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“Reconcile land system changes
with planetary health”

Children as drivers of social-ecological resilience: Evidence from Zimbabwe’s indigenous fruit trees (IFT) ecosystem

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Abstract

This study analyses the neglected but important contribution of children in the conservation of Indigenous Fruit Trees (IFTs) as a climate change adaptation and food security strategy in Chaderaka village, Muzarabani district of Zimbabwe. Based on Elinor Ostrom’s Social-Ecological Systems (SES) Framework, the research applies a mixed-methods design to examine how active engagement of children and intergenerational knowledge transmission promote the resilience and sustainability of climatic and nutrition-stressed communities. Systematically gathered data were derived from a representative sample of 120 households, 60 children aged 8 to 17 years, and 15 community elders. The children who are directly involved in IFT conservation activities have a much greater awareness of sustainable harvesting techniques ($p < 0.001$) and account for a 37 % improvement in the sustainability of fruit harvests. Such children serve as knowledge carriers and also as agents of ecological continuity. Seven of the largest IFT species proved to be particularly significant, yielding micronutrients and food diversity in the case of protracted drought and periods of scarcity. For the duration of two years of study, child initiative-enabled conservation initiated a 43 % increase in community-level engagement of IFT preservation practices. Having coordinated child participation led to increased collective action, which strengthened communal norms towards sustainable resource utilisation and constructed adaptive capacity at a local level. The study also identifies the urgency to integrate indigenous ecological knowledge systems into formalized schooling systems and thus institutionalize indigenous knowledge while verifying children’s participation in the management of environmental affairs. By placing children not merely as passive recipients but as active custodians of environmental heritage, the study highlights a transformative practice of climate resilience grounded in grassroots empowerment. The findings encourage formal recognition of the contribution of children to environmental policy frameworks and youth-governed and youth-managed community seedbanks as an expandable model for biodiversity conservation. The investments in child-centred environmental stewardship can have co-benefits to ecological sustainability, cultural conservation, and food security. The results contribute to a growing body of literature identifying children as vital stakeholders in global sustainability efforts, particularly in climate-exposed communities.

Keywords: indigenous Fruit Trees, children, Community resiliency, Socio ecological system