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Exploring the Governance of Wicked Problems in Urban Food Systems: Insights from South Africa's Breede Valley¹

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1. Introduction

The United Nations' New Urban Agenda, adopted in 2016, underscores the importance of strengthening food governance, security, and nutrition in urban areas. Given the growing global urban population, cities play a pivotal role in addressing food security, climate adaptation, public health, rural livelihoods, and urban resilience. Particularly in Africa, rapid demographic shifts and economic disparities pose unique challenges. Southern African secondary cities, which constitute nearly half of the region's population growth, face greater food insecurity than primary cities (Riley & Crush, 2023; Zimmer et al., 2020). Urban expansion impacts consumer behavior, retail, supply chains, and production, intensifying land competition and socioeconomic vulnerabilities (Van Berkum, 2023). Additionally, urban infrastructure and services are under pressure from climate change and global economic risks (Rampa & DeKeyser, 2022).

Although urban food challenges often mirror those of other scales, cities are considered potential pioneers in forging stronger links between producers and consumers (Watson, 2021). Despite calls for local governments to manage food systems through various policy initiatives (FAO et al., 2022), food insecurity has traditionally been viewed as a rural issue to be tackled by increasing agricultural production. Likewise, African food policies rarely account for the interdependencies between food and urban environments, focusing instead on increasing production by individual farms or supporting large-scale staple and commercial agriculture (Zimmer et al., 2020). This approach often overlooks the broader structural issues in food governance, thereby failing to foster sustainable systems that integrate social justice, environmental integrity, and economic equity (Sonnino & Milbourne, 2022).

Adopting a **food system** perspective reveals the interconnected roles of production, processing, distribution, preparation, and consumption, and their socio-economic and environmental impacts, including in urban environments (Battersby et al., 2019). These systems are shaped by diverse actors

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and levels, influenced by governance structures, technology, environmental, and economic factors. Food system governance is fragmented and fraught with conflict, spanning multiple sectors and levels (Candel, 2014; Pereira & Drimie, 2016). In many African regions, urban food systems face significant socio-economic disparities and power imbalances, and are increasingly challenged by weather disturbances, disease, and climate change stresses (Zimmer et al., 2022).

In this context, this study argues that achieving sustainable urban food systems amidst social inequality and increasing climate uncertainty is a wicked problem, that necessarily requires to address critical questions about governance. The term "wicked problem," introduced by Rittel and Webber in 1973, rejects technocratic solutions for complex social issues, advocating for political processes over technical fixes. This approach highlights the importance of political framing and the inherently contested nature of problem-solving, acknowledging the diversity of values and disagreements in policy issues (Head, 2022; Rittel & Webber, 1973). In democratic political systems, complex and uncertain issues are frequently confronted. Despite the language of rational problem-solving and reliance on evidence-based debate, the policy process is often characterized as fuzzy, political, and conflictual.

This study suggests that reframing food policy through the lens of urban food systems and wicked problems, can reduce some of the biases that perpetuate inequality and unsustainability. Notwithstanding the potential of such framework, it also emphasizes some of its shortcomings and argues that understanding the sociopolitical structures that shape governance arrangements and hinder capability-building is essential. To explore this, we investigate the Breede Valley Municipality (BVM) in South Africa's Western Cape Province (Figure 1), focusing on Worcester, its main urban center with approximately 130,000 residents. Renowned for its globally integrated fruit production, the region has seen consistent demographic growth since the 1990s, fueled by an expanding agricultural sector that predominantly exports to European markets. However, BVM faces challenges including high malnutrition rates and climate-related issues such as severe droughts and floods. Our research includes around 50 semi-structured interviews conducted between April 2023 and May 2024 with policymakers, private sector representatives, civil society groups, and community-based associations. Following sections will provide a conceptual background for analyzing urban food systems within the framework of wicked problems, detail the BVM food system's challenges, and discuss the governance of such problems, emphasizing the capabilities and constraints in managing urban food systems.

Figure 1 : Location of BVM in the Cape Winelands District, Western Cape



Source: Municipalities of South Africa

2. Conceptual background

2.1 Addressing Urban Food System from a Wicked Problem Perspective

Contemporary issues such as climate change, biodiversity loss, and pandemic crisis are characterized as conflictual, rapidly changing, and subject to multi-layered interdependencies and complex social dimensions. Evolving from Rittel and Webber's work, these issues have come to be seen as “super wicked” challenges (Auld et al., 2021). Generally, they result from continuous disagreements on problem definitions and solutions, and they can only be partially resolved (Head, 2019). As the wicked problem term has become mainstream in policy discussions, its definition and value have been questioned (Peters, 2017). Some argue that it highlights the limitations of reductionist approaches to complex issues (Lönngren & van Poeck, 2021), while others contend that the term is ambiguous and often used rhetorically rather than analytically (Turnbull & Hoppe, 2019). Additionally, labeling problems as wicked is perceived to lead to paralysis and discouragement. Recent studies suggest moving beyond the wicked versus tame dichotomy, conceptualizing wickedness as a matter of degree, using dimensions of **conflict, complexity, and uncertainty** to specify these challenges (Head, 2019; C. Termeer et al., 2019).

Following Termeer and Dewulf (2019), we argue that the value of this concept lies not in establishing strict analytic boundaries but in acting as a warning sign, prompting reflection on the nature of the problems we face, especially when standard approaches fail. While framing something as a wicked problem in policy practice can justify neglect when perceived as overwhelming, it can also counteract biases, oversimplification and unrealistic assumptions about policy interventions. In scientific practice, this rhetoric critiques other concepts or studies for not addressing major uncertainty, system complexity, or political conflict, for proposing magical solutions or panaceas for societal problems, or, in interdisciplinary research, for overlooking the social side of technologies or natural processes.

