE ON SCIENCE AND TECHNOLOGY

U.S. HOUSE OF REPRESENTATIVES

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2:00 P.M.

ROOM 2318
RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC

Chairman Giffords, ranking member Inglis and members of the subcommittee: thank you for your invitation to address the subcommittee today on the important issue of "***Reorienting the U.S. Global Change Research Program toward a user-driven research endeavor: H.R. 906.***" I am James R. Mahoney, and I currently serve as an environmental consultant, providing scientific and professional advice to a number of organizations. From April 2, 2002 to March 30, 2006 I was Assistant Secretary of Commerce for Oceans and Atmosphere, and Deputy Administrator of the National Oceanic and Atmospheric Administration (NOAA). During this period I was also the Director of the U.S. Climate Change Science Program (CCSP), involving 13 federal agencies conducting and overseeing total annual budgets of approximately $2 billion dedicated to scientific research, earth system observations, computer simulations of future climate conditions, and evaluation of possible adaptation and mitigation actions to address climate change. I reluctantly retired from my federal appointment approximately one year ago because of continuing significant health problems.

In 1966 I received the Ph.D. degree in meteorology from MIT, with a specialization in geophysical fluid mechanics. Since that time I have had over 40 years continuous experience in science-based environmental management, including service on the faculty of Harvard University, advisory assignments with national government agencies and international organizations in several regions of the world, extensive private sector environmental assessment and design work, and two appointed positions with the U.S. federal government (involving overall management of national acid rain studies from 1988 to 1991, and climate science studies from 2002 to 2006). A resume summarizing my experience is in Attachment 1 to this testimony.

In response to Chairman Lampson's letter of invitation, my testimony today provides my views about H.R. 906 from the specific perspective of my experience as Director of the U.S. Climate Change Science Program from 2002 to 2006. Also I make recommendations about other, supplementary issues that the subcommittee may wish to consider during its continuing consideration of H.R. 906.

A. Overall comments:

1. **The Global Change Research Act of 1990 is in need of significant updating**. H.R. 906 is a good start. In its final version it would be helpful for the revised law to reflect the goal of expected significant improvements in the coverage and level of detail available in climate information, and to call for major upgrading of the expected uses of climate information (measurements, analyses and projections) for the development of **climate services**, which will be the principal actions expected to be undertaken by climate information users.

2. **A proper balance should be sought between ongoing climate research on the one hand, and developing assessments and decision support applications on the other hand**. H.R. 906 is on the right track in its emphasis on enhancing the importance of user initiatives and applications studies in the development of overall climate research planning. However, it would be highly damaging to the international efforts to better adapt to, and mitigate the effects of, extreme climate phenomena if the support for exploratory research were deeply diminished prematurely. While an improved consensus about the core question of human-caused climate change has emerged in recent years, very little is currently well understood about many climate phenomena that pose great risks for a large number of human and ecosystem populations around the world. Examples of poorly understood current climate issues include, among others, abrupt climate change, regional variability of climate parameters, climate-ecosystem interactions, and the (new) levels of extreme weather conditions that may occur as a result of changes in global, regional, and local climate patterns.

3. **H.R. 906 appropriately addresses several requirements in the U.S. climate research program that currently need improved resources and activities**. These improvements (compared to the provisions of the 1990 Act, and compared to the practices that have emerged in the 17 years since the adoption of that Act) include (1) a more specific requirement for significant stakeholder engagement in research planning and in the use of the climate information being developed, (2) a clear requirement for sophisticated information management to address the massive amount of new climate data currently being collected, and the further expansion of these data sets that will come on line in the next few years, (3) a clear mandate to develop policy analysis methods capable of making appropriate use of the large investment in climate information.

