



Governance fragmentation and food security in South Africa's Upper Umzimvubu River catchment: A network governance perspective

Betty C Mubangizi^{1*}

¹NRF/Research Chair in Sustainable Rural Livelihoods, University of KwaZulu-Natal, South Africa

*Corresponding Author: Mubangizib@ukzn.ac.za

Article Info	Abstract
<p>Review Article</p> <p>Article History</p> <p>Received: 29 September 2025 Accepted: 9 May 2026 Published Online: 11 May 2026</p> <p>Keywords</p> <p>Communal Land; Food Security; Network Governance; Rural Livelihoods.</p> <p>To cite this article</p> <p>Mubangizi, B. C. (2027). Governance fragmentation and food security in South Africa's Upper Umzimvubu River catchment: A network governance perspective. <i>Dynamics of Rural Society Journal</i>, 5(1), 22–37. https://doi.org/10.37905/drsj.v5i1.147</p>	<p>The Upper uMzimvubu River catchment in South Africa's Eastern Cape faces persistently low food productivity, driven by land degradation and the escalating impacts of climate change. This study investigates how governance dynamics shape food security outcomes on rural communal land, focusing on the potential of collaborative, multi-level, and networked governance approaches to address systemic vulnerabilities and enhance local food production. Using a review-based methodology grounded in both empirical insights and scholarly literature on food governance, the research applies a network governance framework to examine how state and non-state actors coordinate interventions in the food security landscape. The findings indicate that food insecurity in the catchment arises not only from environmental and socio-economic stressors but is also exacerbated by fragmented governance, policy incoherence, and institutional weaknesses. In this context, civil society networks play a central role in polycentric governance, often bridging gaps left by formal institutions. The study advocates a decentralised, participatory, and integrated model of food security governance, emphasising secure land tenure, climate-resilient development planning, and improved coordination among diverse stakeholders. By integrating perspectives from environmental governance, rural development, and land tenure studies, this research provides a transdisciplinary lens on food insecurity. It demonstrates how combining policy analysis, local knowledge, and institutional theory can foster collaboration among academics, policymakers, and civil society actors, ultimately enabling more effective responses to the complex challenges of rural food insecurity in South Africa.</p>

Introduction

The upper uMzimvubu catchment in the northern Eastern Cape is a predominantly rural, impoverished region. Matatiele Local Municipality, which lies in this catchment, faces an unemployment rate of around 38–39%, making it one of the most vulnerable areas in South Africa (Ojogiwa & Mubangizi, 2023). Communities here live on communal lands under customary tenure, with low levels of formal employment, education, and infrastructure. Smallholder farming and social grants are the primary sources of livelihood, yet these are precarious (Cousins, 2013; Greenberg et al., 2022; Mubangizi, 2021). Recurrent droughts and climate change impacts have severely undermined local agriculture and water resources, exacerbating food insecurity and leaving many households unable to meet their nutritional needs (Greenberg et al., 2022; Ngcamu & Chari, 2020). Overall, the current state of food security is characterised by a heavy reliance on social safety nets, underutilised agricultural land, and subsistence livestock practices that have yet to realise their full economic potential.

Numerous studies have examined the complex issue of food security in South Africa. Greenberg et al. (2022); Kushitor et al. (2022); and Ngcamu and Chari (2020) revealed the multifaceted nature of the food security challenge by uncovering the impact of various factors, including location, human capital, household income,

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climate change, land tenure, and governance. Similarly, Maziya et al. (2017) identified various factors, including marital status, household size, income, education, access to credit, and gender, collectively contributing to alleviating food insecurity. Amidst these empirical findings, Hendriks (2013) thoroughly evaluated the effectiveness of existing food security initiatives. Her work echoed the need for improved coordination, rigorous monitoring mechanisms, and robust institutional frameworks to enhance the impact of these initiatives across South Africa. Mubangizi (2013) proposed a locally coordinated approach to domestic food production that operates within the principles of good governance. Her perspective advocates for a decentralised system that aligns with local empowerment and governance ideals, presenting a potential solution to tackling food insecurity.

The studies by Candel (2014); Candel and Pereira (2017); Hendriks (2014); and Vervoort et al. (2014) identify several persistent constraints that continue to undermine progress toward food security, including fragmented planning systems, weak institutional arrangements, inadequate coordination mechanisms, and the escalating impacts of climate change. Collectively, these studies highlight that food insecurity is not merely a production problem but a complex governance challenge requiring integrated, cross-sectoral responses. Similarly, Drimie and Ruysenaar (2010) and Kushitor et al. (2022) demonstrate that South Africa's food security interventions are frequently characterised by policy fragmentation and institutional incoherence, with responsibilities dispersed across multiple sectors and spheres of government. While these studies provide important national-level insights into food governance challenges, they pay comparatively limited attention to how these governance dynamics unfold in rural communal settings where customary land tenure systems, traditional authority structures, environmental degradation, and weak state capacity intersect.

Furthermore, although existing scholarship acknowledges the importance of collaboration and policy integration, relatively little research has specifically examined how networked and multi-level governance arrangements influence food security outcomes within ecologically vulnerable communal catchments such as the Upper uMzimvubu. Much of the literature focuses either on socio-economic determinants of food insecurity or on environmental and climate-related vulnerabilities, often without adequately interrogating the institutional relationships, actor configurations, and coordination deficits that shape local food systems (Candel, 2014; Mubangizi, 2013; Zembe et al., 2022). Consequently, important questions remain regarding how state institutions, traditional authorities, civil society organisations, and community actors interact to either enable or constrain sustainable food production and climate-resilient livelihoods in such contexts.

