Global Cooperation in Big Science

The need is growing but too many obstacles stand in the way; NSF is urged to play a stronger role

International cooperation in science is very difficult to pull off, but increased American participation is both desirable and inevitable, according to witnesses at hearings held last month by the House Science Policy Task Force. The hearings, conducted by Representative Don Fuqua (D–Fla.), chairman of the Committee on Science and Technology, focused exclusively on "big science," with special attention paid to high energy physics and magnetic fusion.

Things seem to be going pretty well in the air, space, oceanic, and geophysical arenas; cooperation is considerably more problematical when it comes to ground-based research facilities. The general message was that the political and economic environment has become increasingly unsympathetic to international cooperation over the past 20 years. Witnesses noted that there are serious bureaucratic and public relations obstacles, in addition to those related to information and technology transfer, that are hindering progress. Nonetheless, the increasing costs and complexity of big science make more extensive cooperation inevitable, and the need for a focal point within the government for international science policy is becoming ever more apparent.

High energy physics offers a prototype of sorts for cooperation, having become thoroughly internationalized over the past 30 years, according to Victor Weisskopf of the Massachusetts Institute of Technology (MIT). Yet future arrangements for the proposed Superconducting Supercollider (SSC) are very much up in the air. Americans would like to enlist European financial support, but as Weisskopf pointed out, the Europeans are presently "overextended" what with the new electron-positron collider (LEP) at CERN and a proton-electron colliding facility (HERA) in Germany. Now is not the opportune time for them to be making new investments in the United States, said Weisskopf.

On the energy front, Harold Jaffe of the Department of Energy testified that "an international political consensus seems to be emerging supporting greater international cooperation. . . ." The United States is becoming very interested in cooperation on magnetic fusion now that the research budget has been cut by 25 percent and the Japanese, European, and Soviet efforts are pulling ahead. Joseph Gavin of Grumman Corporation reported on the results of a National Academy of Sciences study which concluded that, in absence of near-term military or industrial applications, a "window" is now open for large-scale collaboration. But there are problems: the United States is generally touchy about Japan these days, and the Europeans have shown little interest in collaboration. Jaffe noted other problems that apply accross the board, such as budgetary constraints on long-term commitments; laws and policies that impede international collaboration; and Americans' lack of foreign language skills.

An NSF advisory group has proposed the establishment of an associate director for international affairs.

Eugene B. Skolnikoff of MIT testified that a lot of the problem has to do with budgetary mechanisms, which reflect the "overwhelming domestic orientation of the American R&D enterprise. . . ." Another impediment is posed by the fact that, as Fuqua noted, the United States has come to be viewed as "not a reliable partner"—the withdrawal from Unesco being a case in point. Former National Science Foundation (NSF) director Guyford Stever confirmed that the United States does "not have a good reputation overseas with respect to continuity. . . . If you travel overseas you will get that message constantly and everywhere."

The committee made a modest attempt to address the issue of whether the country needs a centralized international science policy agency. Among existing agencies, the three most likely candidates for leadership in international science are the NSF, the State Department, and the Office of Science and Technology Policy (OSTP). There seems to be dissatisfaction with the performance of the State Department, which is not perceived as having a high degree of expertise or interest in science. There are reservations about the OSTP because it is tied to the comings and goings of Administrations. That leaves the NSF, which has been engaged in a reevaluation of its international role. A group headed by Stever put together a report on "NSF international strategy and programs" that was presented to director Erich Bloch on 20 March, but this was not discussed at the hearings because Bloch reportedly does not want to release it until he has made up his mind what to do about it.

Stever's report, obtained by *Science*, calls on the NSF to become far more assertive in exercising its international mandate and says the agency "has a clear responsibility to ensure that the science and technology considerations enter into the formulation and implementation of U.S. foreign policy." The first step recommended is the installation of a presidentially appointed "associate director for international science and engineering affairs."

The task force basically thinks there should be more sensitivity to international considerations in the agency's research programs, and more attention to science in the bilateral programs, which are often inspired primarily by diplomatic considerations. The report urges the agency to put special efforts into assessing its research program in the light of international competitiveness, developing closer working relations with the State Department, generating more interaction with multilateral organizations, and planning multilateral global initiatives, such as one on tropical ecosystems. Although the international aspects of NSF-sponsored research is high quality, says the report, "a great deal more can be done . . . in the areas of advocacy, coordination, policy formulation, program assessment, and data gathering and analysis."

With regard to international activities by other agencies, the task force wants the NSF to play a "convener" role, noting that communication is "typically sporadic, piecemeal, and sometimes after the fact." Caution would have to be exercised with respect to the sensitivities of other agencies, but, says the report, "there is every reason to believe . . . that a stronger international role for NSF would be welcomed."

There are at least two schools of thought about the proper international role for NSF. One stresses the benefits of cooperation, the need for openness in the exchange of information, and the need to coordinate scientific and political aims more closely. The other, more competitive-minded approach seeks to downplay political involvement and to emphasize the need for the United States to be preeminent in every important area of research.

