Correspondence

Brexit must protect European science

As president of ALLEA (All European Academies), I am disappointed by the slow pace of Brexit negotiations and lack of awareness of their impact on European science. Research in the European Union needs collaboration with the United Kingdom and vice versa. I agree that greater clarity on the future relationship between EU and UK science policy is paramount (see V. Ramakrishnan *Nature* **551,** 543; 2017).

Much has been said about the implications of Brexit for UK science, with little mention of the detrimental effects on European science as a whole. EU research depends more than ever on international collaboration and competitiveness. The UK scientific system contributes much of this and is a core strength. Collaboration with EU partners now makes up more than 30% of all UK scientific publications.

As Brexit negotiations move into the second phase, we must take steps to ensure UK participation in European science and in the design and implementation of the next EU research and innovation Framework programme. Severing our close collaborations would have irreversible long-term effects on the quality of scientific research and would touch the lives of all citizens of the EU and Britain. In the current negotiations, the sole certainty seems to be that we urgently need a more ambitious deal for moving European science beyond Brexit.

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Climate engineering includes land and sea

Stephen Andersen calls for governance of climate engineering, suggesting that the Montreal Protocol could take on full responsibility for the task (*Nature* **551,** 415; 2017). However, the protocol's assessment experts focus solely on stratospheric processes, and in our view would be unlikely to be able to take on regulation of the full range of ambitious geoengineering projects.

The range of proposed techniques includes land- and ocean-based removal of greenhouse gases from the atmosphere, as well as increasing the amount of sunlight reflected from land and ocean surfaces. All these methods are considered as geoengineering by such bodies as the Intergovernmental Panel on Climate Change and the Convention on Biological Diversity.

The London Protocol on marine geoengineering already has draft regulations in hand for techniques such as ocean fertilization (see go.nature.com/2ow7ikp). These aim to protect the marine environment and human health, with input from the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP; see go.nature.com/2bksdnn).

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Boost soil carbon for food and climate

The '4 per 1,000' initiative was launched by the French government at the COP21 Paris climate summit in 2015. It aims to boost carbon storage in agricultural soils by 0.4% each year to help mitigate climate change and increase food security (www.4p1000.org). Despite the global importance of these societal imperatives, soil-carbon sequestration is still not on the political agenda, and was not formally discussed at the Bonn COP23 meeting in Germany in November 2017.

Crucially, the 4 per 1,000 initiative will help governments to implement sustainable intensification of food production (A. Chabbi *et al. Nature Clim. Change* **7,** 307–309; 2017). Increased organic-carbon sequestration in soil underpins several Sustainable Development Goals (SDGs) and directly contributes to SDG2 'Zero hunger', SDG13 'Climate action' and SDG15 'Life on land' (see go.nature.com/2kwtxsy).

To realize the promise of such an initiative, different sectors of society will need to stimulate and coordinate better communication between scientists, businesses, public and private enterprises, policymakers and the public. Soils must be recognized as natural capital that can contribute significantly to national economies and human welfare.

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Nile perch poached for swim bladders

Nile perch (*Lates niloticus*) are being illegally fished in Lake Victoria, Africa's biggest lake, driven by demand for their swim bladders from traditional Chinese medicine (see also *Nature* **551,** 541; 2017).

Fishers can be paid ten times more for the bladder than the price they can achieve for fish flesh, so the flesh has become a by-catch of the bladder harvest. Large fish have large bladders, and so poachers target fish that are bigger than the 85-centimetre upper legal length limit; these are not accepted by regulated processing factories. Large fish are protected because they are substantial spawners, and removing them could affect stock recruitment.

Furthermore, fish-processing factories will not accept legally sized Nile perch carcasses that have already been opened to remove the swim bladder, so several factories have closed because the bladder trade has cut the supply of fish. This has reduced local employment and the volume of fish sold to export, affecting earnings from abroad.

Fishery resources from Lake Victoria underpin the livelihoods of more than 35 million people, and fish products contribute about 2% to the combined gross domestic product of Tanzania, Kenya and Uganda (see go.nature.com/2bmpevq).

Although the Nile perch is an introduced species in Lake Victoria and has severely affected natural fish abundance and biodiversity, it has brought some food security and economic prosperity to the region. Traditional medicine threatens both.

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CONTRIBUTIONS

Correspondence may be sent to **correspondence@nature.com** after consulting **http://go.nature.com/cmchno**.

CORRECTION

The Outlook article 'A bag of surprises' (*Nature* **551,** S40–S41; 2017) incorrectly identified fibronectin as a molecule produced by BCG bacteria. Fibronectin is produced by the human body and is a putative binding site for the BCG bacteria.