

UNDER EMBARGO UNTIL: NOVEMBER 1, 8 A.M. NEW YORK; NOON LONDON; 1 P.M. PARIS; 11 P.M. MELBOURNE

New Report: Countries' Climate Pledges Put Unrealistic Demands for Land Ahead of Emissions Reductions

Countries favor risky tree planting schemes over protecting, restoring and sustainably managing the forests we already have standing, with research showing national carbon plans requiring a land area larger than the size of the U.S., or almost four times the land area of India.

Melbourne, Australia (1 November 2022)—A new study is the first to calculate that countries collectively need a total of 1.2 billion hectares of land to fulfill the promises laid out in their official climate plans, part of global efforts to meet Paris Agreement goals.

The study, involving more than 20 researchers from around the world and released today by [Melbourne Climate Futures](#), the University of Melbourne's interdisciplinary climate research initiative, determines that countries intend to use 633 million hectares of the total land area for carbon capture tactics like tree planting, which would gobble up land desperately needed for food production and nature protection.

Only 551 million hectares accounted for in pledges would restore degraded lands and primary forests, which store carbon, regulate rainfall and local temperatures, shelter plants and animals, purify water and air and in some cases belong to Indigenous Peoples, whose land rights are found to be critical to reducing climate change due to their stewardship of forests.

“Land has a critical role to play in global efforts to keep the planet cool, but it's not a silver bullet solution,” said Kate Dooley, the lead author of *The Land Gap Report* and a researcher at the University of Melbourne. “This study reveals that countries' climate pledges are dangerously over reliant on inequitable and unsustainable land-based measures to capture and store carbon. Clearly, countries are loading up on land pledges to avoid the hard work of steeply reducing emissions from fossil fuels, decarbonizing food systems and stopping the destruction of forests and other ecosystems.”

Researchers examined official climate plans and public statements, including Nationally Determined Contributions (NDCs), which countries submitted to the United Nations as part of the Paris Agreement, to calculate the total land area set aside for carbon removals. Unlike other “gap” reports, including the recently-released UNEP Emissions Gap report, which describe a divide between mitigation ambition and the emissions reductions needed to achieve the climate goals to be discussed at the UN Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP27) in Egypt (November 8-20), this analysis demonstrates the chasm between governments' reliance on land for carbon mitigation purposes and the role that land can realistically play due to competing needs and in light of human rights.

“Faced with a global land squeeze, we must think carefully about how we use each and every plot of land,” said Dooley. “Yet countries treat land like a limitless resource in their climate plans. Using a land area equivalent to half of current global croplands for tree planting simply won’t work, particularly when the evidence in front of us shows the fragility of tree planting to worsening climate impacts like fires and droughts.”

The researchers argue that the most problematic climate plans involve transforming land currently used for other purposes, such as food production, into tree-covered areas, such as monoculture plantations. The report says that these land changes would encroach on land safeguarded by Indigenous Peoples or used by local communities and smallholder farmers to feed themselves.

For example, Australia’s pledge includes bioenergy plantations for bioenergy carbon capture and storage (BECCS) – a highly controversial carbon removal technique. India pledges a vast expansion of tree cover. At the same time, over 20 countries pledge to plant trees in an integrated manner with crops and livestock (agroforestry), which brings multiple socio-ecological benefits such as food productivity, livelihoods and well-being.

“Fortunately, it isn’t too late for countries to rethink the way they use land to achieve their climate goals. A three-step approach that prioritizes the protection of forests and other ecosystems, then focuses on restoration and sustainable land use would help achieve climate outcomes in addition to food production, biodiversity and human rights goals,” said Brendan Mackey, a report co-author and a professor at Griffith University, Australia.

The report lays out how countries – as well as companies seeking to deliver on zero-carbon pledges – could reorient their climate plans towards these three goals.

- **Focus on protecting and restoring forests.** Forests already remove a third of the carbon emissions added to the atmosphere each year. Protecting standing forests should be the first priority. The study outlines the actions countries can take to achieve this, which include, among other measures, safeguarding all primary forests and including the full cost of logging in the price of wood.

“There are no shortcuts. We can’t continue cutting down standing forests if we hope to keep the planet cool. Primary forests are an order of magnitude more effective than plantations for storing carbon, making them the best option for slowing global climate change. Furthermore, protecting and restoring forests is essential for solving the overlapping biodiversity, climate change, social justice and zoonotic disease crises,” said Heather Keith, a report co-author and researcher at Griffith University.

- **Safeguard the rights of Indigenous Peoples.** The report cites a growing body of evidence showing that when Indigenous Peoples and local communities have secure land rights, they vastly outperform both governments and private landholders in preventing deforestation, conserving biodiversity and producing food sustainably.

“Our research suggests the solution for including land in climate mitigation responses that is both effective and just is to ensure that Indigenous Peoples and local communities have

legitimate and secure rights to and control over their land – and then that they get the support that they decide they need to manage land and forests sustainably,” said co-author Anne Larson, a researcher with the Center for International Forestry Research (CIFOR). “To end the loss and degradation of primary forests and other intact ecosystems, we need land management strategies that protect existing forests and support livelihoods through sustainable food systems and land rights of Indigenous Peoples and traditional communities, which is the focus of this report.”

- **Transform unsustainable food and agricultural production systems.** With the food system representing more than a third of greenhouse gas emissions, transforming our approach to food production, distribution and consumption is central to achieving climate goals in the land sector. One critical tactic is to implement agricultural management that uses the land more sustainably, based on biologically diverse systems, such as agroecology.

“The application of agroecological principles in land management has the capacity to restore and enhance ecosystem functions and services relevant to both climate adaptation and mitigation and other multifunctional benefits. This makes agroecology relevant for socioecological resilience, climate justice and the realization of various human rights” said Georgina Catacora-Vargas, a co-author from the Bolivian Catholic University–UAC Tiahuanacu and the Latin American Scientific Society of Agroecology.

- **Understand that not all carbon is the same.** According to the study, countries assume in the carbon accounting for their climate plans that planting any kind of tree offsets fossil fuel emissions or the destruction of primary forests. But this math ignores scientific and ecological principles: carbon in fossil fuels is not equal to the carbon in old-growth forests and other carbon-dense ecosystems. The researchers recommend that the rules for carbon accounting should be reformed to account for the variety in carbon stocks; doing so would give greater value to primary forests.
- **Monitor corporate pledges.** Though this report focuses on country climate pledges, other studies have shown that corporate pledges are also unrealistically reliant on land to achieve climate goals. A recent [study by Oxfam](#) found that net-zero claims from Total Energies, Shell, Eni and BP alone would require 70 million hectares of land by 2050.

“It’s worrying to see these unrealistic expectations for land in country climate pledges, particularly at a time when the globe is feeling the pinch of food price crises. And governments are not alone in planning major changes to the way land is used. Corporations are currently pushing for scale in the voluntary carbon markets to service claims of carbon neutrality, but no one is doing the math on what is actually possible. This really brings home the point that we need to rein in this push to shift the mitigation burden onto land,” said co-author Jens Friis Lund, a report co-author and professor at the University of Copenhagen.

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