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International
Center
for Scholars**

Embargoed 12:01 a.m.
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News Release
Embargoed 12:01 a.m.

Release No. 29-06
July 19, 2006

Nanotechnology Report Calls for New Government Risk Research Strategy & Funding

WASHINGTON—A new report by Andrew Maynard, chief science advisor for the Project on Emerging Nanotechnologies at the Woodrow Wilson International Center for Scholars, calls for major changes in the U.S. government's current handling of nanotechnology risk research. His study, *Nanotechnology: A Research Strategy for Addressing Risk*, proposes for the first time a new comprehensive framework for systematically exploring nanotechnology's possible risks.

“Without such an approach,” Maynard predicts, “significant knowledge gaps—which currently exist in all areas of nanotechnology risk assessment—will persist. At best, these gaps create uncertainties—and at worst, dangers—for workers, companies, consumers, investors, and insurers.”

According to Maynard's analysis, as little as \$11 million of the more than one billion dollars the U.S. government annually invests in nanotechnology research and development is devoted to highly relevant research into what is safe and what is not. In addition to inadequate funding, the current federal nanotechnology risk research effort lacks a clear strategy and leadership.

To fill these gaps, Maynard argues that the federal government needs an overarching strategy and comprehensive set of research priorities. Initially, these would be aimed at identifying and measuring nanomaterials exposure and environmental release, evaluating nanomaterials toxicity, controlling the release of and exposure to engineered nanomaterials, and developing “best practices” for working safely with nanomaterials, and eventually at building capacity in predictive toxicology.

This research effort must be led by federal agencies with a clear mandate for oversight and for research of environmental, health and safety (EHS) risk—for example, the Environmental Protection Agency (EPA) and the National Institute for Occupational Safety & Health (NIOSH). Maynard estimates that oversight and EHS research agencies need a minimum budget of \$50 million per year over the next two years to devote to highly relevant, targeted nanotechnology risk-based research, if critical knowledge gaps are to be addressed. This amount is in addition to a complementary investment by federal agencies and departments participating in the National Nanotechnology Initiative (NNI) on basic and applications-focused research that has the potential to help further understanding of nanotechnology risk and to aid in the development of improved research tools.

“With over \$32 billion worth of products incorporating nanotechnology sold in 2005, the question of whether nanotechnology products and applications are safe is one that is not going away,” according to Project on Emerging Nanotechnologies Director David Rejeski. The Project is a joint initiative of the Woodrow Wilson Center and The Pew Charitable Trusts.

“Nanotechnology is an emerging technology that offers us an opportunity to ‘get it right’ from the start,” said Rejeski. “But action is needed now. Many of the same novel properties that give

nanotechnologies the capacity to transform medicines, materials, and consumer products, may also present novel risks.

For nanotechnology to succeed as the next big economic driver, the U.S. government—working with industry, citizen groups, and partners abroad—needs to develop and invest in a robust risk research strategy to ensure that as nanotechnology matures, any potential adverse health and environmental effects will be identified and prevented or controlled.”

The market opportunity for nanotechnology is substantial. The National Science Foundation predicts that the global marketplace for goods and services using nanotechnologies will grow to \$1 trillion by 2015. The U.S. invests approximately \$3 billion annually in nanotechnology research and development, which accounts for approximately one-third of total public and private sector nanotechnology investments worldwide.

Nanotechnology is the ability to measure, see, manipulate and manufacture things usually between 1 and 100 nanometers. A nanometer is one billionth of a meter; a human hair is roughly 100,000 nanometers wide.

Dr. Maynard’s report, *Nanotechnology: A Research Strategy for Addressing Risk*, is available online at www.nanotechproject.org. A detailed inventory and analysis of the current U.S. government risk research portfolio and a database of nearly 300 nanotechnology consumer products being sold today—both developed by the Project on Emerging Nanotechnologies—also can be found at that same website.

The **Project on Emerging Nanotechnologies** is an initiative launched by the Woodrow Wilson Center and The Pew Charitable Trusts in 2005. It is dedicated to helping business, government and the public anticipate and manage possible health and environmental implications of nanotechnology. For more information about the Project, log on to www.nanotechproject.org.

The Pew Charitable Trusts is a national charitable organization serving the public interest by informing the public, advancing policy solutions and supporting civic life. Based in Philadelphia, with an office in Washington, D.C., the Trusts will invest \$204 million in fiscal year 2006 to provide organizations with fact-based research and practical solutions for challenging issues.

The **Woodrow Wilson International Center for Scholars** is the living, national memorial to President Wilson established by Congress in 1968 and headquartered in Washington, D.C. The Center establishes and maintains a neutral forum for free, open, and informed dialogue. It is a nonpartisan institution, supported by public and private funds and engaged in the study of national and international affairs.

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