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Transforming food systems in the Global South: a radical approach

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Sustainability within food systems (FS) transcends approaches that only consider FS transformation via changing agricultural practices or consumption patterns. The essence lies in addressing the root causes of current unsustainable FS and their associated social and environmental ramifications. This paper aims to outline the solutions needed to revamp these challenges, by paying special attention to the state-capital nexus in the context of the FS'global core-periphery dialectics. Thereby, we embrace radical political agroecology as being essential in promoting sustainability within the FS, especially in the Global South. Agroecology is proposed as the strategy to address the food system's complexity in terms of the social, environmental, and economic embeddedness. We conclude with potential solutions that contribute to the pathway for FS sustainability.

KEYWORDS

critical realism, state-capital nexus, food regime, class struggle, radical political agroecology

1 Introduction

Food systems (FS) are complex webs of processes and products, involving production, processing, packaging, distribution, retail and consumption of food, which finally have implication on social and natural systems (Eliasson et al., 2022). Current challenges of FS arise from several dynamics shaped by capitalist values (Bakker and Gill, 2019). Various authors have highlighted the need to consider social, economic, and ecological outcomes within FS as the starting point in their transformation (FAO, 2019; Giraldo, 2019; Ume, 2023). Others have called for transformative processes in socio-natural relationships, the urgency of shifting mental models, and the need for more democratic and less oligopoly-driven FS (El Bilali et al., 2019; Fanzo et al., 2021; Kugelberg et al., 2021). Achieving sustainability in FS therefore requires addressing root causes and avoiding simplistic approaches. Literature reveals various proposed approaches that emphasize the importance of holistic strategies, innovative collaboration, and systemic transformation (Table 1). Equity, inclusivity, interdisciplinary efforts, and resilience are consistently mentioned priorities that aim to shift paradigms toward more sustainable FS. Yet, there is no universally accepted approach to FS transformations (Juri et al., 2022).

In this paper, we aim to offer an initial guide for approximating FS' transformation toward sustainability, by recognizing their non-linear nature. We reflect on the intricate process of transformation particularly needed in and coming from the Global South to highlight two main points: unequal ecological exchange and peasant resistance. Global North's reliance on extractive practices in the South affects environmental sustainability (core-periphery relation), while Southern peasants play a crucial role in challenging the dominant neoliberal food regime (Tilzey, 2020). We propose a bricolage approach, incorporating various strategies to navigate the complex journey toward achieving more sustainable FS, but from a radical perspective (Tilzey, 2024). By

grounding this process in the principles of Critical Realism,¹ we aim to comprehend the root pathways of radical transformation by answering: What is needed to achieve radical FS transformation toward sustainability in the Global South?

2 The nature of radical transformations

Previous studies underscore the nonlinear nature of FS transformation by considering imbalances and the dynamic nature of

power in the agricultural sector (Kok et al., 2019; Eliasson et al., 2022). According to Eliasson et al. (2022) confronting the inherent power structures across geographical scales and promoting social movements advocating for food sovereignty are important. Collective understanding and agency are also deemed crucial for creating more sustainable FS. Examining structural and agential aspects in FS transformation through the lens of Critical Realism is also important for understanding to understand the dialectics of socio-natural relations in FS (Tilzey, 2018). Following the critical realist Transformational Model of Social Activity (Bhaskar, 2008), this paper seeks to reveal the interplay between social-natural-agrarian structures and human agency as a “structured agency” (Potter and Tilzey, 2005). The approach posits that social structures influence human actions, which, through social interactions, can reproduce or transform these structures. Critical Realism provides a comprehensive framework for navigating the complexity of FS transformation through human agency, by considering material transactions with nature, social interactions, social structure, and individuals’ inner being (Bhaskar, 2008; Buch-Hansen and Nesterova, 2023). This wide insight into the FS posits that its essence is profoundly interconnected across these 4 dimensions. Acknowledging and actively

1 Critical realism is a philosophical framework that seeks to understand the underlying structures and mechanisms that shape reality. It acknowledges the that our knowledge of this reality is mediated through our social context (Danemark et al., 2019). For this paper, critical realism is key because this approach seeks human emancipation by providing tools to analyze and critique existing social structures and systems of power.

TABLE 1 A mini review of literature related to FS transformations.

