Lax rules put Congo's forests, key carbon reserve, at risk

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Africa's forests, key global carbon reserves, are under threat from development and agricultural expansion, a new UVM study finds. Photo: Julien Harneis, Creative Commons.

Without new conservation efforts, the Democratic Republic of Congo (DRC) could lose up to 20 percent of its forests, unleashing a 60 percent increase in carbon emissions, says a new study by researchers at the University of Vermont's Gund Institute for Ecological Economics.

Published by *PLOS ONE*, the study explores Central Africa's tropical forests, which are among the world's largest carbon reserves. While these forests have historically experienced low deforestation rates, pressures to clear land are growing due to development, foreign investment in agriculture, and shifting land use management, particularly in the DRC.

DRC has the greatest area of intact African forests, which store approximately 22 billion tons of carbon in aboveground live biomass. However, only 10 percent of its forests are protected, says UVM's Gillian Galford, the study's lead author.

"Our findings show that the current approach to forest management is insufficient to protect African forests and their carbon storage," says Galford, a Gund Fellow and professor in UVM's Rubenstein School of Environment and Natural Resources.

The research simulated changes in land use and carbon emissions based on three policy scenarios from 2010 to 2050 by developing the SimCongo model:

- A historical trends scenario, which assumed passive forest protection, led to average emissions of 139 million tons of CO2 per year by the 2040s, a 15 percent increase over current levels.
- An agricultural development scenario, with agricultural growth causing increased deforestation, led to emissions of 212 million tons of CO2 per year by the 2040s, a 23 percent increase. Cumulatively, this represents a 60 percent increase in total DRC emissions over current trends by 2050.
- A conservation scenario, with greater forest protections and activation of the national REDD+ action plan, resulted in 58 percent less clearing of carbon-dense forests and woodland savanna areas than 'historical trends.' It led to average emissions of 49 million tons of CO2 per year by the 2040s, a five percent

increase.

The study finds that passive protection of the DRC's forest and woodland savanna is insufficient to reduce deforestation. It also shows that increased conservation measures are needed to protect Congo forests, their unique ecology, and their important role in the global carbon cycle.

Greater conservation efforts, including new protected areas, land use zoning, and an emphasis on agricultural intensification over expansion, could reduce deforestation by more than half, compared to current trends, researchers say.

International support for REDD+, a proposed UN forest conservation and carbon reduction plan, could also help to achieve the DRC's conservation goals, researchers add.

More information: Will passive protection save Congo forests? PLOS One, 2015. DOI: 10.1371/journal.pone.0128473

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