

Correspondence

Madagascar: foil biodiversity pillage

A top priority for Madagascar's new president should be to tackle the rampant exploitation of the country's globally important protected areas. Illegal activities such as mining for gems and gold are out of control. They are wrecking the island's irreplaceable biodiversity, overwhelming conservation management efforts and threatening national revenue. The security of protected areas needs to be urgently stepped up and the law enforced.

New President Andry Rajoelina campaigned on improving the country's economy. Besides being a priceless national treasure, Madagascar's biodiversity attracts international tourists, most of whom visit the protected areas and indirectly contribute almost 14% of the nation's gross domestic product. Fewer tourists will visit if the charismatic lemurs, for example, are driven to extinction. Found only in Madagascar, these primates are among the most threatened mammal groups on the planet.

Given Madagascar's extreme poverty, the international community should continue to support the nation in conserving its biodiversity. However, little can be achieved without the commitment of the government, which must recognize the importance of the national parks to Madagascar's future.

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Madagascar: guard last of the forests

Some 80% of Madagascar's unique biodiversity depends on forest ecosystems, yet deforestation on the island continues unchecked. Politicians have influenced trading in

precious timber since the 1980s, with the sourcing of protected Malagasy rosewood peaking during the country's 2009–13 political crisis. As we approach the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) COP18 summit in Sri Lanka in May, we urge Madagascar's new president, Andry Rajoelina, to avoid measures that could put the last 15% of the country's original natural forests at risk.

Following pressure by the international community and the World Bank, the Malagasy government has confiscated and stockpiled precious timber since 2013. All Malagasy species of rosewood (*Dalbergia* spp.) and ebony (*Diospyros* spp.) are now listed under CITES Appendix II — that is, species that could become endangered if trade is not controlled. However, Madagascar's new government and the World Bank intend to sell off these stocks, which could spur demand for more — as happened with elephant ivory.

We suggest that all *Dalbergia* and *Diospyros* species from Madagascar be urgently raised to CITES Appendix I, which demands protection for endangered species. With the suite of tools currently available under the CITES Convention, this could be the only way to reduce incentives for traffickers and prevent history from repeating itself.

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UN could steer gene-editing debate

The task of mediating between advances in biotechnology and broader societal concerns should be entrusted to representative institutions such as the United Nations (see J. B. Hurlbut *Nature* **565**, 135; 2019). If the discussion

about human germline editing is going to have global societal relevance, scientists, ethicists and academies must stop thinking that they can debate these issues in a cosmopolitan haven of ideas.

Openness and transparency are laudable goals for science, but they cannot exist in a bubble. With populist parties doubting expertise on issues from climate change to vaccination, the scientific and policy communities need to recognize that the public's knowledge of science and its attitude to biotechnological innovation cannot be separated from trust in scientific and political institutions. The social and political ground has to stabilize so that we can build a common platform for such debate and decision-making.

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Cut emissions per capita to 1955 levels

The findings of the 2018 Intergovernmental Panel on Climate Change special report imply that we need to reduce global emissions of carbon dioxide within 12 years to where they were 41 years ago, to avoid a 1.5 °C increase in average Earth surface temperature. Global emissions and concentrations are still rising, however, so temperatures continue to go up.

Our estimates show that emissions from fossil-fuel combustion and cement manufacture in 2017 surpassed 10 gigatonnes of carbon (see go.nature.com/2teyafi). Population growth is partly responsible. In 1977, when the global population was 4.23 billion, emissions per capita were 1.19 tonnes of carbon per person. By 2017, this had increased to 1.34 tonnes (the global population that year was 7.55 billion). So, decreasing total

emissions to the 1977 figure will mean returning per capita emissions to those recorded for 1955.

Growth in industrialization and population distributions also increase carbon emissions. Emissions are still high from countries such as the United States, Japan and Germany, which industrialized early. Top emitters now also include China, India, Iran, Brazil and South Africa. The distribution within countries is also changing as urbanization and transportation increase (see go.nature.com/2hwpi3).

We need to make drastic changes in carbon emissions, soon. This means widespread global cooperation and unprecedented commitment.

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Units reform harks back to Jefferson

Regarding the new International System of Units definition for the kilogram, the kelvin, the ampere and the mole, you say that the “idea to base all units in relation to constants of nature — being unchanging and belonging to no one country — has been around since the late nineteenth century” (*Nature* **563**, 451–452; 2018). In fact, science leader and former US president Thomas Jefferson suggested it in 1811.

In a letter to Robert Patterson, a mathematician at the University of Pennsylvania, Jefferson wrote that a standard unit “should be fixed by nature, invariable and accessible to all nations, independantly [sic] of others” (go.nature.com/2tbkhtx; see also I. B. Cohen *Science and the Founding Fathers*, 1995).

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