Climate change: Evaluating CO2 emissions from land use with greater precision

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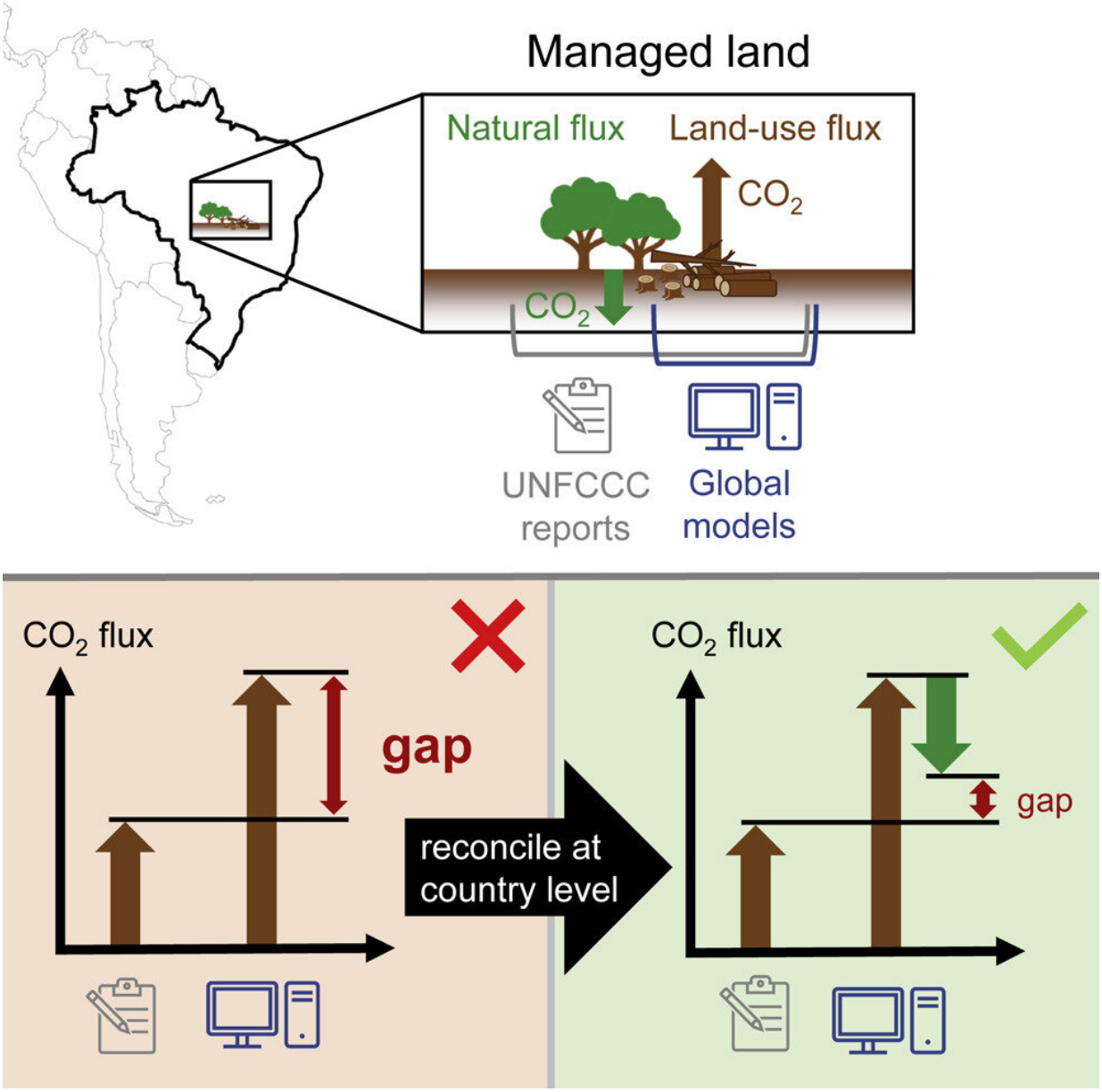

Graphical abstract. Credit: *One Earth* (2022). DOI: 10.1016/j.oneear.2022.11.009

Ludwig Maximilian University (LMU) geographers have analyzed discrepancies in data on land-use-related CO_2 emissions, allowing more precise evaluations of climate protection measures.

Determining greenhouse gas emissions precisely and consistently is essential for mitigating climate change. Due to different methods and definitions, however, the land-use-related CO_2 fluxes calculated from global models deviate from the data furnished to the UN in the country reports.

In their reports, for example, the countries frequently combine natural and indirect, human-caused CO_2 flows on managed land. This leads to a certain amount of double-counting of natural CO_2 absorption by the ground and vegetation, causing an overestimation of the remaining carbon budget to limit global warming to 1.5°C or 2°C.

A team led by LMU geographers Clemens Schwingshackl and Julia Pongratz has now harmonized the various calculation methods at country level and determined possible reasons for outstanding differences. The researchers' analysis allows country targets to reduce CO_2 emissions from land use to be evaluated with greater precision, thereby supporting the fair distribution of climate mitigation goals.

The work is published in the journal *One Earth*.

More information: Clemens Schwingshackl et al, Differences in land-based mitigation estimates reconciled by separating natural and land-use CO2 fluxes at the country level, *One Earth* (2022). DOI:

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