

Key Report Lost in the Budget Shuffle

The furloughs, an unfinished federal budget, and furor between the U.S. Congress and the White House these past months have captured almost all the attention of U.S. policymakers in Washington, DC. Yet during that time, one of the reports that came out relates closely to the changes under discussion as the U.S. government tries to rein in itself, and its spending. *Allocating Federal Funds for Science and Technology*, a report of the National Research Council (NRC), "has some very valuable points to make, and raises some very controversial issues," said Lyle Schwartz, director of the Materials Science and Engineering Laboratory at the National Institute of Standards and Technology, based in Gaithersburg, MD.

As part of the U.S. federal budget for 1995, the U.S. Senate commissioned the NRC, which includes the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, to identify criteria that the government should use in deciding how to allocate federal support for research. These criteria are particularly important as budget constraints increasingly limit that support overall, even though, thus far, materials science seems to have been spared drastic cuts and has benefited from new initiatives.

While the panel of experts, chaired by Frank Press, a Senior Fellow at the Carnegie Institute of Washington, that prepared this document call for the United States to maintain its leadership in science and technology, particularly in the most promising areas, it also notes that some institutions and programs may have to be eliminated. For example, the report calls for various federal agencies to maintain their ability to do research relevant to their missions, but it warns national laboratories to reduce overlap and shrink their share of federal resources so as to prevent laboratory closures.

It suggests, too, academic institutions be favored and that the U.S. government only encourage and *not* directly fund private-sector commercial technology except for weapons, spaceflight, or broadly applicable technologies. However, emerging materials fields such as nanotechnology and micromanufacturing do qualify as broadly applicable technologies worthy of federal grants, the report said. Also, government-subsidized partnerships, as in the Advanced Technology Program, should be allowed only if there is no other way a particular technology will be developed.

Schwartz thinks several of these recommendations warrant further discussion. He is most concerned with the panel's

suggestion that federal support go more to academic institutions than government researchers. The panel views universities as more flexible, with better quality control, than federal laboratories, with the added benefit of educating and training young scientists and engineers.

"I disagree with the focus on universities as a primary arena for government funding," Schwartz said.

In addition, this NRC Committee on Criteria for Federal Support of Research and Development calls for an integrated approach to setting up a federal budget for science and technology that is not inflated by the inclusion of money allocated for demonstration projects, such as the building and testing of new weapons or aircraft. The \$35 billion spent annually for those projects do not create new knowledge, the panel said.

This integration would then enable the President to set priorities, such as research in high performance computing and communications, that involve more than one federal agency without having to worry that the different parts of the initiative would fail to be supported during congressional appropriations that in the past have been done agency by agency, line by line. In the case of materials research, large cuts in the Departments of Defense (DoD) and of Energy (DOE), which largely support this research, would adversely affect progress in materials across the board, the report said.

Under the proposed scenario, U.S. departments and agencies would set their priorities in accordance with the President and their stated missions. Then the U.S. Congress will consider this so-called federal science and technology (FS&T) budget as a whole, or at least in the broad budget function categories: defense, health, space, energy, agriculture, and general science.

But Iran Thomas, director of materials science at DOE, thinks these proposals are too abstract and that the report's authors did not come up with enough specific mechanisms for setting priorities. "I don't think there was much thought for how you balance [conflicting] needs," he said. In materials research, for example, how does one weigh whether to develop tough armor for defense or lightweight substances for spacecraft? "To imagine that one can consider these things all in one lump is a little murky thinking," he said.

This document also states how when "development"—such as testing and building new aircraft or weapons—is subtracted from what is traditionally viewed as the federal research and development (R&D) budget, there is about \$37 billion spent on science and technology, including applied

as well as basic research and training. (The report also defines and gives examples of applied and basic research and fundamental technology development.) Looking at the federal science budget in this way shifts the percentages garnered by each agency. DoD gets 51% of the R&D funds, but just 22% in the FS&T scenario. In contrast, funding of research in the Department of Health and Human Services accounts for just 16% of the R&D budget, but 30% of the FS&T one. Other agencies, including the National Science Foundation, DOE, and National Aeronautics and Space Administration, which support materials work, maintain about the same percentage of the total by either scenario.

Copies of *Allocating Federal Funds for Science and Technology* can be obtained from the National Academy Press, 2101 Constitution Ave., NW, Box 285, Washington DC 20055; 800-624-6242; or in Washington DC, 202-334-3313.

DOE Starts Operations at Defense Waste Processing Facility

The Clinton Administration started operations at the Department of Energy's (DOE) Defense Waste Processing Facility (DWPF) at the Savannah River Site, South Carolina. The facility immobilizes waste in glass for environmentally safe, long-term storage.

Energy Secretary Hazel R. O'Leary said, "Operation of the facility represents real progress in meeting the President's challenge to protect the environment for future generations, by stabilizing high-level radioactive waste. This process greatly reduces the threat posed by the handling and storage of these materials."

The DWPF will process 34 million gallons of radioactive waste in 51 underground storage tanks by 2020. The \$2.4 billion project is part of a larger waste management program at the site which includes three other facilities: In-Tank Precipitation Facility, Extended Sludge Processing Facility, and the Saltstone Facility. Radioactive glass canisters will be temporarily stored on site in the Glass Waste Storage Building until a permanent storage repository has been completed. □

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