Author	Requisites for FS transformations toward sustainability
Anderson (2015)	Sustainable food systems necessitate healthy soil, clean water, skilled farmers, secure intergenerational resource transfer and knowledge, as well as dispersed, decentralized food and energy production.
Kok et al. (2019)	Scaling agroecological practices, co-producing local knowledge in organic agriculture, fostering collaboration in technology development, and co-designing governance strategies with small-scale fisheries are key for sustainability.
El Bilali et al. (2019)	Enhancing efficiency (e.g., sustainable intensification), promoting demand restraint (e.g., sustainable diets), and transforming food systems (e.g., alternative systems) are crucial. This involves promoting healthy consumption, scaling up innovations, optimizing yield, encouraging agro-ecological practices, diversifying farms, and advocating landscape approaches in supply chains.
Dupouy and Gurinovic (2020)	Coordinated interdisciplinary changes, including nutrition-sensitive agriculture, increased investments in research and innovation, promotion of dietary change, and the shift toward circular economies. The goal is to facilitate stable and healthy diets amid the ongoing structural transformation of food and agriculture.
Ridolfi et al. (2020)	Transforming food systems is a complex process, requiring an integrated systemic approach to avoid narrow technical fixes and recognize trade-offs amid diverse challenges in achieving multiple outcomes.
Ruben et al. (2021)	Shift from food security to system resilience, combining efficient production with affordable nutrition, inclusive livelihoods, and sustainability. Improve connectivity and responsiveness, transitioning to circular food systems. Anchor governance through integrated approaches, moving beyond targeted incentives.
Fanzo et al. (2021)	Addressing diets and health, environment and climate, livelihoods and equity, governance, and resilience.
Levkoe (2021)	To foster equity and sustainability in food systems, it is essential to examine diverse factors contributing to inequity and understand how power operates across different regions, even when these issues may seem unrelated initially.
Niewolny (2022)	The key focuses encompass agroecological research, policy formulation, worker protections, intersectional food justice scholarship, narrative-led methodologies, and multi-sector coalitions challenging conventional practices.
Sonnino and Milbourne (2022)	The central themes include the socio-natural composition of place, the positive interactions and connections forming spatial identity, the social processes (including power dynamics) influencing everyday spatial practices, and the flows of ideas, materials, people, and resources transcending space.
Patay et al. (2023)	The key concepts involve the socio-natural composition of place, positive interactions shaping spatial identity, social processes influencing everyday spatial practices, and the crosscutting flows of ideas, materials, people, and resources.
Eliasson et al. (2022)	Essential elements include the Paradigm (encompassing goals, governance, information, knowledge, infrastructure, and mindset), Targets (concrete formulations and objectives), Governance (rules and power for system change), Information and Knowledge (flows, production, traceability, transparency), and Infrastructure (physical elements and connections).
Zhu et al. (2023)	The transformation paths for the food system involve establishing a globally beneficial, cleaner, and fair participatory system, enhancing innovation capabilities, and implementing an effective organizational guarantee system.

addressing this interconnected nature enhances the potential of radical transformative initiatives to foster sustainable changes.

Since FS unfold in these four dialectically interrelated dimensions of human agency, it is essential to determine the origin of the causal mechanisms that lead to discrepancies across these four planes. This comprehension introduces even greater complexity, specifically, when considering the open and multi-scaler nature of social-natural-agrarian systems, which requires a layered explanation (Collier, 2013). According to Bhaskar and Danermark (2006), layered systems pertain to multiple levels of reality organized on a hierarchical scale. In such systems, it is possible to delineate distinct levels of agency and collectivity. Explanations within layered systems involve mechanisms at various of these levels. This involves understanding comprehensively all aspects of society and not only what and where things happen, as represented by the four-planar social being, but also exploring how and why they occur (causal mechanisms), as depicted in the multi-scalar social being (Figure 1).

While various approaches aim to provide guidance for achieving sustainability transformations in food systems, (Table 1) it is crucial to

recognize that the complexity inherent in this transformation (Figure 1) requires a comprehensive perspective, and in our case, a radical one. We will navigate the intricacies discussed earlier by examining the instance of FS in the Global South.

