

March 12, 2013

Subra Suresh, Ph.D.
Director
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230


Dear Dr. Suresh:

The National Science Foundation (NSF) is a vital component of our nation's science and technology research infrastructure. Undoubtedly, physics, chemistry, mathematics, biology, and engineering disciplines have benefitted from the support of NSF. When well spent, dollars invested into research and discovery can translate into advances of scientific knowledge and benefits to our nation's economy.

I commend you for your leadership of the agency over the last three years. You have streamlined operations and achieved savings so taxpayer dollars are better focused on the most important goal: funding science that will improve our nation's technical abilities. You have reduced unnecessary conference spending by over 20 percent, in line with the Administration's plan. To improve oversight of grantees, NSF has studied the use of virtual site visits. The agency has also tried to improve upon the priority grants awarded. These are important steps to take to ensure the best use of resources.

Your leadership has ensured sequestration will have little impact on scientific grants this year and, according to your recent memorandum, NSF intends "to make the necessary FY 2013 reductions with as little disruption as possible to establish commitments."¹

As Washington continues to come adjust living within the modest spending discipline resulting from sequestration, all federal agencies including NSF should continue to find ways to do more with less.

Prioritizing Grants

Even with a smaller budget, we can increase our investments in transformative science and basic research by simply setting priorities and better managing the resources available.

While the scientific mind seeks to understand all aspects of the world around us, some research topics are simply more likely to contribute to truly meaningful discoveries or knowledge.

NSF, for example, is currently spending \$325,000 for studies examining the interaction of robot rodents, such as “robosquirrel,” with rattlesnakes.² The agency has also supported the development of “Snooki,” a robot bird that impersonates a female sage grouse to examine the importance of courtship tactics of males.^{3 4} Yet, the value of these experiments is low when a significant base of knowledge already exists on these relationships.

Every dollar spent on projects such as these could have instead supported research to design a next-generation robotic limb to treat injured war heroes or a life-saving hurricane detection system.

While your agency has said sequestration will not impact existing standard grants, NSF projects the total number of new research grants could be reduced by as many as 1,000.⁵ Instead of simply rejecting innovative new research topics, I would encourage NSF to reconsider existing projects that may not hold the same potential, such as those examining or supporting:

- Americans’ attitudes towards the U.S. Senate filibuster⁶
- SiteJabber.com, a new website to rate the trustworthiness of other websites⁷
- ecoATM, a company commercializing an “ATM” to give out cash in exchange for old cell phones and other electronics⁸
- Participants’ expenses to attend an annual snowmobile competition in Michigan through 2015⁹
- Depiction of animals in *National Geographic* from 1888 to 2008¹⁰
- A game to teach scientists about ethics in the peer review process¹¹
- How a shrimp running on a treadmill responds to alterations in oxygen and carbon dioxide levels^{12 13}
- The rise of candidate-centered elections over those dominated by political parties¹⁴
- Meditation and self-reflection for math, science, and engineering majors¹⁵

- American Presidents' level of cooperation with Congress when they utilize executive orders¹⁶

These may be interesting questions to ponder or explore, but just because each is currently being supported by NSF should not mean guaranteed future funding if new applications with greater merit or potential are submitted. **I appreciate your agency's commitment to continuing grants, but ensuring the most promising new research can be supported next year may require ending or reducing spending on lower priority grants now being funded.** Robosquirrel may have survived its encounters with the rattlesnake but it may have met its match in sequestration if we hope to provide support for more promising scientific projects.

NSF should also consider eliminating or greatly reducing the amount allocated for "political science." Studies of presidential executive power and Americans' attitudes toward the Senate filibuster hold little promise to save an American's life from a threatening condition or to advance America's competitiveness in the world. In fact, a number of polls have been conducted over the last decade on the public's views of the Senate filibuster.^{17 18 19} Research institutions and academic associations should support these investigations with their own resources. Discontinuing funding for these types of studies will increase our ability to fund research into basic fields of mathematics and science such as engineering, biology, physics, and technology.

Consolidating Unnecessary Duplication

NSF and other federal research agencies could realize additional savings by improving coordination to identify and consolidate potential duplication of grants awards. The agency may be funding similar or even identical work already receiving support from other agencies. A recent research article published in *Nature* showed hundreds of grants were submitted to multiple agencies using similar applications.²⁰ As a result, we are paying two, three, or four times for the very same project. The result is less funding is available for novel ideas.

Improving Accountability

The NSF Office of the Inspector General (IG) has highlighted a number of oversight functions where the agency could realize billions of dollars.

According to NSF's own guidelines, large contractors must submit cost-incurred reports every six months. Two-thirds of the contractors, however, submitted reports late, and one-third never submitted reports at all.²¹ As a result, the agency and taxpayers have no idea how funds were spent.

