Counting the cost

As more and more of its ocean-sciences budget is eaten up by operational and maintenance costs, the US National Science Foundation should learn to take a long view when investing in major projects.

One should never, as the saying goes, look a gift horse in the mouth. So when the US National Science Foundation (NSF) was handed stimulus cash after the collapse of the wider economy, it is not hard to see why agency bosses rushed ahead with funding some shiny new projects. But now the hungry horse is their responsibility and it is gorging from the agency’s shrinking nosebag. Something has to give.

A decade ago, things were looking up for the science-funding agency. Budgets had been rising steadily, thanks to a supportive Congress. In 2007, President George W. Bush signed the America COMPETES Act into law, which singles out the NSF for special investment in innovation research. And even after the US economy nosedived in 2008, there was a silver lining for the NSF: an extra $3 billion in stimulus funding from the government’s economic-recovery package.

By law, the NSF was obliged to spend the stimulus windfall quickly, so it naturally looked to inject cash into projects that were ‘shovel-ready’ — those that had already been designed and were just waiting for investment to get started. Of the many things that the agency did with the cash, it chose two large projects in its ocean-sciences division.

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Even then, the NSF should have anticipated that the big budgets would not last and planned accordingly. It did not, and now faces the reality of the aftermath of all that spending. Once the pot of money allocated to construction has gone, the agency must start to pay operational costs for these expensive projects. Both the Alaskan vessel and the Ocean Observatories Initiative (OOI) are set to come online in 2015, and the ocean-sciences division will foot the bill. In a presentation to the National Science Board last month, division director David Conover warned that the division is already spending more than half its money on maintaining facilities — at the expense of core science projects. And that percentage of facilities costs is only expected to grow.

That could hurt another long-standing part of the ocean-sciences division — scientific ocean drilling, in the shape of the drilling ship JOIDES Resolution. Faced with growing facilities demands, the NSF is considering cutting the amount it spends on the Resolution each year, such that its time at sea might shrink from the eight months a year of science it does at present — which is, in turn, less than the 12 months a year it worked a decade ago (see page 469).

Ocean drilling has already absorbed cut after cut; it must be spared complete dismantling. The Resolution is a hugely successful science programme, one that continues to yield multiple papers in top academic journals each year, more than four decades after scientific ocean drilling began. It is also highly international; in the past decade, 758 scientists from 23 countries have sailed aboard the Resolution under the mantle of the Integrated Ocean Drilling Program. One-quarter of those were graduate students, of whom nearly half were women.

The NSF faces difficult choices, as do other cash-strapped funders around the world. In the case of the NSF’s ocean sciences, it should choose to pay the Resolution working. It has little leeway on the expensive and untended OOI, which has been mandated by Congress. (Although, notably, other countries, such as Australia and Canada, have managed scientifically useful ocean observatories on a smaller, more affordable scale.) That leaves a decision to be made on the country’s ageing academic research fleet.

Even in these tight budgetary times, the NSF is about to embark on another major construction push in the ocean sciences: it is looking to build as many as three regional research vessels. These are much-needed replacements that would study algal blooms, ocean acidification, fisheries impacts and other science of great societal relevance.

But they are coming at just the wrong time and should be postponed.

As it awaits confirmation of a new director, the NSF should do well to reconsider the way it builds long-term strategy. Building big, shiny facilities is all well and good in times of plenty. When money gets tight, some dreams simply have to be delayed. With politics, as with horses, there is no sure thing.

Time for change

Angela Merkel needs to tackle the issue of Germany’s uneven university funding.

With her triumph in the German parliamentary elections on 22 September, Angela Merkel’s popularity has reached new heights. Her bloc — the Christian Democratic Union and its Bavarian sister party — took 41.5% of the vote, just five seats short of an absolute majority and almost 8% more than her share in the 2009 election. But as the Free Democratic Party, her junior coalition partner in the last government, failed to win the required 5% of votes and will no longer be represented in parliament, Merkel must seek a new political partner. A grand coalition with the Social Democrats, who won 25.7% of votes, seems the most likely option. It could be a good one for science as well.

Merkel no doubt owes her victory to Germany’s economic stability and her firm stance on the euro crisis, which has made her the pre-eminent political figure in Europe. Her government has also cut German unemployment by almost 40% since 2005, to 6.8%. And Merkel has benefited from her decision to pull the plug on nuclear