A. Structure and Resource Comments:

1. **H.R. 906 does not specify a mechanism for funding the expanded program responsibilities envisioned in the bill.** A multiple-agency program is still the most effective approach, but more legislative structure would better clarify individual agency roles**.** The multiple-agency organization of the program makes sense, although there should be more careful delineation of roles between agencies that are predominantly research oriented (e.g., NSF, NASA, DOE, parts of NOAA) and those that are mission-oriented and thus key user stakeholders. This will streamline certain types of decision making. A "user council" or similar body should be created and empowered to provide input on directions and also provide funding for user-oriented programs and products.

2. **There is a need to assure the independence of the science while providing for committed overview by the politically appointed management of the collaborating agencies.** The CCSP activities initiated in 2002, including the 10-Year Strategic Plan for CCSP published in July 2003, have provided a highly useful framework for all CCSP studies. It is now timely to reevaluate and update the major elements of the 2002 – 2003 research plan. Regular ongoing involvement of the National Academy of Sciences should be continued. This continuous review function has been placed under a long-term contract basis between CCSP and the Academy, and should be maintained.

3. **A stronger role for OMB should be mandated in H.R. 906 to facilitate budgetary coordination across the agencies.** CCSP has been reasonably successful in achieving interagency research coordination, but after the passage of five years it would be an appropriate time to assure the independence of the climate research program by providing for a direct role for OMB in the oversight of the multiple agency program.

4. **H.R. 906 should provide the program with two budget lines under the control of the interagency committee of the whole.** One set of resources would be used to fill gaps and generate new research thrusts that are difficult to support through individual agency mechanisms and for which there is a clear need. A second set of resources would be used to support regional or national assessment and decision support activities.

These funds could be awarded on a competitive basis but would require a collective decision on the part of the interagency process to be released.

5. **The role of and funding for a coordination office should be explicitly included in the legislation**. This funding should not be taken out of research funding. The current practice of "taxing" research funds to support overall program coordination activities has historically resulted in under provision of resources for the coordination and management function. My experience over the past several years suggests that an adequately funded program coordination office is essential. With a growing emphasis on the coordination of assessments and decision support studies, even more "cross-cut" management will be needed, and the funds for this type of program integration must be assured.

B. Other Important Suggestions

1. **Unreasonable timetables are currently specified by H.R. 906.** The current draft bill calls for five separate reports to be completed within one year of enactment. These include a new strategic plan, a policy review, a vulnerability assessment, a data management plan, and an annual report. Given the need for extensive multiple-agency drafting and review actions, as well as other reviews by user groups and the scientific community, in my view it will be impossible for the program to produce quality documents in all of the specified categories within a one-year time frame. I suggest that the time for delivery of this first set of information be extended over two years or more.

2. **An overall communications strategy should be included in H.R. 906.** Based on my personal experience as director of the national acid rain assessment program in the late 1980's and as director of CCSP for four years recently, I earnestly recommend that responsibilities for communication and education activities be incorporated into H.R. 906. Without a clear mandate for such activities, it is almost impossible to obtain approval for communications and education activities in the President's budget. And without support for communications and education activities, the efficiency of transmitting climate change information to potential users throughout the nation will be seriously diminished.

3. **The assessment reporting requirements in H.R. 906 should be coordinated with other national and international climate reporting cycles already established.** The IPCC Fourth Assessment is currently being completed, and will likely be followed by a Fifth Assessment six years later *(i.e.*, in 2013). During approximately a two-year period of drafting and review for the IPCC assessment, the U.S. climate science community will be heavily engaged in the IPCC international assessment. I recommend that the summary assessments specified in H.R. 906 be placed on a six-year schedule (at least after the first edition), and the schedule for the U.S. assessments be offset by approximately three years form the delivery dates for the IPCC reports.

I trust my suggestions offered here may be useful to the subcommittee, and I would be pleased to respond to any questions that you may have. Thank you.

ATTACHMENT 1.

