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Hearing on
“The Role of Science in Environmental Policymaking”

Committee on Environment and Public Works,
U.S. Senate

September 28, 2005

Thank you Mr. Chairman.

Tomorrow it will be one month since Hurricane Katrina made landfall on the Gulf Coast. The suffering caused by this storm is well known, but no less tragic for being so. Today countless thousands of Americans grieve relatives lost in the storm, and many more search for ways to restore shattered lives and livelihoods. As we join together as a nation to rebuild this region, our thoughts and prayers are with them all.

Many observers have characterized Katrina as a defining moment in our nation's history. Former Speaker Newt Gingrich said the impact of Katrina will be “30 to 100 times bigger than 9/11,” arguing that the “after effects of this extreme disaster will last longer and be more complex than any domestic event since World War II.” Commentators have focused on the importance of this event to race relations, anti-poverty programs, the federal budget, homeland security and more.

Then, this past weekend our Gulf Coast was struck by another storm. Hurricane Rita was smaller and less powerful than Katrina, but only by comparison to its predecessor could Rita be considered a minor event. More than three million people were evacuated from their homes, causing traffic jams that stretched for more than one hundred miles. The full death toll is not yet known but, including fatalities that occurred during the evacuation of Houston, appears to number at least 30. The governor of Texas estimates damages exceeding \$8 billion in his state alone.

Your hearing, Mr. Chairman, is timely. The two hurricanes that struck our nation in the past month raise important questions about science policy, environmental policy, and the intersection between the two. How can we better predict natural disasters of this kind? Will our response to Katrina be shaped by the best available science? What forces of global change shaped these two disasters, and what impact will these forces have in the years to come?

Because these questions are so important, today I am recommending the Senate ask the US National Academy of Sciences to examine them. Specifically, I recommend the Senate ask the US National Academy of Sciences to conduct a major new study on extreme weather events, including hurricanes, droughts and floods. The report would assess the state of scientific knowledge in several areas, including (i) our ability to predict extreme weather events and how that ability might be improved, (ii) the causes of extreme weather events, both natural and anthropogenic, (iii) land restoration in the Mississippi Delta, both as part of the response to Katrina and to protect against future storms, and (iv) human health and other risks related to the clean-up of toxic chemicals released as a result of Katrina. This study should be done in phases, with an early product intended to help guide immediate recovery efforts in the Gulf Coast region, and then an ongoing and more comprehensive program.

Today I will touch briefly on several questions raised by Katrina and Rita, and then on questions of science and environmental policy more broadly.

1. Katrina, Rita and Sound Science

Sound science should guide all government policy, including in particular matters as consequential as our response to Katrina and Rita. Among the areas that require priority attention are:

A. Improving our ability to predict extreme weather events

More than 100 years ago, on September 8, 1900, a Category 4 hurricane blasted into Galveston, Texas. In an era before satellites, airplanes or modern communications, the population had scant information about the fury arriving over warm Gulf waters. Eight thousand people lost their lives.

Today we take for granted our ability to watch storm clouds gather from satellite photos beamed to our living rooms. We expect government agencies to provide advance warning of impending danger. But we should not be satisfied with our current predictive powers. Rapidly improving information and communications technologies can steadily improve these powers, preventing property damage and saving lives. New data on ocean currents, for example, may help us predict weather patterns and even project the paths of hurricanes with greater confidence than today.

Nor should our quest be limited to hurricanes. This summer, new heat records were set in more than 200 U.S. cities. Drought has been a chronic problem for several years in the American West. In 2004, more than 1700 tornadoes struck the United States, by far the most ever recorded in a single year.

Much more work is needed to develop the capacity to predict such events and better understand the forces causing them. Generations hence, our current

abilities to predict extreme weather may seem as quaint and outmoded as those from 1900 do today.

B. Land Restoration in the Mississippi Delta

Wetlands have been called nature's "speed bumps," protecting coastal cities from waves and storm surges. But Louisiana's wetlands have been receding for decades, largely because levees on the Mississippi River send silt-rich waters away from marshlands and directly out to sea. No restoration program can succeed without strengthening the natural buffer that protects New Orleans and other parts of Louisiana from the next hurricane.

Although a regional plan called Coastal 2050 was developed several years ago, new work is needed to understand the implications of Katrina and Rita on the projects proposed and – critically -- to set priorities. Furthermore, the rebuilding of New Orleans will raise very challenging questions. Can enough fill be found to raise the level of whole neighborhoods? Would such fill be stable and safe? These and other questions require the expertise of a team of national and international experts from diverse disciplines.