Therefore, we acknowledge both the usefulness and limitations of the concept and build on the current debate to gain new insights into addressing particularly complex policy problems in public governance.

This study suggests framing the urban food system as a wicked policy field, specifying the three defining elements suggested by Head (2019):

- **Complexity:** As mentioned earlier, a food system emphasizes the complex relationships between diverse activities in the agrifood chain, as well as the resulting food security, socio-economic and environmental outcomes (David-Benz et al., 2022). Central to these systems are various actors and functions that operate at different levels, influenced by determinants or drivers such as governance structures, technological advancements, environmental factors, and economic conditions. Food systems studies primarily focus on food security (Caron et al., 2018), but their long-term impacts extend to broader and diverse dimensions. Furthermore, studies highlight the existence of feedback loops, trade-offs, and varied views on desired outcomes (Bayat et al., 2023). They argue that to effect changes in these outcomes, actors must modify both external and internal system drivers. Yet, such modifications can inadvertently affect other parts of the system, leading to unforeseen outcomes and trade-offs. Finally, a key feature of secondary cities is the importance of rural–urban linkages and migration which are crucial for household food security strategies, making it challenging to implement effective local responses to changing urban food systems (Riley & Crush, 2023).
- **Conflict:** Discussions on translating food systems thinking into practical actions primarily occur at the macro level and emphasize desired transformative outcomes (Sonnino & Milbourne, 2022). Recently, there is an increasing emphasis on a territorial and urban approaches, which highlights the role of local actors in addressing challenges and trade-offs in food systems governance (Battersby & Watson, 2018; Losch & May, 2023). As the food system concept gained attention in international arenas like the FAO, it evolved from an analytical tool to a normative idea promoting integration, sometimes overlooking deeper sociopolitical structures. However, understanding urban food system governance entails considering the social organization and the distribution of power among these actors. Drawing on literature, this study argues that food system governance is inherently fragmented and conflictual, crossing boundaries between sectors, administrative and political levels, and various normative frameworks (Candel, 2014; Pereira & Drimie, 2016). Therefore, we stress that the food system governance is not merely a technical challenge but also a matter of political process and collective action.
- **Uncertainty:** Uncertainty can arise from the inherent variability of problems, a lack of knowledge about a phenomenon, or the divergent interpretations different actors have about an issue (Head, 2019). This latter aspect is linked to ambiguity, which involves varying perspectives or ways of thinking about the same situation (Esposito & Terlizzi, 2023). The urban food system faces immediate shocks like weather disturbances and disease outbreaks, as well as long-term stresses such as climate change and biodiversity loss. These challenges often intersect, amplifying their impacts and leading to trade-offs among food security, environmental sustainability, and stable livelihoods (Piters et al., 2021). For instance, soil degradation can worsen the effects of weather events on crop yields, with varying impacts on stakeholders. Additionally, food supply chains face uncertainties related to international market demand fluctuations and disturbances within the value chain. These uncertainties and rapidly changing contexts affect local governments in terms of public trust, resource allocation,

and policy implementation. One of the main challenges is the need to adapt quickly to changing circumstances (Salvador & Sancho, 2023).

Finally, although the New Urban Agenda recognizes the role of towns and cities in food policy, the urban planning models it introduces often miss the economic, social, and institutional nuances and the diversity of urban centres and regions. Despite increasingly polycentric urban patterns and broader connections beyond traditional boundaries, institutional frameworks continue to follow an outdated model of a dominant urban core with a dependent periphery, influencing policy and infrastructure choices (Battersby & Watson, 2019). Moreover, rational planning models have faced criticism, necessitating further exploration of the politics behind urban food policymaking (Halvey et al., 2021). This paper seeks to address these gaps by reframing food policy through the lens of urban food systems and wicked problems, which will be discussed in the following subsection.

2.2 Contextualizing the Governance of Wicked Problems

Drawing on a critique of rational planning models, which assume decision-makers can evaluate all alternatives and choose the optimal action based on consistent preferences, the wicked problems literature argues that rationality is bounded, making decision-making an iterative learning process influenced by organizational dynamics (Esposito & Terlizzi, 2023). Despite this general agreement, differences exist. Head (2019) suggests that early adopters of the concept recommended involving multiple stakeholders to explore interests, value differences, and policy responses, focusing on inclusive argumentation, conflict resolution, adaptive policies, and spanning boundaries across time, jurisdiction, and policy domains. However, Noordegraaf et al. (2019) criticize the simplistic association of wicked problems with networks, trust, and learning, emphasizing that true wickedness involves emotions, secrecy, divisions, competition, resistance, and distrust, which inhibit learning and trust.

Similarly, policy studies emphasize the significance of recognizing complex policy designs and instrument mixes. These studies emphasize policy resilience and robustness (Capano & Woo, 2017), suggesting that policies can adjust instruments and settings without overhauling entire institutions (Cashore & Howlett, 2007). A key feature of robustness is achieving a balance between stability and change. Salvador and Sancho (2023) build on these studies to examine local governments' institutional capacities for tackling policy challenges in turbulent environments. Their analytical model focuses on four crucial capacities emphasized in academic literature and adapted to local government: strategic contingency planning capacity, analytical capacity, organizational management capacity, and collaborative capacity. While these studies recognize power dynamics, they tend to focus on the efficiency of governance arrangements, seeking a balance between rigidity and flexibility in policy design, often overlooking politics (Sørensen & Ansell, 2021). They suggest that policies and institutions are intentionally designed for specific functions.

In a similar vein, Termeer et al. (2015) argue that governing wicked problems that it requires a combination of several capabilities—*reflexivity, responsiveness, resilience, revitalization, and rescaling*. Governance capabilities are defined as the ability of policymakers to observe wicked problems and act accordingly, supported by the governance system's enabling conditions such as skills, capacities, commitments, and readiness. Candel et al. (2016) apply this capabilities framework to the European Commission's food security policy, addressing critiques that existing literature focuses too much on 'how-to-act strategies' without adjusting governance systems. They further develop this framework by exploring the *constraints* involved in addressing wicked problems and demonstrating the interactions

between governance capabilities. Drawing on this framework, we argue that capabilities should be better contextualized, recognizing the constraints to their development.

