

Political and Policy Context for the FY 2008 Budget

*Kasey S. White and
Lina Karaoglanova, AAAS*

R&D IN THE PAST YEAR'S BUDGET PROCESS

Scientific research is rarely a high-profile topic for the President or Members of Congress, thus the unveiling of the American Competitiveness Initiative (ACI) with its emphasis on scientific research in the 2006 State of the Union address was viewed as a harbinger of good things to come. The news was a welcome change from the dismal prospects that existed just a few months prior, when a war and devastating hurricane made any discretionary spending increases unlikely. The fiscal year (FY) 2007 budget request last February backed up the State of the Union rhetoric; money was allocated to begin doubling physical science and engineering research at the National Science Foundation (NSF), the Department of Energy's (DOE) Office of Science, and the National Institute of Standards and Technology (NIST) laboratories.

Members of Congress, too, hailed the importance of science and introduced a slew of competitiveness and innovation bills. Though the bills varied in how they proposed to increase the Nation's scientific and technical capacity, most bills authorized increases for the ACI agencies, with efforts to expand the ACI to include the National Aeronautics and Space Administration (NASA) and the Department of Defense (DOD).

The momentum continued as the appropriations process moved along more quickly than in previous years. The House passed 10 of its 11 FY 2007 appropriations bills before July 4, and the Senate Appropriations Committee had drafted more than half of its bills by then.

But the initial good news for physical sciences slowly faded as 2006 ended without passage of any of the innovation bills and with only two

appropriations bills complete. With the Democratic takeover of the House and Senate during the November elections, the 109th Congress punted the nine unfinished appropriations bills to the next Congress.

The Department of Defense (DOD) and Department of Homeland Security (DHS) were funded by the two FY 2007 appropriations bills that were completed by the 109th Congress. DOD R&D reached a record-breaking \$76.7 billion, with nearly the entire \$3.4 billion increase going to weapons development programs. Appropriators expressed their displeasure with DHS R&D management with a 22 percent cut.

The remaining agencies operated at the lower of their FY 2006 or House-passed levels for more than four months, until the process finally drew to a close nearly midway through the fiscal year. This meant flat funding for the ACI agencies and major cuts for R&D in agencies, such as the National Oceanic and Atmospheric Administration (NOAA), whose funding levels were sliced by the House.

The 110th Congress completed the work of their predecessors in February, compiling nine appropriations bills into a “joint funding resolution” that was signed into law on February 15. The resolution generally funded programs at their FY 2006 levels, but contained increases for selected programs.

Several federal R&D programs were among the ones that were boosted: NSF, DOE Office of Science, and the NIST labs received increases, though not to the extent proposed in the budget request. The National Institutes of Health (NIH) received an inflationary increase instead of flat funding, energy R&D rose dramatically, and several R&D programs that had been operating at reduced funding levels under stop-gap measures, such as NOAA, saw their budgets boosted back to last year’s levels.

The NASA R&D budget increased, but those funds are marked for development of the new human spacecraft. Most NASA research programs, covering areas such as aeronautics, space sciences, and environmental sciences, remain at last year’s funding levels; however, cuts in the former biological and physical research portfolio result in a dramatic cut to NASA support of basic and applied research.

In the aftermath of the Jack Abramoff lobbying scandal and campaign pledges to increase transparency and ethics in Congress, the leadership decreed that there would be no congressionally-designated earmarks in

POLITICAL AND POLICY CONTEXT FOR THE FY 2008 BUDGET

the joint funding resolution. For some programs, the lack of earmarks results in increases for core R&D programs within flat or declining overall budgets. NASA, Environmental Protection Agency (EPA), and NOAA budgets are flat overall, but many R&D programs receive increases because of money freed up from 2006 earmarks. Similarly, DOE's energy R&D programs, which received real funding increases, have the added bonus of not having to fund earmarked projects.

Overall, the FY 2007 budget contained a total federal R&D investment of \$139.9 billion, an increase of 3.4 percent above FY 2006.¹ However, as is the case in the FY 2008 budget proposal, the bulk of the increase would go to development programs. The federal investment in basic and applied research rises only 1.7 percent to \$56.7 billion.

