A Presentation on the Federal Budget
for AAU

July 15, 2008

Kei Koizumi, AAAS

See our AAAS R&D Web site at

www.aaas.org/spp/rd

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The Federal Budget:  
Where Does the Money Go? And Why Should You Care?

1. It's a LOT of money, and it used to be yours  
   - The federal government spends $3.1 trillion a year, a fifth of the U.S. economy  
   - More than 80 percent of the money comes directly from YOU: income taxes and payroll taxes

2. You can't do POLICY in Washington without MONEY  
   - Money makes policies possible; without money, policies can’t be implemented  
   - In these times of budget deficits, every policy decision has to be considered in the context of its effect on the budget

3. The budget takes up a lot of time and effort on Capitol Hill and the executive branch  
   - Agencies and Congress spend an extraordinary amount of time every year on the budget  
   - The budget has an annual cycle that affects nearly every decision in Washington; for the rest of this year, the budget may be the only thing that actually gets done

4. The federal budget determines the health of U.S. science and engineering research and education  
   - The federal government spends more than $140 billion a year on R&D  
   - The federal government funds 60 percent of all university R&D, and also supports fellowships, scholarships, student loans, and other aid  
   - R&D funding decisions are part of the budget process; this is where priorities are set for the federal investment
Composition of the Proposed FY 2009 Budget
Total Outlays = $3.1 trillion

Note: Projected Unified deficit is $407 billion.
Figures exclude most Iraq and Afghanistan military costs.
Source: AAAS, based on Budget of the United States Government FY 2009.
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Composition of the Proposed FY 2009 Budget by Source of Funds
Total Outlays = $3.1 trillion

- Income taxes
- Corporate taxes
- Social insurance and retirement (SS + Medicare payroll taxes)
- Other taxes (excise, gas, estate, etc.)
- Borrowing

Total Receipts (without borrowing): $2.7 trillion

Source: AAAS, based on Budget of the United States Government FY 2009.
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Federal Budget Deficit (or Surplus), FY 1960-2013
in billions of CONSTANT FY 2008 dollars

Data in fiscal years. Source: Budget of the United States Government, FY 2009. FY 2008 data are estimates. FY 2009-2013 data are President's budget proposals. FY 2009 - 2013 figures exclude Iraq and Afghanistan military costs.
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Trends in Discretionary Spending, FY 1976-2013
in billions of constant FY 2008 dollars

FY 2008 data are estimates. FY 2009-2013 data are budget projections. FY 2009-2013 figures exclude Iraq and Afghanistan military costs.
FEB. '08 © 2008 AAAS
The National Debt, 1960-2013
in billions of dollars (President's proposals)


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How the Budget Becomes Law
FY 2009 Proposal = $3.1 Trillion

Net interest - automatic

Discretionary Spending - 12 appropriations bills, plus war supplemental bill(s) from Appropriations Committees

Entitlements - Reconciliation bill, other bills from various committees (such as Medicare drug bill) (optional)

Revenues - Reconciliation bill, other bills from various committees (such as the energy bill) (optional)

Source: AAAS, based on Budget of the United States Government FY 2009.
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The FY 2009 Budget Process - A Summary and Glossary

Summer ’07  Agencies submit their FY 2009 proposals to OMB (Office of Management and Budget; part of the office of the President) based on broad strategic guidance from OMB in May ‘07

Fall ‘07  Agencies negotiate with OMB over their FY 2009 proposals

Jan ‘08  Agencies finalize their requests

Feb ‘08  President Bush releases his proposed FY 2009 budget and formally transmits it to Congress

Feb - May ‘08  Agency officials and others (including the public) testify at congressional budget and oversight hearings; authorizing committees try to write and pass authorization bills (see next page for definition)

Spring ‘08  Congress approves its FY 2009 budget resolution (internal congressional document written by Budget Committees establishing broad spending and revenue targets for the entire budget; contains broad instructions for various committees); the FY 2009 budget resolution was finalized June 5.

Various committees receive instructions from the budget resolution to draft a reconciliation bill (a special kind of bill that changes entitlement programs or tax laws; so named because it reconciles differences between current policy and the budget resolution.) This year: no reconciliation bill, but there will be other bills (like the farm bill, possibly an energy bill) with changes to entitlement programs or changes to tax laws.