Eiró and Lotta (2024) caution against applying mainstream policy capacity frameworks to Global South contexts, as these frameworks may overlook social tensions and underestimate the impact of social inequalities on state–citizen relationships. Following these authors, we emphasize that institutional capabilities are highly context-sensitive. In contexts of historical inequalities and social divisions, policy aims should focus on cultural change rather than transformation based on broad acceptance. Before delving into the capabilities and constraints of governing urban food systems in our case study in Section 4, we first characterize the wicked nature of the BVM food system in Section 3.

3. The BVM's Food System Under Pressure

This section addresses the BVM's urban food system based on the dimensions suggested by Head (2019): complexity of elements, subsystems, and interdependencies; uncertainty regarding risks, consequences, and changing patterns; and divergence in viewpoints, values, and strategic intentions. The BVM food system is characterized by complexity and inequality, facing significant pressure and uncertainty due to climate change and international market fluctuations. Following the national trend, the BVM food system exhibits a dualistic productive structure with significant socio-economic disparities, split between a formal, commercial sector linked to international agribusiness and finance, and a larger group of poorer, small-scale farmers and informal traders (Pereira and Drimie, 2023).

The BVM is a leader in agricultural production, boasting advanced infrastructure that supports a variety of activities and connects to national and global markets. BVM produces half of the Western Cape's table grapes and 34% of South Africa's wine grapes, along with significant quantities of other fruits and contributing 7.7% to the national output of pumpkins and butternuts. The area also engages in broiler chicken and pig farming (Overy, 2022). Despite these advantages, the region struggles with inequitable income distribution, which impedes access to nutritious food for the local population. Urban centers such as Worcester, Rawsonville, De Doorns, and Touws River (Figure 1) experience a paradox of abundant agricultural production versus a limited local food supply that depends heavily on imports. High malnutrition rates, including stunting, reflect this disparity and align with national trends of persistent inequality, hunger, and obesity, despite a relatively high per capita income (FAO et al., 2022; Kushitor et al., 2022).

The causes of this unequal food system are manifold. South Africa's food sector is influenced by skewed distribution of assets like land and capital, and the impacts of migrant labor, rooted in colonial and apartheid-era forced removals, and 'jobless de-agrarianization,' where people leave agriculture without alternative livelihoods (Du Toit, 2009). This history has created deep inequalities in human resource development and spatial distribution, which persist today. Additionally, rapid urbanization and demographic increases, driven by natural growth and labor-related migration, further strain the food system. Urban residents, now over 60% of the population, primarily purchase their food, with urban agriculture being relatively underdeveloped. In Worcester, self-production accounts for only 1.4% of food sources (Davis et al., 2022).

Despite providing significant employment, the fruit sector's seasonal nature and unstable labor market contribute to territorial conflicts and socio-economic vulnerability. Annually, from September to March, the De Doorns area attracts nearly 11,000 workers, greatly impacting municipal service planning (IDP, 2024). The transient employment exacerbates job insecurity, strains labor relations, and promotes the expansion of informal settlements, where the public sector often fails to deliver basic

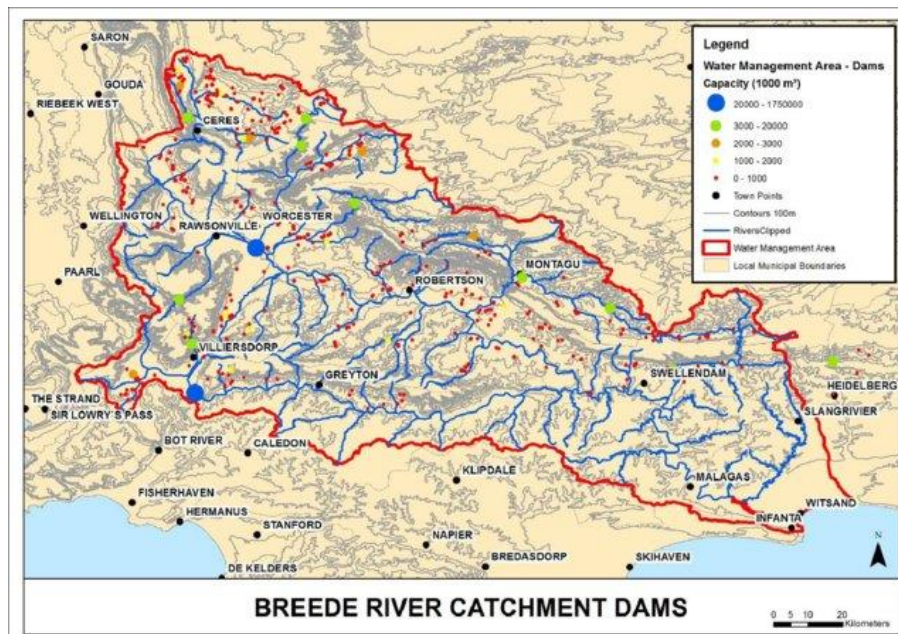
services (Theron & Visser, 2012; Webb, 2017). As noted, "*Exactly because it [informal settlements] is not planned for, it is difficult to provide certain services, such as sewage, water, and so on.*"⁴ These inequalities significantly impact food and nutritional security in the municipality, particularly in Worcester and surrounding towns. The most vulnerable populations rely on food aid, with community soup kitchens and Early Childhood Development centers playing a crucial role (Davis et al., 2022). Tensions in BVM escalated with regulatory changes and a shift toward seasonal labor. The 1997 Labour and Minimum Wages Act and the Extension of Security Tenure Act, aimed at securing land use and housing rights for agricultural workers, paradoxically led to widespread evictions and increased hardship. De Doorns was notably affected, particularly during the 2012–2013 strikes (Webb, 2017)

Furthermore, the system is highly vulnerable to environmental shocks, particularly changes in water availability. The table grapes and wine industries are heavily dependent on irrigation, placing considerable strain on water resources (Permanhani et al., 2016). South Africa's semi-arid climate and water scarcity make it particularly vulnerable to climate change impacts (Botai et al., 2018). For at least the past fifteen years, the Intergovernmental Panel on Climate Change has indicated that the country faces significant climatic variations, including frequent droughts and floods (Füssel & Klein, 2006). Projected changes include increased temperatures, shifting precipitation patterns, and more extreme weather events (Lumsden et al., 2009).

