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Social and environmental dynamics in a charcoal producing area: The case of Central Pokot, Kenya

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Wood charcoal ranks amongst the most commercialized but least regulated commodities in sub-Saharan Africa. Despite its prevalence as an energy source for cooking and heating, the localized environmental and livelihood impacts of charcoal production are poorly understood. This research deficit is amplified by widespread negative views of this activity as a poverty-driven cause of deforestation and land-degradation. However, the charcoal-degradation nexus is apparently more complicated, not least because the extraction of biomass from already degraded woodlands can be sustainable under various management regimes. In a case study in Central Pokot, Kenya, where charcoal production began in earnest in the early 1990's we have investigated the social and environmental dynamics that are interlinked with the production of charcoal. Our methodological approach integrates remote sensing techniques with empirically based social scientific analyses across multiple spatial and temporal scales. Our results show that the area has undergone significant changes, both in the human and in the physical sphere. While the public opinion suggests a close connection between charcoal production and land degradation, a detailed Landsat-based land use and land cover change detection could not reveal a causal connection. In addition, a high-resolution analysis using an unmanned aerial system showed only minor effects of charcoal production on the vegetation. Our data indicates that rural small-scale production of charcoal has the potential to be transformed into a sustainable livelihood. Therefore, however, policy makers need to include their specific situation into the legal frameworks.