Appropriations Committees receive 302(a) allocations (total amount of discretionary spending, by functional category, from the budget resolution). For FY 2009: Congress is working with $1.013 trillion, $21 billion more than the President’s budget

Appropriations Committees determine 302(b) allocations (total discretionary spending divided among the individual appropriations bills; these can differ between the House and Senate initially, and change constantly.) This year: there are 12 appropriations bills, and this week the House and Senate divide the $1.013 trillion among the 12 bills.

June - Sep ‘08 Appropriations Subcommittees write appropriations bills (bills that fund discretionary programs; the only bills that Congress is required to pass annually), staying within 302(b) allocations. Numerous adjustments to the President's budget are made. The bills are amended and then approved by the full Appropriations Committee in each chamber. Then, the bills go to the House or Senate floors and are amended and then approved by the full House or Senate. (This year, the House Appropriations Committee has so far drafted 5 bills; the Senate Appropriations Committee has drafted 6 bills, with 3 more this week)

Sep ‘08  The House and Senate take their separate versions of appropriations bills to conference (a committee to resolve differences between the House and Senate versions of a bill), give final approval to the conference report (compromise
bill) and send the bill to the President for his signature (deadline: September 30; rarely met). If the President vetoes a bill, start over.

**Oct 1 ’08** Beginning of fiscal year 2009; discretionary programs must have a signed appropriations bill or they must shut down. To give Congress and the President more time, a **continuing resolution** (temporary appropriations bill covering all unsigned appropriations bills, for a limited period of time; also known as a CR) is enacted to allow programs to operate. (The last 2008 appropriations bill was signed into law on December 26. This year’s appropriations will also be delayed). When Congress gets eager to wrap things up, they often bundle together unfinished bills into an **omnibus appropriations bill** (a bundle of 2 or more appropriations bills; in 2008, 11 bills were rolled into an omnibus)

**ANYTIME** For unbudgeted needs, Congress and the President can pass **supplemental appropriations bills** outside the regular budget cycle in a compressed process. Usually for natural disasters and other emergencies, but in recent years Iraq and Afghanistan spending as well. At the end of June, Congress finalized a $187 billion 2008 supplemental bill, primarily for the war, but also $338 million in domestic science funding. Much of this spending was designated as ‘emergency’ spending, meaning it doesn’t count against budget resolution targets.

REPEAT process above for the **FY 2010** budget, but delayed slightly. A new administration gets extra time to prepare its first budget, until April or early May.

Additional budget terms:

**Authorization bills** - These are drafted by House and Senate committees with jurisdiction over a particular agency. (For example, the House S&T Committee writes authorization bills for NSF; some authorization bills go through multiple committees). Although these bills contain dollar amounts, authorizations are suggested spending levels or spending ceilings and do not actually provide any money. Authorization bills are also supposed to set policies for agency programs, create or eliminate programs, change program operations, etc. The idea is to have committees with specialized expertise in an agency / program set laws for their area of expertise, and also provide suggested funding levels that appropriators can use as a guide. Some authorization bills DO provide money if they create new mandatory (entitlement) programs.

**Appropriations bills** - These are drafted only by the Appropriations Committees, and they provide actual funding for appropriated (discretionary) programs. There are 12 each year, though there can be other supplemental or emergency appropriations bills.

**Reconciliation bill** - Bill(s) that change entitlement programs or tax laws; so named because they reconcile differences between current policy and the budget resolution. They are attractive to Congress because they are considered under special rules for debate.

Other terms:

**Budget authority** is the legal authorization to expend funds; it's money in a bank account. Appropriations bills are written in terms of budget authority.

**Obligations** represent orders placed, contracts awarded, services received, and similar transactions during a given period, regardless of when the funds were appropriated and when the future payment of money is required; these are checks written or credit card charges.

