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Community seed banks shapes interpersonal and institutional relationships in conflict-affected, climate-vulnerable agrarian contexts

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Abstract

Rural communities in sub-Saharan Africa are increasingly exposed to the compound pressures of climate variability and armed conflict, which together erode livelihoods, disrupt institutions, and weaken social cohesion. Community Seed Banks (CSBs), initially designed to conserve agrobiodiversity and enhance seed access, are now being considered as grass-roots institutions with broader social functions that can strengthen social resilience and support peacebuilding. This study uses a three-stage least squares (3SLS) estimation strategy to investigate the role of CSB participation on six dimensions of social cohesion: (1) trust, (2) unity, (3) communication, (4) interaction, (5) conflict resolution, and (6) perceived security in three conflict-affected and climate-vulnerable regions of northern Ethiopia. Using original survey data from 393 households, we identify significant but differentiated effects of CSB membership and related covariates. Results suggest that affiliation with CSBs located in Wakaye and Ayba districts is associated with higher trust, improved communication, greater interpersonal interaction, and enhanced conflict management capacity as compared to Melfa which is the base category. Results also suggest that structural factors such as

employment of household heads negatively predict cohesion, while infrastructure

variables such as piped water access foster interpersonal interaction and internet connectivity produce a digital trade-off improving communication but weakening trust, interaction, and perceived security. Land tenure effects are selective, with farmlands with lease ownership linked to higher perceived security and shared tenure arrangements associated with stronger communication flow. These findings advance the argument that CSBs are not merely technical conservation tools but can also function as locally rooted institutions that contribute to community-led adaptation and peace using a social cohesion approach. We conclude that efforts to conserve agrobiodiversity and enhance seed access can also deliver social cohesion benefits, positioning CSBs as strategic entry points for linking ecological sustainability with social stability and peace building.

Keywords: Biodiversity conservation, climate action, Ethiopia , peacebuilding, seed access, Social Cohesion