United States House of Representatives Committee on Science

Hearing on:

"Environmental and Safety Impacts of Nanotechnology: What Research is Needed?"

OPENING STATEMENT

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I would like to thank Chairman [Sherwood] Boehlert, Ranking Member [Bart] Gordon, and the Members of the House Committee on Science for holding this hearing.

My name is David Rejeski, and I am the Director of the Project on Emerging Nanotechnologies at the Woodrow Wilson International Center for Scholars Partnership with the Pew Charitable Trusts. Before I share my ideas with you, I would like to share some observations from participants of a focus group we ran on nanotechnology last June. I quote:

"I found it interesting so many government agencies are potentially responsible [for nantoechnology]. With so many agencies, bureaucracy hinders the process because everyone is fighting over who is responsible." Terrence added, "Until something goes wrong." At this point there was a lot of laughter in the group. Nickie came back with, "Then no one wants the responsibility. What kind of gridlock does that cause?"

In every focus group we conducted across America, people talked as much about governance as they did about nanoscience or technology. The public is asking our government to provide clear answers to four basic questions:

- Do we understand the risks associated with nanotechnologies, both today's risks and tomorrow's?
- Will our policies protect us and the environment?
- When and how will you (government) start talking to us about what you are doing and what you know and don't know?
- If something goes wrong with these technologies, are you prepared?

Let me address each of these challenges in order.

1. Are we spending enough to understand the risks to workers, consumers, and the environment? Frankly, I cannot tell you. I can tell you what is needed to address this issue.

We need a full and transparent disclosure of all government funded environmental, health, and safety related research – every project, not just the monetary sum of the projects. This will allow us to identify gaps, better partner with industry and other countries to fill gaps, and strategically invest <u>or disinvest</u> at the margins.

We are in the process of putting together such an inventory and will release it on November 29th. We would request that hearing record be kept open until then so we can submit our initial analysis of research gaps. So far we have accounted for roughly \$23 million dollars of EH&S research in 154 ongoing and completed projects, across 8 different agencies. Such an inventory is the first step in supporting better research, but it is not enough.

We will be dealing with risks from nanotech for decades to come, these risks will become more complex, not less, as nano and biotechnology converge. No single

¹ From: Francesconi, R. (2005). *Facilitator's Report: Informed Public Perceptions of Nanotechnology and Trust in Government,* Washington, DC: Project on Emerging Nanotechnologies.

country will ever have enough money to adequately address the risks. I believe that **we need a global strategy to address the potential risks – an International Nanorisk Characterization Project.** Our approach should be similar to the one used in sequencing of the Human Genome where we developed priorities, aligned teams of researchers to address these priorities, and implemented an information infrastructure to support global collaboration. We will need to leverage every Dollar, Euro and Yen.

2. The public wants to know "Will our oversight and regulatory policies protect us and our environment?" Again, I do not think anyone in government can provide a clear answer and, certainly, the public is not confident. Our approach on the policy side so far has been ad hoc and incremental. We need a systemic analysis across agency statues and programs, across agencies, and across the international landscape, which looks at regulations, voluntary programs, information-based strategies and state and local ordinances and asks the question: "Will these measures work not just today but in 5 or 10 years?" I am especially concerned that we lack a coherent strategy for reaching small businesses and start-ups with the appropriate information they need to protect workers and the environment.

In 2003, the Congress asked the National Academy of Sciences to evaluate the NNI, to look largely at the science. We urgently need to examine the governance. Now it is time to ask the GAO or National Academy of Public Administration, to undertake (within one year) a systematic analysis of the governance structure for nanotechnologies and develop a government-wide (and I stress this) governmentwide blueprint that will work not only today, but ten or twenty years from now. We owe that to consumers, to workers, and to industry.

3. The federal government and industry must also address perception risks. In the end, the success of nanotechnologies will depend on the public opening its mind and pocket book and embracing nanotechnology. This is not a given. At the moment, the public is largely ignorant of nanotechnologies, a potentially dangerous situation for innovators and investors. Though studies show people are excited about the potential applications of nanotechnologies, they have little trust in either government or industry to manage risks and consistently ask for more transparency, disclosure, and involvement. We need to engage he public, not just try to educate them.

The U.S. government should set a goal of reaching out and engaging at least 3,000 citizens and public opinion leaders around the country over the next year. This would require 20-25 town meetings, "listening sessions," and civic forums but it would help build a foundation for greater public trust, confidence, and acceptance of nanotechnologies.

4. Finally, **we need to prepare for the unexpected.** Nanotechnology is planned disruption. It is not something we want get smug or overconfident about. We could be surprised in unpleasant ways, either by the technology itself or by people who mishandle, mislabel, or misuse the technology, so we need to anticipate, plan for, and rehearse possible scenarios for misuse or accidents. I see no evidence that this is happening anywhere in the government.

All of these recommendations require a properly resourced coordination function and smart management. The National Nanotechnology Initiative is one of the most complex

interagency endeavors every undertaken by the U.S. government, now involving over \$1 billion per year in funding and 25 separate agencies.

The sum of the agency missions does not add up to a coherent federal strategy for addressing risks, providing adequate oversight, engaging the public, or managing the unexpected. It is simply the sum of the missions, or less. As a recent GAO report on federal collaboration pointed out, these missions are often not mutually reinforcing or can even be in conflict.

We need a beefed up and visible federal face for nanotechnologies sending a coherent message to the public and industry. We believe that the National Nanotechnology Coordinating Office can help in this regard but is understaffed and underfunded by orders of magnitude. This is not about creating an additional bureaucracy; it is about creating coherence and the capacity to manage an exceedingly complex enterprise of national importance.

In conclusion, let me emphasize that to succeed we need both good science <u>and</u> good governance. Our Project at the Wilson Center looks forward to working with the Committee as you move forward.