

Final FY 2000 Appropriations -

## **NSF R&D Up By 5.2 Percent; Large Increase for IT Research**

(The complete series of AAAS R&D Funding Updates is available on the AAAS R&D Web Site (<http://www.aaas.org/spp/R&D>) in the "FY 2000 R&D" or the "What's New" sections.)

On October 20, President Clinton signed into law an FY 2000 VA-HUD appropriations bill (HR 2684) that gives increases to R&D programs in the National Science Foundation (NSF). The final bill closely follows the Administration request and the Senate version of the bill, and rejects the cuts to NSF's budget proposed in the House version. In November, President Clinton and Congress agreed to a 0.38 percent across-the-board cut in all discretionary programs that reduces all funding levels. The bill **boosts NSF's budget by \$187 million or 5.0 percent to near the Administration's requested level of \$3.9 billion**. NSF's directorates receive increases of at least 3 percent in the final bill, and total **NSF R&D climbs 5.2 percent to \$2.9 billion** (see Table; all figures are adjusted to reflect the across-the-board cut). Included in the bill is a 31 percent increase for information technology (IT) research in the Directorate for Computer and Information Science and Engineering (CISE) for new IT research in areas similar to the Administration's proposed Information Technology for the Twenty-First Century (IT<sup>2</sup>) initiative.

Congress provided NSF with just \$24 million less than its request, for a total NSF budget of \$3.9 billion, an increase of \$187 million or 5.0 percent over FY 1999. **NSF's R&D funding, which excludes NSF's education and training activities and overhead costs, totals \$2.9 billion in FY 2000, an increase of \$140 million or 5.2 percent (see Table).**

The **Research and Related Activities (R&RA)** account, which funds most of NSF's R&D, receives \$3.0 billion, 5.2 percent or \$146 million above the FY 1999 funding level but \$49 million below the request. Although the R&RA appropriation is not distributed by directorate, this amount is enough to give each directorate an increase of at least 3 percent.

The FY 2000 NSF budget dramatically increases NSF's investments in information technology (IT) research. The President's Information Technology Advisory Committee (PITAC), which issued its final report in February 1999, recommended that the federal investment in information technologies R&D be increased by \$1.37 billion over the next five years and that a strategic initiative be created to support fundamental computing research that will lead to breakthroughs and new capabilities to serve the growing demands on information technologies.

In response the Clinton Administration, in its budget request, had proposed a multi-agency Information Technology for the 21<sup>st</sup> Century (IT<sup>2</sup>) initiative in fundamental computing and IT research with a \$366 million budget for FY 2000, of which \$146 million would have come from NSF. Of that amount, NSF requested \$110 million for IT<sup>2</sup> research in the Computer and Information Science and Engineering (CISE) Directorate, funded within R&RA. In Congress the House Science Committee introduced a bill (HR 2086; the Networking and Information Technology Research and Development Act) to authorize a multi-year IT research initiative following the PITAC recommendations. In the final budget, there is \$90 million in new money for CISE, designated for "individual and team research projects related to information technologies, specifically in the areas recommended in the PITAC report and in H.R. 2086." Combined with funds in the Major Equipment account (see below), NSF has \$126 million out of its requested \$146 million for new IT research

activities in FY 2000. The CISE budget of \$390 million represents a 30.6 percent increase over FY 1999.

The remaining \$36 million of NSF's proposed contribution to IT<sup>2</sup> comes from the Major Research Equipment account to fund Terascale Computing Systems, a facilities project to build a five-teraflop (trillions of computing operations a second) computing site. Congress granted this request and oriented its activities toward the goals outlined in HR 2086 and the PITAC report. The Major Research Equipment account receives \$95 million, up \$10 million from the request and \$5 million from FY 1999.

