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# Even when communities do a good job of managing forests, additional incentives are needed to encourage them to store more carbon

## A Study in Ethiopia

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The United Nations Programme to Reduce Emissions from Deforestation and Degradation (REDD+) is a plan to mitigate climate change by making payments to developing countries that conserve forests. However, it is not yet clear whether it makes sense to bring in the approximately 25% of developing country forests that are managed by communities. We attempt to shed light on this question by examining whether forest collective action – cooperation to improve forests – is already sequestering carbon. We find that, without specific policies to encourage carbon sequestration, the quality of local level collective action offers at best limited carbon benefits. Incentive programmes like REDD+ may therefore be needed to encourage those who control community forests to sequester carbon.

Deforestation and forest degradation are important for the climate, making up 12% to 20% of annual greenhouse gas emissions, which is more than all forms of transport combined. Virtually all net deforestation occurs in developing countries. Ethiopia, which has a growing population of 96 million, experienced a 2% annual deforestation rate during the period 1990 to 2010. This is a very high rate, but the loss of forest biomass, which also includes degradation (i.e., loss of biomass without cutting down trees), was even greater.

Recognizing the importance of forests for the climate, the United Nations Programme to Reduce Emissions from Deforestation and Degradation (REDD+) in developing countries was created to support developing countries that

### Key Points

- The United Nations Programme to Reduce Emissions from Deforestation and Degradation (REDD+) is one of the tools under development to mitigate climate change, offering incentives to reduce deforestation and forest degradation in developing countries.
- About 25% of developing country forests are community forests, meaning that they are controlled by local communities. These forests have the potential to sequester carbon, meaning that they can add to the storage of carbon.
- Recent changes in laws have made it easier for communities to cooperate to manage forests. However, it is not clear to what degree better collective action is already adding to the storage of carbon. Without knowing this, it is unclear whether additional incentives, such as REDD+, are required.
- We find that, in highland Ethiopia, more effective community forest collective action does not sequester more carbon.
- Therefore, specific incentives like REDD+ may play important roles in encouraging carbon sequestration.

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reduce forest biomass loss. The idea behind REDD+ is to provide financial and technical support to developing countries so they can reduce forest biomass loss and sequester more carbon.

In most cases, REDD+ has been focused on government forests, but it turns out that about a quarter of all developing country forests are owned, controlled or managed by local communities. These communities usually depend on these forests for critical products, such as fuelwood for cooking – about 3 billion people worldwide, mostly in low-income countries, cook with wood and other biomass on a regular basis. In Ethiopia, over 90% of the population cooks with biomass and most forests are community forests, often without explicit rules concerning which rights belong to which people in the community.

Community forests are an example of a natural resource institution and set of property rights over forests – formal, informal, written or unwritten – that are held by groups of people rather than by individuals, households, businesses or governments. Because community forests are controlled by communities, the members must cooperate to manage their forests. This cooperation is called collective action.

The thread connecting better community forest collective action, existing carbon stocks (stored carbon) and carbon sequestration (which means adding to carbon that is already stored) runs through forest quality. Better quality forests have more biomass, because reduced fuelwood, timber and fodder collection reduces pressures on forests, allowing them to regenerate and retain carbon. Better management is what drives these results and, in community settings, are the result of more effective collective action.

As yet, however, there is little evidence on whether collective action institutions are right now helping to mitigate climate change. Using household and community data from 22 communities in four regional states in Ethiopia, we provide one of the few – but still preliminary – assessments of whether institutions managing community forests with high levels of measured collective action have more carbon than less well-coordinated systems. Our analysis suggests that the quality of collective action, in and of itself, has little effect on carbon stocks. We are unable to draw 100% firm conclusions, because of the nature of our data, but our results point to the need for specific carbon sequestration incentives.

We do not doubt that collective action is a critical tool for forest management. It probably increases grass production for animal fodder and offers more reliable supplies of fuelwood, but collective action seems to have little or no effect on Ethiopia's forest carbon.

We do not find this result surprising and in retrospect it seems almost naïve to suppose that Ethiopian villagers, who are often poor, would put effort into sequestering carbon. Carbon sequestration is very useful for the world, which is currently struggling to mitigate climate change, and especially for the developed countries that caused climate change. Despite its potentially high value, there are few incentives for local people to take action to promote carbon sequestration. Faced with a variety of pressing livelihood and other issues and no compensation for their troubles, why would villagers in upland Ethiopia manage forests to sequester carbon? We find that they don't.

### **Conclusions**

We therefore conclude that in Ethiopia, which is a large and important country experiencing significant forest loss, carbon-focused incentives are required to encourage communities to sequester carbon. REDD+ may therefore play a particularly important role, offering badly needed income to communities, improving forest quality and sequestering carbon to help stabilize the climate.

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### ABOUT THIS BRIEF

This brief is based on 'Community Controlled Forests, Carbon Sequestration and REDD+: Some Evidence from Ethiopia', by Abebe D. Beyene, Randall Bluffstone, and Alemu Mekonnen, 2013, EfD Discussion Paper 13-07. The DRB series of research briefs is associated with the EfD Discussion Paper series.

### FURTHER READING

Bluffstone, R., Robinson, E.J.Z., and Purdon, M. (2014) 'Introduction: Local Forest Reform – Theory and Experience'. In Bluffstone, R. and Robinson, E., eds., *Forest Tenure Reform in Asia and Africa: Local Control for Improved Livelihoods, Forest Management and Carbon Sequestration*. Washington, DC: RFF Press/Routledge Publishers.

Agrawal, A., Chhatre, A, and Hardin, R. (2008) 'Changing Governance of the World's Forests'. *Science* 320: 1460-1462.

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