Senate Turns Up the Heat on NSF

An appropriations subcommittee has scolded the foundation for paying too little attention to research likely to benefit industry and threatened to shift some of its funds to other agencies

If the National Science Foundation (NSF) thought it had laid to rest last year's wrenching debate over its mission in life, it was badly mistaken. In 1992, the Senate appropriations subcommittee that handles NSF's budget, chaired by Democrat Barbara Mikulski of Maryland, tried to push the agency to fund more "strategic" research, likely to benefit U.S. industry. NSF responded by setting up a commission that essentially recommended that the agency stick to what it does best—basic research—and that seemed to defuse the issue; it barely surfaced during the agency's budget hearings earlier this year. But now it's back—with a vengeance.

In a sharply worded report, the Mikulski panel last week took NSF to task for moving too slowly in developing applications for the science it funds, and it recommended an increase for basic research in fiscal year 1994 jsut sufficient to keep pace with inflation. Specifically, the panel scolds NSF for not giving enough attention to strategic research that might benefit the economy (although strategic research is not defined) and insists that in future the agency put 60% of its funds in this category (see box). If the foundation is unwilling to go along with this mandate, the panel implies that it will shift some NSF money to agencies such as the National Institute of Standards and Technology that "seem poised to pursue critical technologies with entrepreneurial vigor and enthusiasm." The report also directs the agency to be more aggressive in recruiting industrial partners, asks for a thorough reevaluation of the National Science Board, NSF's governing body, and states that industrial memberships on the board should now be "mandatory."

Critical senator. Subcommittee chair Barbara Mikulski.

The subcommittee didn't limit itself to giving NSF a tougue lashing, however. It also proposes several funding changes that would tilt the foundation more toward strategic programs. The bill, which is expected to be approved by the full Senate Appropriations Committee, would raise NSF's budget by 9%, to a total of nearly $3 billion in 1994. But it would increase funding in the category of "research and related activities" by just 4%. The subcommittee suggests NSF should regard this as a generous increase, since the allocation for all agencies within the panel's jurisdiction grew this year by a mere 2%.

Seen from another perspective, however, the proposed budget for research is disappointing. It is $105 million less than the House has approved and $265 million less than the Clinton Administration wanted. And when the Senate panel's directives are taken into account, some programs may be severely trimmed. For example, the Senate report would chop $50 million out of the program on high-performance computing, gutting the supercomputer centers, because the subcommittee finds that NSF has been unable to articulate "specific, quantifiable, and measurable goals" for this program. None of the cutbacks, however, is to impact the NSFNET computer network or "elements closely related to industry."

The initial reaction to the panel's directives has been muted, for few had read the report by the time *Science* went to press. But those who were aware of it generally expressed alarm. The Executive Board of the American Physical Society, for example, issued a statement this week saying that the section directing NSF to support more strategic research "should be stricken" from the final conference report on the appropriation bill, which will be negotiated by the House and Senate. Bernard Burke, an astrophysicist at the Massachusetts Institute of Technology and member of the National Science Board, said of the report, "There's no way to put a good face on it.... It's not good news." He added that "Congress is not looking out for the long-term

NSF's Marching Orders

The following excerpts are from the report of the Senate appropriations subcommittee on the bill to fund the Department of Veterans Affairs, the Department of Housing and Urban Development, and independent agencies, chaired by Senator Barbara Mikulski (D–MD):

"The committee believes the National Science Foundation is at a crossroads....It is time for the foundation to move beyond rhetorical statements about the value of strategic research or the importance of using science for the transfer of knowledge and technology. That, in the committee's view, is a fact of life and political reality.... The agency must spell out how much of its mission should clearly be strategic and applied in nature, and then to implement these parameters through its budget process ....This must be done directorate by directorate. If NSF and its constituent members choose not to do this, future federal R&D budgets should instead be allocated more generously to agencies such as the National Institute of Standards of Technology, NASA, the national energy labs, or the National Institutes of Health, all of whom seem poised to pursue critical technologies with entrepreneurial vigor and enthusiasm.

...The committee directs the foundation to revise its strategic plan...to specify, with particularity, in each NSF program directorate and in each initiative that is part of the FCCSET interagency process, annual, quantifiable performance milestones. These milestones should include a vigorous evaluation component that guarantees that programs which begin can be terminated if they lose their effectiveness or are displaced by higher priority initiatives. [The committee also directs NSF] to outline the balance between strategic research objectives and other, more generic research in the budget process. Not less than 60% of the agency's annual program research activities should be strategic in nature. The foundation should make clear how it specifically defines each area so as not to shroud curiosity-driven activities under the rubric of strategic activities."

interests of the nation." And Cornelius Pings, president of the Association of American Universities, says the attempt to give NSF a more practical bent is "definitely a mistake." Pings says giving the NSF a large role in technology transfer would "distort" the agency and, in the end, not accomplish the aims being sought by the Senate subcommittee. And Representative George Brown (D–CA), chairman of the House Committee on Science and Technology, is planning to try to persuade Congress to modify the language of the Senate report—as he did last year.