The Biological Sciences (BIO) Directorate within R&RA receives \$415 million, \$24 million or 6.1 percent more than FY 1999. The bill boosts funding for the third year of the Plant Genome Research Program from a requested \$55 million to \$60 million. NSF's new **Integrative Activities** account, which supports emerging cross-disciplinary research and major research instrumentation, receives \$130 million, far less than the request and FY 1999 level of \$161 million. Although the final bill provides the requested \$50 million for the new **Biocomplexity** initiative and \$50 million (the same as FY 1999 and the FY 2000 request) for Major Research Instrumentation, the bill does not provide any funding for the Opportunity Fund, a fund designed to support innovative, cross-disciplinary research taking advantage of emerging scientific opportunities. In FY 1999, the Fund received \$24 million.

**Education and Human Resources** receives \$694 million, \$38 million more than FY 1999, including \$55 million for the **Experimental Program to Stimulate Competitive Research** (EPSCoR; up from \$48 million), a program to improve the research competitiveness of 18 states (and Puerto Rico) traditionally underrepresented as recipients of federal research funding. The final VA-HUD bill transfers the EPSCoR program and its funds to a new Office of Innovation Partnerships, and charges the new office with administering EPSCoR and also assisting non-EPSCoR institutions that receive relatively little federal research funding expand their research capacity and competitiveness. The new office receives \$10 million in addition to the \$55 million in EPSCoR funds.

NSF is the only federal agency with responsibility for research in all major science and engineering fields. As shown in Figure 1, NSF has a balanced research portfolio covering the breadth of science and engineering. In most fields, NSF is the largest or second-largest source of federal funding.

Although growth in the NSF budget stagnated somewhat in the mid-1990s, in the last few years NSF has received significant funding increases, and most disciplines have shared in this growth. Figure 2 shows recent trends in NSF support for selected disciplines.

Figure 2 shows that in the early to mid 1990s, support for these disciplines stagnated, but NSF support of research in all five of the above disciplines increased in real terms between FY 1996 and FY 1999, a trend that is likely to continue in FY 2000. For the past few years, NSF has increased support for these disciplines at similar rates. The large increase for CISE in FY 2000 is likely to skew the FY 2000 results and show a far higher increase for mathematics and computer sciences research compared to other disciplines.

