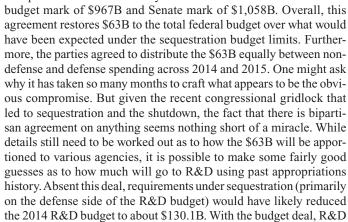
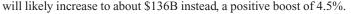
No Windfall for U.S. Science

WITH SEQUESTRATION, 2013 WAS NOT A BANNER YEAR FOR U.S. SCIENCE. THE FEDERAL RESEARCH and development (R&D) budget, at an estimated \$132.8B (billion), was 6.9% below 2012 levels and the lowest it had been since 2002, adjusted for inflation. With October came the government-wide shutdown, when the political parties failed to reach agreement on the 2014 appropriation. After 2 weeks of critical experiments being abandoned, time series suffering gaps, research grants not being funded, and overall loss in the credibility of the U.S. government as a reliable science partner, a temporary budget deal was struck in the form of a continuing resolution that reopened government, but only until January 15 of 2014.

The modicum of good news for 2014 is that a budget deal has been reached by a bipartisan group chaired by Congressman Paul Ryan (R-Wisconsin) and Senator Patty Murray (D-Washington State) that splits the difference exactly down the middle between the House





The 2014 budget will continue what has been a decades-long slide in the ratio of the federal R&D budget to the GDP (gross domestic product). This ratio is often used as a measure of how much a nation values basic research; it has fallen 25% in the last decade alone.

In the meantime, elsewhere internationally, investment in science is rising as nations throughout the world connect investment in R&D to the development of their human capital and to their future prosperity. For example, the European Union's flagship research program, Horizon 2020, is set to receive a nearly 30% boost in 2014. The Chinese government's investment in R&D has been increasing by percentages in the double digits for the last several years and is poised to become the world leader.

One can already see the cascading consequences as federal R&D budgets shrink. The best and the brightest students trained at world-class U.S. universities grow disillusioned and seek other careers or better opportunities overseas for pursuing their research. Research programs are narrowing their scope as budgets decline to maintain reasonable funding success levels, and gaps appear between programs such that some areas of fundamental investigation fall between the cracks. Ultimately, the flow of discoveries from basic research, primarily supported by the federal government, will slow down, as will the pace of innovation.

This erosion of the U.S. scientific enterprise is not in the best interest of the global scientific enterprise, and certainly not in the best interests of the United States. Professional societies can only do so much in terms of advocacy. Congress needs to hear from every U.S. scientist, engineer, technologist, and anyone whose job depends on the innovation pipeline. It is far easier to keep U.S. science world class than to rebuild it.

- Marcia McNutt

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