RESUME

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Education

LeMoyne College, Syracuse, NY: B.S., Physics, *Magna cum Laude*, 1959

MIT, Cambridge, MA: Ph.D., Meteorology, 1966

Professional Experience

2002 – 2006 (March): Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy Administrator of the National Oceanic and Atmospheric Administration (NOAA). Also served throughout this period as Director of the U.S. Climate Change Science Program, involving the combined work of 13 federal agencies with an annual program budget of approximately $2 billion.

1999 – 2002 (March): Environmental management consultant serving U.S. and international clients. Topics included insurance recovery for environmental damages, and technical analysis of regional air quality and haze patterns.

1991 – 1999 (July): Senior Vice President of International Technology Corporation, a $1+ billion international engineering and construction company pursuing a broad technical specialty environmental business, combined with field construction activity dealing with restoration of contaminated soil and ground water. From 1997 to 1999 also served as President of the Consulting and Engineering Division of the corporation, responsible for a $200+ million technical business. Also from 1997 to 1999 served as Chairman of the Board and responsible corporate officer for Landbank, Inc., a wholly owned subsidiary addressing the brownfield market by restoring and redeveloping contaminated commercial property sites.

1988 – 1991 (January): Director of the National Acid Precipitation Assessment Program (NAPAP) involving six federal agencies with a combined federal budget of approximately $100 million annually. The position was in the Executive Office of the President, during the final year of the Reagan administration and during the first two years of the administration of President George H. W. Bush.

1987 – 1988 (February): Environmental management consultant serving U.S. and international clients. Topics included environmental management government

organization planning for Saudi Arabia, and environmental permitting issues for large Kraft paper plants.

1984 – 1987 (February): Manager of the Environmental Industries Center of the Bechtel Group, Inc. The Environmental Industries Center addressed environmental compliance, planning and engineering matters for Bechtel's major domestic and international clients.

1983 – 1984 (January): Environmental management consultant serving U.S. and international clients. Topics included strategic planning for a large environmental engineering firm, and comparative studies of international environmental regulations.

1968 – 1983 (September): Co-founder and Senior Vice President of Environmental Research & Technology, Inc. (ERT). ERT began as a start-up in December 1968 and by the late 1970's it had grown to become the largest environmental specialty firm in the United States, with offices and laboratories located throughout the United States combined with a substantial international business operating in several countries in both the developed and developing world. Also served as President of ERT International, Inc., a wholly owned subsidiary responsible for ERT's international business from 1975 until 1983.

1966 – 1973 (June): Assistant Professor and Associate Professor (from July 1970) in the School of Public Health at Harvard University, specializing in environmental health management. During the period from December 1968 through June 1973 I served in two positions: the faculty position at Harvard and the Senior Vice President position at ERT, Inc. (see above).

1962 – 1965 (December): Graduate research assistant in the Department of Meteorology at MIT.

1959 – 1962 (June): Graduate student at MIT, supported by fellowship grants.

1956 – 1959 (June): Laboratory assistant and lecturer in the Physics Laboratories at LeMoyne College.

<u>Honors</u>

2006: Awarded the U.S. Department of Commerce William C. Redfield Award for outstanding public service, presented by Commerce Secretary Carlos M. Gutierrez.

2002: Confirmed by the U.S. Senate (following nomination by President George W. Bush) to be Assistant Secretary of Commerce.

1990: Elected as a Fellow of the American Meteorological Society.

1990: Awarded the U.S. Department of Commerce Gold Medal for outstanding accomplishments as Director of the National Acid Precipitation Assessment Program, presented by Commerce Secretary Robert A. Mosbacher.

1989: Elected as President of the American Meteorological Society.

1985: Selected as one of a group of four inaugural Bechtel Fellows from a worldwide population of 100,000+ Bechtel employees.

1973 – 2006 Served as member and co-chair of several committees and boards of the U.S. National Academy of Sciences

1959: Selected as a Danforth Graduate Fellow in a national competition among college seniors.

1955: Valedictorian of high school graduating class (Christian Brothers Academy of Syracuse, NY).