Climate modelling studies are less assertive in the mountain range areas such as the Breede Valley, and often show more complex results at the local level with increased rainfall in some instances or out-of-season rainfall patterns. Despite such uncertainties, farmers commonly believe that their water-efficient irrigation technologies will allow them to manage drought episodes. When these cutting-edge techniques are not sufficient to prevent expected future water deficit, instead of adapting their crops or cultivars to new weather conditions, they invest in other very costly technological fixes. For example, some raise dam walls in the hope of extracting more water (like in the Central Breede area), while others plan to build additional water reservoirs (in the Hex River area), at the expense of farmers downstream (Worcester East area) (Figure 2). However, this approach may be considered maladaptive because it assumes an unlikely scenario: that water resources will always be abundant in the face of climate change and decreasing rainfall (Boutroue et al., 2022).

⁴ Interview, Municipal planning representative, BVM April 2023.

Figure 2 : Map of the Breede River Catchment



Source: Western Cape Government

Finally, local concerns, like South Africa’s electricity crisis, impact sectors requiring reliable power, while rising agricultural input costs reduce profitability and encourage consolidation. These issues strain natural resources and the food system’s ability to ensure food and nutrition security. Additionally, fluctuating prices and changing market access due to global trade dynamics, such as the war in Ukraine and EU commercial disputes, exacerbate these challenges.

In summary, the BVM is an attractive agricultural area connected to a high-value export market, yet it faces significant environmental and socioeconomic challenges, including water scarcity, climate change effects, resource competition, high inequality and poverty. Viewing the BVM urban food system through the lens of wicked problems highlights the complex interplay of environmental, economic, and social factors, along with conflicting interests that resist simple solutions and demand a comprehensive governance approach. The next phase of this study will explore the governance of these systems, focusing on the actors’ strategies, institutional settings, and structural factors.

4. Governing Urban Food Systems: A Difficult Balance Between Capabilities and Constraints

Drawing on Termeer et al. (2015), we argue that addressing wicked problems requires not only “how-to-do” strategies but also alternative ways of understanding their complexity and creating conditions within the governance system. These enabling conditions encompass both institutional and agency-centered properties. Echoing these authors, we maintain that multiple governance capabilities must be used together. The first subsection demonstrates this through the BVM case study, which integrates the capabilities outlined by these authors. Furthermore, Candel et al. (2016) expanded the Termeer by identifying constraints, defined as the absence of capabilities, and suggest further research on this field. While building upon their work, we argue that this notion of constraints overlooks deeper structural and historical factors that reinforce power asymmetries and ultimately hinder capability-

building. Hence, the second subsection emphasize the dimensions of these structural and political constraints that should be more explicitly integrated into the governance analysis.

4.1. Capabilities for Fostering Sustainability in BVM's Food System

This subsection presents a non-exhaustive overview of current strategies initiated by the South African national government and the BVM municipal government, in collaboration with non-state actors, which contribute to the development of governance capabilities as delineated by Termeer et al. (2015) and Candel et al. (2016).

Firstly, **reflexivity** is a crucial capability for addressing multiple frames and perspectives. Wicked problems lack consensus on both their formulation and potential solutions, presenting a complex web of interconnected issues. Reflexivity allows us to appreciate diverse perspectives, continuously reevaluate dominant problem frames, and redefine action approaches. Without it, tunnel vision and intractable controversies exacerbate the wickedness of the situation. Meanwhile, sense-making—through narratives and interpretations—constructs meaning and attaches values to phenomena. In the context of food policy, South Africa has implemented measures since the 2000s, such as tax exemptions for staple foods and the National School Nutrition Programme, to address food security. However, the impact of these policies on food and nutrition security remains inconsistent, and the country continues to struggle with persistent poverty, inequality, pervasive hunger, undernutrition, and rising obesity rates (Kushitor et al., 2022).

To combat food and nutritional security in a context of structural inequality, a thorough reassessment is necessary (Hendriks & Olivier, 2015). Governmental efforts often focus on increasing agricultural production but overlook the underlying issues of poverty, inequality, and environmental degradation (Kushitor et al., 2022). National programs emphasizing farmer education, extension services, and cash crops raise concerns about empowering smallholder farmers while inadequately addressing the broader population's food consumption needs. At the local level, the BVM municipal government collaborates with partners such as the University of the Western Cape, the Economic Development Partnership, and the Do More Foundation on 'Food Learning Labs'. These Labs, based on flexible and informal dialogues, have the potential to reframe food policy at the territorial scale.⁵ Discussions within these Labs contribute to a nuanced understanding of policy frames, highlighting challenges faced by informal traders and farmers, and directing research towards promoting sustainable and healthy urban food systems. Another area of focus is reflexivity in environmental governance to address resource competition due to the expanding agriculture sector. This is discussed through the Upper Breede Collaborative Extension Group (UBCEG), which brings together multiple public, private, and civil society actors.