While most academics are likely to agree with the critics that the Senate report risks pushing the NSF too far into practical applications, one well-known figure in the community—former NSF director Erich Bloch, now at the private Competitiveness Council in Washington, D.C.—says he thinks the report is pretty much on target. People must realize, Bloch said, that "the days of Vannevar Bush are over and gone." NSF is not the "private province of single investigators any longer." Sounding almost like a Clinton acolyte, Bloch said, "The whole world is changing....It's time to reinvent NSF."

The debate over the relative importance of fundamental versus directed research in NSF's portfolio is clearly going to haunt the agency for some time. It is certainly going to be one of the thorniest issues to confront the NSF director-designate, Neal Lane, when he makes his debut before Congress this fall.

–Eliot Marshall

SCIENCE POLICY

White House Plans New Science Council

Tucked in among the ideas for cutting waste and red tape in Vice President Al Gore's plan for reinventing government is a proposal that could have a significant impact on U.S. science: the idea of creating a powerful new National Science and Technology Council. As described in the report released by Gore on 7 September,* the new panel would operate within the White House and serve as a policy center similar to the National Security Council, the National Economic Council, and the Domestic Policy Council. *Science* has learned that a plan to carry out this recommendation is likely to become a reality within the next week or two, if President Clinton signs a memorandum now being drafted for his approval.

If the reform goes forward, it would give the president's office centralized control over the government's $76 billion in annual expenditures on research and development. White House staffers would be more directly involved in planning and coordinating science programs at the federal agencies. At present, agencies set their own budget priorities in negotiations with the Office of Management and Budget (OMB); the new arrangement presumably would have them clear their plans with the science council as well.

Presidential science adviser John Gibbons has been working for more than a month to prepare the way for this management change, laying plans for the dissolution of several existing policy groups—including the National Space Council, the Federal Coordinating Council on Science, Engineering, and Technology (FCCSET), and the National Critical Materials Council. Clinton may need congressional approval to phase these out, since they were established by acts of Congress. According to White House officials, all three groups would be subsumed under the new super council, which probably would be staffed by the Office of Science and Technology Policy and chaired by the president himself, as the others are.

Gibbons declined to comment last week on which agencies or officials would be included in the proposed science council but said he expects to discuss it publicly soon. White House officials this week said Clinton has approved the general idea of such a council and they expect him to endorse a memo establishing it within a matter of days. The council, according to White House officials, will adhere to the general outlines proposed in Gore's report, which the Vice President's staff apparently wrote independently of Gibbons' staff.

RUTH FREMSON/*THE WASHINGTON TIMES*

Reinventing science policy? Clinton, Gore, and the blueprints for reform.

The report praises FCCSET for leading interagency initiatives in the past but notes that "FCCSET lacks the teeth to set priorities, direct policy, and participate fully in the budget process. It can't compel agencies to participate in its projects, nor can it tell agencies how to spend funds." As a remedy, the Gore report says, the White House should create a National Science and Technology Council to manage R&D "more forcefully."

Although the jurisdiction and authority of the proposed science council have yet to be spelled out, at least one leader—Frank Press, science adviser to President Jimmy Carter and the former president of the National Academy of Sciences—has already given the idea his blessing. If the council provides for better coordination and stronger leadership in science policy, says Press, "I would support it instantaneously." He notes that FCCSET had an "uneven record" of leadership, mainly because it "wasn't fully integrated with OMB [the Office of Management and Budget] in the budget making process, because OMB doesn't like to let go of that capacity." If the new council is to succeed, Press says, it should be able to set priorities and allocate funds in the R&D budget.

While the proposal to give science a boost within the White House was the most striking plan affecting research agencies in the Gore report, it was not the only one. Among other recommendations:

- Close the Uniformed Services University of the Health Sciences, a medical school within the Department of Defense originally designed to compensate for a doctor shortage in the military, saving $300 million.
- Save another $300 million by consolidating "current and proposed polar satellite programs"—both military and civilian—under the National Oceanic and Atmospheric Administration.
- Conduct the decennial census in year 2000 by "sampling rather than more costly methods of counting nonrespondents" as a way of increasing efficiency. This would put the White House on one side of a complex debate on statistical methods now under way within the Census Bureau.
- Establish a broad plan to use new electronic technology for handling federal data. Because of its expertise in building and managing computer networks, the National Science Foundation (NSF) is likely to be dragooned into an effort to develop systems for processing government forms electronically.

These proposals are laid out in the Gore report in general terms. The details will appear in the next month as the Administration releases "backup documents," including a thick volume on "reinventing" federal science programs prepared by NSF. At that point, Congress will weigh in.

–Eliot Marshall

*"Creating a Government that Works Better and Costs Less: Report of the National Performance Review," Office of the Vice President, 7 September 1993.