This manuscript addresses this gap by applying a network governance lens to examine food security governance in the Upper uMzimvubu catchment. In doing so, it moves beyond conventional analyses centred primarily on agricultural productivity or household vulnerability to focus on the governance architecture underpinning food systems. The study's novelty lies in integrating food security, communal land governance, catchment stewardship, and collaborative governance within a single analytical framework. It further contributes empirically by highlighting the roles of institutional fragmentation, polycentric governance, and civil society-led coordination platforms, particularly the Umzimvubu Catchment Partnership, in shaping local food security outcomes. By foregrounding governance relationships and multi-level coordination in a rural communal landscape, the study offers a contextually grounded and transdisciplinary perspective on food security that remains underexplored in South African scholarship.

Theoretical framework

To better understand the dynamics of such integrative governance approaches, particularly in settings like the Upper Umzimvubu catchment, where multiple actors operate across varying scales and jurisdictions, it is useful to draw on relevant theoretical perspectives. In this context, a networked understanding of governance provides a more appropriate analytical lens than traditional hierarchical models. The following theoretical framework outlines the key concepts underpinning Network Governance, offering insights into how decentralised, multi-actor systems can foster collaborative, climate-resilient land and resource management.

Network Governance Theory explains how governance occurs through decentralised, interconnected networks rather than traditional hierarchical structures (Klijn & Koppenjan, 2016; Mubangizi, 2024; Wang et al., 2023). It highlights the role of inter-organisational relationships, where multiple actors-government entities, private organisations, non-profits, and even individuals-collaborate to achieve common goals (Wang et al., 2023). Mubangizi (2024) further argues that network governance is particularly relevant in rural African contexts where complex development challenges require collaboration among government institutions, traditional authorities, NGOs and local communities. This theory is beneficial for understanding modern governance challenges in complex, dynamic environments where top-down authority is insufficient or ineffective. Instead

of relying on a single central authority, network governance relies on cooperation, negotiation, and shared decision-making.

Network Governance is the broadest conceptual framework, encompassing collaborative and multi-level governance as integral components. In this framework, governance is understood as a networked system of interactions rather than a hierarchical structure. Collaborative Governance functions as a mechanism for coordination within these networks, relying on voluntary engagement, consensus-building, and shared decision-making among public and private stakeholders (Kapucu et al., 2023). It is beneficial in policy areas requiring multi-stakeholder involvement, such as climate policy, digital governance, and public health initiatives, where cooperation and mutual trust drive policy outcomes. Meanwhile, multi-level Governance ensures coordination across local, regional, national, and supranational levels (Allain-Dupré, 2020). This model recognises that power and responsibility are often overlapping and distributed rather than divided, making it essential for addressing governance challenges that transcend jurisdictional boundaries.

Together, Collaborative and Multi-Level Governance represent two interdependent dimensions of Network Governance. While collaborative governance fosters horizontal coordination among diverse actors, multi-level governance ensures vertical integration across different tiers of authority. Their coexistence highlights that modern governance is increasingly polycentric, interdependent, and adaptive rather than controlled by a singular authority. The networked nature of governance allows for greater flexibility, resilience, and efficiency in responding to complex societal challenges (Lægreid & Rykkja, 2022). Whether in global policy formulation, urban governance, or emerging digital regulatory systems, governing without networks is no longer feasible in an interconnected world where multiple actors must work together across various levels to achieve common goals. This framework recognises that complex issues such as food security span multiple jurisdictions and sectors, requiring both vertical and horizontal collaboration. In South Africa, where responsibilities for food security are split among departments (agriculture, social development, health, among others) and across national, provincial, and local levels, collaborative, multi-level governance approaches are essential to ensure that policies and interventions are mutually reinforcing. First, however, a discussion on food production in the Upper Umzimvubu catchment is necessary.

Methods

Search criteria

The literature and documentary sources for this study were identified through purposive thematic searches of databases including Google Scholar, Scopus, and Web of Science. Keywords used in the search included: “food security”, “network governance”, “communal land”, “rural livelihoods”, “catchment governance”, “climate adaptation”, and “uMzimvubu”. Grey literature from government, municipal, NGO, and Water Research Commission repositories was also incorporated to ensure a comprehensive review of relevant sources.

Inclusion/Exclusion criteria

Materials were selected based on their relevance to governance, institutional coordination, communal land management, and climate-related livelihood challenges in rural South Africa or similar contexts. Sources published primarily between 2010 and 2025 were prioritised, although earlier foundational works were included when conceptually significant. The inclusion of both academic studies and secondary empirical documents, such as municipal Integrated Development Plans, climate adaptation plans, Water Research Commission reports, policy documents, and reports and toolkits from the Umzimvubu Catchment Partnership, ensured that the study incorporated a wide range of perspectives on governance and collaborative arrangements.

Type of studies

The study focused on qualitative approaches, reviewing existing scholarship and documents to explore governance patterns and collaborative practices. While the analysis drew upon diverse sources, the emphasis was on qualitatively examining recurring themes and institutional arrangements rather than generating new empirical data. This approach enabled a detailed analysis of how governance structures influence food security and climate-resilient livelihoods on communal land.

Time frame

The review emphasised materials published mainly between 2010 and 2025 to capture contemporary developments in governance, climate adaptation, and rural livelihoods. Foundational works published prior to

2010 were also incorporated selectively when they provided essential conceptual frameworks or historical context necessary for understanding governance dynamics in the Upper uMzimvubu River catchment.

Sources of literature

The study drew on a combination of peer-reviewed scholarship and secondary empirical documents to examine governance and collaborative arrangements. Academic literature focused on food security, rural livelihoods, environmental governance, and network governance. At the same time, secondary materials included municipal Integrated Development Plans, climate adaptation plans, Water Research Commission reports, policy documents, and toolkits produced by the Umzimvubu Catchment Partnership and affiliated organisations. Grey literature from government and NGO repositories further complemented these sources, providing insights into practical governance mechanisms and initiatives at the catchment level.

