

Narrative Analysis of Biodiversity in Food System Transformation Literature

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WD, TH, and PBM provided first drafts of the methodologies, article selection, and narratives. All were involved in the narrative mapping exercise to select the chosen narratives. KM and CF provided in-depth feedback on the methodology and article selection. KM, CF hosted the dialogue with policymakers and reported on this dialogue. RR and MK hosted the dialogue with practitioners and reported on this dialogue. PBM, WD, and TH hosted the dialogue with scientific experts and reported on this. WD and TH wrote the draft on discussion and conclusions. KM, CF, RR, and MK provided feedback on the full draft report.

Keywords: Biodiversity, food system, narrative

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Preface

The urgency of the global biodiversity crisis, i.e. the loss of global biodiversity, is well documented and widely acknowledged. Recent reports from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) on the nexus of environmental challenges and the need for transformative change underscore the severity of the situation and the need for work. Responding to this crisis involves more than developing technical fixes; it also requires shaping and sharing narratives that help identify possible solutions—whether technical, social, economic, or a mix of these—and that engage the stakeholders, including the global public, in collective action and policy agendas. In particular, the recent Transformative Change report of IPBES highlights the importance of underlying values and discourses in solving the biodiversity crisis.

Narrative analysis of biodiversity in the food system transformation literature is therefore critical, as it reveals the underlying assumptions, priorities, and values that guide proposed interventions and determine whose voices are amplified or silenced. Insights from these studies' dialogues with diverse stakeholders further demonstrate that competing and complementary narratives play a decisive role in shaping pathways for change. They influence how challenges are understood, which solutions gain legitimacy, and how trade-offs between equity, sustainability, and economic interests are negotiated.

This study was carried out by Wageningen Social & Economic Research and was commissioned and financed by PBL Netherlands Environmental Assessment Agency. Experts' inputs throughout the process were given by Katie Minderhoud (PBL), Claudia Fernandez De Cordoba Farini (Living Imaginaries), Roseline Remans (Netherlands Food Partnership), Mariëlle Karssenbergh (Netherlands Food Partnership). We would like to thank all dialogue participants from WUR, LVVN, BUZA and different practice-oriented organisations for sharing their experiences, and Vincent Linderhof (WUR) for reviewing this document.



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Summary

S.1 Main research question

This study aims to examine how biodiversity narratives are integrated and represented within food system transformation literature. It seeks to identify gaps, variations, and opportunities to foster more coherent and inclusive integration of biodiversity, ultimately uncovering strategic insights. To achieve this, the study addresses the following research questions:

1. How are key narratives constructed within food system transformation literature?
2. How is biodiversity conceptualised, positioned, and utilised within these narratives?
3. What assumptions, biases, and blind spots do the narratives contain?
4. What commonalities and divergences exist among the selected narratives?

S.2 Message(s)

- The study examines seven key narratives: food sovereignty, agroecology, One Health, more-than-human, multifunctional landscapes, market-based frameworks, and regenerative food systems, revealing both varying levels of overlap and divergence. All identify the current 'industrial food system' as fundamentally flawed, but propose different understandings of why it is flawed and what appropriate responses would be.
- Biodiversity is rarely a central theme in food system narratives; it is usually framed indirectly as biodiversity loss or as an instrumental environmental factor. Its complexity is insufficiently explored, often subsumed under the broader sustainability agenda without deeper engagement with values, dependencies, risks, and opportunities.
- Most narratives adopt an anthropocentric perspective, except for More-Than-Human, and they differ across key dialectics such as top-down versus bottom-up, radical versus reformist, and techno-optimism versus techno-pessimism.
- Common blind spots and biases exist across narratives, including limited attention to strategies for phasing out existing harmful practices or engaging with dominant actors in the current 'flawed' food system. There is also a tendency to frame biodiversity primarily in instrumental terms, overlooking its intrinsic and relational values.
- Engagement with stakeholders reveals the subtle role of emotions and discomfort in narrative dialogue. Personal values often align with narratives other than the professional narratives.
- Narratives can be leveraged based on pragmatic, strategic or moral principles.
- Working with narratives can make hidden values, opposing worldviews, and blind spots visible and encourage self-reflection. By recognising the context and diversity of narratives, they can transform from invisible barriers to bridges for connection, learning, and inclusive dialogue.
- Dialogue sessions generated findings, and they reflected:
 - raising individual awareness of diverse narratives,
 - raising awareness between personal and professional lenses,
 - raising awareness about the power dynamics between dominant and marginalised perspectives,
 - and simultaneously fostering collective awareness in a more open, exploratory exchange space.

The combination of individual reflection and collective dialogue creates a unique and mutually reinforcing effect.

S.3 Methodology

The study followed three phases—Exploration, In-depth Review, and Validation—to identify and compare key narratives on biodiversity and food systems. Seven narratives were selected based on a mapping exercise with PBL and NFP and ranked as most valuable for illustrating diverse storylines on biodiversity and food system transformation in the literature, and analysed for how they position biodiversity, their assumptions, biases, blind spots, and visions of transformation (Exploration). Forty-two peer-reviewed articles (six per narrative) published since 2020 were reviewed for problems, solutions, actors, values, worldviews, blind spots, assumptions, and biases, using a four-part framework covering narrative components, biodiversity positioning, context, and dialectical propositions (In-depth Review). Findings were further discussed in three stakeholder dialogues and compared across dialectical propositions (Validation).

1 Introduction

The transformation of global food systems is increasingly recognised as a critical pathway to address the intertwined crises of biodiversity loss, climate change, and food insecurity. Agriculture is a principal driver of biodiversity degradation, accounting for approximately 80% of global deforestation and 70% of terrestrial biodiversity loss (Mommer et al., 2025). Simultaneously, food systems depend heavily on biodiversity and the ecological processes and genetic diversity it provides (IPBES, 2024). The transformation of food systems to mitigate biodiversity loss and sustain food systems is increasingly recognised as a critical imperative within global biodiversity governance, highlighted prominently at events such as the 16th CBD CoP in Cali, Colombia. Within these global forums and transformations, narratives play a pivotal role (Colley and van Noort, 2022), not only in bridging disciplinary divides but also in shaping shared visions, mobilising action, and fostering inclusive dialogue across sectors and scales.

Understanding narratives is crucial because they shape perceptions, guide decision-making, and render complex issues more relatable (Crow and Jones, 2021). Narratives are powerful drivers of social change, reflecting cultural values and underlying power dynamics. By robustly examining narratives and their influence and exploring how they might be shaped or bridged to facilitate transformative change, one can more effectively navigate and influence social, scientific, and political landscapes. This ensures that transformation strategies are well-informed, persuasive, and actionable. To this end, there is a wide scholarship on food system transformation and its narratives, which exhibit considerable variation (Béné et al., 2019). However, biodiversity is not consistently or explicitly integrated within them. Although extensive research exists on either food systems narratives (Béné et al., 2019; Ingram, 2011; van Berkum and Ruben, 2021) or biodiversity narratives (Hutton et al., 2005; Louder and Wyborn, 2020), there has been little attention to how narratives from these two domains intersect, align, or diverge. This gap could be attributed—in part—to the complexity and multitude of interactions between biodiversity and food systems or the siloes within science and policy. It highlights the challenge of fostering a deeper understanding of the intricate interlinkages and mutual dependencies that shape both areas. As food system sustainability is profoundly interconnected with biodiversity, examining biodiversity narratives in food system literature is essential for designing strategies that foster food systems that support biodiversity.

A narrative analysis also offers valuable potential for navigating the fragmented debates between food system and biodiversity stakeholders. By engaging with and unpacking these narratives in dialogue with diverse actors, one can better identify the key challenges, opportunities, and points of convergence that shape the discourse. This process not only deepens our understanding of the underlying tensions but also contributes to the development of more cohesive and strategic biodiversity narrative(s) for food system transformation. Ultimately, the insights gained from a narrative analysis foster a shared understanding that transcends existing divisions, enabling more strategic and collaborative approaches to deliberately position and integrate biodiversity in food systems.

This report examines how biodiversity narratives are integrated and represented within food system transformation literature. The analysis draws on the IPBES conceptualisation of nature's plural values—intrinsic, relational, and instrumental—to evaluate how different narratives value biodiversity (Durán et al., 2023). Within the analysis areas of convergence and divergence across these narratives are identified to uncover strategic insights that can inform more coherent, inclusive, and actionable approaches to biodiversity integration in food systems. To achieve this objective, the following research questions are posed:

1. How are the key narratives constructed within food system transformation literature?
2. How is biodiversity conceptualised, positioned, and mobilised within the key narratives?
3. What assumptions, biases and blind spots do the key narratives hold?
4. What commonalities and divergences emerge across the selected key narratives?

Here 'key' refers to the selection of seven narratives out of the wider food system literature.

In addition to the core guiding questions, the following questions were used for narrative dialogues with scientific experts, policymakers, and practitioners, drawing on the narratives identified in the analysis:

1. How do the narratives represented by the literature resonate with the different stakeholder group?
2. How are different narratives leveraged and used?
3. How can the (part of) narratives potentially contribute to improving the synergies between biodiversity and food systems?

The report is structured as follows: first, the methodological design is briefly outlined (Section 2); this is followed by an analysis of each narrative (Section 3). Section four presents a comparative assessment of the narratives, along with the results from the stakeholder dialogues concerning them. Finally, the report concludes with a discussion (Section 5) and conclusion (Section 6).

2 Methodological design

The methodological design for this analysis is structured into three distinct phases: Exploration, In-depth Review, and Validation, aiming to identify, analyse, and compare key narratives at the intersection of biodiversity and food systems. A further detailed methodological description and analytical framework are given in the Methodological Approach report, which is available upon request.

Exploration and Pre-selection

The initial phase aimed to identify five key narratives relevant to the interaction between biodiversity and food systems through a two-step process comprising a scoping review identifying a gross list of narratives and an exercise mapping narratives to cluster them. The explorative scoping review surveyed key literature on food systems and biodiversity to establish a theoretical and conceptual foundation, complemented by input from PBL experts on IPBES nexus assessment, and targeted discussions with Wageningen University & Research (WUR) colleagues to identify salient and emerging narratives. These insights produced a gross list of potential narratives, which were mapped onto dialectical propositions. This gross list included: one health, sustainable intensification, circular food systems, sustainable fisheries, multilateral food governance, resilient food systems, whole system transformation, integrated spatial planning and governance, healthy and sustainable diets, risk perspective, agriculture's biodiversity footprint, agroecology, food sovereignty, justice & equality, market-based food systems, more-than-human/multispecies justice, from farm to fork, sociocultural relations with food, biocultural diversity, stewardship, food security, land restoration, alternative farming practices. Dialectical propositions represent spectra between two polarities—such as bottom-up to top-down—that are used to analyse the similarities and differences between narratives (Conti et al., 2024). A subsequent mapping exercise with experts from WUR, the Netherlands Food Partnership (NFP), and PBL refined, expanded, and clustered the narratives to assess overlaps and distinctions, ultimately narrowing the selection for in-depth review. Seven key narratives were selected for the narrative analysis as they were deemed most valuable based on the mapping exercise, which included a ranking by PBL and NFP. This ranking was based on the ability of narratives to illustrate diverse storylines on biodiversity and food system transformation in the literature, to provide new insights into biodiversity framings, and to ensure relevance for the policy and practice context of NFP and PBL.

Table 2.1 Seven focus narratives and search queries in Scopus

| # | Narrative | Search Query Scopus |
|---|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Food Sovereignty | (TITLE-ABS-KEY ("food sovereignty" OR "food justice" OR "food rights") AND TITLE-ABS-KEY (agricultur* OR farm* OR "food system*" OR livestock*)) AND PUBYEAR > 2019 AND PUBYEAR < 2026 |
| 2 | Agroecology | (TITLE-ABS-KEY (agroecolog* OR agroecosystem*) AND TITLE-ABS-KEY (agricultur* OR farm* OR "food system*" OR livestock*)) AND PUBYEAR > 2019 AND PUBYEAR < 2026 |
| 3 | One Health | (TITLE-ABS-KEY ("one health") AND TITLE-ABS-KEY (agricultur* OR farm* OR "food system*" OR livestock*)) AND PUBYEAR > 2019 AND PUBYEAR < 2026 |
| 4 | More-than-Human/multi-species justice | (TITLE-ABS-KEY (multispecies OR multi-species OR more-than-human) AND TITLE-ABS-KEY (agricultur* OR farm* OR "food system*" OR livestock*)) AND PUBYEAR > 2019 AND PUBYEAR < 2026 |
| 5 | Multifunctional Landscapes | TITLE-ABS-KEY("multifunctional landscape*" OR "multi-functional landscape*" OR "landscape multifunctionality" OR "multifunctional land-use" OR "multi-functional land-use" OR "multifunctional land use" OR "multi-functional land use" OR "multifunctional agriculture*" OR "multi-functional agriculture*" OR "landscape approach" OR "integrated landscape management" OR ILM) AND TITLE-ABS-KEY(agricultur* OR farm* OR "food system*" OR livestock*) AND PUBYEAR > 2019 AND PUBYEAR < 2026 |
| 6 | Market-Based Frameworks | TITLE-ABS-KEY (("natural capital" OR "payments for ecosystem services" OR pes OR "ecosystem services valu*" OR "valuation of biodiversity" OR "biodiversity finance" OR "biodiversity offsetting" OR "biodiversity banking" OR "biodiversity credits" OR "habitat banking" OR "ecosystem service market*" OR "green finance" OR "green bond*" OR "TEEB" OR "natural asset*")) AND TITLE-ABS-KEY (agricultur* OR farm* OR "food system*" OR livestock*) AND PUBYEAR > 2019 AND PUBYEAR < 2026 |
| 7 | Regenerative Food Systems | TITLE-ABS-KEY (regenera*) AND TITLE-ABS-KEY (agricultur* OR farm* OR "food system*" OR livestock*) AND PUBYEAR > 2019 AND PUBYEAR < 2026 |

In-depth Review

This phase analysed the construction of the selected key narratives, focusing on how biodiversity is positioned within them, the assumptions, biases, and blind spots they contain, and how they envision food system transformation within discursive, political, and economic power dynamics. Alongside individual narrative analysis, a comparative approach examined overlaps and divergences between the narratives. Forty-two peer-reviewed articles (six per narrative) published since 2020 were selected through a structured process involving keyword searches in Scopus (Table 2.1), screening against pre-defined criteria (Figure 2.1; Table 2.2), and adjustments to ensure thematic, and geographic diversity.

The articles were reviewed in June and July 2025. The articles were sorted by relevance, using a Scopus algorithm that statistically weighs how well the text in the documents reflects the search terms in the query (Scopus, 2024). Titles and abstracts were screened until either fifteen articles met the inclusion criteria. The sample of fifteen articles aimed to provide enough variety for selecting six articles per narrative while keeping the scope manageable. Initially, the first six articles that met the criteria were selected to enhance the empirical and objective value of the review by reducing selection bias (Figure 2.1). Subsequently, the six articles were potentially adjusted to balance dominant and marginal perspectives and to enhance geographic and thematic diversity. It was acknowledged that selecting six articles per key narrative significantly limited the representative and thematically diversity of the sample.

Citation counts were considered to assess the balance between dominant and marginal perspectives. If too many low-citation articles (e.g., with zero citations) were selected, or if highly cited articles were not selected, an adjustment was made by replacing one of the six from the initially unselected articles to account for this disbalance. Geographic diversity was assessed based on the first author's affiliation and the geographic perspective reflected in the article's content. In practice, the article selection was adjusted to include articles representing non-Western perspective, when the initial set consisted solely of articles with Western affiliations or perspective. Thematic diversity was evaluated by examining the range of content across articles. When multiple articles focused on similar topics, adjustments were made to ensure broader thematic coverage. Both the selected and unselected articles were reviewed by an expert reviewer and the commissioner of the study to ensure alignment with the review's objectives and assure the scientific quality of the article selection. Based on this review the adjustment criteria were modified and the article selection was re-evaluated, resulting in a slightly revised set of selected articles. When adjustments were needed for the selected article, the most recently included article was replaced by the earliest excluded one, unless another rationale justified an alternative adjustment.