Greater monitoring of Cooperative Agreements, which are valued at \$11 billion, could also produce additional savings. These unique arrangements have less transparency and oversight mechanisms than traditional contracts. An audit of just 3 proposals valued at \$1.1 billion contained \$305 million in unallowable costs.²² Scaled across the entire program, there may be over \$1 billion in unallowable costs. The IG notes it has “serious questions about NSF’s accountability over the \$11 billion cooperative agreements in its portfolio.”²³


Furthermore, the agency may also find additional resources in the hundreds of millions of dollars it has left in the hands of researchers and institutions who have misspent them. Through its audits and investigations, the NSF Inspector General identified over \$309 million in questionable or poorly spent funds just in the second half of fiscal year 2012.²⁴ That sum is over four percent of the agency’s annual budget. The agency should work harder to recover misspent funds and ensure more efficient. Poor oversight and enforcement mechanisms result in lost opportunity to invest in groundbreaking science.

Finally, the agency still has a number of operational policies that are not sufficient to control costs. NSF management must utilize every power it has to implement strong controls on travel and administrative expenses. The IG, for example, has persistently recommended the agency implement stronger policies regarding staff retreats. In recent years, these trips cost taxpayers over \$361,000, and they are riddled with unallowable expenses. For example, the agency paid \$299 per person per night for lodging in Virginia Beach, Virginia, over \$100 more per night than written NSF policy allows.²⁵ The agency is in a prime position to do more with less by more closely monitoring these types of common expenses.

In closing, I hope your final months at NSF allow you to continue your work in improving agency operations and oversight. Your new position as president of Carnegie Mellon University is well deserved, and I wish you all the best.

Sincerely,

Sincerely,



Tom A. Coburn, M.D.

Ranking Member

Committee on Homeland Security and Governmental
Affairs

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- ¹ “Important Notice to Presidents of Universities and Colleges and Heads of Other National Science Foundation Awardee Organizations,” Dr. Subra Suresh, Notice No. 133, February 27, 2013; <http://www.nsf.gov/pubs/2013/in133/in133.jsp>.
- ² Grant number 0951010, \$325,000
- ³ Grant number 0925038, \$375,000
- ⁴ Letzing, John. “What Does It Take to Fool a Snake? Send in the Robot,” *Wall Street Journal*, December 18, 2012, <http://online.wsj.com/article/SB10001424127887324020804578151583449719160.html>.
- ⁵ “Important Notice to Presidents of Universities and Colleges and Heads of Other National Science Foundation Awardee Organizations,” Dr. Subra Suresh, Notice No. 133, February 27, 2013; <http://www.nsf.gov/pubs/2013/in133/in133.jsp>.
- ⁶ Grant number 0960991, \$251,525
- ⁷ Grant number 1127567, \$600,000
- ⁸ Grant number 1152672, \$516,000
- ⁹ Grant number 1062619, \$45,900
- ¹⁰ Grant number 1247824, \$227,437
- ¹¹ Grant number 1252692, \$49,774
- ¹² Grant number 1147008, \$515,468
- ¹³ <http://burnettl.people.cofc.edu/research/treadmill.php>
- ¹⁴ Grant number 0959200, \$106,868
- ¹⁵ Grant number 1238757, \$349,862
- ¹⁶ Grant number 1237627, \$47,783
- ¹⁷ “Filibuster Reform Poll: Americans Favor Requiring Real Debate,” *Huffington Post*, November 30, 2012, http://www.huffingtonpost.com/2012/11/30/filibuster-reform-poll_n_2218963.html.
- ¹⁸ “Public Favors Keeping Filibuster Rule in U.S. Senate,” *Gallup Organization*, May 9, 2005, <http://www.gallup.com/poll/16195/public-favors-keeping-filibuster-rule-us-senate.aspx>.
- ¹⁹ “Poll Shows Few Americans Understand Senate Filibuster Rules,” *US News and World Report*, January 29, 2010, <http://www.usnews.com/opinion/blogs/robert-schlesinger/2010/01/29/poll-shows-few-americans-understand-senate-filibuster-rules>.
- ²⁰ Reich, Eugene Samuel and Conor L. Myrvoid (2013) “Funding agencies urged to check for duplicate grants,” *Nature*, 493: 588-589.
- ²¹ “Management Challenges for NSF in FY2013,” Memo from Allison Lerner to Dr. Subra Suresh and Dan Arvizu, October 15, 2012; <http://www.nsf.gov/oig/2013MgmtChallenges.pdf>.
- ²² “Management Challenges for NSF in FY2013,” Memo from Allison Lerner to Dr. Subra Suresh and Dan Arvizu, October 15, 2012; <http://www.nsf.gov/oig/2013MgmtChallenges.pdf>.
- ²³ “Management Challenges for NSF in FY2013,” Memo from Allison Lerner to Dr. Subra Suresh and Dan Arvizu, October 15, 2012; <http://www.nsf.gov/oig/2013MgmtChallenges.pdf>.
- ²⁴ “NSF/OIG Semiannual Report to Congress,” National Science Foundation Inspector General, September 2012, p. 47; http://www.nsf.gov/pubs/2013/oig13001/oig13001_5.pdf.
- ²⁵ “Audit of NSF-Funded Conference Activities (Staff Retreats),” Memo from Dr. Brett M. Baker to Dr. Cora B. Marrett, March 23, 2012; <http://www.nsf.gov/oig/12-2-009.pdf>.