

## Senate Sets NSF Research on Doubling Path

(This analysis is part of a series of AAAS R&D Funding Updates on the FY 2003 congressional appropriations process. This analysis includes information on R&D in Senate-approved FY 2003 appropriations for the National Science Foundation. The complete series of AAAS R&D Funding Updates, including continually updated analyses of R&D by agency in FY 2003 appropriations, is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/rd>) in the "FY 2003 R&D" or the "What's New" sections.)

On July 25, as part of a rush to draft all 13 FY 2003 appropriations bills before a month-long August recess, the Senate Appropriations Committee drafted an FY 2003 VA-HUD appropriations bill (S. 2797) that would provide a substantial budget increase for the National Science Foundation (NSF). The Senate would provide NSF with a total budget of \$5.4 billion in FY 2003, \$564 million or 11.8 percent more than FY 2002. This would far exceed the Administration's request of \$5.0 billion. **In the Senate plan, NSF's R&D funding would rise 11.9 percent for a total of \$3.9 billion, including a 14.8 percent boost in the key Research and Related Activities account which could be the first year of a five-year doubling effort** (see Table).

The Senate FY 2003 VA-HUD bill would provide \$91 billion for discretionary programs. The bill funds science agencies including NSF, the National Aeronautics and Space Administration (NASA), the Environmental Protection Agency (EPA), and non-R&D programs for veterans and housing. The President requested \$93 billion for the bill's programs, but the Senate would rearrange priorities to give NSF far more money than requested. The House is not expected to draft its version of the bill until September or later.

In February, NSF won praise from the Bush Administration for its management, but only modest increases for its R&D programs. Excluding NSF's non-R&D education activities, NSF R&D would have totaled \$3.7 billion, a boost of 3.5 percent in which **more than half of the increase would have been due to the proposed transfer of three science programs** from other agencies. Without these transfers, NSF R&D would have increased only 1.4 percent. The Senate has already drafted bills rejecting the proposed transfer of a toxic hydrology program from the U.S. Geological Survey (USGS) and the National Sea Grant College Program from the Department of Commerce and funded these programs in their current agencies (see the July 10 AAAS R&D Funding Update for Interior R&D; see the July 26 AAAS R&D Funding Update for Commerce R&D). The other proposed transfer is from the Environmental Protection Agency (EPA); the fate of this transfer was not available at the time of writing. (For details of the Administration request for NSF, see Chapter 7 of *AAAS Report XXVII: R&D FY 2003*).

The Senate would award large increases to NSF's budget and to NSF's R&D: the Senate VA-HUD bill would exceed the request with \$5.4 billion to NSF, an increase of \$564 million or 11.8 percent. **NSF's R&D funding, which excludes NSF's education and training activities and overhead costs, would total \$3.9 billion in the Senate plan, an increase of 11.9 percent or \$421 million (see Table)**. Senator Barbara Mikulski (D-MD), the chairman of the Senate VA-HUD appropriations subcommittee, and Senator Kit Bond (R-MO), the ranking member, are proponents of a plan to double the NSF budget in five years, and the Senate appropriation can be interpreted as the first step toward achieving that goal.

The **Research and Related Activities (R&RA)** account, which funds most of NSF's R&D, would receive \$4.1 billion, 14.8 percent or \$533 million more than FY 2002 in an increase consistent with a doubling trajectory beginning in FY 2003. The Senate bill would offer varying increases to the R&RA research directorates. The big winner would be Integrated Activities, which would receive \$171 million for an increase of \$64 million or 60.2 percent. The Senate would add \$50 million to the request for the **Major Research Instrumentation** program to bring funding to \$104 million, well above the \$76 million FY 2002 total. This program provides funds to address research equipment needs of research institutions, mostly universities. The Computer and Information Science and Engineering (CISE) directorate would receive a 19.8 percent boost to \$617 million, with an emphasis on cybersecurity and broadband research; CISE is the

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lead partner in the multi-agency Networking and Information Technology R&D initiative. The Engineering directorate would see a 20.3 percent increase to \$568 million.

The Mathematical and Physical Sciences directorate would receive \$115 million more than the request for a total of \$1.1 billion (up 14.8 percent), although mathematical sciences would receive less than requested for \$162 million, which would still be a 7.2 percent increase over FY 2002. The Geosciences directorate would receive slightly less than requested but still a 12.3 percent boost over FY 2002 for a total of \$684 million, but the requested increase was inflated with the three proposed transfers; the Sea Grant program alone would have totaled \$57 million of a proposed \$82 million increase. The social sciences and the biological sciences (BIO) would receive the requested amounts, although with some rearrangements of internal priorities; within BIO, \$85 million would go toward plant genome research (up from \$75 million in FY 2003 and the FY 2003 request).

