ences, behavioral sciences, clinical sciences, and health services research—and tailored recommendations to what it perceives as the specific needs or realities (not necessarily the same) of each.

With respect to biomedical sciences, the recommendation is that a reduction of about 10 percent in the number of federally funded predoctoral candidates is "advisable" because there is reason to think that if one trains more, they will not be able to get jobs. Using fiscal year 1975 as a base, that means that in absolute numbers, training grants for predoctoral students would drop from 6000 to 5400. For postdoctoral students, the committee recommends maintaining the status quo (about 3200 postdocs are supported now).

Grants and Fellowships

The committee also took the opportunity to draw important distinctions between training grants and fellowships. The former go to students through institutions whose academic training programs have been deemed worthy of support. The latter go directly to individuals who compete for them on a national basis and who can take their fellowship money to whichever institution they wish. The Glaser committee recommends that predoctoral candidates be given training grants but that postdocs should be supported by fellowships, which also happens to be the way the Administration thinks postdoctoral education should be funded, if at all.

In the field of behavioral sciences the committee calls for a major change in the current pattern of training, saying that "Scientific advances in these fields have vastly increased the complexity of research methods and imposed requirements for more intensive training." The committee found that there are plenty of Ph.D.'s in the area to meet conventional demands, but not enough individuals to tackle research problems in "behavior and health." At present, about 10 percent of federal support of training in behavioral sciences goes to postdocs and 90 percent to predoctoral candidates. The committee recommends a drastic shift in those percentages, to 70 percent of funds for postdocs and only 30 for Ph.D. candidates. And, in a reverse of its position on training grants versus fellowships as a mechanism of support in the biomedical sciences, here the committee urges that at least 80 percent of the money go to training grants. It explains this by saying that because postdoctoral training is just beginning to emerge as a common thing in the behavioral sciences and because there is a growing need for interdisciplinary training programs, it makes sense to concentrate one's efforts on institutions that have the capacity to develop innovative programs.

In the clinical sciences the committee finds a need for training money for 2800 individuals, most of them M.D.'s, but also including Ph.D.'s, dentists, and veterinarians who are interested in clinical research, and thinks that about 80 percent of funds should go for training grants. "There is a need for high-quality programs specifically designed to provide the rigorous scientific background necessary to produce a clinician with the skills necessary to be a productive research scientist." (In 1969, the peak year for NIH funding of training, there were about 4200 postdocs being supported in clinical sciences.)

Calling health services research "an emerging area of national importance," the committee said that, for now, support in the area is adequate (there are about 180 individuals in health services training programs), and, again, it urged that money be concentrated in training grants to institutions that are developing programs in this still very new field. Also, as before, it recommended a shift from emphasis on support of predoctoral candidates to those who already have their degrees.

In this regard, one thread running throughout the report is that there either is, or soon will be, a surplus of Ph.D.'s, and, therefore, no compelling reason to support their training as extensively as in the past. On the other hand, there are certain areas in which there is a "national need" for more specially trained postdocs.

Reaction to the report, chairman Glaser says, has been "varied," with negative responses coming primarily from those who just don't want to cut back on anything. (The "public" will have a chance to comment on the committee's findings at a meeting at NAS on 4 November.)

The report is by no means perfect, and the committee has a lot of work to do during the next couple of years to develop better data from which to project manpower needs, and so forth, but it does seem to be a good start because the committee is approaching a highly sensitive problem with such a reasoned tone. As vice-chairman Henry W. Riecken of the University of Pennsylvania put it, "We are trying to get out of the adversarial process that has characterized the training debate."—BARBARA J. CULLITON

Energy Conservation: Congress Acts on Building Standards

Congress has passed a bill calling for energy conservation in new and existing buildings which well before the turn of the century could lead to huge reductions in the amount of oil that will have to be imported from abroad. The measure cleared Congress on 10 August after House-Senate conferees had finally broken a prolonged impasse over the intensely controversial question of federal sanctions for enforcement of conservation standards.

According to the conferees' report, the measure—if fully implemented—could by 1990 result in energy savings for new buildings amounting to the equivalent of 6 million barrels of oil a day, or three-fourths of the volume of all domestic oil now being produced. Savings equivalent to a half million barrels a day were said to be possible by 1980 from better insulation for existing buildings and from installation of more energy-conserving equipment, such as heat pumps.

But full implementation of the standards for new buildings may depend on whether the tough federal sanctions now spelled out in the bill only conditionally will be needed—and whether Congress will be willing, when the standards are promulgated 3½ years hence, to approve those sanctions.

The conservation standards for buildings legislation is only one part of a larger measure known as the Energy Conservation and Production Act of

1976, the second major conservation bill passed by Congress within the last 9 months. The act, which carries forward the energy policy set forth by President Ford in early 1975, complements the conservation legislation passed last December that provided for enforceable fuel economy or efficiency standards for automobiles and electric appliances and voluntary conservation targets for the major energy-consuming industries. It includes the following:

- The Department of Housing and Urban Development (HUD) shall publish "performance standards" for all new commercial and residential buildings. Final standards will take effect sometime in 1981.

