The National Science Foundation's 1987 budget is $1.622 billion, about $63 million less than the Administration requested. Some $1.406 billion is slated for research. The agency is instructed by Congress to maintain research spending for the women and minorities program at $11 million, ocean sciences at $133.6 million, global geosciences at $35 million, and astronomical sciences at $85 million. NSF also is directed to dispense $500,000 in funds earmarked for the Vienna-based International Institute for Applied Systems Analysis in fiscal year 1986, and to allocate the same amount to the organization in 1987.

The Environmental Protection Agency's research budget is $202.5 million (excluding salaries and expenses), down from the 1986 level of $210 million. Congress has nevertheless directed the agency to add funds to specific research efforts: $3 million for exploratory research in areas such as ozone depletion, $2.5 million for the Hazardous Waste Management Center at Tufts University located in Cambridge, Massachusetts, and $3 million for the Health Effects Institute. The institute administers a research program on automotive air pollutants, which is funded jointly by EPA and industry. EPA's overall budget for 1987 is $5.355 billion as compared to a White House request of $4.15 billion.

After the House Appropriations Committee declined to fund the National Bureau of Standards' proposed cold neutron source in July (*Science*, 11 July, p. 153) the outlook for the $27-million project appeared bleak. Congress, however, at the urging of Senator Slade Gorton (R–WA) has agreed to provide $4.5 million in start-up funding. It instructs NBS to raise another $2 million from other sources—public or private. This funding will enable construction of the facility to proceed. The machine is designed to provide low-velocity neutrons for materials research. Meanwhile, the budget for overall NBS operations in 1987 stands at $122 million. This is up from the $118.7 million allocated in 1986, but still falls below the 1985 budget of $123 million.

The Agricultural Research Service at the Department of Agriculture is slated to receive $499.6 million in 1987—less than the $513 million requested. Competitive research grants are funded at $40.65 million, half of which is designated for biotechnology. The House-Senate conference agreement also provides $28 million for special research grants issued through the Cooperative State Research Service (CSRS), an increase of more than $1 million above House or Senate proposals. CSRS's total for 1987 is $300.6 million, up almost 10% from last year and $54 million more than requested. ■

MARK CRAWFORD

Toxic Waste, Energy Bills Clear Congress

Languishing environmental, energy, and education bills pass in the session's final days as Congress molds 1987 budget

In the closing days of the 99th Congress a handful of important bills managed to squeak through despite many legislators' preoccupation with the 1987 budget. Had Congress' scheduled 3 October adjournment not been delayed for 15 days by budget deliberations, months of work on toxic waste, clean water, and energy conservation legislation might have been lost. But even after an extended stay in Washington, work on issues such as the regulation of pesticides, acid rain control, and nuclear reactor liability was left unfinished. These matters now must be taken up in new legislation to be introduced when Congress convenes in January.

Hazardous wastes. The Reagan Administration had threatened to veto the $8.5-billion Superfund Amendments and Reauthorization Act (HR 2005), which provides for the cleanup of hazardous wastes through 1991. As Congress was getting ready to adjourn, however, the White House ceased complaining that the legislation violated Administration policy opposing new taxes. The scouring of waste sites will be financed by $7.25 billion in new taxes on gasoline sales, petroleum imports, chemical feedstocks, and corporate profits. The remaining $1.25 billion must come from existing federal revenue sources.

Reactor liability is expected to top the nuclear agenda for the House Interior and Energy and Commerce committees next spring.

In its first 5 years, the waste disposal fund operated on a budget of $1.62 billion. Without an extension of the act, work at 100 waste sites could have ceased. The reauthorized law sets new standards on how waste site cleanups are to be conducted. It also specifies that cleanup work must commence on 375 waste disposal sites within 5 years. The stipulations apply to cleanups conducted by the government, as well as by private companies.

Pesticide regulation. The reauthorization of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) collapsed, despite passage in both the House and Senate. The legislation (HR 2482) got snagged over several critical issues: a plan to transfer liability from farmers to pesticide manufacturers when the chemicals are used in accordance with product labels, the right of states to set standards for pesticide residues in foods that are more stringent than federal rules, and the extension of product patent lives to account for regulatory delays. Earlier this year, passage of the legislation seemed assured because industry and environmentalists had reached an agreement on a range of issues related to the bill (*Science*, 4 April, p. 16).

Acid rain. Efforts to control acid rain by reducing sulfur dioxide and nitrous oxide emissions from old power plants and industrial facilities will begin again in 1987. Despite the opposition of the House Energy and Commerce Chairman John Dingell (D–MI), Representative Henry A. Waxman (D–CA) proceeded with hearings on his acid rain legislation (HR 4567) in the final month of the session. Waxman plans to move quickly with a new bill in the spring. Senator Robert T. Stafford (R–VT), chairman of the Environment and Public Works Committee, is expected to introduce a new acid rain bill next year, too.

Nuclear liability. A drive to extend the nuclear power industry's maximum liability for any single accident from $665 million as now provided by the Price-Anderson Act to $6.5 billion also failed in the final weeks of the 99th Congress. The bill (HR 3655) died in the House because of a deadlock between Representatives Morris K. Udall (D–AZ), chairman of the House Interior Committee and Edward J. Markey (D–MA), chairman of the Energy subcommittee on energy conservation and power. They could not agree on a strategy for moving the bill on the House floor. Udall wanted the legislation taken up without being subject to amend-

ments. Markey opposed this. As a consequence, the Rules Committee chose not to allow the legislation to go to the floor.

