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Examining climate mitigation and community benefits of community-based forestry: A systematic review

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Abstract

Community-based forestry has become a widely adopted approach to improve forest governance, involving local communities in forest management through diverse schemes and institutional arrangements. Numerous countries also include this initiative as a climate mitigation strategy. However, despite its broad implementation, a clear understanding of how effectively it reduces greenhouse gas (GHG) emissions and delivers benefits to local communities across different ecosystems remains limited. This study conducts a systematic literature review on how much community-based forestry contributes to climate mitigation, based on empirical studies. Following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, 185 papers were selected and analysed. Findings show that studies on community-based forestry and climate change mitigation are heavily concentrated in Asia and Africa, with uneven coverage across countries. In terms of ecosystem type, studies focus on terrestrial ecosystems, while wetlands receive considerably less attention. Regarding climate mitigation pathways, carbon stock enhancement and avoiding deforestation emerge as the most examined pathways. Evidence suggests that these actions lead to GHG emission reductions/removals. However, the quantification of climate mitigation potential largely depends on indirect estimation methods and tends to focus on the site scale, with few studies providing estimates expressed in CO₂ units. By implementing climate mitigation actions, local communities receive multiple ecosystem service benefits, including monetary gains. However, income derived specifically from carbon revenue remains limited. In addition, greater attention is needed to develop clear criteria for benefit-sharing mechanism to ensure transparency and equitable distribution of carbon revenue within local communities. This review offers insights to improve the quantification of climate mitigation potential at broader scales, expand the evidence beyond existing studies, and strengthen institutional capacity and funding access. These findings can support future studies and contribute to the development of climate policy frameworks that enhance and sustain community-based forestry practices, helping countries meet their national climate targets.

Keywords: Carbon revenue, climate mitigation, community benefit, community forestry, systematic review