A burning issue in Africa

Africa’s big carbon emitters admit they have a problem

Can they continue developing and still uphold the Paris climate agreement?

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AN HOUR east of Johannesburg, on the rolling highveld plains, six massive cooling towers sit around two belching smokestacks. The Kendal power station (pictured) is among the world's largest, producing 4.1 gigawatts (GW) from burning coal. A few kilometres down the road there is another coal-fired plant, Duvha, which is only slightly smaller. An even bigger one, Kusile, is under construction next door.

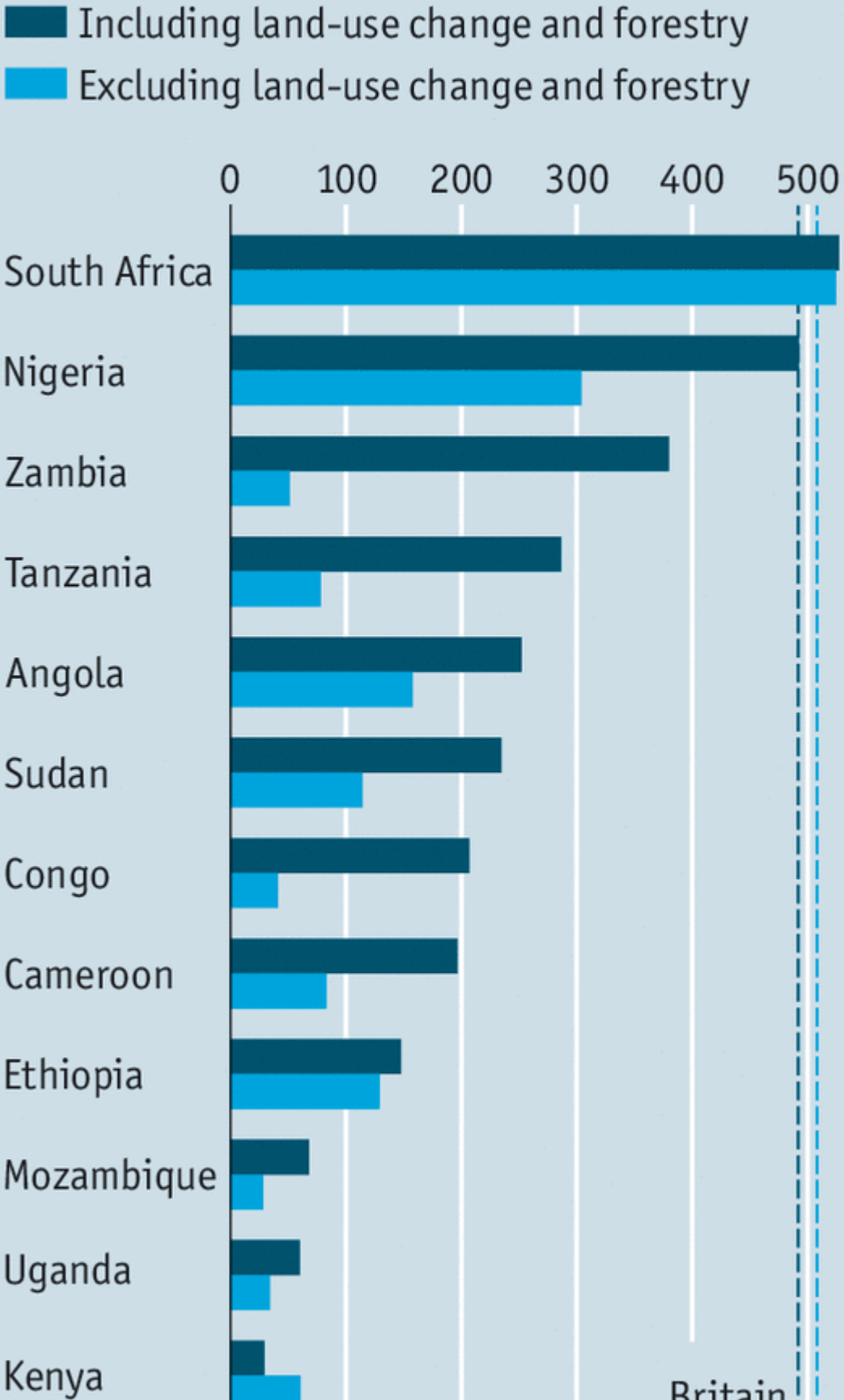
When sub-Saharan Africa comes up in discussions of climate change, it is almost invariably in the context of adapting to the consequences, such as worsening droughts. That makes sense. The region is responsible for just 7.1% of the world's greenhouse-gas emissions, despite being home to 14% of its people. Most African countries do not emit much carbon dioxide. Yet there are some notable exceptions.

