

Correspondence

Women scientists are worried in Brazil

Female scientists in Brazil face an uncertain future under the government of declared misogynist Jair Bolsonaro. They are concerned, for example, that women will no longer be appointed as rector in federal universities under the latest government plans (see go.nature.com/2xthw4s). Women currently occupy about 30% of these positions, which compares favourably with a figure of 17% for the world's top 200 universities (see go.nature.com/2xsevr1).

When we compare nations that have a gross domestic product per capita similar to Brazil's and that spend a comparable proportion of it on science, South American and eastern European countries have among the highest ratios of female-to-male authorships on scientific papers (V. Larivière *et al.* *Nature* **504**, 211–213; 2013). However, women here, as elsewhere, continue to be under-represented in science (see, for example, R. A. Benício and M. G. Fonseca *Braz. J. Biol.* <http://doi.org/c24v>; 2019).

Ronildo Alves Benício *Federal University of São Carlos, Sorocaba, Brazil.*
benicio.ufscar@gmail.com

Accelerate Nigeria's cassava production

Breeding improved varieties of cassava (*Manihot esculenta*) offers a solution to Nigeria's urgent need to produce more edible and industrial material from this crop (see *Nature* **565**, 144–146; 2019). But such genomics experiments must also be backed up by improved agricultural systems.

Although Nigeria has become the world's largest cassava producer after increasing its cultivation area, its productivity has stalled at around 10 tonnes per hectare for the past fifty years. The industry was saved

from collapse only by breeding resistance to the viruses that cause cassava mosaic disease, and through biological control of mealybug and other pests in the 1980s.

A sustainable seed-distribution system is essential if genetically improved seeds are to reach the millions of farmers cultivating cassava. The farmers also need better marketing connections for their crops. More global funding and policy support for rural advisory services would improve smallholders' productivity and reduce losses along the supply chain.

Nigeria's cassava yields are still much lower than those of countries in Asia and South America. This must be rectified if we are to meet the growing demands of Africa's most populous nation in a changing climate. A 2018 report from the Bill & Melinda Gates Foundation warns of an impending poverty crisis in Nigeria, the Democratic Republic of the Congo and elsewhere in Africa (see go.nature.com/2echdat).

Hemant Nitturkar *International Potato Center, Ibadan, Nigeria.*
h.nitturkar@cgiar.org

Tax fuel production, not emissions

In my view, there will be limited public support for charges on carbon emissions (*Nature* **565**, 289–291; 2019) unless the off-putting bureaucracy of carbon taxes and emissions-trading systems is radically simplified. I suggest that it would be more effective to tax fossil-fuel production.

Under the present European emissions-trading system, details are required for each separate industrial device that creates emissions (diesel pumps, for example) and its energy supply (see go.nature.com/2ntkoye).

Instead, a simple levy corresponding to the equivalent carbon dioxide emission of any type of fuel could be applied at source, so that it is priced in

automatically for the whole chain of users. A country's fossil-fuel consumption is readily assessed at source (coal mine, oil or gas well) and by monitoring import minus export.

The tax revenue could be fed into a national pot that would help to promote emissions cuts. Users could apply for subsidies to reduce emissions, rather than distributing the money across the population. This levy might be dubbed a climate investment, which would motivate the uptake of renewable energy.

Emil Roduner *University of Stuttgart, Germany.*
e.roduner@ipc.uni-stuttgart.de

Danish children find new bacteria

One of the world's largest citizen-science experiments has led to the rapid discovery of ten new bacterial species in Denmark. About 25,000 schoolchildren aged 10–16 years found these *Lactobacillus* species after analysing some 11,000 plant samples from urban and rural ecosystems (see go.nature.com/2sq5muw). By comparison, Danish researchers find an average of just one new bacterial species per year.

Lactobacillus is a beneficial group of bacteria that has been used for food preservation for thousands of years (M. Bernardeau *et al.* *FEMS Microbiol. Rev.* **30**, 487–513; 2006). The study was spearheaded by the biotechnology company Novozymes near Copenhagen, and its updated biobank is now open to researchers around the world, offering fresh opportunities for industrial and drug development.

Children are a large but untapped source of citizen scientists (see also *Nature* **562**, 480–482; 2018). Moreover, they will form the next generation of scientists.

Christian Sonne, Aage K. O. Alstrup *Aarhus University, Roskilde, Denmark.*
cs@bios.au.dk

Policy flaw in moral machine experiment

The 'moral machine' experiment for autonomous vehicles devised by Edmond Awad and colleagues is not a sound starting place for incorporating public concerns into policymaking (*Nature* **563**, 59–64; 2018).

The experiment presents participants with stylized moral dilemmas that are intended to resemble choices facing designers and regulators. For example, participants must choose between a crash that kills three elderly pedestrians and one that kills three non-elderly occupants of an autonomous vehicle.

The study would have benefited from a premise common to philosophy and psychology: namely, that stylized dilemmas are a means rather than an end. They are meant to pose questions rather than answer them, and to inform public discourse rather than attempt to resolve it (B. Fischhoff *Science* **350**, aaa6516; 2015).

Philosophers use stylized tasks to analyse the complex and uncertain situations in which moral choices are actually made. Dilemmas have no meaning outside such discourse. Although survey responses might stimulate enquiry, taking them literally is an antithesis to philosophical practice.

Psychologists use stylized tasks to test individuals' sensitivity to cues that could help them to decide between options. A single representation of a dilemma cannot stand alone, without knowing how participants interpret it, how they respond to alternative wording and how they view the ethics of a society guided by survey responses (see D. Medin *et al.* *Nature Hum. Behav.* **1**, 0088; 2017).

Barry Dewitt, Baruch Fischhoff *Carnegie Mellon University, Pittsburgh, Pennsylvania, USA.*
Nils-Eric Sahlin *Lund University, Lund, Sweden.*
barrydewitt@cmu.edu