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Bamboo for Landscape Restoration

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Abstract

Responding to the African Forest Landscape Restoration Initiative (AFR100), 30 countries have pledged to bring more than 100 million hectares of land across Africa into restoration by 2030. Nature-based solutions that can help achieve this ambitious target to the benefit of the rural poor are much sought-after. In many policy circles, there is a nascent discussion on the role that bamboo could play as one component of landscape restoration strategies. Major advantages are that it is a fast-growing versatile woody grass, that can prosper on degraded land.

So far, landscape restoration strategies have been driven by climate policy debates, where bamboo has largely been neglected. This circumstance is attributable to its taxonomic classification as grass rather than tree. Moreover, most empirical research on bamboo was conducted in Asia, leaving open questions on the transferability of the results to the African context.

In this paper, we contribute to the debate by investigating to what extent bamboo can contribute to agroecological systems with the aim of sustaining livelihoods of poor rural societies, especially in degraded ecosystems. We structure our analysis around the IPBES ecosystem services framework and lay a special focus on bamboo's carbon sequestration potential. Taking Tanzania as a case study, we present empirical results on the variation of bamboo's carbon content (i) along an altitudinal gradient, (ii) between indigenous and exotic species, and (iii) between intensive and extensively managed ecosystems.

Our results contribute to developing a more nuanced picture of the advantages and disadvantages of incorporating bamboo into landscape restoration efforts. The novel findings on variation in bamboo's carbon sequestration potential may be a first step toward unlocking future climate finance.

Keywords: Bamboo, carbon, ecosystem services, landscape restoration, Tanzania