



Mary L. Good

NEW ALLIANCE TARGETS FUNDING SHORTFALL

The Alliance for Science & Technology Research in America (ASTRA) is a new and collaborative effort to help provide the background work and continuous advocacy we need to solve the inadequate federal funding in the physical and mathematical sciences and engineering. Although the United States government's current projected budget for 2002 is discouraging, this is a problem of long standing and not a partisan issue.

Why should you care? ASTRA's research suggests that neglect in funding adequate levels of federal scientific research in all areas (other than health care) manifests itself in a work force crisis and a decline in the U.S. technology base. The results of four focus groups conducted by ASTRA in December 2000 further suggest that research executives are likely to be among a very small minority of Americans who even appreciate the scope and depth of this problem.

Some Sobering Facts

Consider the following:

- Federal spending as a percentage of GDP from 1985–1999 dropped 15 percent in mathematics, 21 percent in engineering, and 29 percent in the physical sciences.
- Half of U.S. economic growth since World War II is attributed to technological advances.
- Seventy-three percent of papers cited by U.S. industry patents are public science, authored at academic, govern-

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mental or other public institutions thanks to federal investment.

- There is an incontrovertible connection between federal research funding for science research and the number of degrees earned in science and engineering disciplines.
- Since 1986, the number of bachelor's degrees awarded in the physical sciences has declined by 12.6 percent; mathematics is down 19.2 percent and engineering is down 21.1 percent.
- Nearly one-half the graduate degrees in these areas were awarded to foreign nationals. Such individuals' lives are governed not only by personal choices and competitive pressures to return to the newly competitive economies of their native lands, but also a frustrating and inconsistent immigration policy on the part of the U.S. government.
- Compared to its global competitors, the U.S. lags behind most of the industrialized world in the percentage of 24-year-olds with natural science and engineering degrees.
- China produces more than twice as many engineering graduates as the United States, while Japan produces one-and-a-half times as many.

If these student–output trends continue, and if the overall federal research budget does not keep up with the rise of our GNP and the rate of development of its industries, the U.S. in a few scant years will be in a much less competitive position than it is today.

The U.S. is also plagued by a shrinking cadre of existing professionals already working in the sciences and engineering (with the exception of the life sciences). Consider, for example, the demographics of the scientific work force. Those who heeded the call to become scientists during those now “halcyon” days of the Sputnik crisis and the Cold War are already retired, or at least preparing for it.

Society must quickly find ways to invest more resources and entice more students into science and engineering, or the U.S. will lose its lead in scientific disciplines that

have spurred innovation, sustained national security, improved public health, and driven a strong economy.

Changing Public Policy

The more the industrial research community experiences the effects of federal disinvestment in scientific research in mathematics, engineering and the physical sciences, the more important it becomes to change public policy—and public perceptions about federal science investment.

ASTRA has already begun identifying gaps in economic research and is creating collaborative ways to share information, optimize advocacy and involve a broader spectrum of individuals and organizations in the ongoing policy debates over federal disinvestment in scientific research. We are working closely with many of the university, industry and professional societies which have major efforts underway in science and engineering education and research.

ASTRA is a nonpartisan effort to improve policy research into this complicated problem. ASTRA will enable you and/or your own company, university, professional and/or trade organizations to tell your own story more effectively. We are designed to be a collaborative and multi-sectoral entity that functions like a think tank, as well as a separate advocacy organization.

ASTRA's Board will represent industry, academe, scientific and professional societies, trade associations, and other stakeholders who share our concern about the future.

Combined, our diverse communities can create a greater opportunity to identify gaps in knowledge and to conduct new research in this area. Once we can effectively tell our story, and armed with the latest facts, we believe that we and all organizations in the scientific research community will be better able to persuade elected officials and administrators on how to change science policy more effectively.

ASTRA has already begun conducting a series of informal and innovative educational programs; serving as a neutral conduit for information exchange; networking between industry, nonprofits, academe and government; and planning for primary policy research.

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Our operations will continue to be open and transparent as we evolve. For example, a web site and clearinghouse for essential educational information about general federal research policy will be available soon—but only if ASTRA is supported throughout the industrial community.

Your Help Is Needed

With many priorities competing for the attention of the new Administration and Congress, we need your help to ensure that our messages are well-researched, based upon sound economic analysis, clearly understood, and acted upon by public officials.

Thanks to the initial contributions of the Alfred P. Sloan Foundation, the David and Lucille Packard Foundation, and several other interested groups, ASTRA has evolved over the past several months from an idea to a reality.

During our next phase, we are intent on adding more industrial members and other stakeholders to provide us the widest spectrum of input.

Please consider participating in ASTRA today. Our executive director, Robert Boege, can be reached at r_boege@acs.org or directly at 202/872-6160. ☺

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