

Changes in R&D Priorities Seen in The U.S. President's Fiscal 2004 Budget Message

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9.1 Introduction

On February 3, 2003, U.S. President George W. Bush delivered the fiscal 2004 (October 2003 through September 2004) Budget Message. The research and development budget for the federal government as a whole is \$122.7 billion, an increase of 6.7 percent over the previous year. This increase is greater than the 4 percent increase in the fiscal 2004 discretionary budget (that portion of the federal budget that is not allocated for mandatory costs). This is primarily because of large increases in the budgets for defense-related development and homeland security-related research. This report will discuss changes in the Bush Administration's R&D priorities as seen in the president's fiscal 2004 Budget Message.

9.2 The environment surrounding the Bush administration

The president's fiscal 2004 Budget Message was delivered amid great uncertainty. First, even though four months had already passed since the start of fiscal 2003 (October 2002 through September 2003), only the Department of Defense (DOD) expenditure bill had passed. Those for other departments and agencies were still being deliberated in Congress (See Footnote 1). If a war with Iraq takes place, an extraordinary budget will be required, and the deficit spending that began in fiscal 2002 will increase. The most uncertain element, however, is what effect the space shuttle crash will have on science and technology policy. Because the disaster occurred only two days before the Budget Message was released, depart-

mental budget requests had already been set and the accident's influence is not reflected in them. For those reasons, it is difficult to predict how close the budget that is finally passed after Congressional deliberation will be to the president's Budget Message. However, since the Republicans, the president's party, have held majorities in both the Senate and the House of Representatives since last autumn, Congress is likely to seriously consider the president's proposals.

9.3 Overview of the fiscal 2004 Budget

Figure 1 gives a breakdown of the fiscal 2004 research and development budget (as proposed by the president), while Figure 2 shows percentage increases in the fiscal 2004 budget (as proposed by the president). In keeping with the Bush Administration's emphasis on defense, the DOD research and development budget is much larger. Breaking that down, the budget for weapons systems development, including missile defense development programs (See Footnote 2), greatly increased, while the budget for basic research

Footnote 1:

For the fiscal 2003 budget, this report uses figures from the actual DOD budget, while figures for other bodies are from the president's Budget Message.

Footnote 2:

In the fiscal 2004 president's Budget Message, funding for missile defense development programs increased 22 percent over the previous year, to \$8.3 billion.

declined by 7.7 percent and that for applied research by 14.4 percent.

The National Science Foundation's (NSF) research and development budget is up 10 percent over the previous year, but this is less than the 15 percent increase required to double the NSF budget from fiscal 2003 to fiscal 2007 as was officially decided last December.

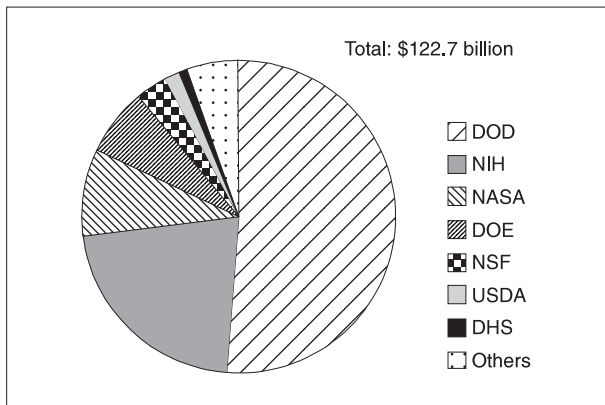
Two-thirds of National Aeronautics and Space Administration's (NASA) overall budget-proposed before the space shuttle crash-goes to research and development, and their proposed R&D budget for fiscal 2004 is 9.3 percent more than last year. This is due to a large increase in the budget for

space science programs such as solar system exploration. The space shuttle disaster, however, may lead to a radical reassessment of NASA's programs, so this bears watching.

The National Institutes of Health's (NIH) research and development budget has steadily increased through its budget-doubling campaign (1999 through fiscal 2003), but with the end of that campaign a mere 2 percent increase is proposed for fiscal 2004. With inflation at 1.9 percent, essentially there is no increase in the fiscal 2004 budget. However, because NIH made major one-time capital investments during fiscal 2003 (See Footnote 3), the R&D program budget for fiscal 2004 in effect will increase by 3 to 5 percent.

The research and development budget for the new Department of Homeland Security (DHS) is 31.5 percent greater than last year. This is largely due to the creation of budget for the Homeland Security Advanced Research Projects Agency (HSARPA)(See Footnote 4) starting in fiscal 2004.