The state and local governments will be virtually compelled to adopt these standards if both houses of Congress approve, under an expedited procedure, the bill's sanctions provisions. Federally regulated banks and savings and loan associations, or nearly all lending institutions, would be prohibited from making mortgage loans for new buildings not determined to be in compliance with the standards.

- The Federal Energy Administration (FEA) is authorized to make up to $2 billion in loan guarantees to encourage installation of energy conservation features (or solar energy equipment) in existing buildings, including industrial plants, public buildings, and multifamily residential dwellings.
- FEA will also administer, through the state and local governments and community action agencies, a 3-year program of grants for the insulation or "weatherization" of existing dwellings for low-income families. Appropriations could not exceed $200 million.

In their effort to pass a bill containing strong sanctions, the Senate sponsors of the conservation standards measure had sought to gain greater negotiating leverage by having it combined not only with the other conservation measures cited above but also with a bill extending the life of the FEA for 18 months and removing price controls on oil from "stripper" wells. But, up until a few weeks ago, it appeared that the House and Senate conferees were hopelessly deadlocked, with the senators insisting on sanctions and their House counterparts insisting that the standards be voluntary.

Senator William Proxmire (D-Wis.), chairman of the Committee on Banking, Housing, and Urban Affairs, and a number of other senators were convinced that, without sanctions, progress by the some 17,000 local building code authorities around the country in adopting conservation standards issued by HUD would be slow and uncertain. (Although about a score of states now have adopted building codes which local governments must follow, the majority of states still allow the localities to fashion their codes as they see fit.) And lobbyists for The American Institute of Architects, the National Conference of State Legislators, and environmental groups such as the Sierra Club and the Environmental Policy Center were urging Proxmire and his colleagues never to abandon the sanctions provision.

On the other side of the controversy, groups such as the National Association of Home Builders, the Mortgage Bankers Association, and the U.S. Chamber of Commerce looked upon the Senate-passed bill for enforceable standards as one that could entangle builders in more bureaucratic red tape and drive up the already high cost of housing. Also, besides viewing the measure as a threat in itself, these groups—together with others such as the National Association of Counties and the National League of Cities—feared it as a step toward a national building code. Furthermore, they took the view that the several model building code organizations and the state and local code authorities were already beginning to embrace conservation standards, without any federal compulsion.

Yet many in Congress felt that, so long as there remained any uncertainty whether thorough-going energy efficiency standards were to be applied to buildings, the nation's conservation policy would be far from complete. About one-third of all of the energy used in the United States is consumed in heating, cooling, lighting, and ventilating buildings. The American Institute of Architects has testified that the conservation potential is enormous—that the energy efficiency of existing buildings can be increased by 30 percent and that that of new buildings can be increased by 60 percent. Moreover, a rapid expansion of the existing inventory of homes and commercial buildings is forecast—FEA projections indicate that, by 1985, 30 percent of all residential units and 40 percent of all commercial buildings will have been constructed during the previous 10 years.

In the compromise that broke the legislative deadlock, the Senate made a major concession by agreeing to defer a decision on sanctions until after the conservation standards have been promulgated. But, as one Senate aide who helped work out the compromise observes, the fact that Congress will later review and possibly embrace the sanctions option lets the state and local governments know that it means business about conservation in buildings.

The compromise included two other concessions to ease the apprehensions of builders. One of them was that, even if state and local authorities have not incorporated the required national standards into their building codes, a builder's plans can be certified as in keeping with those standards through special procedures to be worked out between HUD and an appropriate local or state agency. The other was that the newly created National Institute of Building Sciences (NIBS) would be given an important consultative role in the development, review, and updating of the standards. The building industry expects to have its views well heard through NIBS committees and technical panels.

Pending development of the national conservation standards over the next 3 years, state and local authorities wanting to include energy efficiency standards in their building codes apparently will be looking to those issued last year by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). For want of something better, the FEA has in fact proposed to make its grants for the development of state energy plans conditional upon the states' acceptance of the ASHRAE standards.

These standards can be described as "component" standards, which means that an energy allotment or budget is set for each major component of the building (exterior walls, heating and air conditioning systems, and so on). The standards to be developed by HUD with the help of the NIBS, the National Bureau of Standards, and the Energy Research and Development Administration will be based on the concept of establishing an energy budget for the buildings as a whole, thus allowing maximum innovation and flexibility in design.

The General Services Administration's manual *Energy Conservation Design Guidelines for Office Buildings* takes this overall performance standard approach, although this document represents a relatively unsophisticated first generation effort. All new federal buildings are now being designed to consume a maximum of 55,000 Btu's per gross square foot per year, excluding energy from renewable sources such as solar systems. Buildings constructed to conventional designs consume more than twice that much energy.

—LUTHER J. CARTER

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