Analysis approach

Guided by a network governance framework, the selected literature and documents were subjected to qualitative thematic analysis. This involved iterative reading, coding, and categorisation of recurring themes and patterns related to governance. Particular attention was given to institutional relationships, governance fragmentation, coordination mechanisms, collaborative arrangements, and examples of adaptive governance practice. Rather than producing new primary data, the study reinterpreted existing evidence to examine how collaborative and multi-level governance arrangements shape food security and climate-resilient livelihoods on communal land in South Africa.

Results and discussion

Results

This section summarises the key findings from the reviewed literature, highlighting the most significant trends and insights that emerged from the studies analysed.

The state of food production in the Upper uMzimvubu River catchment

Rural livelihoods in the upper uMzimvubu catchment are under severe strain. In many former homeland villages, access to arable land has not translated into adequate food production. Fallow fields are increasingly common as smallholders struggle to farm sustainably (Mkhongi et al., 2024). Household surveys show that social grants (especially old-age pensions) are the primary source of income for most families, while own farming plays a secondary role. Even with home gardens (about 0.4 hectares on average) supplementing diets, a majority of households experience food insecurity; for example, over 50% of households in the Eastern Cape village of Ambros were found to be food-insecure on the Household Food Insecurity Access Scale (Mkhongi et al., 2024). Key drivers of this insecurity include insufficient income and declining agricultural yields, partly due to the ongoing de-agrarianisation (migration of labour and waning of farming culture)

The region's crop-farming potential is severely constrained by the fragility and erodibility of its soils. According to the Alfred Nzo District Municipality (ANDM) Climate Adaptation Plan (2024), soils in ANDM are brittle, highly prone to erosion, and range from non-arable to moderately fertile. These intrinsic soil limitations, compounded by topographic challenges and climatic variability, present significant barriers to sustainable crop production and exacerbate regional food insecurity. The district's steep terrain and high rainfall variability, combined with poor vegetation cover and overgrazing, contribute to rapid topsoil depletion and a consistent decline in soil fertility (Lück-Vogel et al., 2024).

Recent field studies conducted by the Mahlathini Development Foundation in the Upper Umzimvubu catchment confirm that widespread nutrient deficiencies, shallow rooting depth, and low organic matter content are persistent limitations across many communal farmlands. Notably, Haney soil health tests administered in Matatiele revealed that conventional tillage plots exhibited the lowest levels of microbial activity and biologically available nutrients when compared to both Conservation Agriculture (CA) plots and undisturbed veld baselines. The Solvita CO₂-C respiration scores, which indicate microbial activity, were significantly higher in CA intercropped plots, suggesting enhanced soil microbial function and improved organic nutrient cycling. Moreover, CA plots recorded the highest overall soil health scores, underscoring their effectiveness in accelerating soil fertility restoration and long-term improvements in soil health (Kruger, 2016, pp. 16–18).

Despite some gains associated with CA, broader agroecological constraints continue to undermine sustainable food production in the Upper uMzimvubu catchment. In this study, agroecological constraints refer to the interconnected environmental and farming-system challenges affecting agricultural productivity, including

poor soil fertility, soil acidification, erosion, climatic variability, and declining vegetation cover. Studies conducted in the Matatiele area indicate that many communal farming soils exhibit persistent phosphorus and nitrogen deficiencies, low organic matter content, and weak biological activity, all of which constrain crop productivity and long-term soil regeneration (Kruger, 2016). Although practices such as legume intercropping and CA have the potential to improve soil health, these interventions require sustained institutional support, extension services, and long-term community adoption.

Significant socioeconomic vulnerabilities compound these environmental limitations. Smallholder farmers in the region, many of whom are older women with limited financial resources, typically cultivate very small plots and operate under conditions of high climatic risk and limited market access. Even within CA trials, crop yields remained relatively low due to drought, hailstorms, and poor soil conditions (Kruger, 2016). Consequently, many households increasingly rely on livestock and grazing-based livelihood systems as arable farming becomes less viable.

The findings highlight that food insecurity in the Upper uMzimvubu catchment cannot be understood solely as a problem of agricultural production, but also as a governance challenge linked to weak institutional support, limited extension capacity, fragmented land-use management, and inadequate coordination of climate adaptation interventions. In this context, the sustainability of CA and soil restoration initiatives depends not only on ecological suitability but also on collaborative governance arrangements that support long-term rural livelihood adaptation.

Livestock husbandry is culturally and economically important in this region, but its contribution to food security is limited by low productivity. Many households (50–80%) keep cattle on communal rangelands, yet few rely on livestock as their main livelihood (Conradie et al., 2024). Surveys indicate that only 17% of small-scale farmers in the Umzimvubu catchment derive their primary income from cattle; most depend on state grants to meet basic needs. Herd sizes are modest (usually under 50 head), and water and feed shortages periodically affect herd health. Traditional cattle uses (for ceremonies, bridewealth, or as a savings asset) often precede market sale, meaning cattle function more as a buffer or store of wealth than a regular food source (Conradie et al., 2024). Communal herds are typically managed under low-input conditions, continuous grazing is the norm, and formal veterinary or extension services are sparse. Cattle and sheep are the primary agricultural commodities in the Upper uMzimvubu catchment. Cattle and sheep depend on the availability of grazing pasture, which is currently provided by the vast extent of the Grasslands biome in the district. According to the ANDM Climate Adaptation Plan (2024), projected climate scenarios suggest increased rainfall and higher atmospheric CO₂ levels, which are expected to drive woody encroachment across the district. Grasslands are typically characterised by a continuous layer of grass interspersed with varying levels of woody vegetation. However, expanding shrubs and trees under these climatic conditions may reduce available grazing land, posing a significant challenge to livestock farmers.

