DRC: Rich land, hungry people.

29 MAY 2026

Louisa Hermelin Tamas and Giovanni Migotto



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Rich land, hungry people : A multi-dimensional analysis of conflict, climate, and institutions in Eastern DRC

Introduction

The Democratic Republic of the Congo (DRC) presents one of the most striking paradoxes in global food systems: a country endowed with the highest agricultural potential on the African continent, yet home to one of the world's most severe hunger crises. With approximately 80 million hectares of arable land, only 10% currently cultivated, and a climate broadly favourable to year-round production, the DRC holds the theoretical capacity to feed over two billion people. Yet 26 million Congolese face acute food insecurity, and the country sustains an annual food trade deficit of approximately US$1.5 billion (Musoko, 2022; Yeboua, K., 2023).

The DRC's food crisis is produced and reproduced by a convergence of protracted conflict, extreme poverty, and the collapse of rural infrastructure. In North and South Kivu, war has devastated smallholder farming systems both directly, through crop destruction, pillage, and forced land abandonment, and indirectly, by eroding the informal institutions (seed-sharing networks, cooperative labour, local markets) that sustain them

(Tamariz & Baumann, 2022). By early 2025, renewed military offensives had contributed to 6.9 million internally displaced persons, each representing a livelihood system that may take years to reconstitute. These dynamics intersect with projected temperature increases of 3°C–5°C and increasingly erratic rainfall (UNDP, 2025).

At the same time, heavy precipitation in South Kivu's highlands drives soil erosion and transports sediments and chemical residues into Lake Kivu, degrading fish habitats local communities depend on for dietary protein (Munyuli et al., 2017). Compounding this is a near-total absence of pesticide market regulation, with a documented 92.5% quality-control gap in Kabare, where WHO Class Ib substances are routinely sold without supervision, and the systematic neglect of locally adapted, nutritionally superior NUCS such as amaranth and African nightshade (Masumbuko et al., 2024; Mondo et al., 2021). The combined consequence is 4.5 million children left malnourished in the country (UNDP, 2025) and around 25.6 million people facing severe food insecurity (IPC, 2023). This underscores the crisis as something both structural and chronic.

2. Problematization

2.1 Agricultural Involution and the Subsistence Trap

At the foundation of the eastern DRC's agricultural crisis lies a process of agricultural involution: a condition in which growing numbers of smallholder farmers, working increasingly small and degraded plots under severe resource constraints, are compelled to intensify labour inputs simply to maintain an unstable subsistence baseline. Additional effort is absorbed by declining land productivity, producing diminishing returns. This dynamic is self-reinforcing (Mulumeoderhwa et al., 2019). As plots fragment across generations and soil fertility declines due to erosion and chemical degradation, the labour required to meet basic subsistence needs rises continuously, leaving households with neither the time nor the resources to invest in productive improvements. Farmers are simultaneously overworked and chronically underproductive, trapped in a cycle that individual effort alone cannot break. The problem is, thus, grounded in simultaneous systemic failures across the ecological, institutional, and social dimensions of the farming system (Yeboua, 2023; Chuma et al., 2025).

2.2 The Pesticide Quality Gap and Its Cascading Consequences

A second structural problem concerns the complete breakdown of regulatory governance in the agricultural input market. In the Kabare territory, 92.5% of market gardeners report a total absence of state oversight for the chemicals available in local markets (Masumbuko, D. R., et al., 2024). This regulatory vacuum has enabled the open and largely unmonitored sale of WHO Class Ib substances (including Dichlorvos 77% EC and Zinc phosphide) that are classified internationally as highly hazardous. Farmers

who purchase and apply these chemicals typically do so without access to protective equipment, safety information, or agronomic guidance, resulting in direct and chronic health consequences. The burden of these pathologies falls disproportionately on those who are already among the most economically marginalised (ibid).

The environmental consequences of this quality gap extend beyond the farms on which these chemicals are applied. The degradation of these habitats thus compounds food insecurity through a second pathway, distinct from but reinforcing the direct impacts of agricultural involution. In effect, the health and ecological costs of the pesticide quality gap represent a form of slow-moving environmental and public health disaster that is largely invisible in the aggregate statistics of humanitarian response (Masumbuko et al., 2024; Munyuli et al., 2017).

2.3 Child Malnutrition and the Hunger–Education Trap

The nutritional crisis in South Kivu portrays an embedded pattern of chronic deprivation produced by interacting forces of poverty, agricultural decline, and collapsing dietary diversity. At this scale, chronic malnutrition impairs cognitive function and physical capacity in ways that reduce lifetime productivity and perpetuate intergenerational poverty (Maass et al., 2012; Howe, 2019; UNDP, 2025).

