R & D Colloquium Spotlights Budget "Crisis"

Current trends seen clouding prospects for R & D funding, Keyworth chides scientists for undervaluing preferential treatment

In the past, the AAAS Colloquium on R & D and Public Policy has dealt mainly with the prospects for R & D in the federal budget. This year, the focus shifted to what the perennial AAAS R & D analysis* calls "the crisis in the FY 1983 fiscal budget" and the uncertainties caused by the vagaries of the budget process.

According to the analysis and to several speakers at the colloquium, the budget deficits created by the recession, tax cuts, and heavy increases in defense spending will put heavy pressure on civil R & D, despite the Administration's granting it preferential budget treatment.

Describing the long-term outlook for civilian R & D as "bleak," Willis H. Shapley, principal author of the AAAS report, said at the colloquium that "Even under optimistic economic assumptions, total funding available for nondefense R & D faces a reduction in constant dollars of as much as 30 percent" over the next 5 years. The picture will brighten only if high deficits, substantial increases in taxes, or a cutback in defense spending "—or some combination of these—become acceptable economically and politically."

Sharp exception to this gloomy forecast was taken at the meeting by President's science adviser George A. Keyworth II, who said that he did not share Shapley's "pessimism about the present or the future." Keyworth, who was making a return visit to the colloquium after a little more than a year in office, chided the science community for failing to acknowledge "the importance placed on R & D in the budget, in comparison to other federal programs."

Unburdening himself of what he termed some "pent up reactions," Keyworth said "I'm afraid much of the science community in the past year has been obsessed with some kind of theory that the Reagan Administration was out to cut science budgets for various ideological reasons. So pervasive was the belief that the release of the FY 1983 budget, with R & D getting the second largest increase of any budget function—and in a time of severe financial constraints—went virtually unnoticed." Citing scientists' reactions to successful intercessions in behalf of high-energy physics and space science projects in a tough budget year, Keyworth said he would "hate to conclude" that the science community "is unable to rise above the kind of pork barrel thinking that says a program once started must continue—and grow—independent of scientific priorities."

In a question period, Keyworth was asked how he reconciled the claim of special treatment for science with the fact that the $4 billion increase requested for R & D this year exactly matches the rise in funding sought for military R & D. Keyworth responded that "It is time to take a careful look at what the budget says." He said that increased funding for civilian basic research has been obtained by knocking out funds for expensive demonstration projects.

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In his prepared remarks, Keyworth put main emphasis on elucidating the Administration's main strategy for R & D support: "In general we wanted to strengthen the government in those vital activities it does well—like basic research—and get it out of those it does poorly—like demonstrations of commercial technologies. Perhaps the latest noteworthy example of a misplaced government priority has been our support of demonstration projects in fossil and solar energy. We spent $30 billion in pursuit of programs that had no significant likelihood of helping us to achieve energy independence." The Administration would leave it to industry to undertake the commercialization of technologies for which there is a market potential. The exception would be nuclear power technology for which the Administration continues to have a soft spot.

Most speakers acknowledged that R & D—particularly basic research—had been treated relatively well in the budget. A major object of criticism was the increasingly chaotic interaction between Congress and the Administration in the budget-making process. In a session on impact of the budget on institutions, Case Western Reserve University president David V. Ragone conceded that cries of anguish coming from the universities may be louder than cuts warrant, but cited the effect of "qualitative as well as quantitative" factors.

Discouragement stems from the inability to attract and retain enough good young faculty, he said. Industry is able to offer not only higher salaries but superior research facilities. Uncertainty caused by "lack of closure" on recent federal budgets is a serious problem. The delays in federal decisions on program funding make it impossible for university scientists to take timely action on hiring and salary matters and undermines the planning and continuity essential for effective research, said Ragone.

A similar message was conveyed by Lawrence Berkeley Laboratory director David Shirley. While the military and nuclear power programs of the federal labs operated by the Department of Energy received increased support, the labs had to absorb a decline of funding amounting to 20 percent in real terms between 1981 and next year. This falls very heavily on other programs. A major difficulty, says Shirley, has been the lack of precise information on how programs and manpower should be cut. The labs, therefore, have been "unable to act and plan effectively" and morale has plummeted. If the Administration's budget proposals go through, another 20 percent reduction in force at Berkeley would be required.

The immediate prospects for R & D funding brightened somewhat with congressional action on the budget resolution (see page 135), although the long slog through the appropriations process could bring more reversals.

A warning note on future funding for R & D was struck by Michael Telson of the House Budget Committee staff. While R & D has done relatively well so far, civil R & D spending is in a sector of the budget where so-called discretionary spending is concentrated. R & D will be in competition with other large and politically sensitive programs for what, in

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effect, is a shrinking share of resources, says Telson. And "it will take more than a presidential request to see that Congress delivers the money."