3 A layered approach for analyzing FS transformations

The recognition that social-natural-agrarian phenomena unfold across the four dialectically interrelated planes provides a comprehensive framework for understanding FS transformations. Recognizing transactions with nature, social structures, social interactions, and deep personality enables a nuanced understanding of the scenario where mechanisms behind FS unsustainability across various scales emerge (Table 2). Therefore, the challenge is to address transformations in the myriad of scales that produce unintended and unsustainable consequences in global FS occurring in the four planes throughout multiple scales.



FIGURE 1
Four planar and multi-scalar social being (Bhaskar and Danermark, 2006).

TABLE 2 Complex emergent problems of FS in the Global South.

Scale	Characteristic current food system
The planet as a whole	Global capitalism, globalization of FS
Traditions and civilizations	Neoliberal food regime
The understanding entire societies or regions functioning	Waves of colonization
Sub-national institutions and functional roles	Neo-liberal agriculture, policy oriented toward agroextractivism
Social relations	Master–slave relations, patronage, inequality
Individual or biographical level	Personal experiences dealing with market-oriented FS

The structural framework enabling and constraining human agency on the four planes when analyzing contemporary FS consists of the complex state-capital nexus, which acts as the primary source of legitimation and enforcement by facilitating capital accumulation through varying degrees of mediation (Tilzey, 2020; Tilzey and Sudgen, 2024). This structure enables the intricate web of the global economy, where the world is starkly divided into dialectical imperial-peripheral relations; i.e. the Global North pressures the socio-natural systems of the Global South (Tilzey, 2020). Large-scale corporations (supported by the state-capital nexus), wielding immense power, spearhead the production and commercialization of commodities (Tilzey, 2024). The deeply rooted historical legacy of colonization lingers, perpetuating extractive activities in the agricultural sector (McKay et al., 2021; Petras and Veltmeyer, 2023). National, regional, and municipal policies, rather than nurturing local initiatives, fuel the relentless expansion of commodity cultivation (Veltmeyer and Lau, 2020). Amidst this backdrop, non market-oriented peasantry (c.f. Tilzey, 2024) find themselves marginalized, overshadowed by the preeminence of corporate growers, with a surge in land grabbing and rural proletarianization exacerbating their plight (Tilzey and Sudgen, 2024). In the midst of these dynamics, plantations become arenas of conflicted experiences, where individuals navigate through a process of apprehension, particularly in the Global South (Suarez and Gwozdz, 2023). Meanwhile, in the Global North, a personal quest for healthy and trendy diets further complicates the intricate tapestry of global agricultural dynamics.

4 Toward FS sustainability

4.1 Radical transformations

The transformations needed in the four-planar social being of current FS could be rooted in the principles of agroecology². As underscored by Botelho et al. (2016), agroecology emerges as a strategic agenda for restructuring prevailing models of agricultural

development. It has evolved into an encompassing framework for advancing FS, strategically addressing the interconnected social, economic, and environmental challenges inherent in current dominant systems (Coe and Coe, 2023). However, agroecology has undergone co-optation processes (Biel, 2016a; Walthall et al., 2024), therefore its proposal must manifest clear positionalities.

In order to outline pathways toward a radical FS transformation, our approach must be based on aspects that support such radicality. Thus, our positionality is based on a counter-hegemonic approach (Tilzey, 2016, 2024), which differs from other positions that also embrace agroecology as a transformative strategy (c.f. Tilzey, 2024). Following Tilzey (2024), we stress that FS transformations needed in the four-planar social being could be rooted in radical political agroecology. Here, reversing the causal mechanism of unsustainable FS embodied by the state-capital nexus depends on “class struggle” acting as a structured agency that challenges both the discursive and material predicates of capitalism (Tilzey, 2016, 2018). In this sense, an important driver of transformation in the Global South is the middle and low peasantry,³ which, through processes of resistance (prioritizing use values over exchange values), can mobilize FS transformations, and prevent co-optation within existing hegemonic FS social-property relations (Tilzey, 2018).

Once this counter-hegemonic positionality is clear, we emphasize how an agroecological approach, driven by the organized efforts of the middle and low peasantry in the Global South, can facilitate significant transformations across the four dimensions of social being (Figure 1). First, at the level of social structures, the structured agency of middle and lower peasants can counteract the centralized, top-down approach in which society and production are organized by elites through class struggle (Biel, 2016a,b). Here, the radical transformative approach must reckon not only with capitalism (social-property relations and access to land) and neoliberalism (market compulsion), also with the entire history of exploitation, particularly in FS (Biel, 2016b), which overlap with the state-capital nexus (Tilzey, 2019).

