U.S. SCIENCE BUDGET

For All But NIH, the Devil Is Indeed in the Details

The Bush Administration this week tried to prove Albert Einstein's maxim that mathematics isn't necessarily reality. While officials talked up the president's 2002 budget request—the details of which were released on 9 April—as a real boon to science, the numbers said otherwise for nearly every agency except the National Institutes of Health (NIH).

The pronounced tilt toward bioscience is generated by a proposed 13.5% increase for NIH, while the National Science Foundation (NSF), the Department of Energy's (DOE's) Office of Science, and NASA would get essentially flat funding and the U.S. Geological Survey (USGS) would be cut by 8%. "This [budget] is creating an awful lot of discomfort," says physicist Michael Lubell of the American Physical Society, one of many science lobbyists who hope Congress will come to the rescue. The Senate has already passed a nonbinding resolution that calls for increased funding for NSF and DOE science for the fiscal year that begins on 1 October.

The bulk of the good news came from Health and Human Services (HHS) Secretary Tommy Thompson, who confirmed that NIH is slated for its fourth major boost in a row. Most of NIH's two dozen institutes and centers would get raises of about 12% under a record $2.8 billion increase for the agency, and the new National Institute of Biomedical Imaging and Bioengineering would start life with a $40 million budget. The number of "new and competing" awards would remain level at 9158, however, as NIH plans to increase the size of individual grants by 4.3%. That would lift the average cost of a "new research start" to $348,000—36% more than in 1998. Asked to justify NIH's good fortune, Thompson said: "Yes, it's a lot of money, and, yes, there's some grumbling going on by sister divisions [at HHS]. But it is an investment for all of us."

At NSF, the news was grimmer—but you couldn't tell by listening to director Rita Colwell. She pointed to a $40 million increase in three highly touted research programs—nanoscale science, information technology research, and biocomplexity—while glossing over the fact that the agency's $3.3 billion research account would drop by $15 million. NSF's overall budget would grow by 1.3%, a far cry from last year's 13.5% jump and a big departure from the 5-year doubling plan science advocacy groups are pushing.

NSF spokesperson Curt Suplee assured reporters that "nothing will be eliminated" under the president's plan. But another senior official was less sanguine. "Clearly, you can't support all these increases without cutting back in other areas," says Robert Eisenstein, head of the $850 million mathematical and physical sciences directorate. As an example, two disciplines essential to nanoscience—materials science and physics—would have their core research programs trimmed by $9 million and $7 million, respectively. The disconnect is even greater in NSF's $786 million education account. It would grow by $86 million—not enough to pay for a $200-million-a-year presidential initiative to link local school districts with universities to improve precollege math and science instruction. As a result, a decade-long systemic reform initiative would take a 60% hit, to $45 million, and teacher training would shrink by 28%, to $80 million.

Colwell acknowledged a setback in trying to fund major new facilities. The White House nixed plans to start building the Atacama Large Millimeter/Submillimeter Array, a $550 million project with Europe and Japan (see p. 185), along with networks of ecological observatories and seismic stations. It also froze support for a high-altitude research plane already on order. In a bit of good news, the budget contains a $2500 boost in NSF's annual graduate student stipends, to $20,500, although officials had lobbied for a jump to $25,000.

2002 BUDGET RESEARCH HIGHLIGHTS

Department/Agency	FY 2001 (in millions of dollars)	2002 request	% change
National Institutes of Health	20,313	23,112	+13.5
National Science Foundation	4416	4472	+1.3
Research	3342	3326	–0.5
Education	785	872	+11.0
Energy (Office of Science)	3159	3159	0
Defense R&D	41,571	45,159*	+9.0
NASA	14,253	14,511	+1.8
Space science	2321	2453	+5.7
Earth science	1485	1278	–13.9
Life sciences	313	291	–7.0
NIST	494	381	–22.8
NOAA research	1352	1293	–4.3
EPA R&D	574	535	–6.8
U.S. Geological Survey	883	814	–7.8
USDA National Research Initiative	106	106	0
Total Federal R&D	**90,010**	**95,253**	**+5.8**

* Estimated pending completion of high-level review.

Highlights from other agency budgets:

• **NASA:** The space agency won a 2% boost to $14.5 billion, but "faces some very difficult decisions" given a host of overruns, says Administrator Dan Goldin. For instance, Goldin warns that growing cost estimates for some important missions, such as the Space Infrared Telescope Facility, will limit the number of new starts. Overruns already have forced NASA to scale back the international space station and abandon missions to the sun and Pluto. But Goldin vowed to "find a way" to launch an Earth observer called Triana, a brainchild of former Vice President Al Gore that is now on hold.

Funding for Mars exploration fares better,

SOURCE: OFFICE OF MANAGEMENT AND BUDGET

rising from $431 million next year to $659 million by 2005. The future of station research, meanwhile, depends on new European and Japanese contributions to the overall program. But Goldin pledged to have at least 10 experiment racks operating by 2004.