Climate factors do not solely drive the degree of woody vegetation expansion. Range management, through appropriate land-use practices and fire management strategies, plays a decisive role in shaping vegetation dynamics. It is worth noting that range management on communal land presents a complex challenge, mainly due to the open-access nature of grazing areas. In many communal settings, particularly in sub-Saharan Africa, access to rangelands is not regulated by private ownership but by customary rights, often leading to overgrazing, land degradation, and resource competition (Slayi et al., 2024). The absence of clearly defined property rights in communal grazing areas fosters a *tragedy of the commons*, in which individual cattle owners tend to maximise personal benefits at the expense of collective rangeland sustainability (Fetoui et al., 2021). This is particularly concerning in rural districts such as Alfred Nzo District Municipality (ANDM) in South Africa, where livestock farming is central to household economies and food security. Empirical studies indicate that prolonged fire suppression often accelerates woody encroachment, which in turn diminishes both the quality and quantity of forage available to grazing livestock (Archer et al., 2017). Conversely, evidence shows that controlled prescribed burning, when applied at ecologically appropriate intervals, can curb woody thickening and help maintain the grass-dominated structure required for sustainable cattle production (Lück-Vogel et al., 2024).

To mitigate the degradation of communal grazing land, there is an urgent need to strengthen grazing associations and the governance role of traditional leaders, who have historically been the custodians of communal land and farming systems. Grazing associations, structured around collective decision-making, can establish rotational grazing schedules, manage stocking rates, and implement seasonal rangeland closures to prevent overgrazing and ensure the long-term sustainability of forage resources (Cousins, 2013). As recognised authorities in customary land governance, traditional leaders can mediate land use conflicts, enforce grazing

rules, and ensure compliance with locally accepted norms (Lück-Vogel et al., 2024). Their involvement is particularly crucial when municipal land management policies struggle to reach remote communal areas or when government enforcement mechanisms are weak. Moreover, integrating scientific knowledge with indigenous knowledge systems can enhance adaptive rangeland management and promote resilience to climate change (Reed et al., 2014).

The governance of communal rangelands in the Upper Umzimvubu catchment necessitates multi-stakeholder collaboration involving traditional authorities, grazing associations, and municipal policymakers. As climate-induced shifts in vegetation patterns become more pronounced, particularly in already vulnerable highland systems, proactive, inclusive rangeland governance strategies are essential to sustain food security and rural livelihoods. These systems are not only critical for livestock production but also play a central role in the socio-economic resilience of local communities, especially under conditions of climate variability.

The implementation of sustainable land management practices, supported by robust institutional frameworks and effective governance mechanisms, is becoming increasingly important for ensuring the long-term agricultural resilience of the Alfred Nzo District Municipality (ANDM). Strengthening policy enforcement, land-use planning, and community-based governance structures is key to regulating rangeland use, preventing further soil degradation, and promoting climate-adaptive farming practices (Zembe et al., 2022). By fostering collaborative decision-making processes that actively engage traditional leadership, municipal authorities, and local farming cooperatives, governance institutions can drive the adoption of sustainable agricultural strategies. Such integrative governance is vital to ensuring that both livestock and crop farming remain viable livelihoods amidst escalating environmental and climatic pressures.

Land degradation in communal areas - adverse effect on food security

Land degradation is defined as the reduction or loss of land productivity (biological or economic) due to habitat patterns or human activities, such as soil erosion or the long-term loss of natural vegetation (Bado & Bationo, 2018; Scholes et al., 2018). Unchecked land-use practices have led to widespread gully erosion (red areas) in South Africa's communal lands, with the Eastern Cape being the most severely affected province, according to Vanlauwe et al. (2023). Historically, apartheid-era policies crowded people and livestock into former homelands like Transkei on fragile, erosion-prone soils – a “*recipe for disaster*” that left these areas among the most degraded in Southern Africa (van Tol et al., 2023). This severe soil loss directly reduces agricultural potential and undermines food security, as fertile topsoil is washed away faster than it can regenerate.

The Upper Umzimvubu catchment is recognised as a strategic water source area, contributing over 50% of South Africa's water supply despite occupying only 10% of the country's land surface (Matatiele Local Municipality, 2021). Situated within the Umzimvubu to Keiskammahoek Water Management Area (WMA), the region accounts for approximately 15% of South Africa's total mean annual runoff (Matatiele Local Municipality, 2021). The area receives an annual rainfall of 550-1,000 mm, predominantly during summer (Matatiele Local Municipality, 2021). Notably, the Umzimvubu River remains South Africa's most significant undeveloped river system, characterised by minimal water infrastructure and only a few minor dams (Environmental and Rural Solution & Conservation South Africa, 2011).

Despite its hydrological significance, the Upper Umzimvubu catchment faces severe environmental degradation, mainly due to high runoff rates and weak rangeland management practices, particularly in the upper catchment area. As a result, Matatiele has been identified as an erosion hotspot (McLeod & ERS, 2019). It is estimated that 26% of the municipal area comprises degraded grasslands, reflecting the widespread environmental pressures in the region (Matatiele Local Municipality, 2021). Additionally, the area is frequently affected by natural disasters, including wildfires, floods, heavy storms, and tornadoes. Although relatively moderate, the projected impacts of climate change in this region are expected to include increased flooding, more intense rainfall events, and a greater frequency of heat waves (Matatiele Local Municipality, 2021).

On-the-ground assessments of the Upper Umzimvubu catchment reveal extensive evidence of land degradation. Communal farming areas, in particular, are significantly affected by soil erosion, veld degradation, and invasive bush encroachment (Masiza et al., 2023). Decades of unregulated and poorly managed land use, including overstocking of cattle, continuous grazing without resting pastures, and cultivation on steep slopes, have led to a marked decline in vegetative cover. The absence of enforceable land-use regulations has further exacerbated overgrazing near villages, resulting in the proliferation of *dongas* (erosion gullies) that scar the hillsides.

