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Place and time key factors in deforestation emissions

The authors of a new study on GHG emissions from deforestation find that the country in which the trees are grown, and the fate of cleared wood can considerably affect the timing of greenhouse-gas emissions from forest clearance.



Credit: Photo by Jan van der Ploeg for Centre for International Forestry Research

The study, published in the journal *Nature Climate Change*, reports that the volume of greenhouse gas released when a forest is cleared depends on how the trees will be used and where they were grown.

When trees are felled to create solid wood products, such as timber for housing, the wood retains much of its carbon for decades. In contrast, when wood is used for bioenergy or turned into pulp for paper, nearly all the carbon in the trees is released into the atmosphere.

'We found that 30 years after a forest clearing, between 0 per cent and 62 per cent of carbon from that forest might remain in storage,' says lead author J. Mason Earles, a doctoral student at University of California, Davis.

'Previous models generally assumed that it was all released immediately.'

The researchers analysed how 169 countries use harvested forests. They learned that the temperate forests found in the United States, Canada and parts of Europe are cleared primarily for use in solid wood products, while the tropical forests of the Southern hemisphere are more often cleared for use in energy and paper production.

'Carbon stored in forests outside Europe, the USA and Canada, for example, in tropical climates such as Brazil and Indonesia, will be almost entirely lost shortly after clearance,' the study states.

The study's findings have potential implications for biofuel incentives based on greenhouse gas emissions. For instance, if the United States decides to incentivise corn-based ethanol, less profitable crops, such as soybeans, may shift to other countries. And those countries might clear more forests to make way for the new crops. Where those countries are located and how the wood from those forests is used would affect how much carbon would be released into the atmosphere.

Mr Earles says the study provides new information that could help inform climate models produced by the Intergovernmental Panel on Climate Change, the leading international body for the assessment of climate change.

Source: University of California, Davis.

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