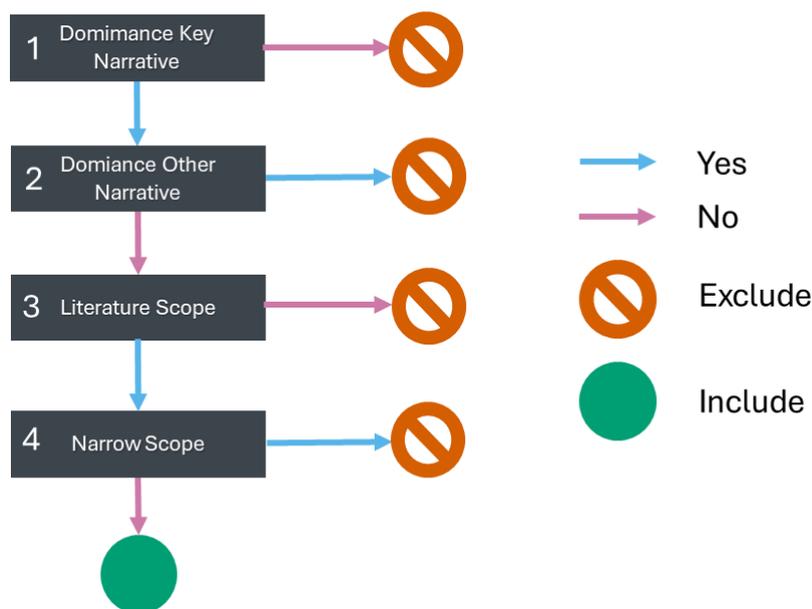


Figure 2.1 Flow chart with the four inclusion and exclusion criteria for article selection

Table 2.2 *Inclusion and Exclusion Criteria*

| Pre-selection criteria | |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a. | Scopus: We selected articles from Scopus to only include peer-reviewed articles. |
| b. | Year: We solely selected articles from 2020 onward. |
| Inclusion and exclusion criteria | |
| 1 | Dominance key narrative: The article is clearly situated within the key narrative—explicitly stated or implicitly implied—enabling meaningful exploration. This applies when the main content substantively engages with the narrative or when the title, introduction, or conclusion clearly anchor the article’s perspective in it Score: 0 – Absent (Exclude): No clear presence or engagement with the key narrative. 1 – Limited presence (Exclude): Mentioned or implied, but not central. 2 – Dominant (Include): Substantively articulated in the main content or clearly framed through the title, introduction, or conclusion, indicating the article’s perspective is meaningfully anchored in the key narrative. |
| 2 | Dominance of other narratives: Is the article also situated within a competing narrative that undermines meaningful exploration of the key narrative by diluting or redirecting the key narrative, thereby impeding a clear and focused analysis of the key narrative? Score: 0 – Absent (Include): No competing narrative; focus remains on the key narrative. 1 – Limited presence (Include): Competing narrative appears but doesn’t obstruct focus on key narrative. 2 – Dominant (exclude or include in some cases): Competing narrative dominates, dilutes, or redirects focus of key narrative, thereby hindering accurate analysis. But in some cases, this may reflect an ongoing evolution or merging of narratives, which can still be representative of the key narrative (i.e. agroecology can overlap significantly with food sovereignty). |
| 3 | Literature Scope: Is the article clearly situated within the food system transformation literature? |
| 4 | Narrow Scope: Does the article’s specificity, technical focus, or local scope limit its ability to provide the conceptual depth needed to examine the key narrative? |

The article’s narrative analysis employed narrative components as an analytical framework, drawing on existing literature. Key components analysed included problems, solutions, actors, visions, values, assumptions, blind spots, and biases, with worldviews considered the deepest layer. The analytical framework comprised four parts:

- (i) narrative components (structured from explicit to implicit: problems, solutions, visions, values, worldviews, biases, blind spots, assumptions, and conceptualisation of key concepts, see Table A1.1 in Appendix 1
- (ii) the conceptualisation, positioning, and mobilisation of biodiversity, see Table A1.2 in Appendix 1
- (iii) article’s context and analytical overview, see Table A1.3 in Appendix 1 and
- (iv) dialectical propositions, see Table A1.4 in Appendix 1.

Each key narrative was constructed by synthesising individual article analyses into a coherent account, beginning with a core message shaped by underlying worldviews and values, followed by the perceived problem, a vision for change, and proposed solutions. Biases, blind spots, and assumptions were identified last, often refined through comparative analysis among articles, with particular attention to how biodiversity was framed, positioned, and integrated. A brief political economy lens examined how power dynamics influenced which elements were legitimised or marginalised and whose interests were served. The comparative analysis among narratives mapped the seven narratives onto pre-selected dialectical propositions (Conti et al., 2024) to identify overlaps, conflicts, and harmonies, focusing on similarities and differences in biodiversity conceptualisation, positioning, mobilisation, and shared underlying assumptions and biases.

Validation & Reflection Phase

The final phase involved three dialogues with various stakeholders to discuss how the narratives resonate with different stakeholder groups, how they are leveraged and used, and how they can potentially contribute to improving synergies between biodiversity and food systems. These dialogues are designed and organised by WUR (with scientific experts), PBL (with policymakers from LVVN and BUZA), and NFP (with practitioners involving a diversity of international stakeholders, including NGOs, applied researchers, policymakers, private-sector and financial actors), with each organisation leading one of the proposed dialogues. The stakeholders for the WUR-hosted dialogue were selected to represent different WUR institutes and perspectives. The notes from these sessions are presented in Section 4.2, following the comparative analysis (Section 4.1), and are integrated with insights from the narrative analysis to inform the overarching discussion and conclusions (Section 5 and 6).

3 Understanding the seven key narratives

3.1 Food Sovereignty (FS)

Brief description of narrative

The Food Sovereignty narrative emphasised the rights of peoples and communities to control their own food systems—including how food is produced, distributed, and consumed—in ways that are culturally appropriate, ecologically sustainable, and centred on local needs and knowledge, rather than being dictated by global markets or corporate interests (Cabral et al., 2025; Chipuriro, 2023; Deaconu et al., 2024; Tanzer et al., 2022; Wiebe, 2023; Zollet et al., 2021). The following articles were selected:

- Just food transitions: A plurality of framings and repertoires from below (Cabral et al., 2025)
- Vulnerabilities, power, and gendered violence in food systems (Chipuriro, 2023)
- Food Systems Innovation to Nurture Equity and Resilience Globally (Food SINERGY): Insights from the Food SINERGY network (Deaconu et al., 2024)
- Elucidating the capabilities of international mechanisms to foster procedural just system change – The case of the 2021 UN Food System Summit (Tanzer et al., 2024)
- Shaping our collective futures: Activism, analysis, solidarity (Wiebe, 2023) and
- Towards Territorially Embedded, Equitable and Resilient Food Systems? Insights from Grassroots Responses to COVID-19 in Italy and the City Region of Rome (Zollet et al., 2021).

Worldview and values

The underlying worldview expressed across the articles is critical of the current global food system. It identified this system as shaped with a capitalistic perspective (Wiebe, 2023; Zollet et al., 2021), or colonial and patriarchal structure and perspective (Chipuriro, 2023). The origin of the Food Sovereignty story, as described by Wiebe, (2023, p. 629), underlined the values of equity, democracy and power as a reaction towards 'food security':

'The conventional term of "food security" was inadequate. This was about more than producing more food or distributing it more efficiently. We were grappling with fundamental questions of power and democracy: Who controls food producing resources such as land, water, seeds and genetics and for what purposes? Who gets to decide what is grown, how and where it is grown and for whom? We needed to have language that expressed the political dimensions of our struggle. The intense discussions resulted in an agreement that our position would be framed as a fight for Food Sovereignty.'

Across the articles, elements like justice, (gender) equity, sustainability, cultural diversity, inclusive participation, and democracy were central values, however, mostly from an anthropocentric worldview and values (Wiebe, 2023). However, there were ecocentric elements, especially where sustainability, interdependence, and ecological harmony were emphasised, although mostly indirectly through the call for engagement with indigenous or agroecological paradigms that value the intrinsic worth of nature (Cabral et al., 2025; Deaconu et al., 2024; Wiebe, 2023). Differences between articles lie in their emphasis or approach: from decolonialisation and gender equity, or distributive justice (Chipuriro, 2023; Wiebe, 2023), resilience (Zollet et al., 2021), plural knowledge (Cabral et al., 2025) to procedural justice (Tanzer et al., 2022). The tone and orientation also varied from academic and policy-oriented (Deaconu et al., 2024; Tanzer et al., 2022) to activist and grassroots-driven perspectives (Wiebe, 2023).

Vision

The vision presented centered on a fundamental shift away from the industrial global food system toward resilient, sustainable, equitable, and democratic alternatives (Zollet et al., 2021). Rooted in justice, health, and food sovereignty, it envisioned a world where people, not corporations, control food-producing resources and food is re-embedded in its social, ecological, and cultural contexts (Wiebe, 2023). The narrative often framed the food system through power imbalances, supporting models like agroecology and community-

based systems and calling for ethical and ecological reform. Corporate agri-food actors were critiqued as central to the industrial model (Wiebe, 2023), while grassroots movements, NGOs, scholars, and marginalised communities were positioned as agents of change (Cabral et al., 2025; Deaconu et al., 2024; Wiebe, 2023). Government and policy actors were also highlighted both for their role in maintaining the current system and their potential to drive transformation (Deaconu et al., 2024; Tanzer et al., 2022; Zollet et al., 2021).

Problems

Across the six articles, the central problems stemmed from a deep tension between current food system realities and values of equity, sustainability, and justice. The dominant global food system was framed as inherently unjust and unsustainable, shaped by capitalist, neoliberal, patriarchal, and post-colonial structures that disproportionately harm marginalised groups (Chipuriro, 2023; Wiebe, 2023). Cabral et al. (2021) highlighted the diversity of these experiences across regions. A shared critique targeted neoliberal policies and corporate control (Zollet et al., 2021), which were seen as drivers of inequality and ecological degradation. Key actors included multinational corporations and neoliberal state actors sustaining the system, and marginalised communities resisting it. The articles differed in emphasis: some foreground gender and patriarchy (Chipuriro, 2023; Wiebe, 2023), others focused on post-colonial and racial dynamics (Chipuriro, 2023), while several highlighted economic injustice and corporate concentration (Deaconu et al., 2024; Wiebe, 2023; Zollet et al., 2021). Others critiqued dominant knowledge systems, noting how global food policy often privileges Western science over indigenous and local knowledges (Cabral et al., 2025; Deaconu et al., 2024; Wiebe, 2023).

Solutions

The six articles proposed a range of interconnected solutions to address the unsustainability, inequality, and fragility of current food systems. Bottom-up approaches were prioritised, often in response to the limitations of top-down interventions, though the need for institutional support to scale these efforts was acknowledged. Most solutions focused on governance and economic reform rather than technological innovation. Central was the democratic control of productive resources—land, water, seeds—and fair trade terms, seen as essential for actors historically excluded from decision-making (Deaconu et al., 2024) and challenging 'dominant agribusiness, investor-driven agriculture' (Wiebe, 2023, p. 634). Strengthening Alternative Food Networks (AFNs) and Short Supply Chains were presented as key strategies to reconnect producers and consumers (Cabral et al., 2025; Deaconu et al., 2024; Zollet et al., 2021). Other priorities included valuing diverse knowledge systems and advancing gender equity (Cabral et al., 2025; Chipuriro, 2023; Wiebe, 2023). Agroecology is consistently highlighted as a transformative approach that integrates ecological, economic, and social sustainability.

Food system transformation

The food sovereignty narrative envisioned a radical shift from extractive, productivist models toward regenerative food systems that prioritise ecological and human well-being (Tanzer et al., 2022). Most articles advocated systemic transformation led by grassroots movements and Civil Society Organisations (CSO), with smallholder farmers, Indigenous peoples, and women farmers positioned as key agents of change (Cabral et al., 2025; Chipuriro, 2023; Tanzer et al., 2022; Wiebe, 2023). These actors are presented as challenging corporate dominance through collective action, while governments and NGOs, though necessary for policy support, were often seen as limited in their transformative capacity (Tanzer et al., 2022; Zollet et al., 2021). Several articles call for reforming global institutions (e.g., more inclusive structures) like the UN and FAO, which are viewed as 'hardly able to create systems change' in their current form, and urge enhancing their transformative capacity (Tanzer et al., 2022). Others focus on national and local reforms, such as reducing bureaucracy for smallholders, supporting sustainable practices, and promoting multi-scalar policy alignment (Cabral et al., 2025; Deaconu et al., 2024). Across all six articles, democratic engagement and collective agency were seen as essential for meaningful transformation.

Biodiversity was indirectly linked to these regenerative approaches, particularly through agroecology, which is consistently highlighted for restoring ecological health and promoting diversification (Cabral et al., 2025; Deaconu et al., 2024; Wiebe, 2023). These practices aimed to counter dietary homogenisation and build resilience, reinforcing the broader vision of food systems rooted in justice, sustainability, and local knowledge.

Biodiversity

Biodiversity was primarily framed as a critical environmental element threatened by, amongst others, the global industrial agri-food system, and conversely supported by sustainable, localised, and agroecological food systems. While not the central focus, biodiversity was recognised as a positive outcome of more just and regionally grounded practices. The emphasis on local and regional approaches also implies responsibility for local biodiversity. In articles that highlighted sustainability and ecological harmony, biodiversity is often linked to indigenous and agroecological paradigms that value nature's intrinsic worth (Cabral et al., 2025; Deaconu et al., 2024; Wiebe, 2023). However, in Chipuriro (2023), ecological sustainability was only mentioned superficially, illustrating the risk of biodiversity being underrepresented within broader justice-oriented narratives.

Biases, assumptions, and blind spots

Discursive

The food sovereignty narrative was rooted in the belief that power imbalances drive food system injustices (Cabral et al., 2025; Deaconu et al., 2024; Wiebe, 2023). However, the narrative offers limited detail on how entrenched power structures will be dismantled or how global trade rules will shift to support local food sovereignty, leaving gaps in the articulation of actionable mechanisms for systemic change. It prioritised equity and social justice, assuming that placing both producers and consumers at the centre of food policy is key to systemic change. A key assumption here is that the values of equity and social justice lead to more care for biodiversity. Biodiversity and ecological sustainability were seen as outcomes of this transformation, which envisioned a shift from corporate control to decentralised, participatory, and ecologically grounded models. This framing tends to dismiss incremental reforms, market-led solutions, and technological innovations, often associating them with corporate interests. As a result, there is a blind spot in recognising how certain technologies, if governed equitably, could support alternative food systems. Top-down, pro-capital solutions (e.g., utility maximisation) are generally excluded, viewed as perpetuating the very structures that need dismantling.

Political

The food sovereignty narrative legitimised grassroots movements, small-scale producers, Indigenous peoples, and women as key agents of transformative change, emphasising 'voices from below' (Cabral et al., 2025). While Cabral et al. (2025) noted the limited representation of the selected actors in their analyses, most articles lacked a deeper reflection on internal diversity, political tensions, or ideological differences within these movements. Wiebe (2023) acknowledged the challenge of building solidarity without diluting the radical core, which left the internal complexities unexplored. Similarly, some articles assumed that integrating diverse knowledge systems will naturally lead to policy uptake and transformation (Deaconu et al., 2024). Moreover, mainstream actors (e.g., corporations, and conventional state institutions) are generally viewed with scepticism. Although government support was seen as necessary in resource-constrained contexts like Sierra Leone and Zambia (Cabral et al., 2025), there was a tendency to underestimate the role of state institutions in scaling alternatives.

'Just' and 'just transitions' were central concepts, often framed through familiar justice dimensions—distributional, procedural, restorative, and recognitional (Cabral et al., 2025). However, this framing may have overlooked alternative justice conceptions held by other groups that have been structurally excluded, e.g., justice grounded in multispecies relations or relational ontologies. The broad use of 'just' also risks co-optation by dominant institutions, such as the UN Food Systems Summit (2021), which has been criticised for promoting incremental change without challenging corporate power (Tanzer et al., 2022). In this way, just transitions could serve as a boundary object; flexible enough to unite diverse actors, but too ambiguous to realise more radical potential in relation to biodiversity.