Start with coal-rich South Africa, which belches out more carbon dioxide than Britain, despite having 10m fewer people and an economy one-eighth the size. Like nearly all of its power plants, many of its vehicles depend on coal, which is used to make the country's petrol (a technique that helped the old apartheid regime cope with sanctions). A petrochemical complex in the town of Secunda owned by Sasol, a big energy and chemicals firm, is one of the world's largest localised sources of greenhouse gases.

Emitters, big and small

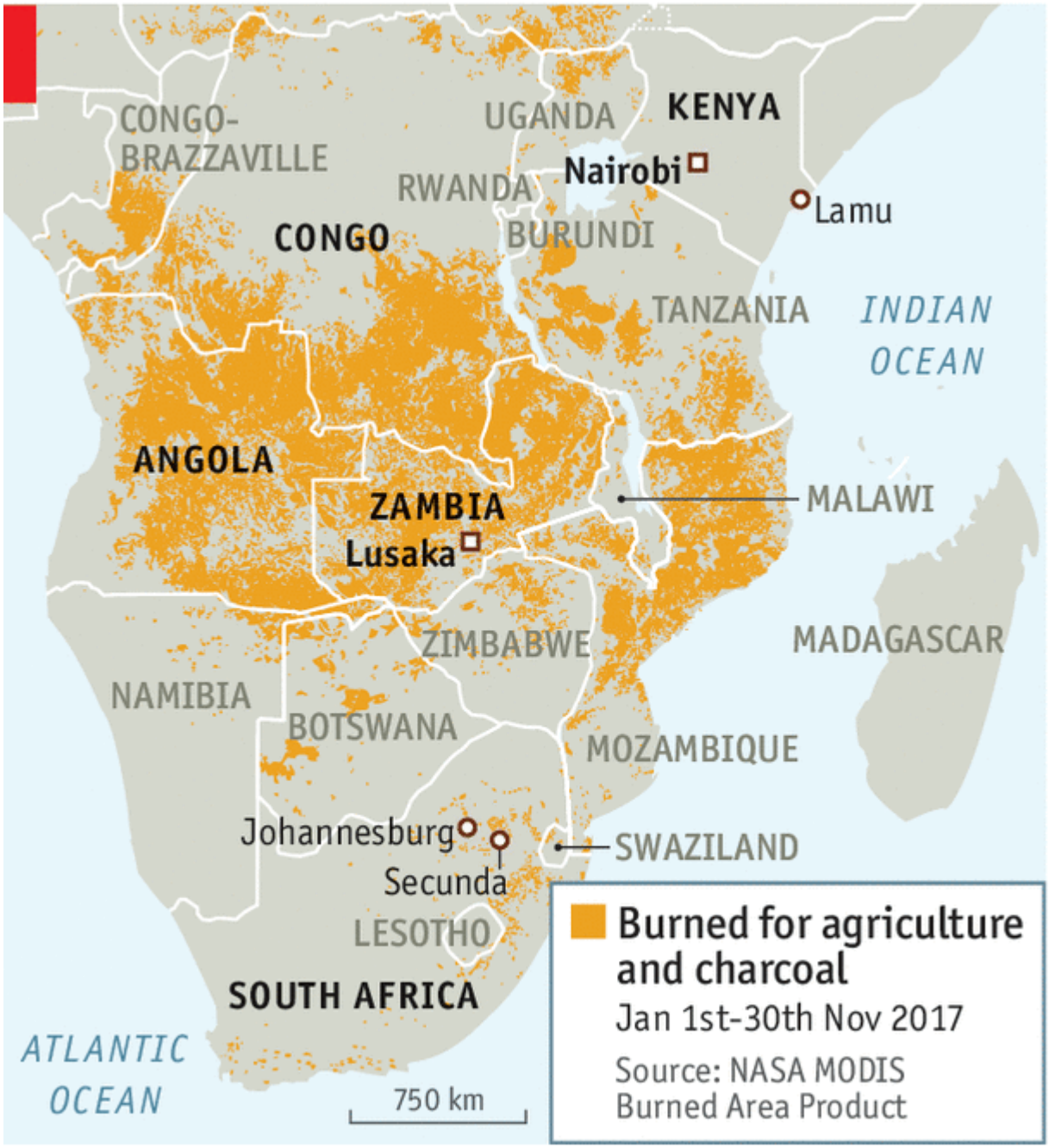
Sub-Saharan Africa, greenhouse-gas emissions