Secondly, **resilience** is the ability to manage the frequent and uncertain changes that characterize wicked problems. Losch and May (2023) investigate the resilience of territorial food governance during the COVID-19 pandemic. Using examples from the Western Cape Province, including the BVM, they highlight a shift from the state-led National Food and Nutrition Security Plan (NFNSP) to community-driven responses, particularly Community Action Networks (CANs). At the provincial level, the Western Cape Government's 'Nourish to Flourish' strategy aimed to address food and nutrition security comprehensively. This included literacy programs, climate-resilient agriculture, and support for informal food traders. Key steps included involving local governments and establishing the Southern African Food Lab for stakeholder engagement (Adelle et al., 2020). Losch and May also discuss the

⁵ Interview, Municipal representative, BVM April 2023.

national lockdown's impact on urban food systems, including the suspension of the National School Nutrition Program and restrictions on informal food traders. In response, community-led initiatives and networks surged, facilitating localized food debates and actions. Notable efforts included the continuation of school feeding by organizations like the Peninsula School Feeding Association and the formation of the provincial network 'Cape Town Together,' which linked nearly 200 organizations.

Thirdly, **responsiveness** refers to the ability to address pressing demands and concerns promptly in politics and society. In some cases, limited capability forces certain services to operate reactively. In the BVM, municipal bodies include responsibilities related to food and water. For example, they hold authority over regulating water supply to support livelihoods and economic development, as mandated by the 1997 Water Services Act. Notably, there have been improvements in water access, with a shift from external potable water sources to in-home supplies. Additionally, initiatives to upgrade water infrastructure in Worcester and Rawsonville are underway to accommodate population growth (IDP, 2024).

Similarly, the municipality plays a role in rural development, although it lacks a direct mandate. This requires partnerships with provincial authorities such as the Department of Rural Development and Land Reform, as well as agencies like the Cape Agency for Sustainable Integrated Development in Rural Areas (Casidra). As one representative aptly noted, “while we can contribute to the rural development sector, we cannot do so without our core partners.”⁶ Municipalities are also the primary authorities for land planning in South Africa. A significant concern is the surge in land requests for small-scale farming, driven by shifting socioeconomic dynamics and the impact of the COVID-19 pandemic on farmworkers. In response, the BVM has identified vacant land for lease to these farmers. However, broader challenges persist. A representative noted, “*If we cannot respond quickly enough, we risk land grabs, which is a major issue in our country. It's a tricky balancing act for our legal services and property administration.*”⁷ The situation is further complicated by the proliferation of informal settlements on private land beyond the urban edge, hindering service provision.

Fourthly, **revitalization** refers to the capacity to unblock stagnation or unproductive patterns in the governance process. While sometimes hindering the ability to address complexity, policy fragmentation can also serve as an institutional mechanism to overcome stagnation (Candel et al., 2016). Climate-related agendas in BVM are both decentralized and fragmented. For instance, fire services address the impacts of climate change, while water services must consider shifts in rainfall patterns to ensure water security. A key initiative is the Integrated Development Plan (IDP), a five-year strategic plan mandated by the Municipal Systems Act. The IDP guides local municipalities in service delivery, establishing a long-term vision, allocating resources, and incorporating community input. The IDP aligns with the National Climate Change Response (NCCR) and addresses climate challenges in the context of South Africa’s recent electricity supply shortages and growing carbon footprint due to reliance on diesel and other carbon-intensive sources.⁸

While these compromises may not fully resolve broader societal value conflicts, they do lead to political agreements. However, aligning community expectations with the municipality’s mandate and

⁶ Interview, Municipal representative, BVM April 2023.

⁷ Interview, Municipal representative, BVM April 2023.

⁸ Since 2007, South Africa's aging infrastructure and maintenance issues have exacerbated its electricity crisis, causing operational challenges that result in power shortfalls. To manage this, scheduled power outages, or load shedding, disrupt critical sectors like fruit cooling and poultry processing that depend on a consistent power supply.

capabilities remains a challenge. As one representative pointed out, “*Our communities don’t necessarily grasp the intricacies of the IDP process or our mandate.*”⁹ Furthermore, municipal representatives have noted a lack of concrete actions on climate-related agendas.¹⁰ Instead of substantive measures, the focus has been on procedural initiatives, such as establishing multi-stakeholders’ committees to improve cross-sector management and promote environmental awareness. The IDP also recognizes challenges including uncertain future conditions, limited local skills and capacity, and urgent short-term needs that strain municipal resources (IDP, 2024).

Fifth, the **rescaling** of capabilities involves observing and addressing cross-scale interactions and mismatches. An enabling condition related to the temporal scale is a general sensitivity to the relationship between short- and long-term dimensions of food security. The spatial scale is particularly significant in BVM, where the table grape industry relies heavily on a few international markets, primarily Europe and the UK. This reliance stems from historical trade ties, market access, and a preference for South African grapes in these regions. However, there is a shift towards diversifying export markets. Notably, partnerships between the South African Table Grape Industry (SATI) and the Western Cape Department of Agriculture are being leveraged to enhance exports to markets such as Canada, China, the Middle East, Southeast Asia, and the U.S. This strategy aims to reduce vulnerability and dependence on a single international buyer.¹¹

4.2 Structural Constraints in the Governance of Wicked Problems

Candel et al. (2016) emphasize the need to transform governance systems when existing capabilities are incompatible with current rules and values, advocating for a realist and context-specific perspective in food system governance. They identify constraints in addressing wicked problems and call for further research in this area. However, they do not sufficiently address how structural constraints and political dynamics shape governance systems, affecting their ability to build capabilities or, conversely, exacerbating inequality and problem complexity. This subsection further explores these aspects by examining three key dimensions: (i) historical legacies that create path-dependent mechanisms, (ii) multi-actor and multi-scalar dynamics impacting the food system's driving ability, and (iii) the cognitive and political nature of sectoral policy fragmentation. It argues for explicitly integrating these dimensions into the analysis of wicked problem governance.

