
Testimony of

Dr. Craig M. Schiffries

Director for Geoscience Policy
Geological Society of America

Hearing on

**Examining the Spending Priorities and the Missions of the U.S. Geological
Survey and the President's FY 2012 Budget Proposal**

Subcommittee on Energy and Mineral Resources

Committee on Natural Resources
U.S. House of Representatives

March 9, 2011

Summary

The U.S. Geological Survey (USGS) is one of the nation's premier science agencies. It addresses many of society's greatest challenges, including mineral and energy resources, natural hazards, climate change, and water resources. The USGS benefits every American every day. The devastating earthquake in Haiti on January 12, 2010 that killed more than 200,000 people and the small volcanic eruptions in Iceland that disrupted global air travel in April 2010 emphatically demonstrate the value of robust natural hazards monitoring and warning systems and the need for increased federal funding for the USGS. Nevertheless, funding for the USGS has stagnated in real dollars for more than a decade (Figure 1). The USGS budget would be even weaker if Congress had not repeatedly restored proposed budget cuts during that time.

The Geological Society of America (GSA) supports strong and growing budgets for the U.S. Geological Survey. Increased federal funding for Earth science is needed to stimulate innovations that fuel the economy, provide national security, and enhance the quality of life. The USGS has a unique combination of assets that enables it to address interdisciplinary research challenges that are beyond the capabilities of most other organizations. GSA urges Congress to restore proposed cuts in USGS programs in the President's budget request for fiscal year 2012.

The Geological Society of America, founded in 1888, is a scientific society with over 24,000 members from academia, government, and industry in all 50 states and more than 90 countries. Through its meetings, publications, and programs, GSA enhances the professional growth of its members and promotes the geosciences in the service of humankind. GSA encourages cooperative research among earth, life, planetary, and social scientists, fosters public dialogue on geoscience issues, and supports all levels of earth science education.

SCIENCE ■ STEWARDSHIP ■ SERVICE

Rationale

Science and technology are engines of economic prosperity, environmental quality, and national security. Federal investments in research pay substantial dividends. According to the National Academies' report *Rising Above the Gathering Storm* (2007), "Economic studies conducted even before the information-technology revolution have shown that as much as 85% of measured growth in US income per capita was due to technological change." In 2010, the National Academies issued an updated report, *Above the Gathering Storm, Revisited*, which says:

It would be impossible not to recognize the great difficulty of carrying out the *Gathering Storm* recommendations, such as doubling the research budget, in today's fiscal environment...with worthy demand after worthy demand confronting budgetary realities. However, it is emphasized that actions such as doubling the research budget are investments that will need to be made if the nation is to maintain the economic strength to provide for its citizens healthcare, social security, national security, and more. One seemingly relevant analogy is that a non-solution to making an over-weight aircraft flight-worthy is to remove an engine.

Likewise, the National Commission on Fiscal Responsibility and Reform, headed by Erskine Bowles and Alan Simpson, said:

Cut and invest to promote economic growth and keep America competitive. We should cut red tape and unproductive government spending that hinders job creation and growth. At the same time, we must invest in education, infrastructure, and high-value research and development to help our economy grow, keep us globally competitive, and make it easier for businesses to create jobs.

Earth science is a critical component of the overall science and technology enterprise. Growing support for Earth science in general and the U.S. Geological Survey in particular is required to stimulate innovations that fuel the economy, provide security, and enhance the quality of life. Earth Science provides knowledge and data essential for developing policies, legislation, and regulations regarding land, mineral, energy, and water resources at all levels of government.

Advancing Science and Scientific Integrity at the Department of the Interior

Science and scientific integrity advanced through the combination of two recent developments at the U.S. Department of the Interior (DOI). Secretary of the Interior Ken Salazar issued a new five-year strategic plan that for the first time elevates science to one of five mission areas for the entire department. The Interior Department also adopted a comprehensive scientific integrity policy that sets clear expectations for all employees, including political appointees, public affairs officers, and scientists.

"These developments are cause for optimism because they emphasize the critical importance of science and demand the utmost integrity in its conduct and application," said Geological Society of America President Joaquin Ruiz. "GSA is pleased with the inclusiveness of the [scientific integrity] policy, which covers virtually everyone using scientific and scholarly information in