Economic

The food sovereignty narrative critiqued market mechanisms and capitalism and its emphasis on private property and profit, advocating for economic rectification (Deaconu et al., 2024). It linked food security and well-being to social justice and ecological sustainability, not just caloric intake or growth. Beneficiaries were clearly identified: small-scale producers, indigenous peoples, women, and local communities, who seek control over their food systems. The narrative favoured solidarity-based economic models, such as fair trade,

community-supported agriculture, and local economies, while promoting ecological stewardship and democratic control over resources like seeds, water, and biodiversity (Chipuriro, 2023; Wiebe, 2023). While cooperative and collective action were central, the narrative tended to overlook internal governance challenges (e.g., the presence of a democratic system does not necessarily ensure the preservation of biodiversity) and lacked clear strategies for scaling localised models globally. It also underestimated the complexities of implementing democratic resource control in dynamic political and environmental contexts (Wiebe, 2023). There was limited engagement with economic viability and more global or national governance, which could hinder broader impact.

3.2 Agroecology (AE)

Brief description of narrative

Agroecology was often presented as a solution to a broken food system, based on systems thinking and holistic approaches. As shared in Mazac et al. (2021, p. 197):

'Agroecology is a science, a practice, and a relational approach to food both socially and culturally (Gliessman, 2014). It developed in the 1970s as agronomists recognized the value of ecosystem approaches to understanding the science of agriculture. As a practice-oriented way of relating to agricultural systems, agroecology regards the cultivated and uncultivated landscape as part of an integrated ecosystem, rather than agricultural practice as removed from nature.'

The following articles were selected:

- Agroecology and circular food systems: decoupling natural resource use from rural development in sub-Saharan Africa? (Van Rooyen et al., 2025)
- Participatory future visions of collaborative agroecological farmer-pastoralist systems in Tanzania (Johansson et al., 2023)
- From the ground up: Exploring the potential contribution of citizens' assemblies in radical food-system transformation (Lehner et al., 2025)
- Participatory analysis and action to promote agroecological food systems – methodological insights from a three-country initiative: Nicaragua, Senegal and England (Bichler et al., 2020)
- The potential of diversified agroecological systems to deliver healthy outcomes: Making the link between agriculture, food systems & health (Frison and Clément, 2020)
- Agroecological symbiosis (Mazac et al., 2021).

Worldview and values

The reviewed articles collectively argued that the global industrial food system is in crisis, unsustainable, unjust, and detrimental to both human and environmental health (Frison and Clément, 2020; Lehner et al., 2025). They advocated for a systemic transformation, positioning agroecology as a key paradigm to promote sustainability, equity, and public health through context-specific approaches that respect local conditions and cultures (Mazac et al., 2021; Bichler et al., 2020; van Rooyen et al., 2025). While all articles shared core values like biodiversity, soil health, and resilience, they differed in their emphasis on anthropocentric versus ecocentric perspectives. Frison and Clément (2020) focus on human-centred benefits, whereas Mazac et al. (2021) and van Rooyen et al. (2025) prioritised ecological integrity. Others, like Johansson et al. (2023), Bichler et al. (2020), and Lehner et al. (2025), integrated socio-economic justice with ecological sustainability, while Lehner et al. (2025) called for a radical restructuring of capitalist systems to achieve meaningful change. These last three articles especially highlighted the importance of participation, empowerment, and power redistribution as essential to achieving both environmental and social goals.

Vision

'The diversified agroecological systems described [...] embody the systemic thinking required to place food systems on a more sustainable footing, [...] Diversified agroecological systems offer a fundamentally new paradigm for food and farming systems, in which system redesign and diversification are prerequisites, and in which changes in knowledge transmission, participation, and power relations are as important as shifts in production.' (Frison and Clément, 2020, p. 5).

Agroecology was consistently positioned as the guiding paradigm for this transformation, rooted in a holistic understanding of food systems that recognises the interconnections between ecological, economic, social, and nutritional dimensions. However, interpretations varied: Frison and Clément (2020) emphasised human health through diversified diets; van Rooyen et al. (2025) focused on circularity and regeneration in Sub-Saharan Africa; Johansson et al. (2023) highlighted small-scale systems that support livelihoods and autonomy in Tanzania; Bichler et al. (2020) stressed justice and farmer empowerment; Mazac et al. (2021) proposed the Agroecological Symbiosis model for localised, resource-regenerating food systems; and Lehner et al. (2025) advocated a radical post-growth vision, arguing that dismantling capitalist structures is essential for true ecological and social justice.

Problems

All six articles diagnosed industrial food systems as fundamentally unsustainable, unjust, and harmful to human health, citing environmental degradation, poor health outcomes, and socio-economic inequities (Bichler et al., 2020; Frison and Clément, 2020; Mazac et al., 2021; Johansson et al., 2023). Each framed these issues differently: Frison and Clément (2020) highlight policy 'lock-ins'; van Rooyen et al. (2025) critiqued scale-based models in resource-constrained Sub-Saharan Africa; Johansson et al. (2023) focussed on socio-political barriers in Tanzania. Bichler et al. (2020), Mazac et al. (2021), and Lehner et al. (2025) attributed the crisis to capitalist and extractivist systems. Across the board, governments, corporations, and middlemen were criticised for reinforcing harmful practices through profit-driven policies and market exploitation (Johansson et al., 2023; van Rooyen et al., 2025; Lehner et al., 2025).

Solutions

Agroecology was widely presented as the key solution to the food system crisis, not merely as a set of practices, but as a science and systems-oriented paradigm integrating ecological, economic, and social dimensions (Frison and Clément, 2020). Many articles referenced the 13 HLPE (i.e. High-level Panel of Experts on Food Security and Nutrition) principles, emphasising diversification, reduced chemical inputs, soil health, and livelihood security. Reconnecting producers and consumers through local markets and food literacy was a common theme (Mazac et al., 2021; Frison and Clément, 2020; Johansson et al., 2023; van Rooyen et al., 2025). Solutions blended bottom-up participation (e.g., farmer-led research, community initiatives) with top-down policy reforms like subsidies and regulation (Johansson et al., 2023; Bichler et al., 2020). Lehner et al. (2025) proposed citizens' assemblies and a post-capitalist transition. Each article emphasised different priorities; from health-focused policy (Frison and Clément, 2020) and circular rural economies (van Rooyen et al., 2025) to localised redesign (Mazac et al., 2021) and structural change (Lehner et al., 2025). While some adopted a cautious form of techno-optimism (Johansson et al., 2023; van Rooyen et al., 2025), most favoured publicly led, collective approaches over market-driven ones.

Food system transformation

While all articles agreed on the urgency of transforming food systems, they proposed different pathways and actors to lead the change. Frison and Clément (2020) advocated for top-down policy reforms, including shifting investments, removing harmful subsidies, and supporting alternative markets to reduce chemical dependency and promote diversified farming. Van Rooyen et al. (2025) emphasised multi-stakeholder collaboration to co-design circular food systems, shifting from economies of scale to economies of scope for local value creation. Johansson et al. (2023) proposed a three-tiered scaling strategy -scaling out (replication), scaling up (policy reform), and scaling deep (value change)-to promote agroecology and peer learning. Bichler et al. (2020) focused on participatory action research, where farmers and stakeholders collaboratively identify local leverage points. Mazac et al. (2021) highlighted grassroots innovations like farm-level processing and community markets to shorten supply chains. Lehner et al. (2025) called for deliberative democratic processes, such as citizens' assemblies, to foster critical food-systems literacy and challenge capitalist power structures.

The drivers of change also varied: Frison and Clément (2020) emphasised the role of governments and global institutions; van Rooyen et al. (2025) highlighted researchers, entrepreneurs, farmers, and consumers as co-creators; Johansson et al. (2023) focused on farmers and pastoralists supported by NGOs and policy; Bichler et al. (2020) positioned farmers as co-researchers; Mazac et al. (2021) centered grassroots actors and community engagement; and Lehner et al. (2025) placed citizens and civil society at the heart of transformation through democratic organising.

Biodiversity

Biodiversity was recognised across the articles as both a major issue and a key solution tied to agroecology's ecological foundation. While some articles treated it as marginal (Bichler et al., 2020; Lehner et al., 2025), others emphasised its importance in addressing environmental degradation and enhancing resilience (Mazac et al., 2021; Frison and Clément, 2020; Johansson et al., 2023; van Rooyen et al., 2025). Biodiversity loss was linked to industrial agriculture's negative impacts, while agroecological systems promote biodiversity through natural pest control, soil fertility, and economic diversification. It is conceptualised as species, functional, and genetic diversity across crops, livestock, and landscapes (Frison and Clément, 2020; van Rooyen et al., 2025), with multispecies interactions fostering ecological synergies (Johansson et al., 2023). Biodiverse agroecosystems were seen as self-sustaining and resilient (Frison and Clément, 2020; Johansson et al., 2023), embedded in broader ecosystems (Mazac et al., 2021). However, some articles, like Lehner et al. (2025), mentioned biodiversity only briefly, suggesting it may be assumed rather than explicitly addressed. Others, like Mazac et al. (2021), prioritised human health, potentially limiting deeper ecological discussion.

Many articles assumed agroecological practices inherently boost biodiversity. Lehner et al. (2025) exemplified this by mentioning biodiversity only once without elaboration, implying it's either assumed or overshadowed by broader socio-ecological themes. Similarly, Mazac et al. (2021) acknowledged biodiversity but prioritised human health, limiting focus on its ecological dimensions.

Biases, assumptions, and blind spots

Discursive

The narrative is fragmented across its varied dimensions: science, practice, and a relational approach (Mazac et al., 2021). This fragmentation contributes to conceptual flexibility, as Bichler et al. (2020, p. 159) explain:

'Considering the values of participation and agroecology in terms of constituting bottom-up approaches and being context specific (Guzmán, 2013; Pimbert, 2006), and also considering the wide range of interpretations of agroecology (Bellwood-Howard and Ripoll, 2020), it was deemed important to ground the project in what the farmers themselves understood to be agroecological food systems.'

Such flexibility, rooted in systems thinking and ecological principles, reflects different perspectives that have opened diverse entry points for food system transformation. This is evident in the varied emphasis on ecocentric values like biodiversity and anthropocentric ones like justice across the six articles.

Political

Many of the reviewed articles shared a key blind spot; they assume that presenting strong evidence or successful local models will naturally lead to policy change, overlooking entrenched political and economic power structures that resist transformation (Frison and Clément, 2020; van Rooyen et al., 2025). Agroecology is often framed as a science- or community-led alternative, but this framing can underestimate the influence of vested interests and institutional inertia. Several articles favoured localism and decentralisation, prioritising smallholders and participatory models (Mazac et al., 2021; Bichler et al., 2020; Johansson et al., 2023), and yet avoid confronting global trade regimes and corporate power directly. A tension emerged in how agroecology is politicised. Van Rooyen et al. (2025) adopted a techno-managerial lens, focusing on circularity and local solutions like small-scale irrigation, while explicitly stating that agroecology does not inherently lead to food sovereignty, thus taking a depoliticised stance. Mazac et al. (2021) promoted grassroots, human-scale alternatives and critiqued neoliberalism, but stopped short of challenging dominant agribusiness structures directly. Lehner et al. (2025) offered the most radical critique, arguing for a post-capitalist transformation of property and production systems. However, they highlighted 'capitalist realism', the widespread belief that capitalism is inevitable, as a major barrier, noting that even participants struggle to envision viable alternatives. While their critique is deeply political, the practical roadmap for overcoming ideological constraints and enacting citizen-led change remained vague.

Economic

The agroecology narrative strongly favoured decentralisation, local ownership, and community empowerment, emphasising small-scale farmers and rural autonomy over industrial actors. It called for a shift from 'economies of scale' to 'economies of scope,' retaining value locally and promoting collective agency over land and resources, most radically expressed by Lehner et al. (2025), who advocated democratic control of production. Farmers were consistently framed as key agents of change, with solutions rooted in grassroots, context-specific practices. However, the literature faced key challenges. It is often assumed that social ownership and transformation are feasible without detailing how to overcome private property norms or entrenched capitalist structures. 'Capitalist realism', the belief that alternatives to capitalism are unimaginable, limits transformative ambition (Lehner et al., 2025). Agroecology's labour-intensive nature and high input costs also posed barriers, especially without strong policy support. Johansson et al. (2023) noted critics view agroecology as idealistic or outdated, revealing the narrative's underestimation of structural resistance, particularly around land and resource control.

3.3 One Health (OH)

Brief description of narrative

The One Health narrative stresses the interlinkages between environmental, animal, and human health. The narrative jointly aims to improve human health and food security through the food system and the environment with a One Health approach (Bron et al., 2023; Leach, 2024; Nguyen-Viet et al., 2025; Patterson et al., 2020; Stentiford et al., 2020; Willetts et al., 2025). The following articles were selected:

- Preventing and preparing for pandemics: Why food systems must transform (Leach et al., 2024)
- Moving health to the heart of agri-food policies (Patterson et al. 2020)
- Insights and future directions: Applying the One Health approach in international agricultural research for development to address food systems challenges (Nguyen-Viet et al., 2025)
- In the Age of Pandemics, Connecting Food Systems and Health: A Global One Health Approach (Bron et al., 2023)
- Sustainable aquaculture through the One Health lens (Stentiford et al., 2020)
- Biodiversity, health science, and the human right to a healthy environment (Willetts et al., 2025).

Worldview and values

One Health is sometimes interpreted from a more anthropogenic view (Bron et al., 2023; Nguyen-Viet et al., 2025; Patterson et al., 2020; Willetts et al., 2025) and sometimes from a more ecocentric view (Leach, 2024; Stentiford et al., 2020). The more anthropocentric worldview and values centered around human health, food security, livelihoods and economic viability. In this perspective, the inclusion of animal and environmental factors was seen as instrumental for mitigating human health. For example, the identification of habitat alteration and ecosystem health was linked to emerging pathogens and pandemics (Bron et al., 2023; Nguyen-Viet et al., 2025; Patterson et al., 2020). The ecocentric view depicted humans and the environment as deeply interwoven with a multitude of complex relationships and dependencies between ecosystems, biodiversity and humans (Leach, 2024; Stentiford et al., 2020). This view also included shared anthropocentric values, such as human health and livelihoods, but it extended this with more intrinsic values for biodiversity and the environment grounded in care and reciprocity. Notably, only Leach (2024) expressed justice and equity as a value. These views reflected the evolution of One Health, from an early biomedical focus on zoonoses and human health to a recent systemic approach that also foregrounds biodiversity, ecosystems, and structural drivers of health risks such as land-use change.

Vision

From these two perspectives, different visions of One Health were expressed related to their values. The anthropocentric view necessitated a 'restructuring our food systems to better support the health of the global population' (Patterson et al., 2020, p. 6). Whereas, the ecocentric view envisions One Health as 'securing human, animal and ecological life and health that appreciate their deep interdependence' (Leach, 2024, p 41).

Problems

The One Health narrative collectively viewed food systems as a systemic risk for human health, although Willetts et al. (2025) more indirectly through food safety. The narrative also addressed the disproportionate vulnerabilities of smallholder farmers and vulnerable populations. A dominant theme within the narrative was pandemics, specifically the COVID-19 pandemic, linked to wildlife contact, habitat change and industrial farming (Bron et al., 2023; Leach, 2024; Patterson et al., 2020). Wildlife itself was not pictured as the driver. Rather, human-related land-use change and environmental degradation are held responsible for pandemics and emerging pathogens. Food-borne diseases, more prevalent and constant health issues in Africa and Asia, were only presented by Nguyen-Viet et al. (2025) and Patterson et al. (2020). Leach (2024) and Willetts et al. (2025) framed the problem through a justice lens. Leach highlighted structural political and economic conditions, identifying mass production and short-term gains as key drivers. Willetts et al. focused on the absence of the human right to a healthy environment as the core issue. Whereas, Patterson et al. (2020) addressed market forces that produce convenient, affordable and tasty foods that are nutritionally unhealthy.

