

Correspondence

UNESCO embraces open science for society's future

After a transparent and inclusive consultation process, the 193 member states of the United Nations cultural organization UNESCO started negotiating the final text of its 'Recommendation on Open Science' this month. This global standard-setting instrument, which seeks to close the gaps in science, technology and innovation within and between nations, will be adopted at the 41st UNESCO General Conference in November. The scientific community's input continues to be crucial (see go.nature.com/3oatqrk).

The COVID-19 pandemic has underscored the unacceptable inequalities affecting access to scientific progress, knowledge and education. It has forced us to rethink how we produce, share and communicate scientific information. Universal access to science must be more inclusive, more collaborative and more interdisciplinary.

Although key to prosperity, peace and a healthy planet – all priorities for the UN's 2030 Agenda for Sustainable Development – open science still has no common definition or international policy framework. UNESCO's recommendation aims to build a shared set of principles based on quality, integrity, collective benefit and diversity. It will support policymaking and investment in infrastructure, services, educational resources and capacity-building.

We must harness open science's potential to meet societal needs and shape the future, backed by civil society, policymakers, young people and the scientific community.

Audrey Azoulay UNESCO,
Paris, France.
a.persic@unesco.org

Contrails: tweaking flight altitude could be a climate win

By our calculation, preventing most of the damaging impact of aircraft vapour trails (contrails) on climate would cost less than US\$1 billion per year and the net value of the benefit could be more than 1,000 times that. We know of no comparable climate investment with a similarly high likelihood of success.

Contrails account for roughly 2% of global warming because they cause cirrus clouds to trap outgoing infrared radiation. The flights responsible are typically within 1,000 metres of trajectories that are much less damaging to the atmosphere, so planes routed to higher or lower altitudes would burn less than 0.1% more fuel (R. Teoh *et al. Environ. Sci. Technol.* **54**, 2941–2950; 2020).

The warming effect of the extra emissions is likely to be more than offset by the reduction in vapour-trail formation (see B. Kärcher *Nature Commun.* **9**, 1824; 2018). Furthermore, any drop in altitude would be insufficient to affect health costs from particulate matter and noise on the ground.

Addressing climate change could cost as much as US\$100 trillion (D. P. van Vuuren *et al. Nature Clim. Change* **10**, 329–334; 2020). Abating even 1% of this cheaply could therefore represent a trillion-dollar economic opportunity.

Ken Caldeira Carnegie Institution for Science, Stanford, California, USA.
kcaldeira@carnegiescience.edu

Ian McKay Gates Ventures,
Kirkland, Washington, USA.

Statistics: unify ecosystems valuation

Your Editorial decries as “unfortunate” the United Nations Statistical Commission's decision to omit the valuation component from its international statistical standard for measuring ecosystems' services and assets (*Nature* **591**, 178; 2021). It calls out the United States and several European countries for objecting and delaying natural-capital accounting. We stand by the commission's decision. In our view, statisticians and national accountants worldwide should first agree on how to treat monetary values connected to ecosystem services.

International experience in valuing ecosystems at a national scale is sparse, and best practices have yet to emerge. The ecosystem component of the UN's System of Environmental Economic Accounting needs broader consensus on a more rigorous statistical approach to valuation concepts and methods. Some are currently incompatible with the national accounts framework, limiting comparability with statistics such as gross domestic product.

We support further experimentation in ecosystems valuation that is grounded in the comparability and standardization required for robust statistical measurement. However, premature adoption of underdeveloped standards could damage progress in joint national and environmental economic accounting.

Dennis Fixler* US Bureau of Economic Analysis, Suitland, Maryland, USA.
dennis.fixler@bea.gov

*On behalf of 9 correspondents; see go.nature.com/2rtvjfg

Virus variants: GISAID policies incentivize surveillance in global south

When SARS-CoV-2 coronavirus genome sequences determined in low-income nations are rapidly shared through the independent Global Initiative on Sharing Avian Influenza Data (GISAID), attention and collaboration flow in from scientists at prestigious institutes (see, for example, go.nature.com/3upedvz). This helps to highlight education and health-security inadequacies in less-wealthy countries.

Centralized workflows realize economies of scale, but adapt slowly to changes on the ground. In our view, the best way to fortify grass-roots participation and speed up data sharing would be for sequencing, analysis and discovery to occur in the communities from which samples are collected.

Policies benefiting those who share data incentivize local genomic surveillance. GISAID boosts sharing by negating researchers' reluctance to rapidly deposit sequence data anonymously. Those calling for unrestricted data access (*Nature* **590**, 195–196; 2021) propose conditions that have failed during public-health emergencies (J. LoTempio *et al. Sci. Diplom.* **9**, 47; 2020).

Money is pouring in for genomic surveillance (see go.nature.com/3up9g3g). Greater community participation will underpin this investment by accelerating detection of new virus variants.

Jeremy P. Kamil* Louisiana State University Health Shreveport, Shreveport, Louisiana, USA.
jeremy.kamil@lsuhs.edu
*On behalf of 9 signatories; competing interests declared: see go.nature.com/3emhvgp