THE PROPOSED BUDGET FOR FY 2008

As was the case in FY 2007, the ACI Agencies—NSF, NIST laboratories, and DOE Office of Science—are the big winners with large increases in the proposed FY 2008 budget. However, the proposal would cut funding for most other research-oriented agencies.

Though the total federal investment in R&D in the FY 2008 budget request would increase 1.3 percent to \$143.0 billion, the entire increase and more would go to development funding, primarily for defense weapons and NASA spacecraft.

The federal investment in basic and applied research would decline 2.1 percent to \$55.5 billion, with cuts to many agencies. In inflation-adjusted terms, the basic and applied research portfolio would fall for the fourth year in a row. In fact, overall federal funding for the major science and engineering disciplines is now in decline. This is the case even in the physical sciences, where gains in the ACI agencies have been more than offset by cuts in scientific research programs at NASA and DOD.

Even within the ACI agencies, some programs are not faring well. Despite a proposed increase in the budget for NSF's Education and Human Resources programs in FY 2008, its funding would remain nearly 20 percent below its 2004 level in real terms due to three years of

¹ This FY 2007 total and the earlier DOD totals differ from FY 2007 figures in the R&D tables because the tables include requested, but not yet enacted, supplemental funds.

cuts. Within NIST, the budget proposes to eliminate the Advanced Technology Program and reduce funding for the Hollings Manufacturing Extension Partnership.

NIH R&D would fall \$333 million or 1.2 percent—making the increases of the doubling years a distant memory. As a result, the agency plans to cancel inflationary adjustments for existing research grants and cut intramural research and training funds. Because of an unusually large number of existing grants ending, however, NIH expects to offer more than 10,000 new research grants in 2008 for the first time since 2004. Younger scientists and those pursuing high-risk research will find themselves in better shape than previous years as NIH has made it a priority to encourage new talent to enter the field.

NASA's basic research continues to decline, as the agency focuses on construction of the International Space Station and development of the next generation of human space vehicles. Because NASA is the largest sponsor of federal climate change research, these cuts would lead to a 25 percent decline since FY 2004 in the Climate Change Science Program.

Climate change research in the future will be affected by NOAA and NASA cuts to earth observing systems (EOS); these instruments and satellites provide critical data for understanding climate, predicting natural disasters, and observing land use. A recent National Research Council report, *Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond*, cautions that the Nation's system of environmental satellites is "at risk of collapse." The EOS budget has caught the attention of many in Congress, with bipartisan calls to restore funding for the satellite programs accompanied by a number of hearings to explore solutions.

While the budget contains an initiative on ocean research and education, it appears that overall NOAA funding of oceanic and atmospheric research would decline. Recognizing the precarious funding situation, a "Friends of NOAA" coalition was launched last year, joining similar coalitions that exist for other agencies, including the NSF and DOE.

CONTINUING AND EMERGING R&D POLICY ISSUES

Innovation and competitiveness will continue to be major focus areas for R&D policy. More than ten innovation proposals have been introduced, with many providing increased funding for physical science research and

POLITICAL AND POLICY CONTEXT FOR THE FY 2008 BUDGET

improved investment in mathematics and science education, including more rigorous standards. Several proposals also address the perceived need for additional high-risk (or “transformative”) research through funding mandates. These proposals generally have broad bipartisan support, but have yet to pass.

The drive for competitiveness has been linked by many to the need for energy security. Biofuels, in particular, seem to have captured the attention of Congress and the Administration as a potential panacea. New goals for biofuel usage were announced in the 2007 State of the Union address, and multiple bills have been introduced that would increase government investment in biofuels and technology R&D. The Administration’s Farm Bill proposal also addresses biofuels, providing additional funds for ethanol research for the next 10 years, effectively cementing agriculture’s expanding role of providing fuel in addition its traditional production of food, fiber, and feed. The excitement of biofuels has not escaped the notice of presidential candidates, who are clamoring to express their support for biofuel R&D initiatives.

Energy security is also linked to climate change, which has become the signature issue of this session of Congress. Hearings on climate policy are taking place at an unprecedented rate and a new Select Committee on Energy Independence and Global Warming has been established for the 110th Congress. Advocates in the cap-and-trade and the carbon tax camps will continue to fuel debate on whether mandatory policies are needed, or if voluntary programs and R&D support will suffice. Whether a comprehensive climate change policy will actually pass is less certain since climate change remains a very political issue, with many of the presidential candidates drafting legislation. Overall, however, the business community has indicated an acceptance that greenhouse gases will eventually be regulated, and have started putting forth proposals themselves. Many states, too, have decided to move forward on climate change regulation in lieu of federal action.