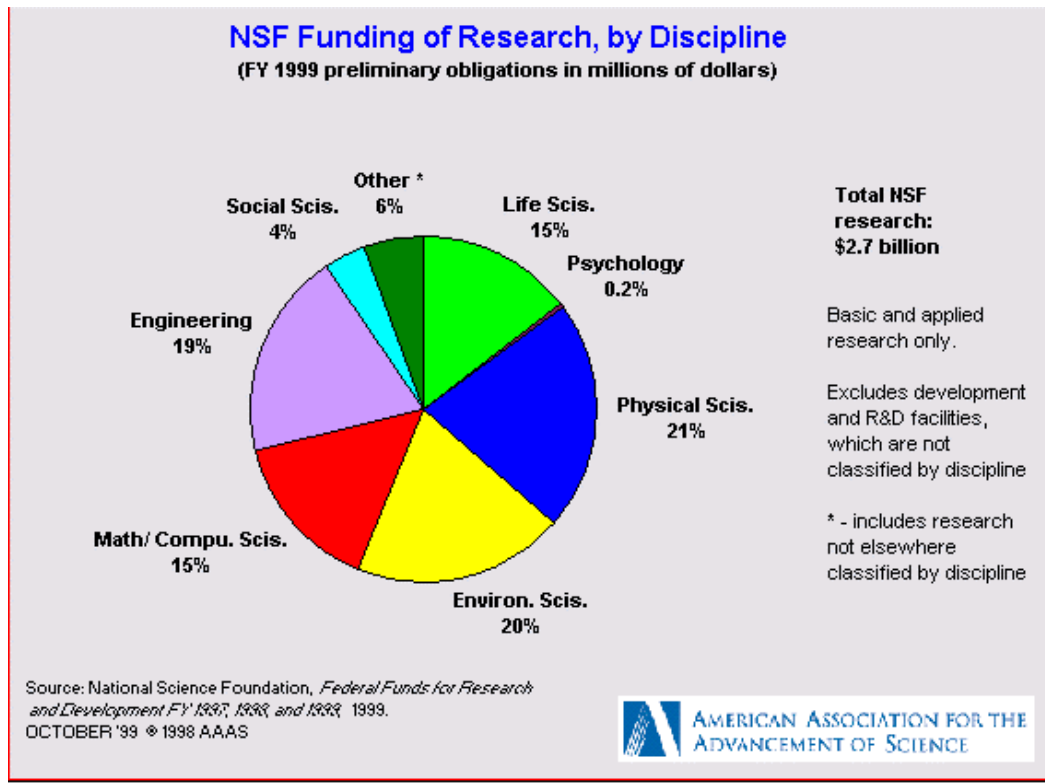


Figure 1.

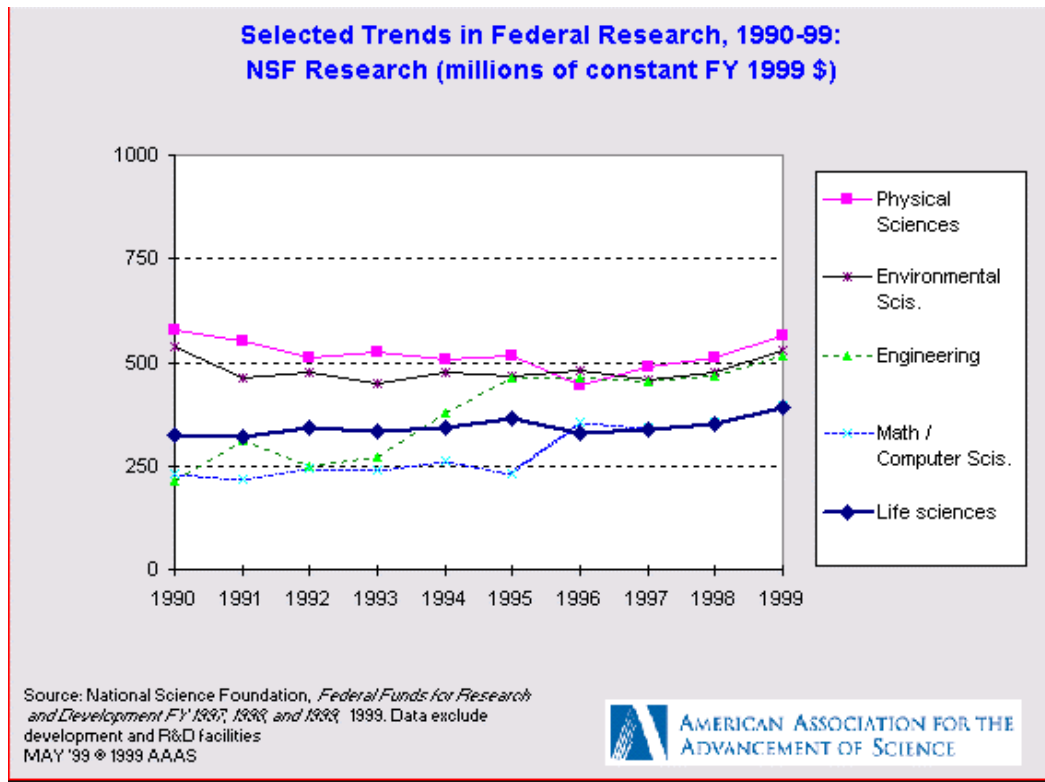


Figure 2.

President Clinton signed the VA-HUD bill into law on October 20. Although these funding levels would have been final under normal circumstances, in November Congress re-opened completed FY 2000 appropriations to enact a 0.38 percent across-the-budget cut to all discretionary programs, including those in the already-enacted VA-HUD bill.