At the hearings, there was much discussion about whether the United States needed to be "number one" in everything. The prevailing feeling seemed to be that while this was the case after World War II, it is not realistic to suppose that eternal dominance is in order. William Nierenberg of Scripps Institute, chairman of the National Science Board Committee on International Science, stated in a memo to the committee that "it would be futile to assume as a matter of national policy the unattainable (and counterproductive) goal of achieving a number one position for the U.S. in all significant fields of research, or even in most fields." Weisskopf observed that "it is an issue of scientific responsibility versus scientific greed. . . . We certainly will lose the support that we have received in the past if it appears that different parts of the world community are trying to outpace each other. . . ."

—CONSTANCE HOLDEN

NIH Bills Moving Through Congress

Congressional action on legislation for the National Institutes of Health (NIH) moved a step closer to enactment recently in both Houses. On 17 June, the House passed a bill (HR 2409) introduced by California Democrat Henry A. Waxman (*Science*, 29 March, p. 1562). On the same day, Senator Orrin G. Hatch (R–Utah) introduced a counterpart bill (S 1309) in the Senate where passage is expected, although the schedule is uncertain.

The two bills are quite similar, although there are important differences that will have to be worked out in House-Senate conference before a final version can be voted on by both houses of Congress. Congress has been trying to agree on reauthorizing legislation for NIH for 5 years now. Last year, after much negotiating, the House and Senate finally did pass a bill (S 540), only to see it vetoed by President Reagan on grounds that it was too costly and injected too much congressional "micromanagement" into NIH's affairs (*Science*, 16 November 1984, p. 811).

This year, an issue that has absorbed the biomedical research community has been the number of new and competing grants NIH will be able to fund in the next 2 or 3 years (*Science*, 5 April, p. 35). Both the Waxman and Hatch versions of the NIH bill authorize sufficient funds to pay for 6000 grants a year.

Both versions of the legislation extend the authority of the National Cancer Institute and the National Heart, Lung, and Blood Institute—the only NIH institutes that require periodic reauthorization by Congress. In keeping with Waxman's efforts to keep a tight reign on NIH, the House's reauthorization is for only 1 year; the Senate bill would reauthorize the two institutes for 3 years.

In line with the new emphasis on the importance of disease prevention, both bills call for appointment of an associate director for prevention in the NIH director's office and in certain of the institutes. Both bills would create a permanent congressionally appointed ethics board, organizationally not unlike the present Office of Technology Assessment. The board would establish a committee of scientists and others to study issues including developments in human genetics and other sensitive topics.

In addition, both bills would establish a new National Institute of Arthritis, Musculoskeletal, and Skin Diseases. NIH officials have long opposed creation of any new institutes but seem resigned to the fact that Congress will not back down on this one. A proposal to establish a second new institute is less certain to prevail. The Waxman bill contains a provision for a new National Institute of Nursing, a special project of Representative Edward R. Madigan (R–Ill.). The Senate bill does not contain a similar provision.

In fact, Hatch opposes creation of a nursing institute and spoke to this hotly contested issue when he introduced his bill on the Senate floor. Saying that he shares Madigan's desire to give qualified nursing researchers more "visibility," he also said, " . . . I am concerned that the proposal for a new institute is premature and that possible funding may not be sufficient to accomplish the stated goals." Hatch noted that he has been working with nursing representatives and the Administration (which also opposes a nursing institute) to develop a proposal to "place nursing research in the mainstream of scientific investigation" short of giving them an institute of their own. For example, nurses might be given positions on NIH councils and study sections. No specific legislative action has been put forward in the Senate as yet.

The House and Senate bills contain provisions about the humane treatment of animals in research that are generally in line with current NIH guidelines. Both bills also contain provisions governing notification of NIH officials by institutions that find themselves having to investigate allegations of research fraud.

Language in both bills about research on human fetuses would extend the current ban on most studies for at least another 3 years, while the new ethics committee conducts one more study of the issue. In a statement on the House floor, Waxman made plain his opinion that continuing the moratorium on fetal research may be politically necessary but is scientifically unwise. "I believe that the Congress' heavy-handed intrusion into this area is not just dangerous and unnecessary, but also a precedent that we should carefully avoid in all future legislation to fund research. . . . To tell scientists to turn away from their studies in this instance is not far removed from censorship," said Waxman.

It is probable that House-Senate differences in the two bills will be successfully negotiated in conference, just as they were last year. It is also likely that the President will veto the bill, just as he did last year. Speaking on the House floor in support of the Waxman bill, Representative Doug Walgren (D–Pa.) said, "It is my understanding that the Office of Management and Budget will recommend that the President veto this bill." If Reagan does so, there is a reasonable chance that this time his veto will be overridden.—BARBARA J. CULLITON