Solutions

The One Health narrative proposed a One Health framework as a solution for the current health issues linked to food systems. However, the narrative offered varying interpretations of what a One Health framework entails. Nguyen-Viet et al. (2025) and Patterson et al. (2020) enacted it as a strategy to mitigate infectious diseases, antimicrobial resistance, unhealthy diets, and food-borne illnesses. In contrast, Bron et al. (2023), Leach (2024), and Willetts et al. (2025) positioned it as a framework for interconnected health between humans, animals, and the environment. Whereas Stentiford et al. (2020) presented One Health as a practical tool for guiding sustainable aquaculture for people, organisms and the environment. Most articles (Bron et al., 2023; Nguyen-Viet et al., 2025; Patterson et al., 2020; Stentiford et al., 2020; Willetts et al., 2025) presented solutions that are more top-down, techno-optimist and public sector-led. These solutions rely on scientists, policymakers and governments designing and implementing the solutions through knowledge creation, policy and legislation. While the articles advocated for a shift to integrate health care in food systems, the proposed solutions were more reformist in nature, as they view the socio-political structures as given. Contrastingly, Leach (2024) argued that technical fixes are inadequate for disease outbreaks, calling instead for social, economic, and political remedies through inclusive participation.

Food system transformation

The One Health narrative sought to transform food systems for improved health outcomes by recognising the interconnected health of humans, animals, and the environment. Some emphasised human health and pandemics, framing transformation as a need for a more resilient food system (Bron et al., 2023; Patterson et al., 2020). Others perceived food system transformation more as an interconnected health feeding into the well-being of animals and the environment, besides human well-being (Stentiford et al., 2020; Leach, 2024). Responsibility for leading the transformation was typically assigned to governments, scientists, and policymakers (Bron et al., 2023; Nguyen-Viet et al., 2025; Patterson et al., 2020; Stentiford et al., 2020), while Leach (2024) highlighted the need for a participatory approach. In conclusion, while One Health aimed to link human, animal, and environmental health, its varied interpretations likely result in widely differing outcomes in practice.

Biodiversity

Biodiversity played a central role in the One Health narrative. It was mostly conceptualised as the environment, habitat fragmentation or wildlife, aligning more closely with human health-related effects of biodiversity. The generalised framing of biodiversity as the environment, combined with little specificity on what an improved environmental health means in practice, enhances the ambiguity of what specifically should happen to biodiversity. While some addressed measures, such as mitigating habitat loss through sustainable intensification (Bron et al., 2023), a more in-depth examination of the interlinkages between biodiversity and health outcomes was lacking. Additionally, the One Health narrative tended towards the instrumental valuation of the environment (Bron et al., 2023; Nguyen-Viet et al., 2025; Patterson et al., 2020; Willetts, 2025). This bias potentially favoured biodiversity as a solution to be tailored towards human health, overlooking biodiversity with less value to human health.

Biases, assumptions, and blind spots

Discursive

The conceptualisation of health was vital for understanding the differences in the One Health narrative. Health was rarely defined, revealing its implicit framing as an intrinsic value. The more anthropocentric view framed health as disease control for human protection, whereas the more ecocentric view framed animal, human, plant, and environmental health as integral to systemic wellbeing. However, this obscured how various interpretations and implementations lead to different health outcomes for humans, animals, and the environment. For example, an anthropogenic view that focuses on pandemics and emerging diseases (Nguyen-Viet et al., 2025) directed a different allocation of resources than a more ecocentric view, which also emphasised animal health and environmental protection (Stentiford et al., 2020).

Political

Except for Leach (2024) and Patterson (2020), the One Health narrative delved little into the indirect social, political, and economic forces that have shaped the current food system and health outcomes. Moreover, the narrative did not hold the government and policy-makers accountable for their contribution to the current food system. This can obscure the indirect context of the problems favouring top-down, scientifically-driven solutions that address the acute and visible issues, instead of delving into underlying political and economic forces. This might limit effective and sustainable mitigation, as the roots of the problem are not addressed. Furthermore, actors were generally presented as homogeneous groups, such as the private sector (Bron et al., 2023), government (Nguyen-Viet et al., 2025) or people (Bron et al., 2023). This can hide differences in context, responsibility, and agency. Furthermore, while narratives often stressed benefits for groups experiencing structural disadvantages, they rarely included them in the design of the solution, reinforcing a top-down model that casts communities as passive, rather than active agents in addressing their own challenges.

Economic

The outcomes of a One Health framework could enhance societal and economic value by limiting disease burdens and pandemics. However, its emphasis on policy-driven and scientific solutions may legitimise resource allocation to policy agencies and scientific actors, thereby trading off support for community-driven approaches. Moreover, Bron et al. (2023), Nguyen-Viet et al. (2025), and Stentiford et al. (2020) presented productivity gains as key to food security. This framing risks the expansion of intensive systems that creates more health problems than it intends to solve.

3.4 More-Than-Human/Multispecies justice (MtH)

Brief description of narrative

The More-than-Human/Multispecies justice narrative advocated an ethics of care and a relational attitude towards non-humans, situated in the local and lived experiences of humans and non-humans. It actively promotes an alternative to the neoliberal and extractivist food system by valuing non-humans (e.g., animals, soil and plants) beyond their anthropocentric utility, and by emphasising more reciprocal and respectful relationships between humans and the natural world. The following articles were selected:

- Contact Zones: Designing for More-than-Human Food Relations (Prost et al., 2021)
- Algorithmic food justice: Co-designing more-than-human blockchain futures for the food commons (Heitlinger et al., 2021)
- Regenerative agriculture and a more-than-human ethic of care: a relational approach to understanding transformation (Seymour and Connelly, 2023)
- Thinking with soils: Can urban farms help us heal metabolic rifts in Aotearoa? (Goburdhone and Dombroski, 2023)
- Edible Garden Cities: Rethinking Boundaries and Integrating Hedges into Scalable Urban Food Systems (Adams et al., 2023)
- More-than-human conservation, models from the pluriverse: the example of biocultural diversity conservation from knowledge systems of the Maya Ixil in the Maya Ixil Territory (D'Alesandro, 2024).

Worldview and values

The More-than-Human/Multispecies justice narrative embraced a relational worldview emphasising the entanglement and interdependence of non-humans and humans. It advocated care, connection and responsibility towards all beings with a strong influence from Indigenous and decolonial perspectives (D'Alesandro, 2024; Goburdhone and Dombroski, 2023; Heitlinger et al., 2021; Seymour and Connelly, 2023). This perspective animated non-humans, e.g., plants, soil, animals, food, ecosystems, by subjectifying them through situated interactions, thereby affirming the interconnectedness of humans and non-humans and recognising non-humans as subjects with intrinsic value. It was deeply critical of the 'neoliberal and productivist' food system, which reduces nature to economic utility. The narrative perceived true transformation as beginning with an inner shift toward a more-than-human ethic. The narrative focused on bottom-up actors, such as farmers, communities, and non-humans, rather than corporations or governmental institutions.

The values were strongly ecocentric, emphasising care, connection, and responsibility toward both humans and non-humans. Food sovereignty and justice frequently appeared, thereby extending social justice into a more-than-human realm (D'Alesandro, 2024; Heitlinger et al., 2021; Prost et al., 2021; Seymour and Connelly, 2023). An ecocentric view of health, focused on communities and non-humans, was also commonly expressed. In contrast, Adams et al. (2023) leaned toward anthropocentric values, emphasising human health in urban contexts, however still advocating for 'a deeper consideration for more-than-human residents' (p. 18).

Vision

The narrative had a strong relational vision with an attentive attitude that will naturally lead to a food system that cares for both humans and non-humans. It generally lacked a concrete vision because it centered on mental and behavioural shifts rather than a specific anthropocentric image of desired biophysical changes within food systems. An exception was Goburdhone and Dombroski (2023), who described a physical transformation through healing the metabolic rift, reconnecting nutrient cycles between production and consumption sites. However, this too stemmed from an inner shift away from a productivist mindset.

Problems

The narrative identified the neoliberal industrialised food system and its underlying beliefs as the root cause of biodiversity loss, environmental harm, and social degradation. It emphasised how global supply chains disconnect humans from food and non-human life, disrupting relational ties (Prost et al., 2021). According to the articles, the productivist mindset reduces food to a commodity, eroding both non-human and community values. Authors such as D'Alesandro (2024), Prost et al. (2021), and Seymour and Connelly (2023) highlighted Western and colonial mentalities as drivers of this extractive, relationally destructive system.

Rather than assigning blame to specific actors, the narrative critiqued the systemic mindset itself. Key players, e.g. agribusinesses, policymakers, and supply chain managers, were not explicitly held accountable. Those described as most affected include non-humans, Indigenous communities, small-scale farmers, and local populations.

Solutions

The core solution proposed is a shift in worldview and mindset toward a relational, caring attitude grounded in a more-than-human perspective. It suggested that inner transformation will lead to material change in food systems (D'Alesandro, 2024; Goburdhone and Dombroski, 2023; Heitlinger et al., 2021; Prost et al., 2021; Seymour and Connelly, 2023). For example, Goburdhone and Dombroski (2023) argued that the metabolic rift, the disconnection between sites of production and consumption, is healed by overcoming the productivist mindset, allowing relational interdependence to be restored. Yet these narratives also pointed to structural changes, embedding more-than-human principles in planning, design, and governance (Heitlinger et al., 2021; Prost et al., 2021; Seymour and Connelly, 2023; Adams et al., 2023). The narrative thus called for a radical shift away from the neoliberal food system. In contrast, Adams et al. (2023) adopted a reformist approach, focusing on multifunctional, more-than-human green planning within urban settings.

The narrative leaned toward bottom-up, citizen-led transformation, emphasising the roles of communities, small-scale farmers, and Indigenous peoples, while largely excluding governments and market actors, likely

reflecting distrust in dominant institutions of the neoliberal system. It was ambivalent towards technology. D’Alessandro (2024), Goburdhone and Dombroski (2023), and Seymour and Connelly (2023) reflected a techno-pessimist stance by focusing on social and psychological shifts. However, Adams et al. (2023), Heitlinger et al. (2021), and Prost et al. (2021) explored intentional and supportive uses of technology (i.e. blockchain for decentralised governance, learning supportive tools).

Food system transformation

Food system transformation was envisioned through a shift to a more-than-human worldview, one that recognises the interconnection between humans and non-humans and promotes care and responsibility. This transformation was expected to unfold primarily through bottom-up actors—farmers, communities, and individuals—who reject human exceptionalism and individualism. The specific physical outcomes were shaped by context-specific, relational dynamics. For example, D’Alessandro (2024) described a form of biocultural diversity rooted in the Maya Ixil knowledge system, where people and nature support one another, and biodiversity thrives. In conclusion, the More-than-Human/Multispecies justice narrative seeks to transform the neoliberal productivist food system into one grounded in relational care.

Biodiversity

Biodiversity was largely conceptualised through the terms more-than-human, multispecies, and non-human, which emphasised care and interconnectedness between humans and non-humans. The appeal of these framings lied in their relational quality, which aligned with the relational worldview of the narrative. These terms were also more intuitively relatable than the abstract concept of biodiversity, making them better suited to the narrative’s focus on the local reality of interspecies connections. Grounding biodiversity in interspecies relations avoided overgeneralisations of more abstract biodiversity framings. While the combination of human and non-human promoted context-specific attentiveness, it does not differentiate between species, thereby limiting species-specific insights. Additionally, its local focus made it harder to identify broader drivers and biodiversity patterns, and to engage with more abstract framings of biodiversity that help explain national or global dynamics. Biodiversity loss linked to food systems nonetheless appeared driven by the food system within the problem framing (Adams et al., 2023; D’Alessandro, 2024; Prost et al., 2021; Seymour and Connelly, 2023). Adams et al. (2023) discussed biodiversity not only within the problem framing but also beyond it, possibly due to the absence of a relational discourse within this article. D’Alessandro (2024) incorporated biodiversity through a conservation-focused lens, even while adopting a relational perspective.

Biases, assumptions, and blind spots

Discursive

More-than-Human/Multispecies justice was consistently conceptualised across the narrative as a relational worldview, emphasising interconnectedness and care with non-humans. However, Adams et al. (2023) framed it more as a design-oriented approach to green urban planning. Moreover, by positioning the neoliberal food system as the core problem, the narrative strongly favoured bottom-up solutions, which may overlook opportunities to engage top-down actors in adopting more-than-human perspectives. It also assumed that systemic change will follow once actors adopt a more-than-human perspective, without addressing structural barriers to transformation.

Political

The narrative framed the neoliberal food system as the central problem, which risks oversimplifying the diversity of actors within the global food system. By largely excluding governments and market actors, except by Adams et al. (2023), it potentially missed opportunities to embed more-than-human perspectives within industrialised systems. It also positioned itself outside the mainstream food system, yet failed to address the political, cultural, and economic resistance to more-than-human perspectives or propose ways to overcome these barriers. Thereby risking marginalisation and reduced traction within the broader food system.

Economic

The economic dimension was largely absent from the narrative, except for Heitlinger et al. (2021). By not engaging with economic structures and interests, the narrative risks appearing idealistic or detached, which may limit its adoption and undermine its ability to challenge systemic inequalities beyond localised, bottom-up initiatives.

3.5 Multifunctional landscapes (MFL)

Brief description of narrative

The multifunctional landscapes narrative took a spatial perspective on food systems and biodiversity. It assumed that a better understanding of complex dynamics at the landscape level leads to more coherent and coordinated policies, which in turn lead to better social, economic and environmental outcomes (Blundo-Canto et al., 2020; González-Romero et al., 2022; Heidenreich et al., 2024; Jansen and Kalas, 2024; Nishizawa et al., 2023; Rasul et al., 2022). The following articles were selected:

- Model-based agricultural landscape assessments: a review (Heidenreich et al. 2024)
- Customised Methodology to Assess and Measure Effectiveness of Integrated Landscape Management Relevant Multi-Stakeholder Transformative Governance, Incorporating Rights-Based Planning and Tenure Aspects, Applied in Kenya, Nigeria, and Viet Nam (Jansen and Kalas, 2024)
- Towards diverse agricultural land uses: socio-ecological implications of European agricultural pathways for a Swiss orchard region (Nishizawa et al. 2023)
- Territorialised Agrifood Systems and Sustainability: Methodological Approach on the Spanish State Scale (Gonzalez-Romero et al., 2022)
- Conserving agrobiodiversity for sustainable food systems in the Hindu Kush Himalaya (Rasul et al., 2022)
- Changes in food access by mestizo communities associated with deforestation and agrobiodiversity loss in Ucayali, Peruvian Amazon (Blundo-canto et al., 2020).

Worldview and values

The articles reflected a worldview in which well-intentioned policymakers aim to make integrated, transdisciplinary, and evidence-based decisions that balance human well-being with planetary boundaries. The multifunctional landscapes narrative adopted a governance-centered lens, spanning both public and private sectors, and is applied across high-, middle-, and low-income contexts.

Most articles leaned toward anthropocentric values, emphasising human well-being, livelihoods, food and nutrition security, and resilience (Heidenreich et al., 2024; Jansen and Kalas, 2024; Nishizawa et al., 2023; González-Romero et al., 2022; Rasul et al., 2022; Blundo-Canto et al., 2020). Environmental values were generally framed instrumentally, supporting resilient livelihoods (e.g., Rasul et al., 2022). Evidence-based policymaking is a recurring theme, with Jansen and Kalas (2024) notably integrating inclusivity, equity, and a rights-based approach. In contrast, Heidenreich et al. (2024) strived for value-neutrality. The intrinsic value of biodiversity was implicit in several articles (Heidenreich et al., 2024; Jansen and Kalas, 2024; Rasul et al., 2022; Blundo-Canto et al., 2020), but absent in others (Nishizawa et al., 2023; González-Romero et al., 2022).

Values were primarily carried by policymakers and household-level decision-makers, such as farmers (Nishizawa et al., 2023) or communities (Blundo-Canto et al., 2020). In some cases, actors' agency is underrepresented or overlooked (Heidenreich et al., 2024; Blundo-Canto et al., 2020; Rasul et al., 2022).

Vision

The commonality in the visions expressed throughout the articles hinged on the image of balance in a delimited spatial area; through careful, evidence-based policy making a 'socially justifiable equilibrium between protection, production and consumption' (Jansen and Kalas, 2024, p. 2) can be achieved. The conservation of biodiversity followed logically out of the weighing of long-term and short-term interests, because of the 'potentials and opportunities for improving agrobiodiversity that are conducive to maintaining and increasing food security, ecosystem services and agricultural sustainability, and thus building resilience' (Rasul et al., 2022, p. 1).

