Correspondence

US wall costs twice the cancer budget

In this year's State of the Union address, President Donald Trump declared: "Many childhood cancers have not seen new therapies in decades. My budget will ask the Congress for US$500 million over the next ten years to fund this critical life-saving research." He also singled out a ten-year-old with cancer for public display. This public-relations gesture could raise false hope for those affected by cancer.

Cancer is complicated and, despite valiant efforts by researchers, cures are not easily accomplished. Throwing money at it helps, but guarantees nothing. Richard Nixon also wanted to cure cancer during his presidency; the National Cancer Act of 1971 created the National Cancer Institute (NCI) of the National Institutes of Health and funded it with $400 million that year (equivalent to $2.5 billion today). Trump's promised $50 million a year is a drop in the bucket (see also *Science* http://doi.org/c3xc; 2019).

Last year, the NCI had a budget of almost $6 billion. Trump's announced increase would boost that by less than 1%. By way of comparison, the money he demands for a border wall with Mexico would more than double the NCI budget.

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Dams: value wetlands too

Mike Muller seems to imply that destroying natural wetlands in the course of hydropower development is a cost worth bearing because it will reduce methane emissions (*Nature* **566**, 315–317; 2019). I disagree: intact riparian systems are crucial for climate adaptation.

Large dams are typically subject to weak impact assessments, murky finances, and poor operations and maintenance (A. Ansar *et al. Energy Pol.* **69**, 43–56; 2014). With lifetimes extending over a century, they can also become unworkable in the face of climate shifts — as seen in Australia, Zambia, Venezuela, the United States and southern Asia.

Clear trade-offs between mitigation and adaptation must be negotiated. Damaging the water cycle for the benefit of the carbon cycle provides no net gain for water-dependent economies and ecosystems. We should therefore protect and enhance carbon-sink wetlands (W. R. Moomaw *et al. Wetlands* **38**, 183–205; 2018).

Climate-sensitive water management balances the resilience of ecosystems, infrastructure and land-use patterns with carbon-related and economic benefits. Through better-informed decisions, we can sustain and value wetlands and hydropower together.

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**On behalf of 16 signatories (see go.nature.com/2ri7ii for full list).*

Dams: rotting plants soil climate claims

I disagree with Mike Muller's claim that dams are good for the climate and so warrant financial backing (*Nature* **566**, 315–317; 2019).

Hydropower development is expected to occur predominantly in the tropics, where emissions of methane from large reservoirs are particularly high, owing to the decay of plant matter that is flooded during dam construction (see, for example, go.nature.com/2tcuxyp). Over a 20-year period, methane's impact on global warming is 86 times more per tonne than that of carbon dioxide (see IPCC 5th Assessment; go.nature.com/2tyj6if). These emissions peak in the first few years after a reservoir is filled and so are likely to reach their maximum during the crucial period for meeting the December 2015 Paris climate agreement.

Subsidizing the construction of more dams with 'green' money could drain funds from alternatives with real climate benefits, such as expanding wind and solar power.

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Does high citation help conservation?

As a conservation scientist straddling academia and practice, I have mixed feelings about conservation charities 'topping the citation charts' (see S. H. M. Butchart *et al. Nature* **566**, 182; 2019).

Charities that publish excellent applied research as a means of improving conservation are to be congratulated. However, I question how much academic research should be carried out by mission-driven conservation charities: it might help to attract funding, but it won't necessarily lead to better conservation.

Practising conservation calls on emotional and intellectual skills — such as managing people to prevent biodiversity loss — that are qualitatively different from those needed for academic research. Added to which, published recommendations are not always put into practice (A. T. Knight *et al. Conserv. Biol.* http://doi.org/bfzhvx; 2008), conservation planning is marked by diminishing returns on research investment (H. S. Grantham *et al. Conserv. Lett.* http://doi.org/bf5n58; 2008) and trade-offs are inevitable when spending on 'knowing' as opposed to 'doing' (see go.nature.com/2tdi7h1).

We need a better understanding of how academic impact factors compare with, and translate into, measurable real-world outcomes. Then, conservation charities can allocate their time and money more effectively.

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Ukrainian science: boost the positive

As a long-standing US member of Ukraine's National Academy of Sciences, I find your assessment of the country's science revolution overly gloomy (*Nature* **566**, 162–163; 2019).

Early-career scientists are leading the charge for new ideas. Institutes now have more freedom, and some have done quite well — particularly in attracting outside funding and keeping young researchers in the country. Notable changes have occurred in the Institute of Monocrystals and its affiliates in Kharkiv, for example. And Ukraine is known worldwide for its information technology, which provides jobs for thousands of graduates as well as boosting the country's economy.

Since the annexation of the Crimean peninsula by the Russian Federation in 2014, Ukraine has lost 27 universities, institutes and higher-education organizations, its most modern observatory and over 95% of its oceanographic facilities. Rebuilding scientific careers has been hard. However, the Ukrainian government has continued to support science during this time. Rather than bemoaning the doubling of academy funds since 2016 as "not enough", we should be considering how this extra funding can best be used to further Ukrainian science.

Western organizations such as the American Physical Society have been at the forefront in assisting Ukraine, most recently in helping scientists displaced by the war in the east. The country's scientific community would also benefit from more engagement with the European Union.

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