A particularly significant mechanism through which malnutrition reproduces structural vulnerability is the hunger–education trap. Chronically undernourished children frequently cannot concentrate in school or sustain the physical demands of attending a full day. School attendance thus becomes contingent on access, cost, and the household's nutritional situation at any given moment (PRODEF, 2026). Security shocks, armed incursions, displacement, or asset loss through looting do not create educational crises from nothing; they activate a pre-existing fragility in which the margin between functional attendance and total withdrawal is already extremely thin. Even localised conflict events can therefore produce rapid, near-total collapses in school attendance, foreclosing the educational investments that represent one of the few pathways out of structural poverty (ibid).

2.4 The Systemic Neglect of Indigenous Crop Varieties

A fourth structural problem concerns the long-standing bias in global agricultural research and development toward a narrow set of major staples, maize, rice, and wheat, at the expense of indigenous varieties better suited to the ecological and social conditions of eastern DRC. Neglected and Underutilised Crop Species (NUCS) such as amaranth (lengalenga) and African nightshade are naturally resistant to many local pests, nutritionally dense relative to their caloric content, and adapted through generations of cultivation to the specific conditions of the South Kivu highlands (Mondo

et al., 2021). Yet they receive almost no support from formal agricultural extension services. Research indicates that 97% of sorghum farmers in the region have had no contact whatsoever with extension agents, suggesting broader institutional absence rather than farmer disinterest (Chuma et al., 2025).

The dominance of commercially produced seed systems oriented toward R&D-supported staples creates a structural dependency that is particularly dangerous in conflict-affected environments. Commercial seed supply chains are among the first systems to collapse during periods of insecurity, leaving farmers without planting material precisely when their resilience is most tested. Informal farmer-saved seed networks, which tend to preserve indigenous varieties, have demonstrated significantly greater robustness during conflict and displacement (Mondo et al., 2021). The neglect of NUCS, therefore, can be viewed as a failure of sovereignty and resilience, leaving the region's food system more fragile than it needs to be.

3. Analysis

3.1 The Triple Nexus Framework (Humanitarian–Development–Peace)

In light of the foregoing, the food crisis in eastern DRC should not be regarded as a temporary humanitarian emergency but as the product of structural vulnerabilities arising from the interplay between armed conflict, rural poverty, institutional fragility, and environmental degradation (World Bank, 2011; Howe, 2019; FAO, n.d.-d). As previously touched upon, between July and December 2024, approximately 25.6 million people experienced acute food insecurity (IPC Phase 3 or above), including 3.1 million in emergency conditions (IPC Phase 4) (IPC, 2023), with North Kivu, South Kivu, and Ituri among the most severely affected (FAO, 2024b). The Triple Nexus Framework facilitates integrated analysis of this situation, overcoming the conventional separation between humanitarian aid, development, and peacebuilding (Howe, 2019)

Historically, humanitarian interventions in the DRC have concentrated on short-term emergency responses, food distribution and nutritional assistance that address the effects of the crisis rather than its structural causes, perpetuating cycles of aid dependency (WFP, 2022). In South Kivu, conflict has damaged agricultural output, livestock, and rural infrastructure, but its most significant impact has been on the social networks underpinning family farming: displacement and insecurity have fragmented seed-sharing systems, informal cooperatives, and local markets (Tamariz & Baumann, 2022). By 2025, nearly seven million people had been displaced, with repeated forced migration continuously eroding community resilience and food systems (IDMC, 2024). This erosion of social capital compounds pre-existing instability, as destitution and the absence of viable economic

alternatives render individuals susceptible to armed group recruitment, generating a cycle of hunger and violence (World Bank, 2011).

The Triple Nexus Framework makes clear that food assistance must be complemented by agricultural reconstruction, support for local markets, community seed banks, and livestock restocking (FAO, 2024c; WFP, 2022). From this standpoint, food security is not peripheral to peacebuilding; it is central to it, given that strengthening rural livelihoods directly reduces the structural conditions that drive conflict (Howe, 2019).

