



Tropentag, September 20-22, 2023, hybrid conference
“Competing pathways for equitable food systems transformation:
Trade-offs and synergies”

GeoTree: A participatory digital tool for forest landscape restoration in the tropics

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Abstract

Forest landscape restoration (FLR) in the tropics is often undertaken by smallholders and communities whose livelihoods rely on agriculture and forestry. While digital technologies can improve efficiency in FLR efforts, socio-technical barriers often impede the participation of these key actors in the restoration process. Main barriers are lack of technical infrastructure, access to digital tools and services, lack of ease of use for non-tech-savvy farmers, and lack of design targeted for low-literate and marginal groups. Moreover, precisely because of the transformative momentum of digitalisation, there is a risk for smallholders to enter the digital divide and power asymmetry gap. To address this challenge, the Alliance Biodiversity International and the International Center for Tropical Agriculture have developed the GeoTree application, an extension of the GeoFarmer platform. GeoTree offers participatory functionalities, including interactive forms, polls, geospatial features and maps, and community-driven data collection, which can be integrated into community channels. The platform has been piloted in Kenya and Cameroon and tracks and monitors activities along the entire restoration chain, from seed collection to on-farm tree planting and monitoring of management activities and payouts to farmers. While other digital tools focus on monitoring tree planting for the purpose of carbon offsetting, GeoTree addresses the digital barriers facing smallholders and communities and enables them to participate fully in FLR efforts. GeoTree leverages blockchain technology to provide an integrated planting management process. The system allows gathering ground-level data with offline encryption and supporting low-internet environments and tracing the restoration process to provide transparency, facilitate real-time monitoring, evaluation, and verification, and support mobilisation of sponsors.

Keywords: GeoTree, restoration, tree