**Outlays** represent checks issued and cash payments made during a given period, regardless of when the funds were appropriated or obligated. Also known as expenditures.
Total R&D by Agency: FY 2009 Proposed

Budget Authority in billions of dollars

- DOD, $80.7
- HHS (NIH), $30.0
- NASA, $12.8
- DOE, $10.5
- All Other, $5.2
- USDA, $2.0
- NSF, $5.2
- DHS, $1.0

Total R&D = $147.4 billion (revised)

Source: AAAS, based on OMB R&D Budget Data and agency estimates for FY 2009.
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### Table 1. R&D in the FY 2009 Budget by Agency
(budget authority in millions of dollars)

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change FY 08-09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>Estimate</td>
<td>Budget</td>
<td>Amount</td>
</tr>
</tbody>
</table>

**Total R&D (Conduct and Facilities)**

<table>
<thead>
<tr>
<th>Category</th>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defense (military)</td>
<td>79,009</td>
<td>77,782</td>
<td>80,688</td>
<td>2,906</td>
</tr>
<tr>
<td><strong>S&amp;T (6.1-6.3 + medical)</strong></td>
<td>13,518</td>
<td>13,215</td>
<td>11,669</td>
<td>-1,546</td>
</tr>
<tr>
<td><strong>All Other DOD R&amp;D</strong></td>
<td>65,490</td>
<td>64,567</td>
<td>69,019</td>
<td>4,452</td>
</tr>
<tr>
<td>Health and Human Services</td>
<td>29,621</td>
<td>29,816</td>
<td>29,973</td>
<td>157</td>
</tr>
<tr>
<td><strong>Nat'l Institutes of Health</strong></td>
<td>28,350</td>
<td>28,676</td>
<td>28,666</td>
<td>-10</td>
</tr>
<tr>
<td><strong>All Other HHS R&amp;D</strong></td>
<td>1,271</td>
<td>1,140</td>
<td>1,307</td>
<td>167</td>
</tr>
<tr>
<td>NASA</td>
<td>11,582</td>
<td>12,188</td>
<td>12,780</td>
<td>592</td>
</tr>
<tr>
<td>Energy</td>
<td>9,035</td>
<td>9,661</td>
<td>10,519</td>
<td>858</td>
</tr>
<tr>
<td><strong>Atomic Energy Defense R&amp;D</strong></td>
<td>3,649</td>
<td>3,718</td>
<td>3,825</td>
<td>107</td>
</tr>
<tr>
<td><strong>Office of Science</strong></td>
<td>3,560</td>
<td>3,574</td>
<td>4,314</td>
<td>740</td>
</tr>
<tr>
<td><strong>Energy R&amp;D</strong></td>
<td>1,826</td>
<td>2,369</td>
<td>2,380</td>
<td>11</td>
</tr>
<tr>
<td>Nat'l Science Foundation</td>
<td>4,440</td>
<td>4,479</td>
<td>5,175</td>
<td>696</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2,275</td>
<td>2,324</td>
<td>1,955</td>
<td>-369</td>
</tr>
<tr>
<td>Commerce</td>
<td>1,073</td>
<td>1,138</td>
<td>1,152</td>
<td>14</td>
</tr>
<tr>
<td>NOAA</td>
<td>557</td>
<td>581</td>
<td>576</td>
<td>-5</td>
</tr>
<tr>
<td>NIST</td>
<td>487</td>
<td>521</td>
<td>546</td>
<td>25</td>
</tr>
<tr>
<td>Interior</td>
<td>647</td>
<td>676</td>
<td>618</td>
<td>-59</td>
</tr>
<tr>
<td><strong>U.S. Geological Survey</strong></td>
<td>574</td>
<td>586</td>
<td>546</td>
<td>-41</td>
</tr>
<tr>
<td>Transportation</td>
<td>767</td>
<td>820</td>
<td>902</td>
<td>81</td>
</tr>
<tr>
<td>Environ. Protection Agency</td>
<td>557</td>
<td>548</td>
<td>541</td>
<td>-7</td>
</tr>
<tr>
<td>Veterans Affairs</td>
<td>819</td>
<td>891</td>
<td>884</td>
<td>-7</td>
</tr>
<tr>
<td>Education</td>
<td>327</td>
<td>321</td>
<td>324</td>
<td>3</td>
</tr>
<tr>
<td>Homeland Security</td>
<td>996</td>
<td>992</td>
<td>1,033</td>
<td>41</td>
</tr>
<tr>
<td>All Other</td>
<td>786</td>
<td>819</td>
<td>821</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total R&D**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>141,933</td>
<td>142,456</td>
<td>147,364</td>
<td>4,908</td>
</tr>
</tbody>
</table>