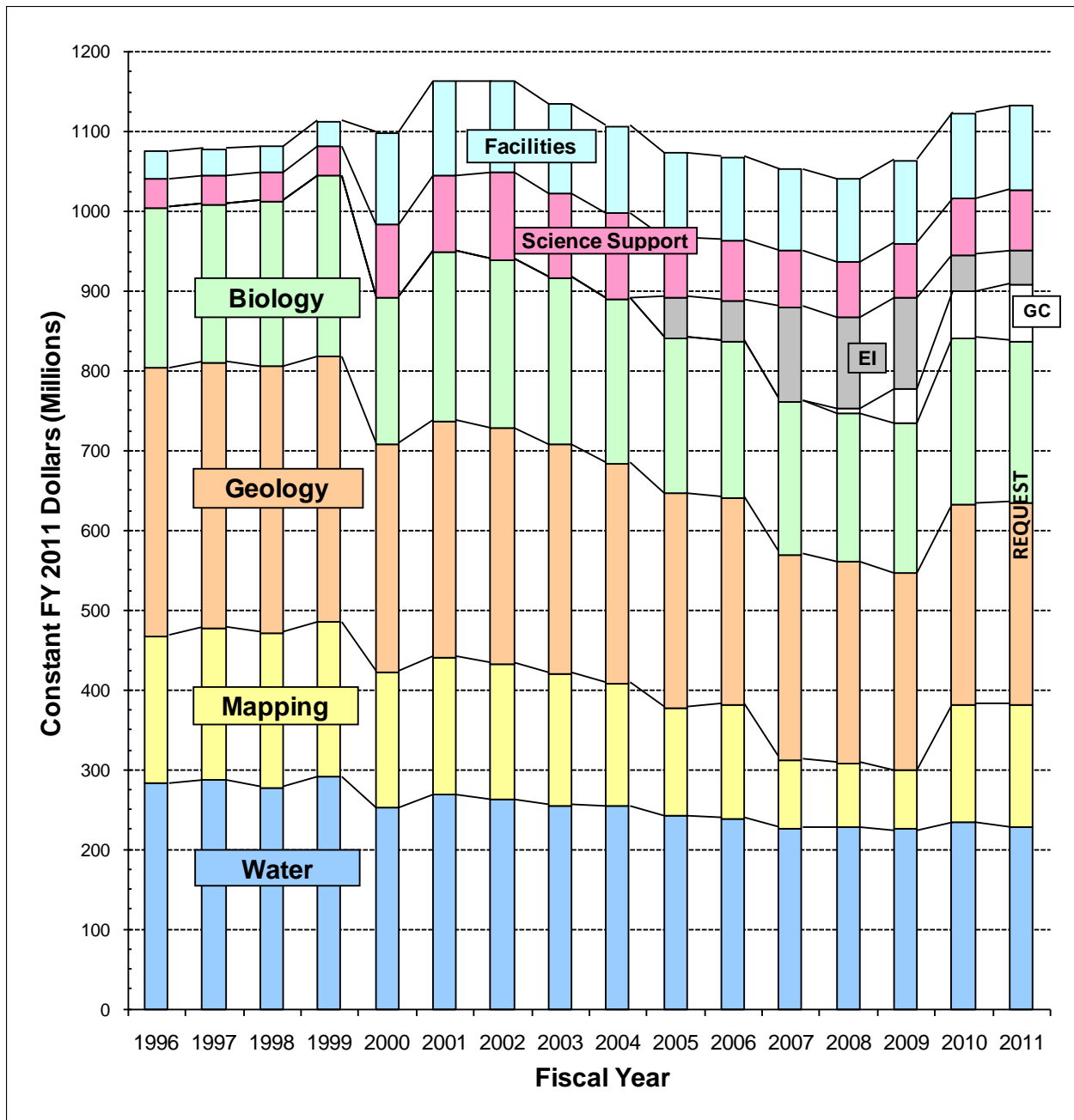


Figure 1. USGS funding in constant 2011 dollars, FY 1996 – FY 2011. EI is Enterprise Information and GC is Global Change. Data from USGS Budget Office.

relation to the Department of the Interior,” said Ruiz. “In addition, the policy clarifies and documents the ability of federal scientists to serve their professional societies on boards and advisory committees. This is extremely important, both to the societies who benefit from their expertise, and also for the career advancement of scientists working in the federal government.”

Science was not included as a mission area in the draft DOI strategic plan that was released for public comment in 2009. However, science was elevated to a mission area in the final version of the DOI strategic Plan. When he announced the final version of the strategic plan on 26 January 2011 Secretary Salazar said, “This new strategic plan ensures science has its rightful place as a primary source for the Interior Department's decision making process.”

GSA is pleased that science has been elevated to a mission area in the Interior Department strategic plan and hopes that this development will guide investments and the allocation of resources that are reflected in the budget for the U.S. Geological Survey.

Broader Impacts of the Earth Sciences

It is critically important for Congress to restore proposed cuts in the USGS budget request in order to meet challenges posed by human interactions with Earth's natural systems and to help sustain these natural systems and the economy. Additional investments in the USGS are necessary to address such issues as natural hazards, mineral and energy resources, water resources, and climate change.

