

Spectre of devastation triggers fierce battle for Amazon's future

[Bryan Harris](#), [Steven Bernard](#) and [Anna Gross](#) December 4 2019

When Emmanuel Macron tweeted that “our house is on fire” after widespread blazes in the Amazon this year, he sparked global outrage over the damage to the world’s largest rainforest.

Yet the French president’s focus on the fires overlooked the complex forces causing change in the Amazon. For months before the incident, scientists had been warning about surging de-forestation and the potentially catastrophic consequences.

While the smog-producing fires set by cattle ranchers as they cleared land seized the public’s attention, they are just a symptom of the bigger problem.

Deforestation, experts say, has the potential to upend communities and economies worldwide.

Formed more than 30m years ago and covering almost 7m sq km, the Amazon basin acts as one of the few remaining natural bulwarks against climate change.

It does this primarily by working as an enormous sink for carbon emissions: the forest stores almost 100bn tonnes of carbon — about a decade’s worth of global emissions.

Each year it sucks up as much as a quarter of all the carbon emissions absorbed by the world’s trees. It also operates as a huge water-recycling system that underpins the weather patterns that support agriculture and industry across South America and beyond.

Scientists estimate that every day the forest releases 22bn tonnes of water

into the atmosphere, a process known as evapotranspiration. This then falls across the continent as rain, which not only provides water for agriculture and cities but also helps reinforce the glaciers that straddle the Andes mountain range.

The 'flying rivers' of the Amazon rainforest



- 1 Warm moist equatorial air rises from the ocean and is carried towards the Amazon rainforest
- 2 Over 20 trillion litres of water vapour is released into the atmosphere every day from the Amazon rainforest by evapotranspiration
- 3 The water vapour is carried westward but is blocked

by the Andes mountains

- 4 The water vapour circles back towards the Amazon and falls as rain in central and southern Brazil and as far away as Argentina and Paraguay

Cartography: Steven Bernard

Sources: Nasa; Flying Rivers Project; FT research

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In addition, the Amazon offers tremendous scientific and economic opportunities. The region is home to a tenth of the world's biodiversity, which biotechnologists believe could usher in a generation of medical, chemical and industrial products using genomic sequencing and synthetic biology.

The economy of the Amazon Basin, based mostly on extraction, is estimated to be worth \$250bn, but scientists predict a new bioeconomy could generate trillions and be sustainable, too.

"The promise of synthetic biology is to produce solutions that we need for [the] future of healthcare, of water, of food," says Juan Carlos Castilla-Rubio, a biochemical engineer and a member of the World Economic Forum's Global Future Council on the Bioeconomy.

Yet progress hangs in the balance. After years of success in curbing deforestation, destruction has returned to the region. Sixty per cent of the rainforest is in Brazil, and since the election last year of President Jair Bolsonaro, who favours opening the rainforest to development, tree clearance reached an 11-year high, in the 12 months to July 2019, according to the country's space agency. Official data say the rate of deforestation in August was 220 per cent higher than the same month last year. By some estimates, a football field worth of trees is razed each minute.

"The Amazon is at great risk of destruction and with it the wellbeing of our

generation and generations to come," wrote more than 40 Latin American climatologists in September in a paper presented at a conference in the Vatican.

Deforestation to date affects nearly 17 per cent of the total Amazon rainforest, they said. Scientists believe that once a threshold of around 25 per cent deforestation is crossed, the forest will be unable to maintain its water recycling ecosystem, resulting in a rapid die-off.

The scale of the devastation, mostly within a swath of land from the state of Acre in the west to Maranhão in the east, is evident thanks to satellite technology.

The task for environmental authorities is to trace the groups responsible for the crimes.

Joel Bogo, a federal prosecutor in Acre, says deforestation is being driven by business and criminal interests chasing a quick profit by turning protected forests into cattle ranches or prospective gold mines.

Where once stood pristine forest on the banks of the Amazon's maze of waterways, cows now graze. "The cattle trade is already consolidated here," says one official from Amazonas, a vast state bordering Peru, Colombia and Venezuela.



Cattle walk on a tract of the Amazon rainforest that has been cleared by loggers and farmers in Anapu, Para state, Brazil © Reuters

A web of shell companies and frontmen mask the identities of investors who provide the capital to cut down the forest and turn the land into pasture, Mr Bogo says. The frontmen, known as laranjas, or oranges, take a cut but most of the wealth is returned to the kingpins.

Clearing land for pasture typically involves the setting of fires, which can spin out of control. In August this sparked Mr Macron's tweet and the ensuing worldwide uproar. "There is a clear line from deforestation to the

fires," says Luiz Carlos Lima, a federal public prosecutor in the Amazonian state of Roraima.

In sharp contrast to the global outrage, however, few local politicians are upset by the destruction. Many support development as it brings jobs to an impoverished region.

More worrying for many in Brazil is the growing lawlessness and violence.

Since Mr Bolsonaro was elected, officials have reported a surge in attacks as criminal gangs push into tribal lands or the protected reserves of the Amazon's subsistence farmers. Last month a tribal leader in Maranhão was shot in the head by illegal loggers. It was just one incident in a bloody year.



President Jair Bolsonaro favours opening the rainforest to development © AP

“With [the] election of the president, the violence became really heavy. It was everything we feared,” says an official in one Amazonian town. “These are dangerous people. They are names you cannot say aloud.”

Meanwhile, Brazil's Environmental Protection Agency has had its funding cut and operations curtailed.

Its officers have also been attacked, contributing to the sense that the law stops when you enter the forest. For his part, Mr Bolsonaro has not wavered in his support for development.

His more conciliatory allies, such as environment minister Ricardo Salles, insist that development can be done sustainably while improving conditions for inhabitants.

Yet the president's rhetoric has done little to help this argument.

After wildcat miners' equipment was destroyed by environmental officials, he doubled down with a message of solidarity for them and vowed to "get something done".