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**Table. National Science Foundation  
Congressional Action on R&D in the FY 2000 Budget (FINAL)  
(budget authority in millions of dollars)**

	FY 1999 Estimate	FY 2000 Request	Action by Congress				
			FY 2000 FINAL	Chg. from Request Amount	Chg. from Request Percent	Chg. from FY 1999 Amount	Chg. from FY 1999 Percent
Research and Related Activities <sup>1 2</sup> :							
Mathematical and Physical Sciences	734	754	<b>756</b>	2	0.3%	22	3.0%
Engineering	369	379	<b>380</b>	1	0.3%	11	3.0%
Biological Sciences	391	409	<b>415</b>	6	1.5%	24	6.1%
Geosciences	473	485	<b>487</b>	1	0.3%	14	2.9%
Computer and Info. Science and Eng. - <i>Information Tech. Initiative (IT<sup>2</sup>)</i> *	299 0	423 110	<b>390</b> <b>(90)</b>	-32 -20	-7.7% -18.2%	91 --	30.6% --
Social, Behavioral and Econ. Scis.	137	143	<b>143</b>	0	0.3%	6	4.5%
US Polar Programs	245	251	<b>254</b>	3	1.2%	9	3.5%
Integrative Activities <sup>1</sup>	161	161	<b>130</b>	-31	-19.5%	-32	-19.6%
<b>Total Research and Related Activities <sup>1 2</sup></b>	<b>2,809</b>	<b>3,004</b>	<b>2,955</b>	<b>-49</b>	<b>-1.6%</b>	<b>146</b>	<b>5.2%</b>
Major Research Equipment	90	85	<b>95</b>	10	11.3%	5	5.2%
Education and Human Resources R&D	108	108	<b>108</b>	0	0.0%	0	0.0%
Less Non-R&D in R&RA <sup>2</sup>	-293	-307	<b>-303</b>	4	-1.3%	-10	3.5%
<b>Total NSF R&amp;D</b>	<b>2,714</b>	<b>2,890</b>	<b>2,854</b>	<b>-36</b>	<b>-1.2%</b>	<b>140</b>	<b>5.2%</b>
Non-R&D Programs and Activities:							
Non-R&D in R&RA <sup>2</sup>	293	307	<b>303</b>	-4	-1.3%	10	3.5%
Other Education and Human Res.	554	570	<b>586</b>	16	2.8%	32	5.8%
Salaries and Expenses	144	149	<b>148</b>	-1	-0.4%	4	3.1%
Inspector General	5	5	<b>5</b>	0	-0.4%	0	4.4%
<b>Total NSF Non-R&amp;D Activities</b>	<b>996</b>	<b>1,032</b>	<b>1,043</b>	<b>11</b>	<b>1.1%</b>	<b>47</b>	<b>4.7%</b>
<b>Total NSF Budget</b>	<b>3,710</b>	<b>3,921</b>	<b>3,897</b>	<b>-24</b>	<b>-0.6%</b>	<b>187</b>	<b>5.0%</b>

AAAS estimates of R&D in FY 2000 appropriations bills. Includes conduct of R&D and R&D facilities.

Figures are rounded to the nearest million. Changes calculated from unrounded figures.

Includes across-the-board reduction.

<sup>1</sup> R&RA figures include funding derived from the Intellectual Infrastructure fund in FY 1999.

<sup>2</sup> R&RA funds are not appropriated by directorate. The FY 2000 Final directorate figures are AAAS estimates based on language in the FY 2000 appropriations bill.

\* - There is no appropriation for IT<sup>2</sup> in the FY 2000 conference report. The FY 2000 Final figure represents additional funds for new IT research in areas similar to those proposed in the initiative, but following on the specific recommendations of HR 2086 (the Networking and Information Technology Research and Development Act).

**Nov. 24, 1999 - FINAL**