Reactor liability is expected to top the nuclear agenda for the House Interior and Energy and Commerce committees next spring. At issue are: periodic adjustment of the liability ceiling to account for inflation, a proposal that the Department of Energy's liability for mishaps related to government operated reactors be unlimited, and establishment of a "ready pool of funds" to cover accidents at DOE reactors. Also awaiting resolution are differences in the House and Senate approaches, including whether the Price-Anderson Act should be extended for 10 or 20 years. The law expires 1 August 1987, but the existing liability limit stays in effect until it is reenacted.

Uranium tailings. The Uranium Revitalization and Tailings Reclamation Act (S 1004) proposed by Senator Pete Domenici (R–NM) is dead. The bill would have provided a way to finance the disposal of almost 200 million tons of toxic mill tailings (*Science*, 9 August 1985, p. 537). The bill sought to distribute $2 to $4 billion in cleanup costs between the federal government, electric utilities operating nuclear power plants, and uranium producers. Although the bill passed the Senate Energy and Natural Resources Committee in mid-September, the effort to assist the foundering domestic uranium industry was stalled by a series of legislative holds placed on the bill by Senator Stafford and other members.

Previously, utilities have contended that they should not have to pay more for cleaning up tailings because that cost was incorporated in the purchase price charged by uranium suppliers. Nuclear utilities accepted Domenici's plan, however, because it would have slashed the industry's debt for uranium enrichment technology development to $350 million. The Reagan Administration says that the utilities really owe $3.4 billion.

Drugs. Drug export legislation passed Congress on the last day of the session. The bill (S 1744) is a major breakthrough for pharmaceutical and biotechnology companies. It permits the export of drugs and biologicals that have yet to receive Food and Drug Administration approval to 21 countries. The provision applies only to substances for which FDA approval is actively being sought.

Efficient appliances. After years of fighting the idea of minimum efficiency standards for appliances, manufacturers have finally rallied around the concept long championed by environmentalists. Appliance standards were required under the Energy Policy and Conservation Act of 1975. Final rules were supposed to have been issued by 2 January 1981. The deadline was not met by the Carter Administration, but final rules had been drafted. Reagan Administration appointees, upon taking over at the Department of Energy, stalled the implementation of regulations. Subsequent court decisions on litigation brought by the Natural Resources Defense Council, however, forced DOE to proceed with rulemaking.

The proliferation of standards within individual states such as California and New York, also has led industry to drop its opposition. New legislation (HR 5465) passed by the Congress in early October takes away states' rights to set standards that are more stringent than federal rules. The efficiency levels required for major appliances ranging from refrigerators to furnaces will be more stringent than any standard now in existence. But California had been planning even tougher rules. The federal law requires that by 1990 new appliances must be 15 to 25% more efficient than the average of same type of appliance sold in 1985.

Foreign students. Immigration legislation enacted by the Congress had educational groups such as the National Association of State Universities and Land Grant Colleges (NASULGC) worried about the availability of teaching staff in engineering and science. Until the bill hit the House floor, it carried a provision requiring foreign students upon obtaining their degree to return home for 2 years before returning to the United States. While the issue is dead now, it may be raised again next year.

Retirement ceiling. Legislation to allow people to continue working past age 70 also is causing a stir in the academic community. Under the bill (HR 4154) sponsored by Representative Claude Pepper (D–FL), colleges and universities are exempt from the provision for the next 7 years—meaning that they can continue to retire faculty at age 70. In the interim period leading up to 1994, the university community is expected to study the law's potential effects on attracting new faculty, the conduct of research, and the quality of instruction. Jerry Roschwalb, director of governmental relations at NASULGC, says that college administrators are worried. Without a mandatory retirement requirement, he says, the flow of new talent and ideas into American higher education could suffer.

Meanwhile, The Higher Education Amendments Act (S 1965) passed by Congress raises the annual ceiling on the Guaranteed Student Loan Program. Undergraduates may now borrow up to $2625, instead of $2500. Graduate students can borrow $7500 a year instead of $5000. ■

MARK CRAWFORD

Briefing:

Britain's Scientific Decline

Paris

Britain's scientific output has declined significantly in both quantitative and qualitative terms over the past decade as a result of continued constraints on government support for basic research, according to a report published last week by the Royal Society in London.

In solid state physics, for example, citations to theoretical work by British scientists in papers listed in *Physics Abstracts* dropped from 7.5 to 5.9% between 1977 and 1984, and to experimental work from 6.4 to 5.5%. In one extreme example, research in the class of magnetic alloys known as "spin alloys," the U.K.'s share of citations dropped from 20.5 to 3.2% between 1979 and 1983.

Analysis of data for all fields of science contained in the *Science Citation Index* showed British citations aggregated over four successive years falling from 10.9 to 8.9% between the 4 years up to 1976 and 1982 respectively. The number of citations per paper also declined over this period, while those to individual German, French, and Japanese papers were all increasing.

The Royal Society report, produced by its Policy Studies Unit, admits that, even in 1982, Britain was still ahead of these three countries in absolute terms. It also shows that in another specific field, namely genetics, British science appears to be maintaining its international position as second only to the United States, apparently contradicting a straw poll among 113 British and foreign geneticists which showed that only 10% felt Britain was still a world leader (although many now claim that the deterioration has largely taken place after the period covered by the study).

However, the report concludes that "across all fields the U.K. is producing fewer papers, and they are having less influence on average on other scientists." And it warns that this decline is reflected in the increasing number of prominent British scientists choosing to work in other countries.

The report was one of two commissioned by the Advisory Board for the Research Councils, the independent body which advises the British government on the level of research funds being provided to universities and research laboratories through the five research councils supported by Department of Education and Science, and how these funds should be allocated between the different councils.

The second report, produced by research-