In the plane of *transactions with nature*, if ecological degradation produces class struggle (Vlachou, 2004), then class struggle can also confront the capitalist roots of current ecological threats (Shantz, 2004). One way to subvert this dynamic is by promoting agroecological principles and practices, which have shown efficacy in promoting biodiversity-based agriculture (Duru et al., 2015a,b). Beyond this, agroecology also seeks to address *social interactions*, including considerations of gender (Ume et al., 2022), liberation from oppressive relations (Bezner Kerr et al., 2019), and the enhancement of skills, knowledge, work capacity, and health. Furthermore, agroecology, as emphasized by Coe and Coe (2023), supports transitions in thought. Involving the *inner being*, refers to non-material factors intertwined with culture, values, ethics, identity, and emotions. Some authors argue that the practice of agroecology leads middle and low peasants to strengthen their religious beliefs and redefine personal relationships with the natural and social environment (Botelho et al., 2016).

² Agroecology is the proposition that agroecosystems should strive to replicate the biodiversity and functioning of natural ecosystems. However, agroecology suggests more than agricultural practices by including social resistance and subverting the state-capital nexus (Tilzey, 2024).

³ One of Tilzey's (2024) criticisms of other approaches promoting agroecology is the lack of differentiation of the peasant class. There, Tilzey proposes low, middle and upper peasants that have different characteristics and positions in resisting the state-capital nexus.

4.2 Radical solutions needed

Transformation in FS requires multifaceted mechanisms (Gupta et al., 2021), particularly those challenging the current state-capital nexus (Tilzey, 2024). We explore six different radical-solutions through the lens of the multi-layered scale (Figure 1). The identified solutions are interconnected components of a comprehensive strategy for transforming FS.

First, it is important to advocate for a diversified and locally adapted FS that promotes healthier diets and involves recognizing the inherent class struggle within the current global FS (Biel, 2016a; Tilzey, 2018). This advocacy inherently challenges the dominance of capitalist interests prioritizing profit over people and planet, and encourages policies and initiatives that prioritize indigenous and sustainable food sources (Agrawal et al., 2021) and represents a form of counter-hegemonic resistance against the prevailing narrative of globalized and resource-intensive crop production, that often exploits both labor and natural resources for the benefit of capitalist elites (Biel, 2016b; Tilzey, 2024). Second, struggles for regulations and incentives to support decentralized and community-based (use-value oriented) agricultural models further disrupt the core-periphery dynamics perpetuated by capitalist exploitation, allowing low and middle peasantry to control their own means of production (Tilzey and Sudgen, 2024).

Third, addressing historical injustices through land reform policies acknowledges the legacy of colonialism and imperialism, that systematically marginalized and exploited indigenous peoples and peasants (Scheidel et al., 2024). The prioritization of sustainable agricultural practices focusing on soil health, biodiversity, and community well-being challenges the capitalist logic of endless growth and profit (Veltmeyer and Lau, 2020), and lays the groundwork for more equitable and resilient FS. Fourth, struggles for policy changes that prioritize diversified and locally driven agricultural practices amplify the voices of marginalized communities and challenge the dominance of corporate interests in shaping agricultural policies (Sargani et al., 2020).

Five, strengthening land rights for low and middle peasantry is crucial for preventing further dispossession and promoting sustainable and equitable land use (Nyantakyi-Frimpong and Bezner Kerr, 2017; Akram-Lodhi et al., 2021; McKay et al., 2021). Finally, promoting agroecological practices that integrate environmental sustainability with local dietary needs challenges the dominant paradigm of industrial agriculture (Agrawal et al., 2021), which favors monoculture and chemical inputs at the expense of environmental and human health (Biel, 2016a). Educational programs and awareness campaigns empower consumers to make informed choices supporting local and sustainable FS, thereby challenging the dominance of corporate agribusiness in shaping consumer preferences.

5 Discussion

Literature on scaling-up agroecology have reported various additional challenges. Some authors emphasize the need to recognize agroecological systems as systems in transition, and that supportive policies are required to scale up agroecology (Dumont et al., 2021). Similarly, scaling-up agroecology requires understanding constraints at the farmer level, an agricultural knowledge system favoring mainstream approaches, adverse and intertwined political and economic interests, and cross-cutting ideological and discursive pressures (Isgren, 2016).