Problems

All articles began from a shared problem framing: the harmful impacts of current agricultural and food systems. González-Romero et al. (2022) and Rasul et al. (2022) explicitly critiqued the legacy of the Green Revolution agricultural system. Biodiversity and agrobiodiversity loss were central concerns, closely linked to broader environmental degradation, such as soil and water pollution and ecosystem decline. These impacts were attributed to unsustainable production systems and the failure of existing sustainability strategies (Jansen and Kalas, 2024). Affected groups included farmers, households, and rural communities, while accountability was framed in more abstract terms, pointing to systemic, governance, and policy failures as root causes.

Solutions

The multifunctional landscapes narrative proposes an integrated landscape approach as a solution for the current governance issues linked to food systems. Heidenreich et al. (2024), Jansen and Kalas (2024), Nishizawa et al. (2023) and González-Romero et al. (2022) proposed methodologies to support coordinated and coherent interventions (Jansen and Kalas, 2024). Heidenreich et al. (2024), Jansen and Kalas (2024), Nishizawa et al. (2023) adopted forward-looking modelling approaches, while González-Romero et al. (2022) and Blundo-Canto et al. (2020) stressed the need for integrated analyses that consider current realities and long-term historical trends. Heidenreich et al. (2024, p. 16) warned of 'important gaps that may hinder them [the modelling approaches for agricultural landscape assessments] to effectively achieve the goals pursued.' Blundo-Canto et al. (2020, p. 639) highlighted the lack of longitudinal studies needed to understand 'the complex interactions between economic change, land use, agricultural biodiversity, and food access in rural landscapes.'

Due to the emphasis on modelling and landscape assessments as evidence for policy, most solutions were top-down, public sector-led, and anthropocentric. Jansen and Kalas (2024, p. 9) combined a governance-focused approach with a call for inclusive, community-based governance:

'Transformational change can be achieved through restoring, strengthening, or establishing well-founded and inclusive community-based governance of traditional 'commons', encouraging the achievement of global environmental benefits.'

While market-based incentives were acknowledged, government-led policies were seen as more influential in shaping land use decisions.

Food system transformation

Jansen and Kalas (2024) were the most explicit in articulating the type of transformation needed, while Heidenreich et al. (2024), Nishizawa et al. (2023), and González-Romero et al. (2022) adopted a more reformist stance, emphasising governance and policy as key levers for change. For instance, González-Romero et al. (2022, p. 17) highlighted 'the central government's role in dialogue and programmatic management in the lead-up to the agroecological transition.' This governance focus also resulted in limited attention to technology as a driver of transformation. Nishizawa et al. (2023, p. 97) explicitly noted this gap:

'Future studies should explicitly consider the adoption of new agricultural technologies and explore how the associated efficiency changes would impact farm and seasonal labour demand as well as agricultural land use patterns.'

Across the articles, agrobiodiversity was treated as a result of policy decisions and assumed to be integrated into governance frameworks.

Biodiversity

Biodiversity was primarily conceptualised at the landscape level, where it underpins ecosystem functions and services:

'in any given landscape, ecosystems and biodiversity provide the ecosystem structures and processes and thus landscape functions, creating potential for ecosystem services' (Heidenreich et al., 2024, p. 3).

In model-based or long-term assessments (Nishizawa et al., 2023; Blundo-Canto et al., 2020), biodiversity was operationalised in simplified metrics, such as biodiversity scores for individual species groups (ISGs) in Swiss orchards (Nishizawa et al., 2023) or forest cover in Peruvian Amazon localities (Blundo-Canto et al., 2020). In articles where biodiversity was not central (Jansen and Kalas, 2024; Nishizawa et al., 2023; González-Romero et al., 2022), it was framed as 'natural capital' or 'ecosystem services' to be safeguarded, restored, or conserved, often leading to an instrumental valuation within the multifunctional landscapes narrative.

In contrast, articles where (agro)biodiversity played a central role, Heidenreich et al., (2024), Rasul et al., (2022), Blundo-Canto et al., (2020), portrayed it as a value, a problem, and a key component of sustainable development, respectively. Biodiversity diversification was linked to enhanced food security and resilience. Rasul et al. (2022) and Blundo-Canto et al. (2020) connected biodiversity to traditional ecological knowledge, referencing diverse mountain cultures that protect plants and animals, mixed farming systems in the Himalayas that support subsistence without external inputs, and mestizo communities in the Amazon where a 'decline in gathering, hunting, and fishing to obtain wild foods' is seen as 'alarming given their role in dietary and nutritional diversity.' (Blundo-Canto et al., 2020, p. 652)

Biases, assumptions, and blind spots

Discursive

In the multifunctional landscapes narrative, defining landscape functions was central and typically framed from an anthropogenic perspective: biodiversity and ecosystem services were viewed as essential for resilient food systems. A key assumption across the articles was that decisions, including those at the household or farm level (Nishizawa et al., 2023; Rasul et al., 2022), are based on sound evidence and driven by rational, measurable, and primarily economic factors. While Blundo-Canto et al. (2020) acknowledged that investment decisions are shaped by cultural preferences and gender dynamics, their analysis focused on the measurable links between agricultural change, agrobiodiversity, land use, and food access.

Political

A key bias in the multifunctional landscapes narrative was its emphasis on governance and public policy as primary solutions to unsustainable food system outcomes. The landscape level is framed as 'a crucial level to intervene' where complexities are manageable (Jansen and Kalas, 2020). Across the articles, there was an underlying assumption that policymakers aim to minimise trade-offs and maximise synergies, making decisions based on sound evidence (Heidenreich et al., 2024; Nishizawa et al., 2023; González-Romero et al., 2022; Rasul et al., 2022; Blundo-Canto et al., 2020). However, the emphasis on balance and synergies often depoliticised biodiversity and landscape governance, presenting conservation, development, and livelihoods as seamlessly compatible. This depoliticising win-win framing risks obscuring politically and economically driven dynamics as a technical coordination challenge. Furthermore, the political dimensions of decision-making were largely unexamined except for Jansen and Kalas (2020), who focus on 'transformational governance', including rights-based planning and tenure aspects, and advocated for inclusive, equitable, and participatory processes. In addition, emphasising the landscape scale may obscure how wider structural forces, such as global trade rules, financial flows, or state interests, constrain what is possible locally.

Jansen and Kalas also stressed the importance of stakeholder involvement, arguing that 'their intimate knowledge and experience of their landscape puts them in the best position to articulate their needs and desires for transformative change.' (2024, p. 14). In contrast, other articles tended to position farmers, households, and rural communities as recipients of policy rather than active agents. The dominant view of household and farm-level decision-making as rational and economically driven overlooks political, cultural, and emotional influences of land-use decisions, potentially obscuring alternative pathways for change.

Economic

The aspirations of applying integrated interdisciplinary multifunctional landscape approaches promised balanced societal, economic and environmental outcomes, with the landscape level offering a scale where administrative and agroecological complexity is manageable. At the same time, its focus on policy-driven and evidence-based modelling runs the risk of prioritising resources to policy-makers and researchers, and neglecting support for more community-driven approaches.

3.6 Market-Based Frameworks (MBF)

Brief description of narrative

The market-based frameworks narrative was a broad narrative rooted in an anthropocentric worldview, pursuing sustainability by improving social, economic, governmental, and environmental dimensions of food systems. It relied on ecosystem services, market mechanisms, and sustainability indicators, while remaining ambivalent between public sector and market-led approaches. The following articles were selected:

- True cost of food and land degradation (Mirzabaev and von Braun, 2022)
- Sustainable agri-food investments require multi-sector co-development of decision tools (Negra et al., 2020)
- Ecologically Intermediate and Economically Final: The Role of the Ecosystem Services Framework (La Notte, 2022)
- Rangeland Ecosystem Service Markets: Panacea or Wicked Problem? (Roche et al., 2021)
- Towards a new framework to assess agri-food value chains' sustainability – The case of chestnut value chain (Allali et al., 2024)
- Linking drivers of food insecurity and ecosystem services in Africa (Aryee et al., 2024).

Worldview and values

The Market-based framework narrative viewed the world as a web of social, economic, environmental and governmental forces. It tried to create value across these domains, guided by the aim of sustainability within the food system and the UN Sustainable Development Goals (Allali et al., 2024; Aryee et al., 2024; Mirzabaev and von Braun, 2022; Negra et al., 2020). Moreover, it emphasised an instrumental framing of nature through ecosystem services, thereby leaning towards an anthropocentric worldview.

Vision

Its vision for the food system aligned with their core idea of sustainability as the alignment of social, economic, and environmental values, best captured by (Negra et al., 2020) as embedding sustainability within food systems. To achieve sustainable food systems and support decision-making, it drew on market mechanisms integrated in broader sustainability frameworks and discourse.

Problem

Food systems were described as resource-depleting and linked to a broad range of social, economic, health, and environmental issues (Allali et al., 2024; Mirzabaev and von Braun, 2022; Negra et al., 2020). Aryee et al. (2024) highlighted food insecurity in Africa, rooted in part in environmental degradation. La Notte (2022) and Roche et al. (2021) focused more on the challenge of accounting for lost ecosystem services, while Negra et al. (2020) stressed a lack of public investment in sustainable food systems. Accountability remained vague in the narrative, with only Roche et al. (2021) implicitly portraying the government as untrustworthy from the perspective of Californian ranchers. A wide range of actors were identified as affected, including agri-food companies, smallholders, poor communities, livestock producers, local communities, and consumers (Aryee et al., 2024; Mirzabaev and von Braun, 2022; Negra et al., 2020; Roche et al., 2021; Allali et al., 2024). This highlighted the broad range of stakeholders the narrative engages with.

Solution

The narrative presented a diverse set of solutions that attempt to integrate social, economic, governmental, and environmental values under the umbrella of sustainability. These included sustainability evaluation frameworks (Allali et al., 2024), improved ecosystem services valuation (La Notte et al., 2022), sustainability investing through co-developed tools between scientists and the private sector (Negra et al., 2020), true cost accounting (Mirzabaev and von Braun, 2022) and payments for ecosystem services (PES) (Aryee et al., 2024; Mirzabaev and von Braun, 2022). However, Roche et al. (2021) criticised PES markets facilitated through governments and instead advocate for bottom-up partnerships. Despite this variety, the solutions largely reflected a reformist, top-down, and techno-optimist orientation. The reformist orientation is aligned with a problem-solving discourse that seeks incremental improvement to the current food system through scientific frameworks, market mechanisms, and sustainability indicators. The solutions favoured top-down partnerships between scientists, governments, and the private sector as drivers of change, while largely overlooking local communities. Only Roche et al. (2021) and Mirzabaev and von Braun (2022) emphasised the role of local participation. Notably, the narrative was ambivalent about favouring either market-led or public sector-led solutions, reflecting a shifting focus between government intervention and market-driven approaches.

Food system transformation

Food system transformation was envisioned as a pathway to sustainability by integrating a broad range of economic, environmental, governmental, and social values. This complexity was addressed through scientific knowledge, government action, and private sector partnerships. Biodiversity was incorporated into this transformation through the environmental dimension of sustainability and the lens of ecosystem services. The narrative promoted a reformist, anthropocentric vision of food system transformation driven by scientific frameworks and market-based tools. It tried to align social, economic, governmental and environmental values under the umbrella of sustainability through top-down partnership, marginally involving local communities or intrinsic and relational ecological concerns.

Biodiversity

The narrative mainly framed biodiversity as a value within the environmental dimension of sustainability and through ecosystem services. This reflected an instrumental view, where biodiversity is valued for its benefits to humans rather than relationally or intrinsically. Still, biodiversity was also part of the worldview of the narrative as the environmental dimension within the broader web of economic, social, and governmental interactions shaping the food system. Additionally, Mirzabaev and von Braun (2022) and Negra et al. (2020) more explicitly featured biodiversity by identifying food systems as the major driver of biodiversity loss. Contrastingly, Roche et al. (2021) reported that livestock producers view environmental regulation as a threat to their livelihoods, a perspective the authors implicitly support. Thereby framing environmental regulation as an issue. The focus on biodiversity's functional role in supporting the food system risks sidelining biodiversity that does not offer direct human value. Moreover, the assumption that biodiversity loss can be addressed by improving ecosystem services reduced the issue to a technical exercise. This fragments the problem and isolates it from its broader social, political, and economic context, turning it into a seemingly manageable problem-solving task. As a result, the approach risked being ineffective, as it fails to confront the deeper structural drivers of biodiversity loss.

Biases, assumptions, and blind spots

Discursive

Sustainability was often treated as an inherent and neutral goal, typically framed under the banner of the Sustainable Development Goals. However, the extent to which it was linked to governmental, social, economic, or environmental dimensions varies. As a result, different authors pursued diverse values and solutions in the name of sustainability, often without acknowledging its subjective and context-dependent nature. This can depoliticise sustainability and undermine critical debate about which values and solutions should take priority and who is responsible for decision-making. Moreover, some articles lacked clear operational pathways to implement the solutions. They either focused on assessing the current state through sustainability assessments (Allali et al., 2024) or ecosystem services (La Notte, 2022) or present the outcome as a strategy. For example, Aryee et al. (2024) proposed 'climate smart agriculture', 'sustainable land management', and 'soil management' without specifying how this should be realised. This limits the practical guidance available to actors aiming to achieve the desired outcomes.

Political

The narrative offered little exploration of the deeper political and economic drivers shaping the food system and largely take the status quo as given. It framed problems as disconnected from the actors responsible, leaving vested interests unexamined. As a result, governments, scientists, and private sector actors were not held accountable for their roles in shaping the current system and are positioned as key agents of change. Additionally, the emphasis on technocratic fixes reinforced depoliticised, problem-solving discourse. This risks not addressing what is outside the problem-solving framework, overlooking social, political, and economic barriers and inequalities. Thereby this narrative legitimised top-down interventions while sidelining questions of power, responsibility, and structural reform.

Economic

The narrative invited market actors and presents incentives as viable solutions, but it fails to critically examine the broader global economic and trade system, including the role of economic growth, rising material consumption, and colonial legacy. In doing so, it assumed that actions within market-based incentives are sufficient for achieving sustainability, while leaving the structural drivers of ecological degradation and inequality within the food system unchallenged.

3.7 Regenerative Food Systems (RFS)

Brief description of narrative

Regenerative food systems gained traction as a response to the perceived limitations of sustainability, shifting the focus from preservation to the active restoration and enhancement of systems, aiming for synergistic outcomes.

'Some believe that 'sustainability' has become watered down and co-opted by defenders of industrial agriculture and maintain that stronger vocabulary is in order. There is however no legal, regulatory, nor widely adopted definition of regenerative agriculture.' (Stephens, 2021, p. 1).

The following articles were selected:

- Weaving disciplines to conceptualise a regenerative food system (El-sayed and Cloutier, 2022)
- Regenerative food systems and the conservation of change (Loring, 2022)
- Design and (Im)Materiality: Designing for a Regenerative and Socially Ethical Food System (Duarte et al., 2025)
- Social finance investing for a resilient food future (Stephens, 2021)
- Circular Food Futures: What Will They Look Like? (Liaros, 2021)
- Livestock solutions to regenerate soils and landscapes for sustainable agri-food systems transformation in Africa (Paul et al., 2023).

Worldview and Values

The concept of regenerative food systems remained emergent and evolving (El-Sayed and Cloutier, 2022; Stephens, 2021). Farmers and communities often defined regeneration as not merely sustainable but, inclusive of small-scale and traditional practices (El-Sayed and Cloutier, 2022). Frameworks such as regenerative development and holistic management aimed to enhance ecosystem services through improved soil, water, and vegetation health. Although Dahlberg (1993) introduced a value-chain perspective, a comprehensive framework is still lacking. Interpretations varied, some focus narrowly on soil restoration and carbon sequestration, while others emphasised agro-bio-socio-economic diversity (El-Sayed and Cloutier, 2022; Stephens, 2021). Duncan et al. (2016) proposed six principles that frame regeneration as systemic transformation, requiring shifts in ecological practices and market relations. Loring (2022) and Sayed (2022) highlighted regeneration as rooted in reciprocity and multispecies interdependence, advocating for whole-systems approaches that generate net-positive impacts and restore cultural heritage. Others, like Liaros (2021) and Paul et al. (2023), engaged with subsystems such as the circular economy or livestock, offering less explicit definitions. As El-Sayed and Cloutier (2022, p. 25) noted:

'The regenerative food system concept is just beginning to emerge in literature and practice—although it has long roots in traditional cultures—and is what we propose can enhance sustainable food system goals. when we refer to a sustainable food system, we are speaking of it as a conceptual idea not yet realized; the same is true for the regenerative food system concept.'