**Defense R&D**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>82,658</td>
<td>81,500</td>
<td>84,513</td>
<td>3,013</td>
</tr>
</tbody>
</table>

**Nondefense R&D**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>59,276</td>
<td>60,956</td>
<td>62,851</td>
<td>1,895</td>
</tr>
</tbody>
</table>

**Basic Research**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>28,166</td>
<td>28,694</td>
<td>29,656</td>
<td>962</td>
</tr>
</tbody>
</table>

**Applied Research**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>28,599</td>
<td>28,751</td>
<td>27,626</td>
<td>-1,125</td>
</tr>
</tbody>
</table>

**Total Research**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>56,764</td>
<td>57,445</td>
<td>57,282</td>
<td>-163</td>
</tr>
</tbody>
</table>

**Development**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>81,366</td>
<td>80,570</td>
<td>85,366</td>
<td>4,796</td>
</tr>
</tbody>
</table>

**R&D Facilities and Equipment**

<table>
<thead>
<tr>
<th>FY 2007</th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,803</td>
<td>4,442</td>
<td>4,716</td>
<td>275</td>
</tr>
</tbody>
</table>

Source: AAAS, based on OMB data for R&D for FY 2009, agency budget justifications, and information from agency budget offices.

Note: The projected inflation rate between FY 2008 and FY 2009 is 2.0 percent.

FY 2008 figures exclude pending supplementals.

March 21, 2008 - REVISED
FY 2009 R&D Request
Percent Change from FY 2008

Source: AAAS, based on OMB R&D data and agency estimates for FY 2009.
DOD "S&T" = DOD R&D in "6.1" through "6.3" categories plus medical research.
DOD weapons = DOD R&D in "6.4" and higher categories.
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R&D and Non-R&D Funding by Appropriations Bill
FY 2009 Request, Billions of dollars budget authority

Source: AAAS, based on estimates of R&D in FY 2009 budget and Budget of the U.S. Government FY 2009. Defense bill is in three lines. Includes conduct of R&D and R&D facilities.
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Trends in Federal R&D, FY 1976-2009 *

in billions of constant FY 2008 dollars

Source: AAAS analyses of R&D in annual AAAS R&D reports. * FY 2009 figures are latest AAAS estimates of FY 2009 request. R&D includes conduct of R&D and R&D facilities. Data to 1984 are obligations from the NSF Federal Funds survey. GDP figures are from OMB, Budget of the U.S. Government FY 2009.

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Trends in Research by Agency, FY 1976-2009 *

in billions of constant FY 2008 dollars

Source: AAAS analyses of R&D in annual AAAS R&D reports.
* FY 2009 figures are latest AAAS estimates of FY 2009 request. Research includes basic research and applied research. 1976-1994 figures are NSF data on obligations in the Federal Funds survey.
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AAAS R&D Web Site:

http://www.aaas.org/spp/rd

AAAS Science and Policy Programs (includes R&D Program, Center for S&T in Congress, Fellowships)

http://www.aaas.org/programs/science_policy/

Links to agency budget documents:

http://www.aaas.org/spp/rd/brief09.htm

SCIENCE On Line

http://www.sciencemag.org/

Budget of the U.S. Government FY 2009 (full text on line):

http://www.whitehouse.gov/omb/budget/fy2009/

THOMAS (text of all congressional legislation)

http://thomas.loc.gov

Congressional Budget Office

http://www.cbo.gov

FY 2009 Appropriations Legislation

http://thomas.loc.gov/home/approp/app09.html

House Appropriations Committee

http://appropriations.house.gov/

Senate Appropriations Committee

http://appropriations.senate.gov/

Statistics on R&D Funding and Other S&E from the National Science Foundation:

WHAT’S NEXT?

The goal: complete all 2009 appropriations bills by October 1, but President Bush has threatened to veto any bills that exceed his request; most of them will do so. So Congress may not even try to send all 12 appropriations bills to President Bush by October 1. Instead, the appropriations process could drag on past the November elections and even past the inauguration of the next president.

Policymakers remain worried about research funding trends: U.S. government research is on a downward trend, even as many Asian nations dramatically expand their research funding.

For more information:

The AAAS R&D web site is www.aaas.org/spp/rd