C. Toxic Clean-Up

The clean-up challenge in New Orleans is unprecedented. Experts have advised residents to exercise extreme caution in returning to flooded homes, in part because of contaminants that may have settled out of still waters. E coli and fecal coliform are the best understood, but other contaminants may also threaten health and safety. At one site within New Orleans, a Superfund site was covered in several feet of water and may have leached toxic chemicals. Oil spills throughout the region rival the Exxon Valdez oil spill in total volume.

The clean-up will involve not just extraordinary resources, but difficult choices. Decisions will need to be made about steps to protect human health and safety, to restore damaged ecosystems and to re-open and rebuild parts of Louisiana's devastated sea food industry. These decisions must be informed by the best available science. Current resources within the federal and state environmental protection agencies are insufficient and should be supplemented with outside expertise.

D. Responsibly Addressing Global Warming

Today, there is ample evidence that heat-trapping gases from human activities may produce more powerful hurricanes. We should proceed responsibly with respect to this risk, steadily improving our knowledge and shaping smart policies in response.

Much is already known on this topic. Heat-trapping gases from human activities – mainly the burning of fossil fuels -- are warming both the atmosphere and oceans. As sea surface temperatures rise, average hurricane strength is predicted to increase as well. These predictions are consistent with observations from the historical record. During the past 30 years, as the total number of hurricanes globally has remained roughly constant, the percentage of Category 4 and 5 storms has nearly doubled. In our hemisphere, during this period, peak wind speeds of hurricanes have increased by roughly 50%.

There is no way to determine whether any single hurricane is or is not the result of global warming. However, when it comes to the intensity of hurricanes, we are starting to play with loaded dice. Most experts expect that, as heat-trapping gases build in our atmosphere, the average hurricane will become more intense.

These observations are especially troubling because, according to many experts, Atlantic hurricanes will likely be more frequent in the years ahead as a result of natural cycles. Hurricanes in our hemisphere appear to fluctuate on a multi-decadal basis – they were more frequent during the 1950's and 1960's, dropped from the early 1970's through mid-1990's, and have climbed in number since then.

Thus, in the years ahead the United States faces a double threat -- more frequent hurricanes due to natural cycles and more intense hurricanes due to human activities. This is a risk we ignore at our peril.

Today, there are no federal controls on the major heat-trapping gases, although the Senate supported such controls in a resolution this summer. As the Senate considers how best to translate this resolution into legislation, it should be informed by the best available scientific evidence concerning risks from extreme weather events and global warming.

2. Recent Developments in the Role of Science in Federal Environmental Policy

Sound science is central to wise environmental policymaking. Our major environmental statutes all contemplate expert scientific and technical analyses as the prerequisite for federal government action. That analysis must be objective and unbiased. As the chair of this committee, Senator James Inhofe, has said: "Scientific inquiry cannot be censored – scientific debate must be open, must be unbiased and it must stress facts rather than political agendas."

Unfortunately, the past few years have not been a happy time for the role of science in federal environmental policy. Last year, 48 Nobel laureates and 62 National Medal of Science recipients were among the more than 4,000 scientists who signed a statement expressing concern about the "manipulation of the process through which science enters into [the federal government's] decisions."

Among the specific matters noted in the scientists' statement were several relating to environmental policy.

The specific concerns expressed by these scientists and others include:

- a. The suppression or distortion of scientific conclusions from federal environmental agencies. In 2003, for example, the White House insisted on changes to the climate change sections of an EPA report. Because its scientists considered the proposed changes scientifically indefensible, EPA eliminated the discussion of climate change from its overall report. Similarly, the New York Times reported recently on extensive edits to an EPA document concerning the science of climate change by a White House political aide.
- b. Political manipulation of expert advisory committees. For example, substantial concerns have been expressed about adjustments to the composition of the CDC Advisory Committee on Childhood Lead Poisoning during 2002. Experts recommended by CDC staff were rejected and replaced with individuals characterized by their opposition to tighter federal standards, some of whom may have had financial ties to the lead industry.

These are issues of great consequence. Sound policymaking cannot proceed in the face of such concerns. These issues demand priority attention from this Committee and the Senate as a whole.

One approach is suggested by the Restore Scientific Integrity to Federal Research and Policy Making Act, introduced in the House as H.R. 839. Among other things, the Act would

- Help prevent the manipulation of data;
- Strengthen the independence of federal science advisory committees; and
- Require an annual report to Congress by the Director of the Office of Science and Technology Policy on the state of federal scientific integrity.

This legislation would help to address many of the most serious concerns that have arisen in recent years and is worthy of consideration by this body as well.

Thank you for the opportunity to address the Committee. I would be pleased to answer any questions.

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