First of all, it is worth noting that South Africa has a well-defined set of secondary cities within a local planning regime that provides a governance framework. These cities have two main characteristics that significantly impact governance: they lack economic diversity and have large rural hinterlands. This creates challenges for spatial governance. Additionally, the pressure to become metropolitan areas and a planning system that emphasizes plan-making over implementation further hampers effective governance (Marais & Nel, 2024).

4.2.1. Highlighting Historical Legacies

To demonstrate the above points, we examine water resources management in the Breede Valley, which is under increasing pressure due to longstanding disparities in access, particularly affecting emerging Black farmers. Despite water rights redistribution efforts, 25 years post-reform, 75% of water

⁹ Interview, Municipal representative, BVM April 2023.

¹⁰ Interview, Municipal representative, BVM April 2023.

¹¹ Interview, commercial farmer, BVM April 2023.

is still allocated to white farmers, leaving only 25% for Historically Disadvantaged Individuals. The Department of Water Affairs has implemented various policies with limited success (Bourblanc & Blanchon, 2019; Movik, 2012). Additionally, most water systems in the Breede Valley are nearly exhausted, providing scant availability for new agricultural entries or the maintenance of environmental flows essential for healthy ecosystems.

The growing population increases competition for water use, with domestic needs legally prioritized over agricultural purposes (National Water Act, 1997). However, the reality on the ground is different. Municipalities are materially and logistically dependent on the irrigation sector. The Central Breede River Water Users Association, sourcing water from the government-run Brandvlei Dam, provides raw water to various irrigation schemes in the valley, as well as to the Breede Valley and Langeberg Municipalities downstream (Figure 2). In areas like De Doorns, the Hex River Irrigation Board—now a water users association—historically supplies potable water to the local community through upstream water infrastructure. This historical setup further highlights the complex dependencies in managing water resources in the region.

A striking illustration of the dependency on water resources is the absence of plans to renegotiate water allocation across sectors. This issue has not been addressed despite the municipality's rapidly growing population. Consequently, the municipality has consistently exceeded its water allocation in recent months. Despite these challenges, municipalities are often blamed for perceived “careless” management of water. Instead of revisiting and adjusting water allocations to reflect the new realities, the burden goes to the municipality. For example, the farming sector enforces strict measures on the Breede Valley municipality to ensure compliance with their water allocation. The Hex River Water Users Association (WUA) employs “streamflow reduction measures,” including abruptly reducing the municipality's pipe flow to curtail consumption, and imposing hefty fines for exceeding allocations. As noted by the Strategic Support Service Director of BVM: *“At this stage, we are battling - we are paying penalties - our demand exceeds our supply. There's quite an influx of people into De Doorns for the farms, farm workers, and then they stay there.”*¹²

Hence, Water User Associations, dominated by ex-irrigation boards and biased towards farmers' interests, do not strive to balance water access for all users. This bias is evident when they police the municipality for over-abstracting water but refuse to police farmers during drought episodes.

For instance, the water crisis during the 2017/2018 and 2018/2019 seasons saw severe drought and water restrictions, forcing producers to adopt conservation measures and, in some cases, remove vineyards entirely (Sigadla et al., 2022). Under the National Water Act (1998), restrictions are imposed on various sectors during droughts, with agriculture, though strategic, being more restricted than urban/domestic water use. In response, many farmers drilled boreholes and built unauthorized on-farm dams (Lanari et al., 2021), increasing pressure on water resources. Around Cape Town, an estimated 30,000 boreholes were drilled during the drought between 2016 and 2018. A common belief within the farming community is that groundwater usage escapes stringent water restrictions. A manager of a prominent Water User Association noted that during the Cape Town water crisis, farmers in the BVM region restricted on their water allocation turned to groundwater in a bid to compensate for such shortfall.¹³ The Department of Water and Sanitation (DWS) considered legal action against a WUA member but faced challenges due to ambiguities in the National Water Act (1998).

¹² Interview, Worcester, 6 April 2023.

¹³ Interview, April 2023

This interpretation suggests that using groundwater to circumvent water restrictions was widespread and condoned within some WUAs. Regulating groundwater is challenging because drilling a borehole is not regulated; notification and permits are only required when water use begins. The actual amount of water abstracted remains unknown,¹⁴ highlighting the adage, "*You can't manage what you can't measure.*" Some WUAs are now implementing monitoring systems to track resource use but refuse to police their members, seeing it as outside their responsibilities.¹⁵

Similarly, Fallon et al. (2021) demonstrate how historical legacies of water access and control continue to shape groundwater management in South Africa. Despite technical definitions of groundwater irrigation, the political context of discrimination through apartheid-era irrigation boards persists, affecting policy implementation and participation by emerging or smallholder farmers. This includes situations where emerging farmers in the North West Province are involved in agricultural unions or where water allocated to them in the Mpumalanga Province cannot be utilized due to lack of land access. In the Breede Valley, land reform beneficiaries face financial barriers to developing necessary water infrastructure.

Considering these often-hidden institutional processes and power dynamics is crucial to avoid perpetuating existing practices and to achieve progressive policy goals. Power, whether institutionalized or not, significantly influences the effectiveness of policy implementation and decision-making. Food governance may be less effective if it lacks sufficient authority to enforce decisions, or if powerful interests oppose them. This issue is particularly acute in contexts of inequality and poverty, where food policy often necessitates the redistribution of basic entitlements, posing a risk of resistance from powerful entities.