- Natural hazards, such as earthquakes, tsunamis, volcanic eruptions, floods, droughts, wildfires, and hurricanes, remain a major cause of fatalities and economic losses worldwide. An improved scientific understanding of geologic hazards will reduce future losses through better forecasts of their occurrence and magnitude. The devastating earthquake in Haiti on January 12, 2010 that killed more than 200,000 people, the damaging earthquake in New Zealand on February 21, 2011, and the small eruptions of Eyjafjallajökull volcano in Iceland that disrupted global air travel in April 2010 emphatically demonstrate the value of robust natural hazards monitoring and warning systems and the need for increased federal investments in the USGS.
- Energy and mineral resources are critical to the functioning of society and to national security and have positive impacts on local, national, and international economies and quality of life. These resources are often costly and difficult to find, and new generations of geoscientists need the tools and expertise to discover them. In addition, management of their extraction, use, and residue disposal requires a scientific approach that will maximize the derived benefits and minimize the negative effects. Improved scientific understanding of these resources will allow for their better management and utilization, while at the same time considering economic and environmental issues. This is particularly significant because shifting resource demands often reframe our knowledge as new research-enabling technologies become available. For example, widespread deployment of clean energy technologies can reduce greenhouse gas emissions, mitigate climate change, and reduce dependence on foreign oil. Many emerging technologies – such as wind turbines, solar cells, and electric vehicles – depend on rare earth elements

and other scarce elements that currently lack diversified sources of supply. China accounts for 95 percent of world production of rare earth elements although it has only 36 percent of identified world reserves (USGS, 2010). A renewed federal commitment to innovative research, information, and education on minerals is needed to address these issues.

- The availability and quality of surface water and groundwater are vital to the well being of both society and ecosystems. Greater scientific understanding of these critical resources—and communication of new insights by geoscientists in formats useful to decision makers—is necessary to ensure adequate and safe water resources for the future.
- Forecasting the outcomes of human interactions with Earth’s natural systems, including climate change, is limited by an incomplete understanding of geologic and environmental processes. Improved understanding of these processes in Earth’s history can increase confidence in the ability to predict future states and enhance the prospects for mitigating or reversing adverse impacts to the planet and its inhabitants.
- Research in earth science is also fundamental to training and educating the next generation of earth science professionals.

The U.S. Geological Survey should be a component of broader initiatives to increase overall public investments in science and technology. For example, earth science research should be included in a recommendation by the National Academies to “increase the federal investment in long-term basic research by 10% each year over the next 7 years...” (*Rising Above the Gathering Storm*, 2007). Likewise, when Congress reauthorizes the America COMPETES Act, it should broaden the act to include a new title that puts the USGS budget on the same doubling track as other key science agencies.

Budget Shortfalls

President Obama’s FY 2012 budget request for the U.S. Geological Survey is \$1.118 billion, a decrease of \$15 million or 1.3 percent below the USGS budget request for FY 2011, and an increase of \$6 million or 0.5% above the FY 2010 enacted level.

Although there is a \$6 million increase in the total USGS budget request for FY 2012 compared to the FY 2010 enacted level, the FY 2012 budget request contains significant cuts in many programs that are offset by increases in other areas, including a \$59.6 million increase in a new account for National Land Imaging. The USGS budget request for FY 2012 includes \$89.1 million in program reductions in long-standing programs. The proposed budget cuts would have significant impacts on USGS programs. Proposed budget cuts in the FY 2012 USGS budget request include -\$9.8 million for Biological Information Management and Delivery, -\$9.6 million for Mineral Resources, -\$8.9 million for National Water Quality Assessment, -\$6.5 million for Cooperative Water Program, and -\$4.7 million for Earthquake Hazards.

The USGS budget has been reorganized to reflect the agency's new structure. The FY 2012 budget is now organized along the six crosscutting themes from the USGS science strategy, *Facing Tomorrow's Challenges – U.S. Geological Survey Science in the Decade 2007-1017* (USGS, 2007), rather than the traditional disciplines. The budget request also includes a new National Land Imaging account that focuses on the Interior Department's role in Landsat. Underfunding of uncontrollable cost increases over many years has compromised the scientific capacity of the USGS.

The USGS budget has been nearly stagnant in real dollars since 1996 (Figure 1). The USGS budget for FY 2010 was below the USGS budget for FY 2001 in real dollars. The decline in funding for the USGS during this time period would have been greater if Congress had not repeatedly restored proposed budget cuts. Federal funding for non-defense R&D has increased significantly while funding for the USGS stagnated for more than a decade.

We urge Congress to restore proposed cuts in the USGS budget request, to provide full funding for uncontrollable cost increases, and to provide new funds to enable the agency to address a growing backlog of needs for USGS science and information, accelerate the timetable for deployment of critical projects, and undertake new initiatives that address new challenges.

The Geological Society of America is grateful to Congress for its leadership in restoring proposed cuts in the USGS budget in increasing the budget for the U.S. Geological Survey. We remain grateful to the subcommittee for its leadership in providing \$143 million in stimulus funds for the USGS under the American Recovery and Reinvestment Act of 2009. Thank you for your thoughtful consideration of our request. For additional information or to learn more about the Geological Society of America—including GSA Position Statements on water resources, mineral and energy resources, natural hazards, and public investment in earth science research—please visit www.geosociety.org or contact Dr. Craig Schiffries at cschiffries@geosociety.org.