Figure 1: Breakdown of (president's proposed) fiscal 2004 budget



* DOD: Department of Defense, NIH: National Institute of Health, NASA: National Aeronautics and Space Administration, DOE: Department of Energy, NSF: National Science Foundation, USDA: United State Department of Agriculture, DHS: Department of Homeland Security
Source: AAAS Preliminary Analysis based on OMB data for R&D for FY 2004

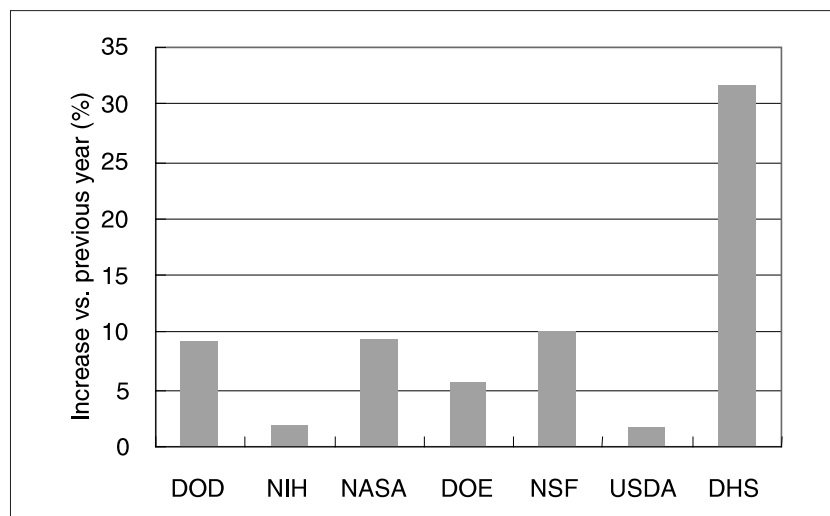
Footnote 3:

NIH's requested capital investment budget was \$769 million for fiscal 2003, and \$80 for fiscal 2004.

Footnote 4:

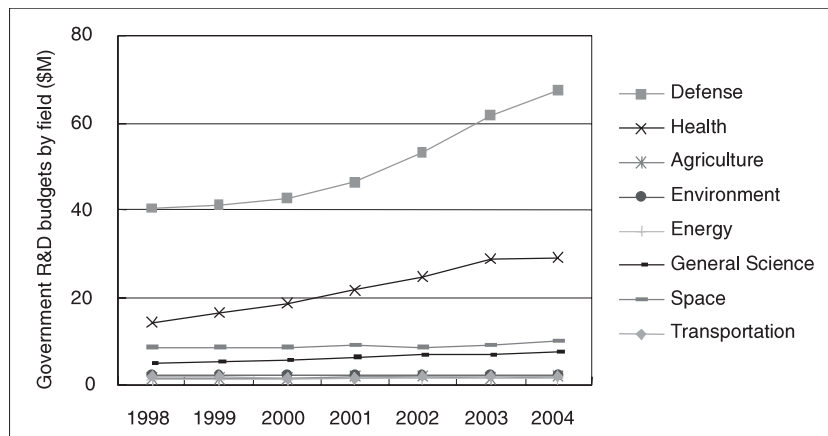
HSARPA is a funding agency under the Directorate of Science and Technology of the DHS. It is modeled on DOD's Defense Advanced Research Program Agency (DARPA).

Figure 2: Percentage increases in (president's proposed) fiscal 2004 budget vs. previous year



Source: AAAS Preliminary Analysis based on OMB data for R&D for FY 2004

Figure 3: Changes in government R&D budgets by field



Source: AAAS Preliminary Analysis based on OMB data for R&D for FY 2004 and AAAS Report: Research and Development FY 2003, FY 2002, FY 2001, FY 2000, FY 1999, FY 1998

9.4 Signs of priorities shifting from life sciences to physics

Figure 3 shows changes in government research and development budgets by field over time.

The large increase in NIH's budget due to the NIH budget-doubling campaign caused an imbalance in the distribution of the R&D budget among fields. The fiscal 2004 president's Budget Message, however, shifts emphasis from the life sciences to mathematics and physics. For example, while the NIH budget increases only slightly, the Department of Energy's (DOE) research (See Footnote 5) budget, which goes primarily to fields such as mathematics, physics, and computer science, increases by 8.1 percent, while that of the NSF's Directorate of Mathematical and Physical Sciences increases by 12.7 percent.

9.5 Conclusion

Announced while the situation in Iraq grows more critical, the president's fiscal 2004 Budget

Footnote 5:

The DOE is the federal government's largest sponsor of research in mathematics and physics.

Message greatly increases the defense development budget, with missile defense development programs alone increasing by 22 percent over the previous year to \$8.3 billion. This is comparable to the entire DOE research and development budget, and greatly exceeds that of the NSF. Despite the fact that only two months earlier it was officially decided to double the NSF budget from 2003 to 2007, the Budget Message failed to meet the needed track of a 15 percent increase. Another characteristic of the fiscal 2004 Budget Message was the shift in priorities from the life sciences to mathematics and physics.

The president's Budget Message must be sent to Congress. There are many Congressional supporters of the campaign to double the NSF budget. Because average citizens tend to be more interested in the life sciences than in mathematics and physics, it is very possible that Congress will support a return of emphasis to the life sciences. For those reasons, a number of conflicts can be expected before a budget bill is actually passed. In the meantime, the fiscal 2003 budget remains to be settled.

Acknowledgements

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