The **Major Research Equipment** (MRE) account, which funds construction of large-scale scientific facilities, would be the only declining account in the Senate bill. MRE would receive \$79 million, far less than the \$139 million FY 2002 funding level and the \$126 million request. The Senate would fund only five of the seven requested projects: the Atacama Large Millimeter Array (ALMA) radio telescope (\$30 million), the Large Hadron Collider (\$10 million), the Network for Earthquake Engineering Simulation (NEES; \$14 million), the South Pole Station (\$6 million), and Earth Scope (\$20 million, less than the \$35 million request). The Senate would move funding for the Terascale Computing Systems project out of MRE into CISE at a reduced \$10 million level. The Senate bill would not fund the \$12 million request for the National Ecological Observatory Network (NEON).

NSF's **Education and Human Resources** programs would receive \$948 million, an amount 8.3 percent above FY 2002. The heart of the Administration's request was \$200 million for the second year of a Math and Science Partnerships program to encourage academic institutions and schools to work together to improve math and science education. The Senate would trim the request for the program to \$120 million and spread the savings among other EHR programs. The Senate would boost funding for the Experimental Program to Stimulate Competitive Research (EPSCoR) from \$91 million to \$110 million, with another \$11 million in Integrative Activities (R&RA) for Innovation Partnerships (funded within EPSCoR in FY 2002). Both programs assist research institutions and states that have traditionally been underrepresented in federal R&D funding.

The Senate VA-HUD bill could see floor debate and approval before the August congressional recess (begins August 2), but consideration may be delayed until September because as many as 10 appropriations bills are now ready for Senate consideration. The House will not draft its version of the bill until September, at the earliest. The House is unlikely to be as generous as the Senate toward NSF.

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AAAS R&D Budget and Policy Program  
1200 New York Ave, NW  
Washington, DC 20005  
(202) 326-6607; -6600  
fax (202) 289 4950  
science\_policy@aaas.org  
www.aaas.org/spp/rd (Note: New URL)

**Table. National Science Foundation  
Senate Appropriations Committee Action on R&D in the FY 2003 Budget  
(budget authority in millions of dollars)**

	FY 2002 Estimate	FY 2003 Request	Action by Senate				
			FY 2003 Senate	Chg. from Request Amount	Chg. from Request Percent	Chg. from FY 2002 Amount	Chg. from FY 2002 Percent
Research and Related Activities <sup>1</sup> :							
Mathematical and Physical Sciences	920	942	<b>1,057</b>	115	12.2%	136	14.8%
Engineering	472	488	<b>568</b>	80	16.4%	96	20.3%
Biological Sciences	508	526	<b>526</b>	0	0.0%	17	3.4%
Geosciences	609	691	<b>684</b>	-7	-1.0%	75	12.3%
Computer and Info. Science and Eng.	515	527	<b>617</b>	90	17.1%	102	19.8%
Social, Behavioral and Econ. Scis.	169	196	<b>196</b>	0	0.0%	27	15.9%
US Polar Programs	298	304	<b>314</b>	10	3.3%	16	5.4%
Integrative Activities	107	111	<b>171</b>	60	54.2%	64	60.2%
Total Research and Related Activities <sup>1</sup>	3,599	3,783	<b>4,132</b>	348	9.2%	533	14.8%
Major Research Equipment	139	126	<b>79</b>	-47	-37.2%	-60	-42.9%
Education and Human Resources R&D	146	137	<b>143</b>	6	4.4%	-3	-1.7%
Less Non-R&D in R&RA <sup>1</sup>	-357	-396	<b>-407</b>	-12	2.9%	-50	14.0%
<b>Total NSF R&amp;D</b>	3,526	3,651	<b>3,947</b>	296	8.1%	421	11.9%
Non-R&D Programs and Activities:							
Non-R&D in R&RA <sup>1</sup>	357	396	<b>407</b>	12	2.9%	50	14.0%
Other Education and Human Res.	729	771	<b>805</b>	34	4.4%	75	10.3%
( Total E.H.R. Budget )	875	908	<b>948</b>	40	4.4%	73	8.3%
Salaries and Expenses <sup>2</sup>	170	203	<b>186</b>	-17	-8.5%	16	9.2%
Inspector General	7	8	<b>9</b>	1	17.7%	2	34.0%
Total NSF Non-R&D Activities	1,263	1,377	<b>1,407</b>	29	2.1%	143	11.3%
<b>Total NSF Budget</b>	4,789	5,028	<b>5,353</b>	325	6.5%	564	11.8%

AAAS estimates based on FY 2003 appropriations bills. Includes conduct of R&D and R&D facilities.  
FY 2002 and FY 2003 request figures based on OMB R&D data and supplemental agency budget data.  
Figures are rounded to the nearest million. Changes calculated from unrounded figures.  
All figures adjusted to exclude President's proposal to fully fund federal retiree costs, and therefore differ slightly from figures presented in *AAAS Report XXVII*.

<sup>1</sup> R&RA funds are not appropriated by directorate. The FY 2003 Senate directorate figures are based on report language in the FY 2003 VA-HUD appropriations bill.

<sup>2</sup> FY 2003 Senate figure includes separate appropriation for the National Science Board.

**July 26, 2002 - Senate Appropriations Committee-approved funding levels.**

**These funding levels may be amended or rejected on the Senate floor.**