COP28: We need a reality check on hopes for carbon capture and removal, experts say

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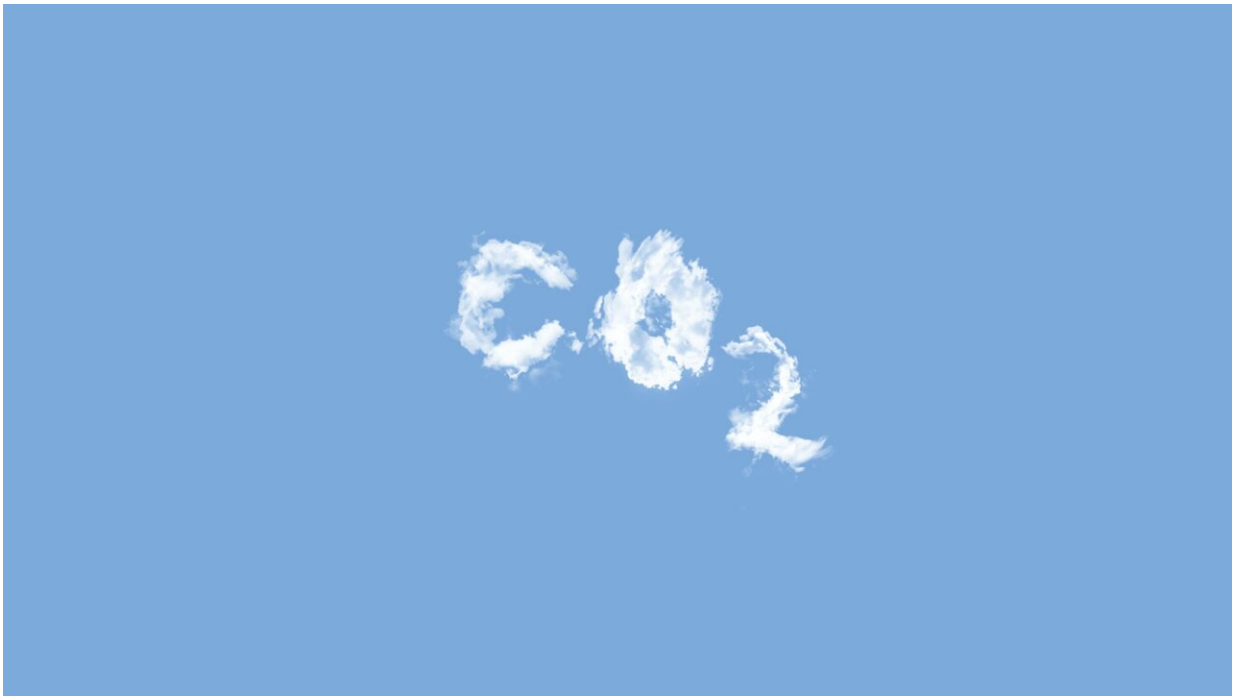

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The potential role of innovative technologies that remove carbon dioxide from the atmosphere in combating climate change has an understandable popular appeal.

Such technologies, including bioenergy with carbon capture and storage or direct air carbon capture, have been touted as a route to minimize

climate change without requiring significant changes in human activity.

However, Dr. Lucrezia Nava, Lecturer in Corporate Social Responsibility at Bayes Business School (formerly Cass), has been a partner in a research project, (NEGEM). It confirms that carbon dioxide removals, while fundamental to achieving net zero emission goals, will not save the planet and humanity from the impact of climate change.

Large-scale land-based removals, such as reforestation and BECCS, will also have a significant impact on other vital planetary systems—including biodiversity and freshwater resources. That would intensify the challenge of feeding and supporting a global population predicted to reach 10 billion by 2050. Discussions around carbon removal seldom consider the radical shift in diet that will be needed to reconvert pastureland.

Urgent need for emissions cuts remains

Dr. Nava said, "Our research, which will be published in full next year, makes clear that governments must commit at COP28 to rapid and significant cuts in fossil fuel emissions. We need to escape the delusion that the worst impacts of climate change can be kept at bay while maintaining our current production and consumption patterns. Unless we temper our expectations, it's possible that the most significant things these technologies capture are our false hopes.

"While these solutions can be handy at offsetting emissions from hard-to-abate sectors, each of them presents negative impacts on other planetary boundaries or social goals, like biodiversity, freshwater and land use. They also pose additional threats to guarantee food security for the growing population.

"Most removals, like bioenergy with carbon capture and storage and

reforestation, need land, and this land can only reach the required scale if we convert pasturelands—requiring major changes in the world's diet—precisely when the global demand for meat is going in the opposite direction."

Doubts over realistic scale of removals

Preliminary results from scenarios developed for NEGEM, suggest that, at best, annual carbon removals will reach around 5.5Gt (gigatons) in 2040 and 10Gt in 2050. Those figures make it unlikely that total removals by 2050 will exceed 100Gt—barely two-thirds of the 150Gt that the business-dominated Energy Emissions Commission argues is feasible if governments and industry step up investment.

What's more, it seems increasingly likely that some land-based removals, such as reforestation, which are included in those figures, could be reversed as climate change drives a rise in wildfires and extreme weather events.

Experts interviewed as part of the NEGEM project have serious doubts about the scalability of direct air capture and bioenergy with CCS—the two leading tech removals systems. They are thought unlikely to remove more than 0.5Gt a year between them by 2050.

Provided by City University London

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