Vision

The shared vision across the literature emphasised moving beyond sustainability toward regeneration, ecological integrity, and social justice (Duarte et al., 2025; El-Sayed and Cloutier, 2022; Liaros, 2021; Loring, 2022; Paul et al., 2023; Stephens, 2021). Central to this vision were net-positive impacts on ecosystems, restoration of degraded environments, and resource circularity (El-Sayed and Cloutier, 2022; Liaros, 2021; Duarte et al., 2024). Equitable access to food and dignified livelihoods, especially for vulnerable groups and small-scale producers, was also a common priority (Duarte et al., 2024; El-Sayed and Cloutier, 2022; Stephens, 2021). This implied a shift toward resilient, localised, and holistic systems integrating ecological and human dimensions (Loring, 2022; Liaros, 2021; El-Sayed and Cloutier, 2022). While united by this overarching goal, the sources differed in emphasis: Paul et al. (2023) focused on livestock systems in Africa, Loring (2022) introduced 'conservation of change' to embrace variability, and Sayed (2022) highlighted whole-systems approaches rooted in reciprocity and cultural restoration.

Problems

The articles collectively framed global food systems as unsustainable and unjust, marked by environmental degradation, resource overuse, emissions, and social inequities (El-Sayed and Cloutier, 2022; Duarte et al., 2024; Stephens, 2021). Industrial agriculture was widely identified as a root cause, due to its reliance on chemical inputs, monocultures, and linear models. Stephens (2021) further critiqued the concept of 'sustainable food systems' as often greenwashed by status quo interests. Specific concerns ranged from indigenous knowledge and justice (El-Sayed and Cloutier, 2022) to energy inefficiency and waste (Liaros, 2021). El-Sayed and Cloutier (2022) and Loring (2022) also highlighted the conceptual ambiguity surrounding regenerative food systems.

Solutions

While all called for systemic transformation toward genuinely regenerative outcomes, not all proposed concrete actions. A shared solution across the literature was the integration of ecological principles with human systems to generate net-positive impacts and regenerate natural resources. Many authors advocated for decentralised, localised food systems to reduce waste, pollution, and dependence on fragile global supply chains. Holistic approaches that interweave social, economic, and environmental dimensions were emphasised, with diversity, both ecological (e.g., polycultures) and social (e.g., inclusive governance), seen as foundational to resilience. Duarte et al. (2025) highlighted the need for ethical, cross-disciplinary design, particularly integrating social and inclusive design to address systemic complexity. El-Sayed and Cloutier (2022) proposed a framework combining biomimicry and Traditional Ecological Knowledge (TEK) to create place-based systems that support Indigenous and small-scale producers. Loring (2022) introduced the 'conservation of change' principle, promoting flexibility and diversity to align with natural variability. Liaros (2021) envisioned circular economies through decentralised polyculture networks embedded in integrated village systems. Stephens (2021) emphasised social finance and alternative ownership models to bridge capital gaps, especially for mid-scale actors in the food value chain.

Food system transformation

Across the literature, there was a shared vision for a systemic transformation of global food systems—moving beyond sustainability toward regeneration, ecological integrity, and social justice (Duarte et al., 2025; El-Sayed and Cloutier, 2022; Liaros, 2021; Loring, 2022; Paul et al., 2023; Stephens, 2021). This future emphasised restoring soil health and biodiversity, circular resource use, and minimising waste and pollution (Duarte et al., 2024; El-Sayed and Cloutier, 2022; Liaros, 2021). Equitable livelihoods, especially for small-scale and vulnerable producers, were central, often supported through localised and decentralised systems.

While all articles endorsed transformation, their approaches varied. Liaros (2021) called for a radical shift to decentralised, circular village systems integrating food, water, energy, and housing. Stephens (2021) focused on social finance and alternative ownership to support mid-scale actors and build resilient enterprises. This was also visible through the different drivers of change: El-Sayed and Cloutier (2022), Loring (2022), and Liaros (2021) emphasised grassroots leadership, especially Indigenous and community-based actors. Duarte et al. (2024) highlighted interdisciplinary design interventions, while Paul et al. (2023) stressed institutional investment and policy support, particularly in African livestock systems. Stephens (2021) identified social financiers as key to bridging capital gaps and enabling regenerative models.

Biodiversity

Biodiversity was framed in regenerative food system narratives as both a cornerstone and desired outcome, essential for resilience, productivity, and ethical integrity. It was understood broadly (ecological, genetic, and biocultural diversity) linking species richness, agricultural variety, and cultural practices such as Indigenous foodways and seed banks. However, in most cases it was framed as one of the multiple environmental outcomes. This vision rejected industrial monocultures, advocating agroecological methods, TEK, and nature-inspired design to enhance diversity through polycultures, perennials, integrated livestock, and ecological restoration. In narrative terms, biodiversity was depicted as a part of the environmental problems in industrial systems, a core value rooted in interdependence, and a vision for a net-positive future, as well as a practical solution supported by diverse ownership and organisational models. Different authors emphasised it variously: El-Sayed and Cloutier (2022) provided the most detailed account, integrating biomimicry's Life's Principles with TEK to embed diversity across species, rotations, and diets as a pillar of resilience. Loring (2022) framed diversity as central to ecosystem health within the 'conservation of change' principle, distinguishing genuinely regenerative systems from monoculture-based coerced systems. Liaros (2021)

treated biodiversity as a key outcome of circular, decentralised polyculture farming, while Paul et al. (2023) focussed on livestock, noting both risks and the potential of well-managed, silvo-pastoral systems to enhance biodiversity alongside carbon goals. Duarte et al. (2024) recognised biodiversity as an environmental priority in regenerative design but offer less detail on specific enhancement strategies.

Biases, assumptions, and blind spots

Discursive

The articles assumed that ecological sustainability and social justice are inseparable goals in food system redesign. However, the broad and varied definitions of 'regenerative' risk diluted its meaning and potentially enabled greenwashing; similar to critiques of 'sustainable food systems' (Stephens, 2021; Loring, 2022). Without a clear definition, agribusinesses may co-opt the term, focusing narrowly on soil health while ignoring deeper social and ecological goals. As Loring (2022) warned, this leads to 'coerced regimes' that benefit from subsidies and overlook environmental feedback. Although the articles advocated transformation, many offered incremental reforms or lacked clarity on how to achieve systemic change. Stephens (2022) observed that the language of regenerative agriculture is endorsed to drive transformative systemic change. However, actors tended to identify with a narrow definition of regenerative agriculture, focusing on soil fertility, thereby abandoning the broader socio-ecological ambitions that regenerative practices were initially intended to pursue. Likewise, within social finance, some actors adopted a more holistic understanding of 'regenerative,' while others emphasised narrower indicators to guide their efforts toward a more regenerative food system.

Political

The regenerative food system narrative consistently portrayed the environment as severely degraded, characterised by biodiversity loss, soil depletion, pollution, and climate instability, while vulnerable populations face food insecurity, poor nutrition, and health disparities. Small-scale producers and rural communities were depicted as economically marginalised under industrial agriculture, which was held responsible alongside corporate concentration and extractive financial systems. However, consumers were often framed as passive victims, overlooking their role in driving unsustainable demand and food waste.

Solutions emphasised ecosystem regeneration and improved food security, nutrition, and livelihoods, particularly for vulnerable groups and future generations. Legitimacy was granted to diverse actors: Indigenous and small-scale producers drawing on Traditional Ecological Knowledge (El-Sayed and Cloutier, 2022), social finance actors addressing capital gaps (Stephens, 2021), and well-managed livestock systems contributing to biodiversity and carbon goals (Paul et al., 2023). Duarte et al. (2024) highlighted the role of interdisciplinary design, while mainstream banks and corporations are seen as needing fundamental reform. Despite this diversity, the narrative lacked cohesion on who should lead the transformation. Calls for deeper engagement with power and justice existed but were underdeveloped, leaving questions about how truly equitable and transformative change will be achieved.

Economic

The industrial food system was widely critiqued for prioritising corporate profits through cheap inputs, subsidies, and consolidation, exacerbating inequality, rural poverty, and environmental harm (El-Sayed and Cloutier, 2022; Loring, 2022; Stephens, 2021). Financialisation reinforces short-term profit motives, creating what Stephens (2021) and Loring (2022) called a 'gilded trap' that benefits wealthy actors while deepening farmer debt and dependency. Although social finance and impact investments were proposed as alternatives, they often favoured marketable, low-risk projects, leaving critical gaps, such as underinvestment in intermediate infrastructure (processing and distribution), essential for regenerative transitions (Stephens, 2021).

Regenerative visions advocated for localised, equitable economies focused on family prosperity, justice, and shared wealth. However, concrete mechanisms for fair benefit distribution were often vague, relying on broad concepts like village trading networks (Duarte et al., 2024; Loring, 2022; Liaros, 2021). Ownership and control were central: regenerative models emphasised decentralised, community-led governance rooted in TEK and food sovereignty (Stephens, 2021; El-Sayed and Cloutier, 2022; Liaros, 2021). Yet, blind spots remained, El-Sayed and Cloutier (2022) omitted food sovereignty and Indigenous spirituality, limiting recognition of Indigenous agency. Structural inequities, such as unequal nutrient flows in African livestock systems, insecure land tenure in the U.S., and shifting asset values from livestock to land, further challenged equitable resource control (Paul et al., 2023; Stephens, 2021).

3.8 Overlap among narratives

Across the narratives, several areas of overlap emerged, though with important distinctions. Food sovereignty narrative articles referred multiple times to agroecology and presented it as a foundational element in five of the six articles reviewed. As Wiebe (2023, p. 634) argued,

'Agroecology offers another powerful political and economic challenge [...] by highlighting the questions of how food is produced as an essential part of the political discourse on who, for whom and why food systems must be changed.'

This framing positioned agroecology not merely as a farming practice, but as a political, economic, and cultural alternative to neoliberal food regimes. It also extended into co-creation of knowledge, cultural traditions, solidarity economies, and governance principles, reinforcing its transformative role. Consistently, agroecology narratives referred as well to food sovereignty (Mazac et al., 2021; Bichler et al., 2020; Johansson et al., 2023), though van Rooyen et al. (2025, p. 505) cautioned that 'Agroecological-based circular food systems will not lead to food sovereignty,' noting that some framings emphasised design principles such as circularity and systems thinking rather than sovereignty. Frison and Clément (2020) further added a health and sustainability lens, implicitly invoking One Health principles by linking human and environmental well-being.

The One Health narrative itself showed the most variable overlaps, ranging from food sovereignty (Leach, 2024; Willetts et al., 2025) and sustainable intensification (Bron et al., 2023; Stentiford et al., 2020), to resilient food systems (Bron et al., 2023; Patterson et al., 2020), healthy and sustainable diets (Leach, 2024; Patterson et al., 2020), and even more-than-human and planetary limits perspectives (Leach, 2024; Willetts et al., 2025). This diversity underscored the flexibility and perhaps ambiguity of One Health as a narrative, which could be stretched across different domains and priorities.

The More-than-Human/Multispecies justice narrative overlapped with food sovereignty, foregrounding justice, Indigenous perspectives, and decolonial critiques (D'Alesandro, 2024; Heitlinger et al., 2021; Prost et al., 2021). In this framing, colonial extractivism was linked not only to human communities but also to ecosystems and species, extending social justice concerns to non-humans. Seymour and Connelly (2023) explicitly connected a more-than-human mindset of care and responsibility to regenerative agriculture, reframing it as a relational practice rather than one measured solely through biophysical indicators such as soil health or biodiversity loss. Importantly, several authors (D'Alesandro, 2024; Heitlinger et al., 2021; Prost et al., 2021; Seymour and Connelly, 2023) situated the more-than-human perspective alongside One Health, thus aligning ecocentric care for non-human beings with broader systemic understandings of health.

Other overlaps were framed more around ecosystem functions and market mechanisms. The multifunctional landscapes narrative did not have many overlaps, but connected to market-based frameworks, either by questioning their assumptions with empirical evidence (Heidenreich et al., 2024; Blundo-Canto et al., 2020) or by adopting their framing of land use. Similarly, the market-based frameworks narrative mirrored multifunctional landscapes through their shared focus on ecosystem services, treating agricultural and natural systems as providers of multiple functions (Allali et al., 2024; Mirzabaev and von Braun, 2022; Roche et al., 2021). Within this framing, Roche et al. (2021) and Aryee et al. (2024) explicitly invoked sustainable intensification, further reinforcing the market-oriented dimension of these narratives.

Finally, regenerative food systems intersected most visibly with circularity, resilience, and agroecology. Liaros (2021) linked regeneration to circular economies through decentralised polyculture farms aimed at eliminating waste and restoring ecosystems, while Duarte et al. (2024) applied circular principles to reduce environmental impacts. El-Sayed and Cloutier (2022) conceptualised regenerative systems as blending traditional agroecological knowledge with nature-inspired design, seeking resilient and net-positive food systems. Stephens (2021) emphasised regeneration as tied to resilience and diversity, positioning it as a counterpoint to consolidation within market-based systems.

4 Comparative analysis

4.1 Literature Comparative analysis

Dialectical propositions

To compare the presented narratives, dialectical propositions (Conti et al., 2024) were used to map the different narratives on (Figure 4.1) to show their differences and commonalities. The articles within the narrative were scored on the dialectical proposition by the report’s authors. We acknowledge that Figure 4.1 presents a snapshot of the narratives, while in practice, narratives frequently intersect, converge, and conflict in complex ways. To position the narratives on these spectra, the articles within each narrative are scored by the authors of this report on a scale from +2 to -2 along five spectra: bottom-up to top-down, reformist to radical change, anthropocentric to ecocentric needs, techno-optimism to techno-pessimism, and market-led to public-led approaches.

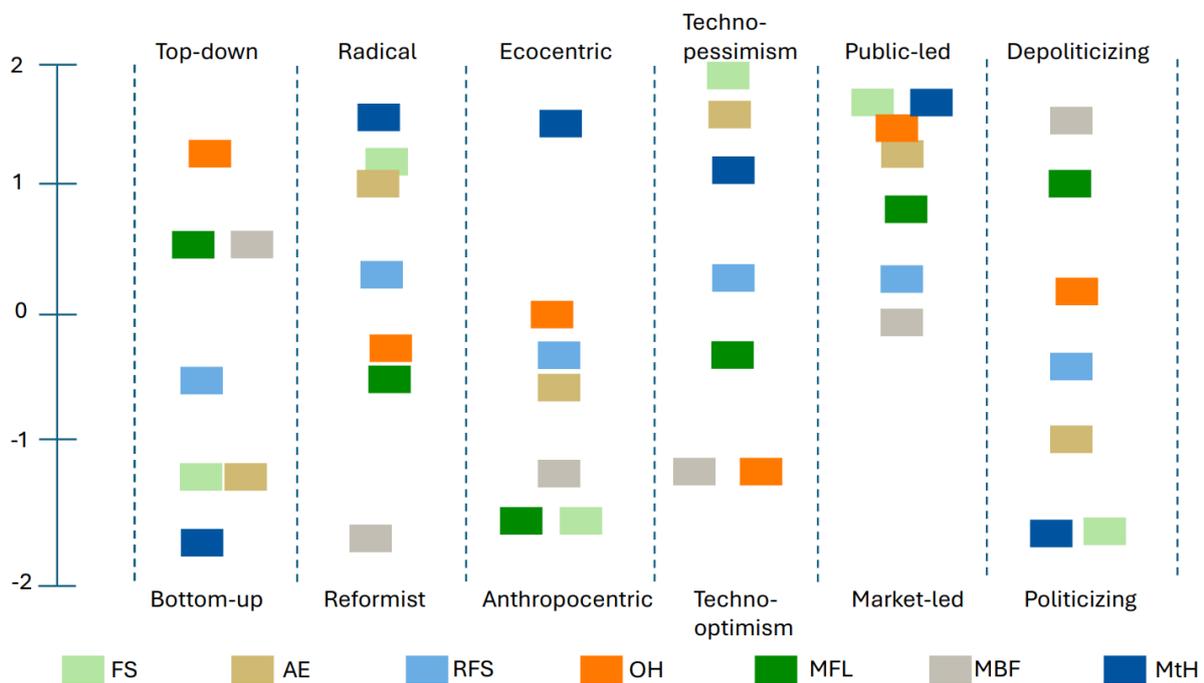


Figure 4.1 Overview of the selected narratives mapped on dialectic propositions. For further description of the dialectical proposition, please see Appendix 1

In relation to the dialectic between top-down (decisions imposed by central authority) and bottom-up (initiatives driven by local actors/communities) approaches, the narratives can be understood as reflecting, in a mirroring way, the radical–reformist spectrum. This framing suggests that the current dominant system is largely top-down, while more radical alternatives tend to emerge from bottom-up dynamics. For instance, approaches such as *More-than-Human*, *Food Sovereignty*, and *Agroecology* are rooted in bottom-up processes and lean toward the radical end of the spectrum. In contrast, *Market-based Frameworks* and the *Multifunctional Landscapes* narrative are more aligned with top-down, reformist tendencies. The *One Health* narrative, while closer to a top-down orientation, occupies a more central position between radical and reformist poles. Similarly, the concept of *Regenerative Food Systems* is positioned ‘mid-way’, likely due to its broad and flexible definition, which allows the inclusion of a wide range of actors. This inclusivity also means, however, that its interpretation varies across different sources, leading to shifts in its position along the dialectical spectrum. The *Multifunctional Landscapes* narrative also presents itself as a middle ground by incorporating diverse functions. Yet, in practice, it is often implemented through top-down governance structures, which risk overlooking power dynamics and marginalising grassroots perspectives.