4.2.2. Addressing Multi-Stakeholder and Multi-Level Disparities

Addressing wicked problems also requires acknowledging partnerships between municipalities, civil-society organizations, international agencies, and private entities. The state is not the sole actor capable of enacting change; power and action are often shared among diverse stakeholders. For example, a broad initiative for reducing food waste is led by Food Forward SA, South Africa's largest food distribution organization. Their food banking initiative sources, collects, and stores surplus edible food from farmers, manufacturers, and retailers, focusing on nutritious food. This food is redistributed to a network of beneficiary organizations nationwide. In 2022/2023, Food Forward SA distributed 88 million meals, reaching 985,000 people daily through 2,750 beneficiary organizations, including those in the Western Cape Province. The BVM hosts a Mobile Rural Depot that connects with 20 local organizations, distributing to over 10,000 daily beneficiaries¹⁶ (interview, Food Forward 2023). Additionally, in the field of water and soil management, WWF South Africa supports the Land Care program by collaborating with M&S and Woolworths to implement water stewardship in the Western Cape's fruit sector. Fruit farmers in the Breede catchment have adopted water stewardship practices, with WWF assisting farmers in land use planning, production enhancement, and responsible farming through best practices and agroecology training for smallholder farmers.

To complement these strategies, the BVM government and NGOs lead food projects to boost sustainable agricultural practices and food and nutritional security, despite multiple implementation

¹⁴ The National Groundwater Archives, hosted by the DWS and dating back to the 1960s, has accumulated a substantial backlog, now offering limited time series data (Water & Sanitation Africa, March/April, 2023)..

¹⁵ Interview with CEO Hex River WUA, De Doorns, 7 March 2024

¹⁶ Interview, Food Forward representative, Cape Town April 2023.

challenges. For example, the Department of Agriculture supported a hydroponic facility in De Doorns through such collaborations, indirectly enhancing the food security system. Municipalities support food gardens, community gardens, and facilities for NGOs running soup kitchens to support vulnerable populations. NGOs like Grow Great focus on food gardening for mothers, enhancing self-reliance and nutritional awareness. Implementation agencies like CASIDRA promote backyard gardens to encourage small-scale agriculture. In partnership with the Provincial Department of Agriculture, CASIDRA has implemented over 200 projects in the Western Cape, including a subprogram on poverty and disaster response that assists vulnerable households with food production and rural infrastructure. A municipal representative noted that these “*facilitative partnerships*” allow them to indirectly support the food system: “*As discussed during our first Food Lab Journeys, the municipality is directly responsible for food system governance, but we also play a critical role in indirectly supporting it and ensuring the value chain is sustained.*”¹⁷

The private sector also engages in social and food aid actions, particularly among table grape growers and export companies. For example, the ExSA company established Repelsteeltjie, a day-care center in De Doorns, catering to children from farm laborers' and previously disadvantaged communities. Similarly, RCL Foods, through its 'Do More Foundation,' collaborates with the Breede Valley Young Child Forum and ECD centers, promoting healthy early childhood development (RLC 2021). However, these initiatives can also be seen negatively. They often rely on the private sector's swift reactions to urgent risks, bypassing public governance. These private initiatives are project-based, time-limited, and often short-lived, failing to substitute for a long-term approach. Historically, agricultural companies provided direct social assistance to their farmworkers, creating dependence but also ensuring access to housing, water, and sometimes healthcare. This shift towards private sector initiatives diverts public attention from the crucial issue of agricultural labor quality, which is essential for the local population's welfare and food security.

More problematic is the increasing role of global markets in regulating the agricultural sector, often substituting public regulation. Producers and exporters must now adhere to stringent social and environmental standards to access international markets. In the BVM, associations like Growers by Nature have integrated these standards, particularly in the table grape and wine industries reliant on European and UK markets. Private standards and certifications, such as GLOBALGAP Certified Organic, can complement and surpass public standards to differentiate products and ensure compliance. Even more generic food producers adopt labels like fair trade or water stewardship certifications from global retailers. Despite progress in promoting sustainable practices at the farm level, Lanari et al. (2021) document the shortcomings of such private regulation, focusing on the water footprint while overlooking broader social and land aspects.

Furthermore, relying on a few global private entities to ensure agricultural sustainability poses significant challenges. The private sector lacks the comprehensive understanding and often the willingness to address the systemic issues inherent in wicked problems. Isolated strategies driven primarily by marketing or reputational concerns fall short, failing to adequately consider the impact of climate change on water scarcity. The Western Cape agricultural sector's shift towards high-value, water-intensive crops is driven by international market demands rather than climate resilience. While some farm-level initiatives exist, significant moves towards climate-resilient crops and coordination

¹⁷ Interview, Municipal body representative, BVM April 2023.

among local farmers are lacking, leading to issues like the 2022 citrus price crash (when many farmers planted citrus, leading to an oversupply and a subsequent price crash).¹⁸

To sum up, considering the governance of urban food systems beyond the reach of local governments is key. This requires a more in-depth analysis of sector and scale interactions, recognizing that no single hegemonic actor can unilaterally drive the process. Moragues-Faus et al. (2023) caution that while multi-stakeholder engagement is widely acknowledged, it often fails to adequately address power dynamics. Although collaborative governance is often promoted in literature as a means of addressing wicked problems, it requires recognizing and embedding politics, convening authority, and voice across all governmental tiers (Haysom & Battersby, 2023).

4.2.3. Unveiling Institutional and Cognitive Conflicts in Policy Fragmentation

In the context of the South African food system, Termeer et al. (2018) highlight that food governance is inherently fragmented, crossing boundaries between sectors, administrative jurisdictions, public and private domains, temporal and spatial scales, and diverse normative frameworks. Actors with a change agenda often emphasize that food cannot be managed effectively within the current fragmented institutional architecture, advocating for a more coherent, integrated, coordinated, and inclusive governance system (Candel, 2014). This advocacy can lead to steering strategies such as top-down integration, new coordination structures, or mandatory mainstreaming. Hajer et al. (2015) refer to this phenomenon as cockpit-ism, which is the illusion that top-down steering by governments and intergovernmental organizations alone can address global problems.