• **DOE:** The Office of Science's $3.16 billion budget would remain flat, although one of its four major programs—Biological and Environmental Science—would drop by 8%, to $443 million, largely by eliminating 24 congressionally ordered projects. DOE's microbial genome research would grow by $10 million to $19.5 million. In high-energy and nuclear physics, U.S. funding or Europe's Large Hadron Collider and the Spallation Neutron Source being built in Tennessee would stay on track, but some user facilities would operate on a reduced schedule. The Relativistic Heavy Ion Collider in New York, for example, would operate for only 20 weeks, down from 27 this year. In addition, notes Lubell, the money to universities "declines slightly across many programs."

Outside the Office of Science, renewable energy research takes a 36% hit, to $237 million, while the Nuclear Cities Program, designed to keep Russian nuclear scientists working on peaceful projects, would be cut 80% to $6.6 million.

• **Environmental Protection Agency:** The Office of Research and Development (ORD) would drop 7%, to $535 million, but EPA officials say that's a $3 million increase after $42 million in earmarks added by Congress last year is removed. The STAR extramural grants program would remain unchanged at $97 million. There are "no wild swings" in most research programs, says budget analyst Amy Battaglia. But agency scientists are bracing for the loss of 36 of ORD's 1971 full-time positions, mainly through attrition.

• **USGS:** The 8% cut will strike hardest at the agency's Toxic Substances Hydrology and National Water-Quality Assessment (NAWQA) programs. The toxics effort drops by 71%, to $4 million, while NAWQA falls over a waterfall, dropping by 30% to $45 million. "This means people out of work," says USGS director Chip Groat. Up to 300 positions are in danger if USGS can't find partners to foot the bill for 18 long-term studies of river basins and watersheds. Funding for biological research would decline 7%, to $149 million, including a 52% cut in programs that distribute biological information.

• **National Institute of Standards and Technology:** NIST's standards measurement laboratories will jump 12%, to $337 million. But the White House wants to suspend new research projects with industry in the $145 million Advanced Technology Program, requesting just $13 million to finish existing projects and conduct yet another study of the controversial initiative.

• **National Oceanic and Atmospheric Administration:** The budget catch for key science programs was off 4% to $1.3 billion, with most of the cuts coming from the National Marine Fisheries Service, which helps enforce the embattled Endangered Species Act.

The president's budget must now work its way through Congress. Decisions about the ultimate size of a proposed tax cut and defense spending will largely determine how much money is left for domestic discretionary programs like research, whose projected $95 billion budget represents less than 5% of a $1.96 trillion pie.

–DAVID MALAKOFF

With reporting by the news staff.

SMITHSONIAN INSTITUTION

Plan to Close Zoo Lab Draws Fire

The Smithsonian Institution plans to close two research centers as part of a move to consolidate and reshuffle its scientific activities. The plan, released last week, has raised an outcry among many researchers, who worry that other valuable programs may be cut as well. An influential member of Congress has already asked officials to rescind the plan, which is part of the agency's newly unveiled 2002 budget request (see previous story).

Considered by many the U.S. equivalent of a ministry of culture and science, the Smithsonian consists of 16 museums, the National Zoo, and a half-dozen research centers. Slated for the ax are the Center for Materials Research and Education, which seeks to improve preservation and curation techniques for museum artifacts, and the Conservation and Research Center (CRC), a 1290-hectare rural breeding and study facility for threatened or endangered species, operated by the zoo. The proposed closures are "a redirection of spending," as the Smithsonian focuses on a few key disciplines, says Lawrence Small, a former investment banker who last year took over as secretary of the 150-year-old institution.

CREDIT: MILLER/CRC

To the rescue. The black-footed ferret is one of several species helped by Smithsonian center.

The proposed cuts must still pass muster with Congress, which provides about 60% of the institution's $750 million budget, and with the Smithsonian's governing board, which is expected to review them next month. Representative Frank Wolf (R–VA), a member of the House appropriations panel whose district includes the center, immediately chastised the Smithsonian for the plan and called for a reversal of the decision. "I have let Smithsonian officials know of my extreme displeasure," Wolf said on 6 April, 1 day after word of the cuts was leaked to the media.

Smithsonian researchers say that they are shocked by the news, which was announced by the zoo's director, Lucy Spelman, during a surprise 4 April visit to the conservation center some 100 kilometers west of Washington, D.C. "It's kind of amazing," says Devra Kleiman, a former zoo researcher and now a conservation biologist at Conservation International in Washington, D.C. "At a time when most zoos are making major efforts to hire people to do research and conservation that link the work they do in zoos with the work they do in the field, the Smithsonian National Zoo, which was a model for that 25 years ago, [is] eliminating those functions."

In a staff memo, Spelman explained that "the resources are simply not available to maintain the CRC as a world class facility," even though Small insists that conservation research remains important to the Smithsonian. The CRC gets about $5 million per year in federal funds. The materials center, which was set up in 1963 to service all the museums, has a federal budget of about $3.3 million per year, but Small says it is "not an area of high priority" because most individual museums now have their own preservation pro-