Empirical studies confirm that communal lands in South Africa tend to experience more significant land degradation than privately owned lands, primarily due to deficiencies in governance and land management structures (Masiza et al., 2023). The loss of soil fertility and ground cover directly impacts agricultural productivity, leading to lower crop yields and reduced forage availability for livestock. Consequently, these environmental challenges contribute to household food insecurity, creating a vicious cycle where unsustainable land-use practices, such as cultivating marginal soils without conservation measures or exceeding the land's carrying capacity through uncontrolled grazing, result in declining land productivity (Sibiya et al., 2023). This feedback loop of land degradation and declining agricultural output poses a significant threat to the region's socioeconomic stability and environmental sustainability.

Traditional leaders and land use governance

Traditional leaders (chiefs and headmen) are pivotal in land governance in the upper uMzimvubu's communal areas. Under customary tenure, these leaders are the custodians of the land and retain authority over land allocation and local resource-use rules (Masiza et al., 2023). They have historically been responsible for managing how land is divided between residential, arable, and grazing use and enforcing community norms (such as when to rest grazing lands or manage communal woodlots). In practice today, the influence of traditional leaders on day-to-day land use varies. In some villages, active traditional councils or headmen convene community meetings and appoint range managers or committee persons to oversee grazing. Indeed, village-level livestock committees operate under the leadership of Traditional Authorities to coordinate pasture management (Lück-Vogel et al., 2024). Such committees can, for example, agree to rotate communal herds to prevent overuse of a single area.

Many elders recall that, decades ago, chiefs enforced grazing rotations and imposed sanctions (fines or livestock impoundment) for overgrazing or cropping in prohibited zones (Matela et al., 2023). Colonial and apartheid interventions eroded those customary systems and were later replaced by modern governance structures, leaving a vacuum in which communal lands often became open access. One outcome is that animals are now frequently "left to graze in an uncontrolled fashion" on communal rangelands (Matela et al., 2023). Traditional leaders sometimes lack formal support or resources to enforce rules, especially when their authority overlaps (and occasionally conflicts) with elected local government. Despite these challenges, empowering traditional institutions is vital to restoring sustainable land-use practices. Successful rangeland stewardship programs have found it effective to work *through* the chiefs and headmen, for instance, by reviving "traditional rangeland practices" and local sanction systems for grazing management (Matela et al., 2023). Such approaches leverage traditional leaders' legitimacy and local knowledge to encourage community compliance with better land use (for instance, designating certain areas as no-graze zones for rehabilitation or re-establishing seasonal grazing schedules). In summary, traditional leaders remain key actors in communal land governance, and their active involvement or endorsement can significantly influence land-use outcomes that affect food security.

The traditional leadership and communities of the communal lands in the upper Umzimvubu River catchment play a crucial role in catchment stewardship. This means continuous, intricate negotiations are needed to effect some of the changes, continually building a system that puts resource users at the centre of decision-making. Post-apartheid changes in South Africa introduced municipal governance systems to these areas, leading to a coexistence of traditional leadership and elected councillors. The municipal systems introduced planning instruments, such as Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs), guided by the Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA), to facilitate the planning and implementation of development initiatives. This dual governance structure impacts the management and sustainability of communal lands, which are common property resources. It is unclear on the ground whether the two systems are integrated and support each other or if they operate side by side. Contrary to Hardin's (1968) "tragedy of the commons", Ostrom's research shows that communities can effectively manage common property resources for sustainable use (Ostrom, 1990). Existing traditional social systems and dynamics facilitate free and easy interaction between the different spheres of governance and the community, utilising traditional forums such as imbizo/pitso (community gatherings). Family hierarchies, gender roles, economic standing and cultural norms still dictate behaviour, relations and societal expectations.

Despite challenges in implementation, grassroots forums like the Umzimvubu Catchment Partnership, constituted in 2013 (Mbele & Mubangizi, 2023) with an essential Memorandum of Understanding, have blossomed into what can be considered a model for collaborative catchment management (Matela et al., 2023). The six traditional authorities of *Mzongwana*, *Makhoba*, *Sibi*, *Nkosana*, *Moshesh*, and *Bakoena* play a central role in governance within the rural areas of the Upper uMzimvubu Catchment. As custodians of communal

land, cultural practices, and local customary systems, they are responsible for functions such as land allocation, dispute resolution, land-use management, environmental stewardship, and the preservation of cultural heritage. All stakeholders have understood that conservation with production that targets people’s livelihoods has a better potential for success than conservation that excludes local people, their systems and their needs. The UCP has navigated many challenges and united a spectrum of organisations, fostering co-learning and collaboration and catalysing the creation of the *Maloti Thaba Tsa Metsi* Voluntary Association (MTTMVA).

Fragmented and siloed food security programs

One core governance challenge in promoting food security is the fragmented, siloed nature of programs and policies. National analyses of South African food policy reveal that government interventions are spread across numerous sector departments, including health, social protection, agriculture, land, and rural development, thus hindering effective integration (Kushitor et al., 2022). Policies have historically been developed and implemented in isolation by different departments, which limits learning and coordination across the food system. As a result, duplication and gaps are common, and implementation suffers from partial coordination at best (Kushitor et al., 2022). At the local level, governance fragmentation is reflected in the separation of food security-related responsibilities across different institutions and planning processes. In the Upper uMzimvubu catchment, agricultural support initiatives, such as extension services, livestock programmes, and CA training, are primarily implemented by the provincial Department of Agriculture. At the same time, municipalities address food security indirectly through Integrated Development Plans (IDPs), infrastructure provision, and local economic development initiatives. At the same time, environmental rehabilitation and catchment restoration activities are often driven by NGOs and donor-supported programmes operating outside formal municipal coordination structures. As a result, interventions relating to food production, water access, rangeland management, and climate adaptation frequently occur in parallel rather than through integrated planning frameworks, limiting policy coherence and long-term impact.