Cutting-edge research in the nanotechnology field is another beneficiary of the competitiveness agenda. The fear of being outperformed by countries that have increased their nanotech investment over the years has driven the United States to steadily increase its investment in the area as well. The National Nanotechnology Initiative (NNI) requests nearly \$1.5 billion in FY 2008. The safety and possible regulation of this new and growing industry is also an important issue for Congress.

With a new reauthorization bill that passed in the waning days of the 109th Congress, the NIH will continue its strategic vision of shifting from curative to preemptive medicine. The NIH Reform Act of 2006 codified the “common fund” to which all institutes and centers contribute. Transfers to the common fund—proposed to be 1.3 percent in FY 2008—will squeeze already shrinking budgets; most NIH institutes and centers would see their budgets remain flat for the fourth year in a row.

Biomedical research could also be affected by a bill that passed late in the session to update Project Bioshield. The Pandemic and All-Hazards Preparedness Act created a \$1 billion agency for bioterrorism research in the Department of Health and Human Services called the Biomedical Advanced Research and Development Authority (BARDA).

Despite President Bush’s first veto on a bill to expand federal funding of embryonic stem cell research last session, the stem cell debate persists in Congress this year. The House passed the Stem Cell Research Enhancement Act during the opening flurry of legislative activity and the Senate is expected to follow suit, though neither will likely enough support to override the promised veto. NIH Director Elias Zerhouni has been more outspoken in his opinion that all avenues of stem cell research should be pursued for the benefit of science, breaking with the Administration position that confines the NIH to the handful of original embryonic stem cell lines established before President Bush’s 2001 State of the Union Address. The debate in Congress will likely center around the ethics and scientific potential of embryonic cells versus adult alternatives. Unlike previous years, amendments referring to human cloning may stay out of the discussion.

Debates over interference and politicization of science in the government have cropped up on the congressional agenda for the second year in a row. These allegations have received renewed attention, as the Democrats have used their new-found majority status to exercise oversight of the executive branch. More than half of the House committees, including the Science and Technology Committee and Energy and Commerce Committee, now contain an oversight and investigation subcommittee. Reports pointing to political meddling in government global warming assessments and recent EPA actions, such as the closure of several of its libraries, have been the subject of House and Senate hearings and legislation.

FORECAST FOR THE FY 2008 BUDGET AND BEYOND

The reality of flat budgets is finally sinking in as a steady state, rather than an anomaly. Overall, the FY 2008 budget request continues the trend of restraining domestic spending but dramatically increasing defense spending. The situation in Congress is similar, as the House instituted rules that mandate any increases in spending must be offset by cuts in other areas. Within that context, the increases for the physical sciences in the budget request, which will likely be supported in Congress, are remarkable, particularly because outyear budgets sustain the commitment.

But most research agencies, and the scientific community applying for their grants, are feeling the results of these constraints. The success rate for grants at NIH and NSF has plummeted, and many institutions are now pre-reviewing grant applications to both assist scientists and limit the number of applications submitted from their institutions.

Though Congress boosted the NIH budget in the 2007 joint funding resolution, the agency is lacking the champions it had during its doubling period. The outlook for NASA R&D is bleak; the commitment of both the Administration and Congress to the Moon-Mars expeditions will likely preclude the growth—or even a slowing of the decline of R&D—until those missions are underway. Congressional interest in the subject is growing, though changes appear unlikely unless NASA is provided additional funds.

Though funding for climate change science research has been on the decline and is unlikely to rebound, an opportunity exists for new funding for technology to mitigate and adapt to climate change. Most of the proposals in Congress recognize the crucial role of low-carbon technology, which may provide an opportunity for growth in new areas of research, in a manner similar to the current focus on biofuels.

The competitiveness agenda has highlighted the important role of science in the future prosperity and health of the Nation. For funding to increase in areas besides the physical sciences in this context, Congress and the Administration will need to place greater value on the interdependence of disparate fields of research and the contributions of all disciplines to an innovative society.