Other aspects that requires attention are insecure land tenure and unequal access to land, unequal systems of exchange, and a culture that favors silver bullet narratives (Jiménez-Soto et al., 2024). To attain sustainable FS, it is important to explore diverse solutions while acknowledging their interconnected components. This entails embracing radical transformation through a counter-hegemonic stance (Tilzey, 2024). This approach is crucial for comprehending root problems, such as the pervasive state-capital nexus, and the development of the green revolution paradigm and its discourses (Mier y Terán Giménez Cacho et al., 2018).

Drawing on this counter hegemonic positionality, we emphasize the need to confront power structures through class struggles embedded in FS advocating for food sovereignty (Biel, 2016a; Tilzey, 2018, 2020, 2024; Tilzey and Sudgen, 2024). Such emphasis puts a spotlight on power dynamics within FS and addressing the unequal distribution of resources and the marginalization of certain groups. Recognizing power imbalances highlights the crucial role of agroecology in challenging these power dynamics through processes imbedded in class struggles, promoting fairer access to resources and inclusive decision-making processes. We expand on this narrative by highlighting the significance of social movements in fostering transformation. We argue that agroecology goes beyond ecological practices and encompasses a socio-political dimension (Biel, 2016a). Social movements advocating for food sovereignty through class struggle, align with agroecological principles by seeking to empower local communities, challenge corporate dominance, and promote participatory decision-making in food production.

6 Recommendations

Conflicted dynamics reflecting the tensions between economic motivations, health-conscious consumer trends, and environmental sustainability. These tensions underscore the complexities inherent in transforming FS, highlighting the need for a comprehensive approach. This perspective paper contributes to the broader literature on food systems' transformation by providing guidelines rooted in Critical Realism and the four-planar and multi-scalar social being framework. By acknowledging the interplay between social-natural-agrarian structures and human agency as a structured agency (Potter and Tilzey, 2005), our proposal provides a theoretical foundation for navigating the intricate journey toward sustainable food systems.

In this vein, and acknowledging the transformative role of the peasantry in the Global South due to their dynamics of constant resistance and social reproduction (prioritization of use values over exchange values), we offer recommendations that must necessarily be grounded in a dialectical process. Through class struggle and the subversion of center-periphery dynamics, this process enables the construction of pathways that contribute to more sustainable FS.

- Promote Agroecological Principles: building on the agroecological framework discussed, advocate for adopting practices that integrate environmental sustainability with local and global food needs.
- Advocate for Local Empowerment through Policy Reforms: extend the paper's call for policy changes to various governance

levels, prioritizing diversified and locally driven agricultural practices, thus empowering low and middle peasantry.

- Secure Land Rights for Sustainable Agriculture: addressing historical injustices, champion strengthened land rights for local communities, countering land grabbing and dispossession, and rectifying past exploitation.
- Challenge Corporate Dominance in Agriculture: corresponding to the paper's recommendations, lobby for regulations favoring decentralized agricultural models, ensuring fair profit distribution, and implementing policies that prioritize local farmers over large corporations.
- Foster Global Collaboration for Dietary Sustainability: engaging in efforts to counter pressures from the global North's push for resources. Advocate for policies prioritizing indigenous and sustainable FS, thus fostering a global shift in dietary habits and challenging the core-periphery logics.

Collective efforts identify and address potential weaknesses in the proposed approach is essential. One concern is the feasibility of implementing recommended strategies across diverse socio-political regimes. While advocating for agroecological principles and local empowerment through policy reforms is crucial, future research should delve deeper into challenges such as resistance from entrenched interests, bureaucratic hurdles, and the need for substantial financial and technical support to facilitate meaningful change.

Considering the long-term sustainability and scalability of proposed solutions is crucial, given factors like the state-capital nexus, market changes and climate variability. Future research should investigate these aspects to ensure effectiveness. Additionally, exploring unintended consequences of challenging neoliberal dominance in agriculture is essential, requiring careful consideration of supply chain disruptions and socio-economic impacts. Through empirical research, valuable insights can enhance the proposed approach's robustness and applicability.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

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Conflict of interest

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