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Application of common pool resource theory lens in semi-arid regions of Zimbabwe: Managing communal agroforestry systems in Muzarabani district

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Abstract

Agroforestry managed collectively in semi-arid spaces like Muzarabani District, Zimbabwe plays a central role in ensuring food security, protecting biodiversity, and, generally speaking, building resilience against climate changes. Local people share responsibility for these tree and land spaces but they now face issues like rapid population growth, intrusion, and rather weak governance. Traditionally, customary practices guided resource use; then colonial and later policies disrupted those traditional methods, which in many cases led to overuse and environmental decline. Even though these systems provide important social and ecological benefits, communities in Muzarabani are finding it increasingly difficult to balance sustainable resource use with everyday livelihood needs. Fragmented management, ongoing exploitation from outside actors, and the steady outmigration of youth have all chipped away at community-based oversight, undermining long-term sustainability. This study leans on Common Pool Resource (CPR) theory to take a closer look at local management of communal agroforestry with a special focus on trees like *Ziziphus mauritiana* and examines both ecological and livelihood outcomes. It also seeks practical strategies to strengthen local governance amid external pressures. Employing a mixed-methods approach, the work combined household surveys ($n = 150$), participatory mapping of 12 communal woodlots, satellite imagery spanning 2015–2023, and interviews with 20 village leaders. Focus group discussions helped uncover conflict-resolution tactics while biomass data offered quantifiable insights into the differences between managed and unregulated zones. The research is aimed at policymakers, development practitioners, and community leaders working in semi-arid regions across Africa, with Muzarabani District acting as a kind of microcosm for the challenges faced under climate stress and economic marginalisation. Findings indicate that, in most cases, local bylaws boosted woody biomass by about 22 % in managed areas—contributing roughly 35 % of household income—even though external pressures and youth migration continue to weaken local governance.. The study recommends integrating traditional CPR principles with formal policies and multi-stakeholder platforms to enhance sustainability. This approach supports SDGs 13 (Climate Action) and 15 (Life on Land) and provides scalable lessons for communal resource management in similar contexts.

Keywords: Agroforestry, common property theory, governance, resilience, semi-arid spaces

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