Within the dialectical proposition of anthropocentric versus ecocentric orientations, we find that most narratives lean toward anthropocentrism except for the *More-Than-Human* perspective. In this dialectical proposition, the narratives of *Food Sovereignty*, *Agroecology*, and *More-Than-Human* are no longer grouped—as they were in the earlier dialectical propositions—but instead become much more differentiated. The *Food Sovereignty* narrative emphasises the urgency of justice for people, while nature itself is not explicitly foregrounded. It argues that local communities are best positioned to understand and manage their environments. Although *Food Sovereignty* is primarily anthropocentric, it indirectly incorporates and promotes Indigenous Knowledge (IK) and Traditional Ecological Knowledge (TEK), which are grounded in more ecocentric worldviews and thus share affinities with *More-Than-Human*. However, this link is not consistently developed within the literature. In contrast, the *More-Than-Human* narrative is highly relational: it does not advance a singular, objective end goal, but instead emphasises relationships of care with non-human subjects (such as soil, plants, and other beings). The overarching vision is determined by local interrelated human and non-human needs and therefore does not prescribe a specific outcome. By contrast, the *Multifunctional Landscapes* and *Market-based Frameworks* conceptualise nature through the lens of ecosystem services and sustainability, positioning it primarily in instrumental terms, serving human needs. Similarly, the narratives of *One Health*, *Regenerative Food Systems*, and *Agroecology* can be interpreted in different ways depending on how individual authors choose to frame them. For example, *One Health* may either present the environment as instrumental to human health or adopt a more inclusive framing where all beings are integral to health. *Agroecology*, while referencing ecological principles, is still frequently framed in terms of how nature can be harnessed to serve human purposes, particularly food production. Across these narratives, an overarching blind spot is the lack of sustained discussion of the broader implications of consistently framing nature in instrumental terms.

Within the dialectical proposition of techno-optimism versus techno-pessimism, narratives which frame power as a central problem tend to lean more toward techno-pessimism. Techno-optimism here refers to the belief that technological and scientific progress, often viewed through a technocratic lens, will drive positive outcomes for society. Interestingly, the *More-Than-Human* narrative was found to be less techno-pessimistic than might be expected, as two of the reviewed articles explicitly examined the use of technology. This may be attributable to the experimental and exploratory character of this narrative. The spectrum of techno-optimism versus techno-pessimism mirrors, in many respects, the reformist–radical distinction. The currently dominant narratives are more closely aligned with techno-optimism, reflecting the way technology is often embedded within and reinforces existing power structures.

With respect to the market- versus public-led dialectical proposition, almost all narratives align with a public-led orientation (referring to grass-roots citizen-led, or government-led). This suggests that market-led framings are relatively unpopular, possibly due to the negative associations (in academics) tied to industrial food systems framed as the ‘problem’. Even within the market-based framework narrative, dominantly market-led positions are not emphasised. One article critically examined Payment for Ecosystem Services (PES), highlighting its dependence on government brokerage and its strong reliance on scientific approaches. More broadly, PES is often presented as only one element within wider policy recommendations, typically alongside true-cost accounting, ecosystem service valuation, and impact investing. Market-based frameworks as a whole are generally framed detached from historic responsibility, offered as baskets of science-centred options, yet they seldom confront questions of responsibility regarding who caused the problems or who continues to contribute to them. Notably, the role of trade is left uninterrogated, obscuring power imbalances, land-use inefficiencies, and colonial legacies that (continue to) undermine access to, use of, and relations with land, water, and ecosystems, as well as cultural food traditions.

The narratives span the full spectrum from politicising to depoliticising, reflecting varying degrees of emphasis on power, conflict, and so-called neutrality. The *More-than-Human* and *Food Sovereignty* frameworks are the most politicising, particularly in how they frame problems and solutions through power dynamics and strategies for addressing them. By contrast, the *Market-Based* framework is the least politicising, focusing instead on interventions or market mechanisms.

When clustering the narratives and examining their areas of overlap, several observations emerge. Among the narratives, *Regenerative Food Systems* appears the least clearly defined, though it is generally associated with resilience, circularity, and holistic systems thinking, and occasionally with justice and

indigenous knowledge. In this respect, it overlaps with *Food Sovereignty* on issues of justice and indigenous knowledge, while its emphasis on circularity and holistic thinking connects it with *Agroecology*, which is similarly rooted in systems thinking but more explicitly practice-oriented. Indeed, *Agroecology* is frequently presented as the practical application within other narratives such as *Food Sovereignty* or *Regenerative Food Systems*. *Agroecology* also shares a systems-based orientation with *One Health*. *One Health* emphasises a global notion of health, grounded in biological interconnectivity and shared risks such as pandemics. However, it typically operates at a more top-down level, linked to global policy frameworks and the Sustainable Development Goals (SDGs). In this regard, it resembles *Market-Based Frameworks* and *Multifunctional Landscapes*, both of which also reference the SDGs and national or international policy agendas. Unlike *One Health*, however, these latter two narratives are more reformist in orientation, seeking to balance social, environmental, and economic values—though often detached from historic responsibility. *Market-Based Frameworks* aim to address social, economic, and environmental values, but they do so in a fragmented manner, separating these values and their indicators rather than adopting a holistic, systems-oriented approach. Some of the *Multifunctional Landscape* articles also displayed this focus. However, they diverge in their lens of focus: *Market-Based Frameworks* typically focus on supply chains and markets, whereas *Multifunctional Landscapes* are more spatially oriented. Distinct from these, the *More-Than-Human* narrative is notable for its explicitly ecocentric orientation and its deeply relational focus on the local environment. While it frequently references *Food Sovereignty*—particularly its commitments to justice and traditional ecological knowledge—it differs by foregrounding non-human relations. The *More-Than-Human* narrative is deeply relational at the level of the direct environment, yet portrays governments and markets in generalised terms, where this relational quality is less evident.

Across the narratives, biodiversity is mostly framed as an environmental factor negatively impacted by current food systems. Thereby, forming part of broader ecological considerations, such as ‘environmental,’ ‘sustainability,’ or ‘ecological,’ and is therefore rarely addressed explicitly, but rather as a component of wider discussions. Within *Food Sovereignty*, biodiversity is primarily addressed in terms of the negative impacts of the food system, with agroecology (indirectly based on biodiverse principles) occasionally highlighted as a practical response. Important to note is that Traditional Ecological Knowledge (TEK) and other human–nature relations remain important and warrant recognition in this narrative, thereby suggesting indirect importance of biodiversity, including through food culture as a relational way of engaging with place and ecological systems. *Agroecology* positions biodiversity both as a problem and a solution, emphasising diversity, genetics, and the use of natural principles, though specifics are often limited; TEK and relational approaches to nature are again acknowledged as significant. Therefore, *Agroecology* suggests an increase in biodiversity, but more indirectly. Therefore, there is more potential to also frame food systems as a positive driver of biodiversity more explicitly, rather than only a negative one, as is the case in most other narratives. *Regenerative Food Systems*, being challenged by its still-evolving framing, seems to largely offer only generalised comments in relation to biodiversity, recognising that food systems negatively affect it and need improvement. *One Health* frames biodiversity in the context of environmental and health-related concerns, including wildlife and habitat fragmentation, often attributing these issues to human expansion that increases contact with wildlife and disrupts habitats. Both *Market-Based Frameworks* and *Multifunctional Landscapes* highlight biodiversity in relation to ecosystem services, environmental sustainability, and the role of food systems in driving unsustainability, including biodiversity loss. Within *Market-Based Frameworks*, one article notes tensions between environmental regulation and local livelihoods. *Multifunctional Landscapes* position biodiversity in many cases in terms of conservation. Finally, the *More-Than-Human* narrative predominantly conceptualises biodiversity in intrinsic, non-human terms, emphasising the value of non-human life itself, with occasional connections to conservation through biocultural indigenous practices or, in some cases, an ecosystem services perspective. Across these narratives, biodiversity is thus consistently treated as a key ecological factor affected by human activity, though the depth, framing, and proposed responses vary considerably.

As a key narrative analytical component in this narrative analysis, a few general observations in terms of blind spots and biases can be made across the narratives. Firstly, while many narratives claim to pursue ‘transformative change,’ the solutions put forward are often reformist in nature. This gap may be linked to the widespread use and popularity of the term ‘transformative,’ which is frequently invoked as a necessity without a shared clarity regarding what such change entails or requires. Concrete strategies for operationalising solutions are often absent, reflecting the difficulty of capturing complex realities within the

scope of a single article. Secondly, there is little attention to phasing out dominant structures, with many narratives assuming that new approaches will inherently drive change. Few articles explore how to engage directly with dominant groups or established voices. At the same time, there is broad agreement that the industrial food system, sometimes described in neoliberal terms, constitutes a central problem. Addressing such potential deadlocks requires paying attention to stakeholder conflicts, and how to break through lock-ins or path dependencies. This consensus may, in part, reflect academic pressures to align with prevailing critiques, though their contributions differ significantly between reformist and radical positions. Thirdly, another blind spot is the tendency to frame biodiversity in instrumental terms, sidelining intrinsic and relational values. This can limit transformative potential by overlooking food cultures and ecological knowledge through which such values are expressed. This limited framing of biodiversity in instrumental terms also overlooks the scope and depth of transformative change, which requires shifts in values, practices and structures.

4.2 Use of narratives by stakeholders and stakeholder discussions

The dialogues organised with different stakeholder groups were created to understand how the narratives resonated with participants, how they were leveraged in different roles, and to reflect on the role of biodiversity in the food system. Chapter 2 outlines how participants were selected and the key characteristics of the dialogues. We present the short write-up of these dialogues per stakeholder group: 1. Policymakers, 2. Scientific Experts, and 3. Practitioners.

Dialogue with policy-makers

Resonating

Most participants in the policy-makers dialogue reported being familiar with the narratives, though some were surprised by their number or noted missing ones (such as climate). Overall, the narratives were widely recognised, and participants could quickly and with little guidance position themselves and explain their connection—for example: ‘This is the reality I know’ (Market-based Frameworks, MBF), ‘This is how I have been educated’ (Multifunctional Landscapes, MFL), or ‘This inspires me’ (More-than-Human, Mth). In the breakout groups, participants shared that choosing a position could feel uncomfortable or confronting. Many participants distinguished between a professional and a personal perspective aligning with different narratives in each. This highlights potential tensions between values and beliefs in the workplace and in private life. Some participants emphasised the importance of a non-narrative stance arguing that policy goals outweigh alignment with specific narratives. Other participants pointed to additional forces shaping action, including pragmatism, realism, politics, and the need to manage trade-offs. One participant shared:

‘I also choose no-narrative. As policymaker, for food security, the biggest question is to address food insecurity in an agnostic way. Trade-offs are the core. Biodiversity is critical, food is even more critical.’

Participants reflected that some narratives are more embedded in practice, like *Agroecology*, while others are more philosophical, like *More-than-Human (Mth)*. This means they are applied and leveraged differently, as illustrated in the following quote:

[on Mth] ‘I am inspired by this idea: that we need to give biodiversity a voice within our institutions. This is confronting and also frustrating, because how to make this tangible, what are my instruments to contribute to this?’

Participants noted how rarely emotions are openly acknowledged in policy spaces. Emotions were seen as raising urgency and surfacing interests that remain hidden in sterile debates, but also as introducing discomfort, which can be a necessary driver of change.

Leveraging Narratives

Participants' statements highlight various ways narratives are used in their work. First, narratives foster self-awareness and reveal underlying implicit beliefs: 'Being aware of the narrative you're operating within helps uncover blind spots, assumptions, and unintended consequences.' One participant noted: 'We're quick to see what is wrong in other narratives, but much slower to spot our own blind spots.' This lens helped some participants reflect on silos within their own departments and think more strategically about what motivates different teams. Secondly, narratives can be leveraged to bring people (actors) closer together or increase the divide, hardening positions. As one participant reflected: 'Narratives can act as sites of opposition and conflict, but also as tools for social inclusion, or exclusion.' There was recognition for the fact that narratives create either silos or bridges. This depends on how much discomfort people can tolerate, as well as on the context and facilitation in how narratives are engaged with. Participants discussed and reflected on risks around making narratives explicit, which can be uncomfortable and may even lead to further fragmentation. In response, the suggestion was made that keeping a narrative undefined can allow it to act as a boundary object, 'flexible and adaptable across perspectives.' This middle ground was seen as important: recognising which stakeholders hold which narratives without making them overly explicit. At the same time, some warned that leaving narratives as boundary objects can also be problematic. Strategic ambiguity may help sustain dialogue in the short term, but it can dilute accountability, mask power imbalances, or allow dominant actors to instrumentalise narratives without committing to real change.

Biodiversity

Participants shared that those narratives could help in contextualising and understanding more in-depth what biodiversity is and why it matters, to whom. As one participant reflected: 'Narratives cannot be used 1 on 1 in a policy context, but they are a source of inspiration, and they can help to understand dynamics in the outside world, which is really useful.' However, this poses limitations for policymakers, as narratives, particularly new ones, are inherently political and reflect political choices. This raises discomfort, as civil servants think more instrumentally and do not want to appear to be making these political choices in how they approach their own work. However, the risk is that blind spots and assumptions are insufficiently considered and biodiversity is insufficiently explored and understood.

Despite this challenge, in practice narratives prove to be functional in prioritising biodiversity, through agenda setting or by intentionally politicising a topic to draw attention to it. This example concerned genetic resources, a topic little known beyond the technical policy domain. Mobilising action, therefore requires clearly framing the issues and interests at stake. Conversely, it was noted that the attention a topic receives in policy practice often depends on the policymaker's role, implying a responsibility to place it on the political agenda rather than relying on narratives alone to prioritise biodiversity. A comparison was drawn with climate: 'Why does climate get on the agenda and biodiversity does not? What narrative do you need to make it urgent and understandable? You need narratives to achieve this.'

An overarching key point was raised, stating the challenge that *the conceptual understanding of biodiversity is inherently complex and complicated*. Policymakers regard biodiversity as inherently complex, with policy goals perceived as unclear and lacking a clear mandate or domain. A participant reflected:

'Maximum diversity is not a desired situation. This makes it hard to grasp why it (biodiversity) is important? How to understand it? Are we talking about agrobiodiversity or natural biodiversity in nature (wild nature). It is unclear what we are talking about. We need to integrate agriculture and nature but also have clarity on the distinction between 'real nature' and biodiversity in a production setting.'