In the upper uMzimvubu catchment, governance is further complicated by overlapping authorities and weak intergovernmental alignment. Local municipalities are expected to integrate food security into their development plans, while provincial departments execute agricultural and rural development projects. In practice, these efforts often operate in silos. The Umzimvubu Catchment Partnership, for example, was noted to “bring sister departments together, such as Agriculture, Environmental Affairs, Economic Development, and Rural Development”, in a way that individual government programs alone did not (Mbele & Mubangizi, 2023; Snorek et al., 2022). This implies that without such collaborative forums, each agency might independently pursue its own food security or livelihood projects, leading to inefficiencies. The net effect of governance fragmentation is that communities receive piecemeal support. For example, one program might distribute seeds while another provides water, but without alignment, these inputs fail to sustain long-term food security. Bridging these silos through better communication and joint planning is therefore recognised as a critical need.

The governance landscape shaping food security in the Upper uMzimvubu catchment is characterised by multiple actors operating across different institutional and territorial scales. [Table 1](#) summarises the principal governance actors, their respective functions, and the coordination challenges affecting food security interventions in the catchment.

Table 1. Key governance actors, roles and coordination challenges in food security governance in the Upper uMzimvubu Catchment

Governance Actor	Main Role in Food Security	Governance Level	Key Challenges	Collaborative Function
Local municipalities	Planning, infrastructure provision, local economic development, and service delivery	Local	Limited institutional capacity, weak interdepartmental coordination	Integration of food security priorities into IDPs and local development planning
Traditional authorities	Land allocation, grazing governance, customary dispute resolution	Community/local	Overlapping mandates with municipalities, limited formal support	Community mobilisation and local land-use coordination

Provincial government departments	Agricultural support, extension services, and rural development programmes	Provincial	Siloed implementation and fragmented policy coordination	Technical and programme support to local initiatives
Civil society organisations and NGOs (e.g., UCP partners)	Facilitation, training, ecological restoration, stakeholder coordination	Multi-level	Funding sustainability and dependence on partnerships	Bridging institutional gaps and facilitating collaborative governance
Communities and smallholder farmers	Food production, communal land stewardship, and indigenous knowledge systems	Household/community	Poverty, climate vulnerability, and limited market access	Participation in collaborative governance and local adaptation initiatives

Source: (Compiled by the author from reviewed literature and documentary sources, including municipal planning documents, Water Research Commission reports, and studies on governance and food security in the Upper uMzimvubu catchment).

The role of civil society in food security initiatives

Civil society actors, particularly non-governmental organisations (NGOs), play an indispensable role in advancing food security and addressing governance gaps in the Upper uMzimvubu catchment. In a context where state capacity is limited and formal institutions are often fragmented, NGOs have emerged as key enablers of collaborative governance. Their interventions are not only operational but strategic, acting as catalysts for multi-stakeholder engagement and institutional innovation. As noted by [Mbele and Mubangizi \(2023\)](#), many collaborative governance efforts in the region are initiated and sustained by NGO-led platforms, which have become the backbone of food and ecological security initiatives.

A prominent example is the Umzimvubu Catchment Partnership (UCP), a voluntary consortium established in 2013 comprising NGOs, community representatives, and government departments. Its founding mission is to protect the catchment's ecological integrity while promoting sustainable livelihoods ([Matela et al., 2023](#); [Mbele & Mubangizi, 2023](#)). Spearheaded by Environmental Rural Solutions (ERS) and Conservation South Africa (CSA), the UCP has grown into a dynamic platform that brings together a wide spectrum of actors, including traditional authorities, provincial officials, farmer organisations, and development agencies. Functioning as a convening and coordinating body, the UCP holds quarterly multi-stakeholder meetings to facilitate knowledge exchange, align projects, and co-create strategies for sustainable catchment governance ([Mubangizi, 2022](#); [Snorek et al., 2022](#)).

Although the uMzimvubu River catchment lacks a formal Catchment Management Agency (CMA), the UCP has effectively filled some of this institutional vacuum by operating under a Memorandum of Understanding (MoU) that aligns the mandates of participating organisations. While not a statutory CMA, it performs many similar functions, particularly by convening stakeholders around a shared agenda to protect the Upper uMzimvubu Catchment and Water Source Area ([Matela et al., 2023](#)). In practice, the UCP operates akin to a Catchment Management Forum, facilitating collaborative planning, enabling adaptive learning, and promoting innovation in water and land management. Its activities span six traditional authority areas and include an impressive range of interventions such as eco-ranger deployment, invasive alien plant control, wildfire and erosion mitigation, sustainable grazing plans, wetland restoration, and ecotourism development. Moreover, it supports livelihood initiatives including fish farming, agricultural training, job creation, and biomass value chain development, while also contributing to governance capacity through annual committee training programmes ([Matela & McLeod, 2016](#)).

UCP members agree that the partnership represents a replicable model of community-based catchment governance, offering valuable lessons in multi-level coordination and integrated planning. Importantly, this model illustrates how NGOs function beyond service delivery or advocacy; they act as institutional brokers, facilitating multi-sectoral collaboration and embedding food and ecological security efforts within locally relevant governance frameworks.

In addition to their convening functions, NGOs are also direct implementers of programs designed to bolster food security and ecosystem resilience. One such initiative is the Meat Naturally Initiative (MNI), led by CSA in collaboration with the Lima Rural Development Foundation, ERS, and supported by government

departments such as the Department of Environmental Affairs (Stanway, 2016; McLeod & ERS, 2019). The MNI focuses on restoring and maintaining healthy ecosystems while developing market-readiness for sustainable red meat production on communal rangelands with high biodiversity.

