

Why can't we simply plant more trees to clean carbon dioxide from the air?

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Credit: Andrea Piacquadio from Pexels

If we're to have any shot at meeting the climate targets set out in the Paris Agreement, [scientists estimate](#) that countries would need to remove billions of tons of CO₂ from the atmosphere by mid-century. And that's

just the start of things. We'd also have to continue removing increasing amounts every year thereafter.

"That's a hell of a lot of carbon to get rid of," says Helgason, head of research & innovation at Carbfix, an Iceland-based company that is capturing CO₂, injecting it into the ground, and turning it into stone.

The reason carbon capture and storage companies like Carbfix exist is because [trees](#) alone won't solve the world's CO₂ challenge. "We didn't get into this climate catastrophe by burning trees," notes Helgason.

Instead, we got into this mess by cheating. "We basically dug into the earth and pulled out hundreds of millions of years' worth of trees, in the form of [fossil fuels](#), and then proceeded to burn them over a span of 100 years," adds Helgason. "There can never be enough trees in the world to rewind the amount of CO₂ we've already put into our air—we are way past that point."

Planting trees is easier said than done

Even if trees could solve our CO₂ problem, planting them is easier said than done. First, there's the issue of deforestation.

It's estimated that while 15 billion trees are cut down every year, only 5 billion are replanted—resulting in an [annual net loss of 10 billion trees](#).

With this in mind, [some researchers suggest](#) it would take the planting of 1 trillion trees, and then waiting for them to become fully grown, to have an effect on [climate change](#). According to some research, 1 trillion fully grown trees would be able to capture, at best, 1,012 billion tons of CO₂—about a third of all human CO₂ emissions thus far.

Then there's the issue of suitable habitat. According to the EU-funded

[REFOREST project](#), one consequence of climate change is an increase in [severe droughts](#), which happens to be a leading cause of forest decline. Thus, the more the temperature increases, the drier the land becomes, eventually reaching a point where it is inhospitable to many tree species.

Climate change also makes trees more susceptible to insect- and disease-caused damage or death—which can impact a forest's ability to sequester carbon. According to a [Frontiers in Forest and Global Change](#) study, forests damaged by insects and disease capture 69 % and 28 % less carbon respectively.

Game over?

What all of this says is that while they can play an important role in removing CO₂ from the atmosphere, trees alone are not a viable solution. "Natural solutions must work hand-in-hand with technological solutions, like [direct air capture](#) and permanent storage," says Helgason.

Yet all this discussion about trees, technology and direct air capture ignores the 36.7 billion metric ton elephant in the room: the annual industrial emissions.

"All this talk is moot if we don't address the emissions coming from [industrial facilities](#) and fossil fuel-fired [power plants](#)," concludes Helgason. "If we don't stop emissions at the source, we have no chance of meeting our [climate targets](#)—and it's simply game over with or without carbon removals."

Provided by CORDIS

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