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Nature based solutions for climate resilient food systems: lessons from the eastern and southern Africa

FLORENCE NDUKU¹, MIKE SALOMONS¹, FREW BERISO¹, SASHA LOEWEN²

¹*Canadian Foodgrains Bank, Canada*

²*University of Manitoba, Plant Science, Canada*

Abstract

Food systems in Eastern and Southern Africa face escalating risks from climate change, land degradation, biodiversity loss, and social inequities. These pressures disproportionately affect women and vulnerable communities who depend on healthy landscapes for food security and livelihoods. To address these challenges, the Nature Positive Food Systems for Climate Change Adaptation (Nature+) Program implemented a holistic framework combining gender responsive nature-based solutions (NbS), climate resilient livelihoods, inclusive governance, and community driven learning across Ethiopia, Kenya, and the transboundary Chimanimani landscape of Zimbabwe and Mozambique. By 2025, MEL data showed adoption of NbS by over 52,000 farmers (58 % women), improved land management across more than 30,000 hectares, and growing of 17.9 million predominantly indigenous trees.

Over three years, Nature+ supported integrated implementation of Soil and Water Conservation (SWC), Conservation Agriculture Plus (CA+), Assisted/Farmer Managed Natural Regeneration (ANR/FMNR), and rangeland restoration across ten landscapes. SWC engaged 29,437 individuals, with women comprising 62 % of participants. Practices of terraces, bunds, check dams, zai pits, farm ponds, swales, and gabions reduced erosion, enhanced water retention, and improved soil fertility across cultivated and communal lands.

CA+, practised by 36,340 individuals, promoted minimum soil disturbance, permanent soil cover, and crop diversification. Farmers reported improved soil moisture retention, more stable yields, and strengthened resilience to climate variability. Gender responsive adaptations increased participation by women and youth through Village Savings and Loan Associations and Farmer Field Schools. ANR/FMNR was adopted by 26,864 individuals (61 % women), restoring vegetation cover and ecosystem services through protection of natural regeneration, enrichment planting, agroforestry, and grass reseeding. Rangeland restoration reached 10,608 individuals, improving pasture availability and livestock productivity through controlled grazing and community-based management.

Biophysical monitoring using a University of Manitoba designed protocol shows measurable ecological gains. Composite soil health scores were higher under NbS than business as usual, with CA+ sites averaging 3.4/5 versus 2.8, and FMNR sites 2.6/5 versus 1.9. Biodiversity assessments showed increased beneficial insect abundance and higher composite biodiversity scores under NbS.

These results demonstrate that integrated, gender responsive NbS can simultaneously regenerate soil, conserve water, and restore biodiversity, offering a credible pathway toward resilient and inclusive food systems.

Keywords: Business as usual, climate resilient livelihoods, composite soil health score, enrichment planting, farmer field schools, farmer managed natural regeneration, gender responsive, village savings and loan associations,