Selected countries, 2014, tonnes of CO_2 equivalent



Zambia is another exception. It burns so much vegetation that its land-use-related emissions surpass those of Brazil, a notorious—and much larger—deforester. On a recent descent into Lusaka, four fires were visible from the aeroplane. “If you had come 30 days later, it would have been worse,” says Davison Gumbo of the Centre for International Forestry Research, a non-profit. Most burning happens during the dry season, which starts next month.

South Africa and Zambia may be extreme examples, but they are not the region’s only big emitters (see chart). Nigerian households and businesses rely on dirty diesel generators for 14GW of power, more than the country’s installed capacity of 10GW. Subsistence farmers from Angola to Kenya use slash-and-burn techniques to fertilise fields with ash and to make charcoal, which nearly 1bn Africans use to cook. This, plus the breakneck growth of extractive industries, explains why African forests are disappearing at a rate of 0.5% a year, faster than in South America. Because trees sequester carbon, cutting them counts as emissions in climate accounting.



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Other countries are following South Africa's lead and embracing coal, the filthiest fuel. A dozen of them are building or planning new coal-fired power plants totalling 40GW, according to Coalswarm, a watchdog. A big one planned for the old port town of Lamu in Kenya is one of many Chinese-backed coal projects in Africa.

Policymakers at the latest African climate summit, which concluded in Nairobi on April 13th, acknowledged the continent's carbon problem. But they worried that development might slow if Africa meets its commitment

under the Paris climate agreement, which aims to limit global warming. The two imperatives often pull in opposite directions. Africa's sunny skies and long, blustery coastlines offer near-limitless solar- and wind-energy potential. But what African economies need now are "spinning reserves", which can respond quickly to volatile demand, says Josh Agenbroad of the Rocky Mountain Institute, a think-tank in Colorado. Fossil fuels deliver this; renewables do not.

Foreign aid, on which many African countries depend, often leads to more emissions. To ensure that their money is used efficiently, and not stolen, Western development agencies favour large tried-and-tested projects, such as fossil-fuel plants. So do the Chinese, who want to keep their engineers busy now that they have stopped building coal-fired power plants at home.

Yet it is not all gloom. The UN's newer green-finance initiatives are proving more generous to Africa than its old Clean Development Mechanism, which has channelled just 2.5% of its resources to the continent since 2001. Many of Africa's proposed coal plants, including the one planned for Lamu, may never get built. Several countries are intrigued by hybrid plants where most electricity is generated by solar panels, but diesel provides the spinning reserves, says Mr Agenbroad. Adaptation will remain Africa's chief climate concern for the foreseeable future. But it is no longer the only one.

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