The literature provides valuable insights into the challenges public institutions face in addressing cross-sectoral policy issues. Head and O’Flynn (2015) highlight the difficulties in building public administration capacity to tackle wicked problems in Australia, emphasizing the tension in reforming public service machinery, enhancing workforce capacities, and rethinking strategic frameworks. Similarly, Sydelko et al. (2021) argue that interagency collaboration complicates traditional government approaches because policies and budgets tend to align within organizational boundaries rather than across them, complicating the integration of appropriate talent, knowledge, and assets required for interagency approaches to tackle wicked problems. Beyond administrative constraints, recent studies indicate that cross-sectoral policy fragmentation is sustained by underlying political conflicts and divergent beliefs. Our previous work on Brazil’s subnational water policy reveals that political cleavages, such as those between coalitions advocating for large-scale agribusiness-oriented irrigation and those supporting smallholder, rainfed agriculture, reflect deeper socio-political and cognitive divergences that hinder policy integration (Milhorance et al., 2021).

Termeer et al. (2018) argue that a food system governance approach is impossible without institutional reforms within governmental departments. These authors demonstrate that post-apartheid food programs and policies, although promising for integrating cross-sectoral strategies, have been deficient in implementation, narrow in framing, and created tensions with established institutional practices. For instance, the Integrated Food Security Strategy (IFSS), Integrated Nutrition Programme (INP), and LandCare Programme were designed to tackle food security, malnutrition, and land degradation in South Africa. However, the IFSS’s implementation reverted to a singular focus on agricultural production due to biases within the Department of Agriculture, Forestry, and Fisheries (DAFF), overshadowing other critical aspects such as nutrition security and empowerment. Similarly, the INP primarily focused on the National School Nutrition Programme due to budgetary priorities and

¹⁸ Interview farm in the Rooiberg area, April 2023

a primary healthcare focus, neglecting agricultural production and broader environmental outcomes. The LandCare Programme, initially linking natural resource management with agricultural productivity and poverty alleviation, gradually narrowed its focus to conservation agriculture, limiting its acknowledgment of land distribution inequality. Fallon et al. (2021) similarly critique South Africa's water policies for prioritizing the physical sustainability of aquifers for commercial farming without addressing whether this is the optimal use of water in a semi-arid environment or the best approach to developing the local social economy, thereby neglecting water access for marginalized residents. This narrow framing overlooks the potential of participatory processes to enhance citizen rights and involve marginalized groups in broader political projects.

Therefore, existing institutional structures, reflecting entrenched power dynamics, have hindered the implementation of proposed food system governance arrangements. Moving beyond one-dimensional agricultural production framings and achieving policy integration requires adjusting beliefs and coordinating among coalitions, creating venues for interaction and policy-oriented learning to foster cooperation and mitigate conflicts. This process demands funding, stakeholder engagement, and deep reflexive debates that address these underlying constraints to transformative change. Food Labs and other planning initiatives, such as the IDP at the BVM level, need to incorporate these perspectives to contribute to institutional changes rather than repeat past planning experiences. Additionally, reflexivity should extend beyond the planning phases to policy implementation, where entrenched practices and power constellations directly influence policy development.

5. Concluding remarks

Despite South Africa's efforts to enhance food security and address inequality through agricultural policies, outcomes have been very limited. Post-apartheid strategies have focused on increasing production without effectively addressing structural socio-economic challenges or ensuring environmental sustainability. In the Breede Valley, despite its role as a breadbasket in the Western Cape province, significant food insecurity persists. This highlights a critical gap between agricultural productivity and local food access, revealing non-linear connections between the different components of urban food systems. Integrating the primary sector presents challenges for the rural poor. Export-oriented commercial farming in the BVM demands substantial capital and expertise, posing risks and competitive barriers for newcomers. While it drives economic development, the sector perpetuates job insecurity and inequality, exacerbating unequal access to land and water. Proposed solutions such as establishing fresh produce markets or promoting backyard gardening aim to alleviate poverty but have shown limited scope and effectiveness. Additionally, the expanding agricultural sector strains local governments by accommodating seasonal worker influxes, intensifying competition for water resources and facility pressures, leading to tensions in local communities. Climate variability intensifies conflicts over water and risks to the agricultural sector.

This case study suggests that urban food systems should be integrated within the broader framework of wicked problems, emphasizing the sociopolitical dynamics that influence these systems. It argues that sustainable urban food systems, amidst growing social inequalities and climate uncertainties, require a multidimensional and politically-sensitive strategy rather than simplistic technocratic solutions. This approach involves shifting from a focus solely on agricultural production to a more integrated strategy that encompasses the entire food system, from production to consumption, adopting a territorial lens. This requires a reflexive effort that deeply understands the cognitive and structural constraints impacting food system governance and transformation and can be facilitated by science-policy dialogues, such as those exemplified by the Food Labs in BVM. However, this reflexivity

must extend beyond planning and discussion phases to the actual implementation of policies, where entrenched practices and power structures often become most obstructive. By adopting this broader approach, the focus moves from conventional procedural planning to a nuanced strategy that addresses the socio-economic and political dimensions impacting food security. Finally, the BVM case study underscores the need for a context-specific approach that directly engages with the realities of urban food systems.

Conceptually, the study contributes to the food system literature by promoting a more politicized perspective that moves beyond conventional rationalist modeling and typical local-global and city-hinterland dualisms. It highlights the importance of complex coalitions that span sectors and scales, essential for tackling the multi-layered nature of food systems. Furthermore, the paper offers a nuanced and contextualized understanding of the constraints that shape the governance of wicked problems, moving beyond just listing capabilities and constraints to a more dynamic analysis of the interplay between policy, institutions, and power. Additionally, this study calls for a reevaluation of how urban food systems are conceptualized and governed, offering critical insights for reconsidering current approaches to urban food agendas discussed in international debates.

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