3.2 The Resource Nexus Framework (Water–Soil–Food–Atmosphere)

Beyond conflict dynamics, environmental pressures further intensify food insecurity in the region. The Resource Nexus Framework situates the agricultural crisis in South Kivu as a systemic crisis of natural resources, predicated on the interdependence between water, soil, food, and the atmosphere (Caucci et al., 2025). In an agricultural context almost entirely reliant on rainfall, climate change is particularly destabilising: rising temperatures and erratic precipitation are undermining the predictability of agricultural cycles and increasing the risk of crop failure (IPCC, 2023). Climate projections for Central Africa suggest temperature increases of 2–4°C by the end of the century, alongside greater rainfall variability and more frequent extreme events (IPCC, 2023).

In South Kivu, mountain-slope agriculture accelerates erosion, with heavy rainfall stripping fertile topsoil and transporting sediments into Lake Kivu, modifying aquatic ecosystems and compromising the fish habitats upon which local communities depend for protein (Munyuli et al., 2017). The absence of pesticide market regulation compounds this environmental degradation: the widespread use of highly toxic substances without technical oversight introduces chemical residues into soil and water, simultaneously worsening ecological decline and increasing health risks (Masumbuko et al., 2024; WHO, 2023).

The Resource Nexus makes clear that increasing agricultural production alone is insufficient. Addressing the crisis requires integrated approaches spanning soil conservation, sustainable water management, climate adaptation, and food security (IPCC, 2023b; Caucci et al., 2025). Agroecological practices, agroforestry, and local soil mapping are pivotal tools in restoring the ecological balance upon which any durable agricultural recovery depends (Altieri, 2009; FAO, n.d.-a; FAO, n.d.-b).

3.3 The Feminist Political Ecology

Feminist political ecology illuminates how the food crisis in the DRC is also profoundly shaped by gender-based power relations (UNISDR et al., 2009; UN Women, 2023). Women constitute the primary agricultural workforce in rural South Kivu, yet continue to face limited access to land, credit,

technical training, and inputs, with over 96% of sorghum farmers in the area lacking institutional support (Mulumeoderhwa et al., 2019). Beyond production, women fulfil pivotal roles in household nutrition management, seed preservation, and the transmission of local ecological knowledge. Armed conflict and displacement compound this: women are routinely required to simultaneously sustain food production, provide care, and secure household survival, while maternal malnutrition and anaemia remain widespread across conflict-affected areas (UNISDR et al., 2009). In contexts of food scarcity, caregivers frequently prioritise children's nutritional needs over their own, with health consequences that are severe yet often invisible (WHO, 2023).

Feminist political ecology insists, however, that women are not passive victims but key actors in community resilience. Informal women's networks have demonstrably contributed to the preservation of indigenous and climate-resilient crop varieties, including NUCS, knowledge whose neglect directly diminishes the adaptive capacity of rural communities (Mondo et al., 2021; FAO, n.d.-b; FAO, n.d.-d). Strengthening women's economic agency and decision-making power within agricultural systems is not peripheral to building resilient food systems; it is foundational to them (UN Women, 2023; Fajinmi et al., 2025).

4. Possible Solutions

Moving beyond emergency-based responses requires integrated, long-term strategies anchored in the Triple Nexus framework: multi-year action bundles that combine humanitarian aid, agricultural development, and peacebuilding (Howe, 2019; FAO, 2024a). Climate-smart practices, agroforestry, crop rotation, composting, and integrated pest management should be scaled through extension services and cooperatives, alongside strengthened pesticide market regulation through national quality-control mechanisms (Altieri, 2009; IPCC, 2023; WHO, 2023; Masumbuko et al., 2024; Chuma et al., 2025; FAO, n.d.-a; FAO, n.d.-c). Promoting NUCS via community seed banks would improve nutritional outcomes, reduce chemical dependency, and decrease reliance on fragile external seed chains (Mondo et al., 2021). The livestock ladder strategy offers households a pathway to income diversification, while school feeding programmes can simultaneously disrupt the hunger–education trap and generate demand linkages supporting local farmers (World Bank, 2011; WFP, 2022; IDMC, 2024; UNICEF, 2024)

Conclusion

Despite holding the greatest agricultural potential, the DRC is home to the world's second-largest hunger crisis. Beneath these visible crises sit less-examined deficits, a near-total absence of pesticide market regulation and a historical neglect of climate-resilient indigenous crops. Existing

humanitarian responses have been hampered by the institutional separation of relief from development. The evidence increasingly points toward integrated frameworks linking emergency assistance with long-term agricultural reform, grounded in the realities of the farmers, most of them women. The Triple Nexus, Resource Nexus, and feminist political ecology together reveal that long-term food security will depend not only on increasing production but on rebuilding the social, ecological, and institutional foundations upon which resilient rural livelihoods rest, a transition from emergency response to structural resilience.

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