One way to buffer R & D against the prevailing uncertainties would be to put it under a system of multiyear funding, but no strong hopes were held out that this will happen. As speaker at the wind-up lunch for the colloquium, Senator Harrison Schmitt (R–N.M.) did say that he was taking the lead in an effort to frame legislation requiring a comprehensive research and technology budget for R & D in order to counter the fragmentary approach to R & D matters.

If there was a surprise popped at the colloquium it was probably Keyworth's upbeat estimate of future U.S. prospects in high-technology competition with Japan. While Keyworth credited the Japanese with taking full advantage of technology transfer, particularly from the United States, and doing "some things very well," he went on to say that "the Japanese are concerned about their own future because they lack the very strengths that we have in abundance—creativity and flexibility." He quoted press reports that portrayed the Japanese as worried about the adaptability of their management and corporate finance systems and said that the society's emphasis on "community, obedience, and uniformity" made for highly efficient assembly lines but discouraged "far-reaching product invention."

When a questioner suggested that the Japanese have recognized their shortcomings in this respect and are taking steps to overcome them so that it would be wrong to be "complacent that the Japanese will defeat themselves," Keyworth replied rather starchily that he and his staff had given the matter considerable study including discussions with Japanese experts and he would "stand on my comments."

The reaction among those attending the meeting seemed to agree with those of AAAS executive officer William Carey who in remarks summing up the colloquium wondered "if the Administration was in the process of convincing itself that Japan Inc. was withering away," a view he characterized as "imaginative."—JOHN WALSH

Hawaiian Milk Contamination Creates Alarm

A sour response by state regulators

The analysis of milk samples at Albert Oda's laboratory was usually a routine matter. Every 6 months, colleagues of his in the Hawaii health department would collect some samples from local dairies to determine whether the milk was contaminated by pesticides. Roughly 9 million pounds of pesticides are used in Hawaii each year, and contamination is regarded as an ever-present threat but an unlikely occurrence. Oda says that the tests were always negative—until 21 January.

On that day, samples from several dairy farms and a milk plant on Oahu were shown to contain extraordinarily high levels of heptachlor,* a pesticide that causes cancer and liver disorders in mice and is considered a potential carcinogen in humans. Remarkably, health department officials reacted to this discovery as if nothing was seriously amiss. They allowed the milk to be sold and consumed. They sent the samples to a federal laboratory in San Francisco for confirmation. They waited. When the results were confirmed, they thought about it for awhile. They decided to collect more samples. When it was determined that these too contained heptachlor, still more samples were sought.

The public was finally informed 57 days after the initial discovery, when inquiries from a Honolulu newspaper forced the department to admit that milk supplies were contaminated. A limited recall was announced, and the remaining stocks were certified as pesticide-free. Within a few days, it developed that remaining stocks were also contaminated, and a more sweeping recall was issued. In this manner, department officials repeatedly certified milk and milk products, backtracked, and issued additional recalls.

After 11 successive milk recalls, public confidence in the dairy industry and state regulators has been shaken. George Yuen, a civil engineer who served as health department director for 7 years, felt compelled to take early retirement. And many of Oahu's 19 dairy farms are reeling in the face of enormous financial losses.

The parties involved are all anxious to blame someone else. The dairymen have sued one of the state's principal pineapple growers, the Del Monte Corporation, for $31 million, and another grower, Castle and Cooke Inc. (Dole), for unspecified damages, claiming that their cattle ingested the heptachlor in feed made from pineapple leaves. The state attorney general is weighing suits against the dairies and the pineapple growers. A citizen is suing the dairies and the state, seeking an injunction against the continued sale of contaminated milk. And there is a good chance that the entire country will foot the bill, through an obscure program in the federal Department of Agriculture, designed expressly to compensate dairy farmers for the loss of milk due to contamination by pesticides.

In the weeks after the contamination was revealed, health department officials sought vigorously to calm public fears that milk consumed during the regulatory delay was harmful. They did so in large part on the advice of scientists at the University of Hawaii, several of whom argued that the threat to public health was less serious than the potentially adverse consequences for the dairy industry. The medical consequences of the heptachlor exposure—if any—will not be manifest for years, but several other experts are concerned that infants in particular will suffer a heightened risk of leukemia or liver disorders. Studies of infant mortality during the period of exposure and potential liver enlargements in the subsequent period are being organized at a children's hospital and a state research center.

To understand the state's approach to the milk contamination, it is necessary to appreciate the significance of heptachlor to the vitality of the pineapple industry and therefore to the state's economy. Left to the rigors of nature, the pineapple

*In mammals, heptachlor is quickly metabolized into heptachlor epoxide, and this is the substance which the article refers to when describing either contamination or health risks.

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