A core component of this initiative is the work of Lima Rural Development Foundation, which delivers training in rangeland management, including rotational grazing, veterinary support, and eco-ranger training (Mubangizi, 2021). These community-based para-extension workers assist villages in managing grazing cycles and rehabilitating degraded landscapes (Greenberg et al., 2022). By connecting small-scale cattle farmers to formal livestock markets and promoting fair trade mechanisms, these interventions not only improve land health but also enhance household income and food security. Since 2014, Lima has embedded field facilitators in local villages as part of the UCP, helping integrate indigenous knowledge systems with scientific and technical expertise. Their contributions range from establishing food gardens and implementing rainwater harvesting systems to organising mobile auctions that expand market access for remote farmers (Lyne et al., 2018; Zantsi & Nengovhela, 2022).

Furthermore, NGOs frequently collaborate with state-led environmental and rural development programmes to enhance implementation capacity, local participation, and institutional reach. Their involvement in initiatives such as Working for Water, which combines ecological restoration with employment creation, and communal livestock improvement programmes involving indigenous Nguni cattle systems, illustrates the important intermediary role civil society organisations play in facilitating rural development, catchment restoration, and livelihood support in communal areas (Fabricius & Koch, 2004; Matela & McLeod, 2016; Turpie et al., 2008). These collaborations help adapt national programmes to local conditions, mitigate fragmented service delivery, and improve the responsiveness of interventions to community needs. In sum, the cumulative contributions of civil society organisations in the Upper uMzimvubu catchment are far-reaching. Through training, organisational support, and innovation, NGOs introduce and scale sustainable farming practices such as agroecology and CA, enhance rangeland and water resource management, and pilot alternative governance models grounded in local realities. Their dual role as service providers and coordination hubs enables them to navigate institutional complexity, amplify local agency, and strengthen governance systems, all of which are essential to achieving equitable and sustainable food security in rural South Africa.

Policy implications: network governance for collaboration and resilience

The challenges in the upper uMzimvubu catchment highlight a pressing need for more integrated and networked governance approaches to food security. Rather than top-down or siloed interventions, a polycentric network linking government bodies, traditional authorities, NGOs, and communities through cooperative forums has proven effective and should be strengthened. The experience of the UCP shows that multi-stakeholder platforms can provide a “collective voice” for disparate actors and serve as communities of practice for sharing learning and coordinating action (Favretto et al., 2021). Such networks build social capital and trust, which are essential for managing shared resources and responding to crises. By bringing everyone to the table, they reduce duplication of effort and ensure that strategies (from land-use planning to poverty alleviation) reinforce rather than undermine one another.

Policymakers should, therefore, institutionalise and support these collaborative mechanisms. One recommendation is to formalise catchment or regional food security forums that mirror the UCP model, possibly linked to statutory bodies. For instance, the government could finalise the establishment of Catchment Management Agencies (CMAs) for water and land management in areas like uMzimvubu and embed strong community and multi-sector involvement in their governance (Mbele & Mubangizi, 2023). This would give legal recognition and resources to what is currently a voluntary network, ensuring continuity and authority to implement agreed plans. Additionally, strengthening local government capacity is critical – municipalities need dedicated coordination units or liaisons to engage with traditional councils, NGOs, and district/provincial departments on food security matters (Mbele & Mubangizi, 2023). Improved intergovernmental relations. For example, regular inter-departmental meetings on food security at the district level can help align objectives and funding across levels.

From a policy perspective, South Africa’s national food security agenda would benefit from translating its high-level goals into “tangible, practical plans and processes guided by effective coordination and alignment” across sectors (Kushitor et al., 2022). This could involve developing an overarching Food and Nutrition Security Strategy for regions like the Eastern Cape that ties together land reform, agricultural support, nutrition, water, and climate adaptation programs. By setting a higher-level “food security goal” and encouraging all agencies to work toward it, the government can break the silo mentality (Kushitor et al., 2022). Monitoring

and evaluation frameworks should also be unified – for example, using common indicators (household food insecurity measures, land degradation indices) to track progress, which encourages shared accountability.

Crucially, inclusive network governance enhances resilience. Collaborative planning helps communities prepare for shocks such as droughts or economic downturns, for instance, through joint early warning systems or pooled risk-reduction resources. In the Upper uMzimvubu, a networked approach has enabled diverse interventions, such as soil conservation, water infrastructure, and livelihood diversification, that make the food system more resilient to climate variability. Going forward, policy can harness this by scaling up community-based climate adaptation projects via these networks (such as expanding catchment rehabilitation works that secure water). In summary, the value of a network governance model lies in its ability to mobilise broad participation and knowledge-sharing, bridge governance deficits, and foster innovative, locally grounded solutions. Implementing policies that nurture collaboration, by funding partnerships, mandating interdepartmental coordination, and empowering local institutions, will be key to improving food security outcomes and building sustainable resilience in rural South Africa.

Discussion

This section situates the preceding findings within a broader analytical context, interpreting their significance, examining their practical and scholarly implications, and assessing the extent to which they affirm or complicate existing research.

Interpretation of the findings

The findings demonstrate that food insecurity in the Upper uMzimvubu catchment is not simply a consequence of low agricultural productivity or climatic stress, but is deeply embedded within fragmented governance arrangements operating across communal landscapes. Although multiple actors are involved in food production, rangeland management, ecological restoration, and climate adaptation, these interventions often occur through disconnected institutional channels. For example, provincial agricultural support programmes, municipal planning instruments, traditional land governance systems, and NGO-led catchment restoration initiatives frequently operate in parallel rather than through integrated governance frameworks. The result is fragmented implementation, duplication of efforts, and weak long-term coordination.

The analysis further shows that governance fragmentation is particularly evident in communal rangeland management. While traditional authorities retain legitimacy over land allocation and customary resource governance, municipal planning systems introduced through SPLUMA and IDPs operate alongside customary systems with limited institutional integration. This dual governance structure creates uncertainty about authority, land-use regulation, and environmental stewardship, particularly regarding grazing management, soil conservation, and catchment restoration.

