

# Regenerating forests create important carbon sinks in the Philippines

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Mr. Mukul is in a forest clearing in the Philippines upland. Credit: Sharif Mukul

A University of Queensland (UQ)-led study is among the first in the

world to systematically assess the amount of carbon stored in tropical forests recovering after controversial land-clearing practices in the Philippines.

Mr Sharif Mukul of UQ's School of Agriculture and Food Sciences said the study addressed gaps in knowledge on [carbon](#) changes following a traditional agricultural practice known as shifting cultivation or "slash-and-burn agriculture".

"Our research indicates that after shifting cultivation, secondary forests are substantial carbon sinks and that their capacity to store carbon increases with abandonment age. Large trees contribute most to above ground biomass.

"In south-east Asia, secondary forests constitute around 63 per cent of the total forest area, with an estimated 14-34 million people dependent on shifting cultivation for their livelihoods.

"The study has wider implications for south-east Asian rain forests that have been cleared for shifting cultivation and are now regenerating.

"We need to develop a better understanding of the relative contribution of different biomass sources in above-ground total forest biomass to fully capture the value of these landscapes from forest management, restoration and conservation perspectives," he said

Mr Mukul said the Philippines was one of the tropical developing countries in south-east Asia, and had long been considered as the "hottest of the biodiversity hotspots".

In a paper published in *Nature Scientific Reports*, the researchers looked at shifting cultivation (known as kaingin in the Philippines), in which land-holders cultivate fields temporarily, then abandon them when soils

show signs of exhaustion, or are over-run by weeds. They often burn abandoned plots to add potash to the soil (from the ashes) or allow fields to revert to natural vegetation while moving to other farming plots.

"In the tropics, shifting cultivation has long been attributed to large-scale forest degradation, and remains a major source of uncertainty in forest carbon accounting," Mr Mukul said.

"Historically, shifting cultivation has been viewed negatively as contributing to many forms of environmental degradation, including loss of biodiversity and biomass carbon in forests.

"Accordingly, throughout much of the tropics, governments have developed policies to control or reduce this practice.

"However, the extent of land under shifting cultivation has declined in recent years due to government policies and economic factors that promoted other land-use systems.

"Consequently in many parts of this region, regenerating secondary forests following shifting [cultivation](#) are becoming prominent."

Mr Mukul said the study measured the distribution and recovery of above-ground biomass carbon in post-kaingin secondary forests in an upland area in the Philippines.

"We found significantly higher carbon in the above-ground total biomass and living woody biomass in old-growth forest, while coarse dead wood [biomass](#) carbon was higher in the young fallow secondary forest," he said.

Provided by University of Queensland

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