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US nanotech restructures

February was budget time in Washington, and the news was bad for science. The president's fiscal year 2005 budget for the government, which is used by the congress as a guideline for final spending bills later in the year, favours defence and security over science and technology. It proposes modest increases for some science agencies while cutting funding for others, but in the end, it all comes out to a zero sum game for research (see *Nature* **427**, 425; 2004).

The National Nanotechnology Initiative, a broad interagency programme that funds virtually all US nanotech research, is no exception. Since it began in 2001, the initiative has enjoyed generous funding boosts that have doubled its budget to roughly US$.9 billion dollars, but this year's budget recommends a 3% increase that would put funding at just past $1 billion. That 3% increase is not evenly distributed across the initiative. Funding for nanotechnology research at some agencies could be cut dramatically, whereas others will receive substantial boosts. Lucky winners include the National Science Foundation, which would receive a 20% increase to bring its funding for the initiative to just over $300 million, and the National Institutes of Health, which would see its nanotech money rise 11% to $89 million under the president's proposal. The biggest losers would be the Department of Defence, whose funding is slashed by 17% to $180 million, and the National Institutes of Standards and Technology (NIST), which would be down as much as 16% to $53 million.

MONEY FOR EIGHT NEW NANOCENTRES SPONSORED BY THE NATIONAL SCIENCE FOUNDATION WILL COME FROM CUTS TO NANOTECH AT THE DEFENCE AND COMMERCE DEPARTMENTS.

In some ways, this consolidation of nanotech research makes sense. The Department of Defense has had to cut back much of its R&D in the past two years to pay for the wars in Iraq and Afghanistan, and NIST has taken on homeland security science and technology needs such as cyber security. Under the proposed budget, much of the funding from these agencies will go to the National Science Foundation, which is assembling eight new nanoscale science and engineering centres at universities around the country. These centres focus on a variety of fields including the fabrication of nanostructures, and nanotech's implications for the environment. The foundation is also expected to announce plans for six more new centres this autumn.

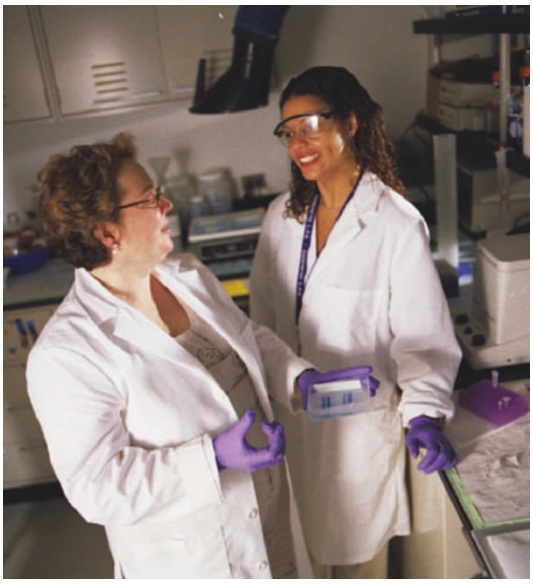

IMAGE COURTESY OF NORTHWESTERN UNIVERSITY

But cutting back funding in these agencies brings drawbacks as well. For example, the defence department's Defense Advanced Research Projects Administration, is uniquely known for assembling teams of researchers from around the country to tackle tough, applied problems such as building a better nanotransistor or a new type of microscope for measurements on a nanoscale. NIST, which is part of the Department of Commerce, is the main government source for funding private nanoscale research on everything from fuel cells to spintronics. Cutting funding in these agencies will narrow the breadth of options for scientists trying to find backing for their projects.

Of course, even if the budget is approved as is, these agency's programmes in nanotechnology are still far from evaporating. The Naval Research Laboratory opened a $13 million nanoscale research laboratory in October 2003, and NIST has just completed work on a $235 million new Advanced Measurement Laboratory, which will house high-tech instruments for probing nanomaterials. But the cutbacks will be particularly hard-felt amongst individual researchers working on near-term nanotechnology projects.

Ultimately, it is up to the congress to decide how much money will go to nanotechnology in the next fiscal year, which begins in October. Support for nanotechnology remains strong among many senior lawmakers, and the Congress passed a bill in 2003 that recommends extending the initiative to 2007 at funding levels far above the current proposed budget. It is doubtful that congressional supporters of the nanotech initiative will be able to win the large increases advertised in the bill, but even in the uncertainty of an election year, they may have the wherewithal to keep nanotech funding balanced and healthy.

A list of the nanocentres can be found at this link: http://nano.gov/html/centers/nnicenters.html