At the same time, the findings suggest that collaborative governance arrangements can partially mitigate these institutional weaknesses. The Umzimvubu Catchment Partnership (UCP) emerged as an important bridging institution capable of convening municipalities, NGOs, traditional leaders, environmental actors, and communities around shared catchment and livelihood concerns. Unlike many state-led programmes, the UCP facilitates continuous engagement, co-learning, and cross-sectoral coordination across six traditional authority areas. This suggests that networked governance arrangements may provide more adaptive and context-sensitive responses to food insecurity in communal rural settings than purely hierarchical governance approaches.

Practical, policy and theoretical implications

The findings carry several practical and policy implications for rural food security governance in South Africa. First, they highlight the need to institutionalise collaborative governance platforms at catchment and district levels rather than relying on temporary or donor-driven partnerships. The experience of the UCP demonstrates that locally embedded coordination mechanisms can improve communication among actors, align environmental and livelihood interventions, and strengthen adaptive capacity in climate-vulnerable communal areas.

Second, the study points to the need for stronger integration between municipal planning systems and customary governance institutions. Current governance arrangements often fail to adequately integrate traditional authorities into formal land-use planning, despite their continued influence over communal land allocation, grazing systems, and local dispute resolution. Improved alignment between municipalities,

traditional councils, and provincial departments may strengthen land-use governance and reduce environmental degradation in communal rangelands.

Third, the findings suggest that climate adaptation and food security interventions should move beyond narrowly technical agricultural support models. Programmes centred exclusively on production inputs or CA are unlikely to succeed in contexts characterised by weak institutional coordination, limited extension support, insecure livelihoods, and degraded communal landscapes. Sustainable food security in the Upper uMzimvubu catchment, therefore, depends not only on agricultural productivity but also on governance capacity, institutional trust, and coordinated catchment stewardship.

Theoretically, the study contributes to network governance scholarship by demonstrating how collaborative and polycentric governance arrangements operate within communal rural landscapes characterised by overlapping formal and informal institutions. The study extends existing food security literature by showing that governance relationships themselves constitute an important determinant of food system resilience in rural South Africa.

Limitations and future research

This study is limited by its reliance on secondary literature and documentary analysis, which constrains its ability to fully capture everyday governance practices, local power dynamics, and lived experiences within communal food systems. While the review-based design enabled broad institutional analysis, it did not permit detailed examination of household coping strategies, intra-community inequalities, or contested relationships between municipalities and traditional authorities.

Future research should therefore incorporate participatory and field-based methodologies to explore how local actors experience and negotiate food governance processes in practice. In particular, further research is needed on:

- The governance role of traditional authorities in climate adaptation and communal land management;
- The long-term effectiveness of collaborative governance platforms such as the UCP;
- Gendered dimensions of food insecurity and communal land access; and
- The political economy of institutional coordination in communal catchments.

Comparative studies across other communal catchments in South Africa could further illuminate how different governance configurations influence food system resilience under conditions of climate and socio-economic stress.

Conclusions

This study has demonstrated that food insecurity in the Upper uMzimvubu catchment is not simply a consequence of declining agricultural productivity, environmental degradation, or rural poverty. Rather, it reflects the cumulative effects of fragmented governance systems operating across communal landscapes characterised by overlapping institutional mandates, weak coordination, climate vulnerability, and limited state capacity. In this context, food insecurity emerges as both an ecological and governance challenge.

The findings show that current food security interventions in the catchment remain constrained by the separation of responsibilities across municipalities, provincial departments, traditional authorities, and development organisations, often resulting in fragmented implementation and limited long-term impact. However, the study also demonstrates that locally embedded collaborative governance structures can partially overcome these institutional divides. The experience of the Umzimvubu Catchment Partnership (UCP) illustrates how multi-stakeholder platforms can facilitate coordination, build institutional trust, support co-learning, and integrate environmental stewardship with livelihood interventions across communal rural areas.

Importantly, the study moves beyond general calls for “improved coordination” by showing that existing locally grounded governance networks already provide practical foundations for more integrated food system governance. Rather than establishing entirely new institutional structures, policy efforts should focus on strengthening and formalising collaborative platforms that possess local legitimacy, established community relationships, and operational experience in catchment management and livelihood support. In practical terms, this includes embedding traditional authorities more systematically within municipal land-use planning and climate adaptation processes, strengthening district-level coordination forums around food security and

rangeland management, and aligning agricultural, environmental, and rural development interventions within shared planning frameworks.

The findings further suggest that sustainable food security in communal rural contexts depends on governance systems capable of linking ecological restoration, land-use management, and livelihood support within integrated territorial approaches. In the Upper uMzimvubu catchment, challenges such as soil erosion, overgrazing, declining crop productivity, and climate variability cannot be addressed effectively through isolated sectoral interventions alone. More adaptive and resilient responses require coordinated governance arrangements that connect municipalities, traditional institutions, NGOs, extension services, and local communities around shared resource management objectives.

More broadly, this study contributes to debates on network governance and rural food systems by demonstrating that governance fragmentation itself constitutes a significant dimension of food insecurity in South Africa's communal landscapes. By foregrounding the governance role of intermediary institutions, such as the UCP, the study provides a more practical, contextually grounded understanding of how collaborative governance can support climate-resilient livelihoods and sustainable food systems in vulnerable rural catchments.

Conflicts of interest

The authors declare that they have no financial or personal relationships that may have inappropriately influenced their writing of this article.

Statement of originality and plagiarism-free

The authors declare that this article is original, has not been published elsewhere, and is free of plagiarism. All references and citations have been properly acknowledged in accordance with the applicable standards.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author utilised ChatGPT and Grammarly to improve language clarity, readability, and grammatical expression. After using the tool/service, the author reviewed and edited the content as necessary and is fully responsible for the published material.

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