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Local communities' preferences and willingness to contribute communal labour towards rehabilitating small-scale mined community lands: A choice experiment approach

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Abstract

This study aims to investigate the willingness of rural communities to participate in voluntary labour for the restoration of degraded, contaminated, and abandoned land resulting from illegal Artisanal and Small-Scale Mining (ASM) activities. A Discrete Choice Experiment (DCE) was conducted to assess the preferences of respondents regarding various attributes of land rehabilitation, such as physical reconstruction, phytoremediation, post-restoration revegetation, time cost, and labor-hour commitments.

The study surveyed 320 households from five active mining communities in the Amansie West District of the Ashanti region in Ghana, where mining activities coexist with agriculture and forestry. Results indicated a strong preference for physical land reconstruction, despite its higher cost compared to other methods. Although the use of specialised plant species for phytoremediation was also supported by the communities, they preferred to allocate only 50 % of the reclaimed land to this method, reserving the rest for farming food or cash crops.

The preference for limited phytoremediation, along with the heterogeneity among respondents, underscores the community's lack of awareness regarding the health risks associated with heavy metal-contaminated soils. The presence of dense vegetation cover, which promotes biodiversity and ecosystem services, was another preferred attribute with a random choice effect.

Furthermore, the study found that the waiting time for the safe reuse of restored land influenced decision-making, particularly when it exceeded 20 years. These findings suggest the need for tailored approaches to engage rural community members in land rehabilitation projects that prioritise physical reconstruction, education on health implications of ASM activities, and sustainable remediation strategies. Additionally, emphasising the time required for successful restoration is essential for community buy-in and long-term project success.

Keywords: Community labour, discrete choice experiment, illegal artisanal and small-scale mining, land degradation, phytoremediation

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