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Agroforestry-based community forests in Myanmar: Farmers' perceptions and ecosystem services

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Abstract

Agroforestry has been popular as a reforestation approach in agriculture-forest landscapes due to its diverse ecosystem services. In Myanmar, agroforestry-based community forests (ACFs) have been implemented since 2013 to reforest agricultural encroachment areas in state forests. The study aimed to improve ACFs implementation by analysing farmers' perceptions and evaluating their contributed ecosystem services, including provisioning, regulating, supporting, and cultural services. We employed a survey of 291 households, including closed and open questions, and conducted forest inventories with 42 sample plots. The methods for analysing social data included descriptive statistics, multinomial logistic regression, and qualitative co-occurrence analysis, while forest measurements were analysed in terms of species composition, above-ground biomass, and canopy cover. The results showed that farmers perceived provisioning services as the most desirable, followed by regulating services. Education and age of respondents influenced the perceived importance of regulating services, while gender and household income influenced the perception of biodiversity conservation. During the ecosystem service assessment, the contribution of provisioning services from ACFs and their economic potential were observed as very low. Our analysis highlighted an urgent need for increasing provisioning services from ACFs. We discussed options for improving provisioning services and other ecosystem services from ACFs based on farmers' needs and values. These included incorporating fast-growing native tree species that generate short and long-term income by providing farmers with valuable timber and non-timber forest products. Overall, this study demonstrated that applying the ecosystem services framework to assess farmers' perceptions and the current contributions of ACFs provided insightful results covering social, socio-economic, and ecological aspects.

Keywords: Agriculture-forest landscape, forest policy, household characteristics, provisioning services, reforestation, regulating services

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