In addition, someone else mentioned that biodiversity mainstreaming as a policy strategy is elusive because of this conceptual complexity and lack of operational clarity.

Two notable observations emerged. First, most participants engaged with biodiversity professionally from an instrumental rather than relational or intrinsic perspective. Second, in the food system context, lack of attention to genetic diversity was identified as an overlooked risk. Policymakers—as well as scientists—noted that agricultural genetic resources are largely absent from food system debates, despite their relevance to systemic risks such as environmental vulnerability, corporate concentration, and dependence on few crops or varieties. This under-recognition represents a significant blind spot in policy and public discourse.

Dialogue with scientific experts

Resonating

Participants resonated with the narratives in various ways. At the start, they showed initial doubt before selecting 'their' narrative. In addition, people spread across the different narratives when asked to stand by their most resonating narrative. However, some expressed discomfort with narratives themselves, finding them 'very academic' or preferring not to be 'rooted within one narrative,' and noting that much of the debate is about semantics. Furthermore, participants questioned 'Why exactly are there seven narratives? Who decided them, and what perspectives might be missing?' Accordingly, some participants selected the 'Non-narrative' or 'eclectic narrative.' They preferred 'Decolonial narratives' or 'Climate-based narratives,' and emphasised that 'Doers not Talkers' often care 'what works' rather than adhering to a named narrative. Various experts felt the narratives were top-down, academic, and even neo-colonial, often assuming what people on the ground want without truly listening. They warned that it risks creating an implicit consensus that might not reflect real-world complexities. Additionally, language was shared as a barrier; for example, the academic discourse often being in English was identified as creating barriers for practical application in Dutch contexts.

Specific narratives elicited distinct responses. Market-based Frameworks (MBF) were initially seen by a small majority as 'grounded in reality' and 'the implicit narrative' for actors in their work, with some finding it 'hard to imagine other realistic way with population growth and providing enough food'. Yet, there were also strong critiques, with one participant stating MBF is 'not realistic for transformative change' and another highlighting that companies 'only talk to me about money and products'. In contrast, another participant called MBF 'the only realistic one' and dismissed others as wishful thinking, later shifted to valuing pluralism and multiple narratives.

A prominent theme was the disconnection between personal values and professional environments. Some participants working in market-based contexts felt personally drawn to more-than-human or food sovereignty perspectives. Reflections also included frustration with policy and natural scientists, feelings of being blamed or caught 'in between' groups. This speaks to the experience of scientists as translators between different groups—in this case, translating fishermen's voices to other domains—who use language and concepts differently depending on their position, interests and knowledge base. Lastly, there was also confusion about how narratives are 'scaled and positioned'.

The group dynamics highlighted potential 'friction between narratives': some were comfortable discussing them, whereas others showed discomfort and preferred pragmatic realism. Noteworthy, groups with participants of different narratives often reached consensus while discussing key insights. This can indicate that groups look for narrative conformity but also reflects the potential to connect when joined for a shared goal (identifying key insights).

Leveraging Narratives

The discussion revealed how narratives are leveraged in group dynamics and strategic purposes. They can be leveraged differently depending on the goal, sometimes to foster plurality for academic debate, other times to present consensus for political strategy. In addition, narratives were leveraged as tools for analysis and critical reflection. They were seen as helpful to analyse blind spots and participants noted that the narratives by revealing assumptions and blind spots in how human-nature relationships are conceptualised, enable critical reflection and facilitate transformative change that reshape these human-nature perspectives (and consequently influence practices, and structures). However, this discursive power of narratives can also be leveraged in political debate, where they risk solidifying into dogmas that do not align with the current practices of farmers. Many farmers try to make a living rather than adhering to named narratives like agroecology or regenerative agriculture, even as these labels 'reinvent' historically common practices like home gardens. Moreover, there was a concern that dominant market actors can leverage narratives and promote market-led solutions to shape their agenda and promote ideas like ecomodernism and naïve techno-optimism.

Some participants are struck by the discovery of so many narratives, and they see a risk of polarisation. Participants emphasised that clarity on ownership is significant because 'who sets the narrative has power' over transformational outcomes, shaping winners and losers. Looking ahead, there are opportunities to leverage plural narratives to effectively navigate and 'pick and choose' elements among them. Participants

can also work to 'define and share consensus better' and speak different languages in a transdisciplinary manner, while being vigilant against 'greenwashing'.

Biodiversity

Overall, there was a sentiment that biodiversity should be a more integral part of food systems. The discussions revealed challenges and conflicts regarding biodiversity within food systems. There is frustration that livestock are often portrayed negatively in biodiversity discussions, and uneasiness when narratives ignore instrumental values like genetic diversity for future food production. The broader conversation about biodiversity emphasises the growing interest in linking biodiversity with climate change, along with related issues like pesticide use, technology, and land-use change. A crucial insight is the need for embedded, context-sensitive approaches that support both livelihoods and ecosystems, because 'we cannot be biodiversity-positive without being people-positive'. Concerns were raised about farmers being pushed toward certain practices, for instance, when told it will be 'better for biodiversity' without considering economic risks. This is deemed unjust when they have not caused the problem.

Dialogue with practitioners

Resonating

Within this dialogue, 'practitioners' are understood broadly as stakeholders implementing policy, applying research, and focusing on action and impact. The dialogue session involved a diversity of international actors, including NGOs, applied researchers, policymakers, private-sector, and financial actors. Participants recognised themselves differently across the seven narratives and often made a distinction between professional alignment and personal resonance (see Appendix 2 for an overview). *Multifunctional Landscapes* resonated with some, particularly those linked to CGIAR and landscape-level initiatives, but several challenged the way it was framed in the study as overly top-down. Practitioners emphasised instead the bottom-up, multifunctional nature of landscape approaches in practice. In addition, *Agroecology* was strongly valued, described as clear and principled yet multifaceted as a science, practice, and movement. Some stressed it is not 'vague' but rather rich and applied at multiple scales. *Regenerative Food Systems* attracted attention for its 'net positive' ambition. Some participants connected with it personally (farmers, sustainability practitioners), but others expressed unease about the term's vagueness and risks of corporate capture. Market-based frameworks resonated in professional settings (finance, private sector engagement) where biodiversity is approached through risk, compliance, or fiduciary language. Yet personally, participants leaned more towards intrinsic or justice-oriented framings (e.g. *More-than-Human*, *Food Sovereignty*). Key emotions included appreciation for plurality, but also frustration at oversimplification. Some worried about narratives being treated as political labels rather than complementary lenses. Other narratives (not in the studied short-list) brought up by participants included the nexus/coherence narrative (referring also to the IPBES Nexus assessment), planetary health, and the rights-based approach.

Leveraging Narratives

The group reflected on how narratives can be applied in practice, considering both opportunities and risks. It was seen as crucial to tailor narratives to specific audiences. For instance, investors and companies typically require risk-based and compliance framings. Communities and farmers, on the other hand, connect more effectively with justice- or values-based framings, such as those related to *Agroecology* and *Food sovereignty*. Policymakers tend to relate best to governance-led framings, like those concerning *Multifunctional Landscapes*.

Narratives are used as a means to provide a common language that can bridge different sectors, including science, policy, finance, and grassroots actors, thereby easing collaboration. It was noted that by articulating the nuances, commonalities, and differences within and between narratives, one can better understand sensitivities and potential points of polarisation (e.g., bottom-up versus top-down approaches, or risk and evidence-based versus emotional connectivity). Opportunities identified for using narratives include translating biodiversity complexity into actionable entry points and communicating biodiversity to diverse audiences through different framings. Narratives can also be employed in dialectical mapping to reveal blind spots and prevent the dominance of a single framing. Furthermore, disseminating findings through webinars, blogs, LinkedIn content, and practitioner exchanges was highlighted as a way to move research beyond just academic articles on narratives.

However, several threats were also identified in leveraging narratives. These include greenwashing, particularly concerning regenerative language, and the reinforcement of North-South imbalances where compliance-driven narratives shift burdens down supply chains. Another threat is political misuse, where blind spots are weaponised to discredit entire perspectives. One participant specifically noted sensitivities within the finance sector, emphasising that biodiversity must be framed in fiduciary terms rather than emotional and values-based framings, as these do not align with the sector's standardised metrics and risk assessment and are more likely to be rejected in investor communications.

Biodiversity

A key perspective was that biodiversity remains insufficiently articulated in many food system narratives, often appearing implicitly rather than explicitly. Several participants observed that while these narratives could be described as sustainability-oriented, they were not specifically focused on biodiversity. Participants also cautioned against reducing biodiversity to a 'tick-box' outcome. For example, treating an increase in soil organic matter as a box to be ticked once the target is reached. Instead, participants emphasised the need to recognise biodiversity as a living and dynamic foundation of food systems, one that can reframe critical questions and open new pathways for collaboration.

5 Discussion

Intentional exploration of diverse narratives creates space for plurality that helps navigate complexity through complementarity. The seven narratives all had blind spots, assumptions, and biases. This indicates that narratives are neither complete nor fully capture the complexity of food systems and biodiversity. Moreover, narratives are grounded in invisible assumptions that are not neutral and favour certain actors, values, solutions, and problems over others. The results highlight that narratives overlap and differ in specific ways, each with its own specific contributions and blind spots. The process of becoming aware of the contributions and blind spots within one's own narrative, together with recognising the fluidity revealed by multiple other narratives, can soften and open one's perspective. Working with multiple narratives was found to be valuable by dialogue hosts and participants, because differentiated knowledge, problems, solutions, values, worldviews and blind spots become visible, providing new elements to enrich one's own narrative. Intentional exploration of diverse narratives creates space for plurality. These 'plural spaces' create potential for complementarity and help individuals and groups navigate complexity across scales and domains. Moreover, explicitly questioning which actors are included or excluded in these narratives raises awareness on accountability: Who is responsible for the solution? And who for the problem? Who is left out? The revealing of these power dynamics, both in practice as well as in how narratives shape perceptions of practices, enables exploration of more inclusive and just pathways. Additionally, making the diversity of narratives—including their overlaps and distinctions—visible creates an opportunity for increased understanding and enhanced connection between people when finding shared values and worldviews previously hidden by different problem and solution framings.

Showing the different narratives can also raise tensions. Although revealing other narratives and surfacing one's own blind spots can spark constructive discussion, the potential for increased uncertainty might induce a response to protect one's own narrative. This can trigger polarisation and a narrative-against-narrative debate, instead of transcending the debate and learning from each narrative's contributions and blind spots. Moreover, more awareness of narratives can enable actors to pursue their own interests while misleading others into believing they are pursuing shared values. With boundary objects (i.e. a shared concept or tool that different groups interpret differently but use to work together), this may sustain dialogue in the short term but can also dilute accountability, obscure power relations, and allow actors to instrumentalise narratives without genuinely pursuing transformation. Another tension lies in how surfaced blind spots raise new questions of the responsibilities of different actors. This re-evaluation of the actor space can invite conversations about who wins and loses or trade-offs and synergies. Moreover, it can increase the resistance of status quo actors, potentially reinforcing instead of addressing power imbalances.

The results of the literature review and the dialogue session showed the fluidity of the narratives and the context-dependency on how they were leveraged. This fluidity is visible between the overlap between narratives, such as the use of ecosystem services within MBF and MFL or within the ambivalence within the RFS. Additionally, some narratives from the literature did not align with the narratives in practice. For instance, the MFL within the literature analysis was more governance-focused, than the multi-stakeholder approach expressed in the dialogue sessions. The context-dependency of narratives emerged clearly within the discrepancy between personal and professional resonance of the narratives. Within professional settings, MBF and MFL were selected, while personally, participants leaned towards Mth and FS. This shows that narratives can be leveraged in different ways: (i) Pragmatically, to adopt a narrative that enables work to get done in professional settings, for instance, framing MBF as practical and representative of reality considering the dominant role of markets in shaping today's food systems; (ii) Strategically, to align a narrative to reach organisational goals or realise transformative change, for example, the largely overlooked importance of genetic diversity could be strategically highlighted to embed it more firmly within food system discourse; and (iii) principled, grounded in personal values and worldviews, as seen in the attraction to Mth and FS narratives, reflecting engagement to justice and care for nature. Apart from actively using narratives, there is also a more reflexive applicability of making the narratives visible to help uncover blind spots, assumptions and therefore better foresee unintended consequences. Exposure to the diversity of

narratives, as one participant noted, raises awareness that you are much slower to see your own blind spot than a blind spot within another narrative, indicating the benefit of this plural narrative space.

Emotions, discomfort and their avoidance played a subtle role in the dialogue session. For instance, the participants who selected the non-narrative as their narrative expressed frustration with oversimplifying, missing narratives or being pigeonholed. One participant stressed that in the developmental context, it was inappropriate to have a narrative, as it was seen as colonial and normative. However, the participant did adhere to certain policy goals, thereby still aligning with these values and to some extent a policy narrative. Furthermore, the disconnection of the emotional with the professional surfaced was shown in the difference between participants' more value-driven personal narrative and their pragmatic-driven professional narrative. In accordance, the exclusion of emotions and prioritising technical language in an institutional setting was discussed. It was brought forward that if emotions are acknowledged, they can raise urgency and surface the discomfort necessary to confront assumptions and consider new perspectives for driving transformation. A possible reason for the technical framing can be to reduce the feeling of responsibility, as accountability is externalised on the evidence and data, instead of internalised within the personal and relational. Moreover, there was limited discussion in the dialogue session about the winners and losers of specific narratives and food system transformations. This could suggest either an avoidance of confronting uncomfortable accountability questions among participants, or an absence of attention to this issue within the facilitation. Although one participant noted a trade-off, where considerations of global food security led her to professionally prioritise the MBF narrative over her personal preference for FS.

In the dialogue sessions, a plural narrative space emerged: participants acknowledged fluidity, stayed open to other perspectives, and were rarely defensive. This may have stemmed from exposure to multiple narratives and from the introduction stressing that each narrative reflects selection biases within the complex realities of food systems and biodiversity, which might have softened rigid attachments. Also creating a safe setting where participants feel free(er) to reflect and share. For example, it was often emphasised that no narrative is either right or wrong and that each holds strengths and weaknesses. The number of narratives most likely also mattered: with seven narratives (plus the 'non-narrative'), participants could more easily find overlaps and alliances. Had only two narratives been presented, positions might have hardened into opposing camps, preventing the selection of elements across different narratives. In conclusion, fostering plural dialogue over polarised debate may depend on awareness of perspective fluidity, group composition, safe spaces for reflection, narrative balance, and openness to confronting biases and discomfort.

Although almost all articles touched on biodiversity indirectly, a more in-depth engagement with biodiversity or linked terms was less common. This shows that biodiversity is not a main part of the food system transformation literature and is partially diluted by including it in more general concepts, such as environment or sustainability. This might have been a consequence of biodiversity's complexity or lack of priority where other topics such as social justice within FS or sustainability within MBF overshadowed it. Biodiversity was expressed in several ways across the literature, as ecosystem services, part of sustainability or the environment, more-than-human or linked to biodiversity loss. However, the various implicit framings within the literature might align with the expressed notion within the dialogue session that biodiversity is too vague, multi-faceted or complex to gain traction. Moreover, the specificity of biodiversity within every spatial locality might increase complexity. Although this complexity can require an initial time and financial investment in learning and experimentation, prioritising biodiversity and leveraging its complexity—as a vast reservoir of resources, capacities, and untapped synergies—offers many pathways for a wide array of issues, such as strengthening genetic diversity, safeguarding traditional practices, and improving ecosystem services. Finally, foregrounding biodiversity within food systems—the largest driver of biodiversity loss (Mommer et al., 2025)—is essential to mitigate biodiversity loss effectively.

Key identified biodiversity blindspots are genetic diversity and the values of biodiversity. First, insufficient attention is given to genetic diversity, despite its critical role in sustaining food systems. Second, biodiversity is often approached instrumentally, primarily in terms of ecosystem services or as a means to mitigate health risks. Although dialogues did reveal a gap between professional and personal framings of biodiversity, with participants emphasising strategic human-centred considerations in professional contexts, but intrinsic connections and care for nature in personal ones. As one participant concluded after the

dialogue, the food system in itself is an anthropocentric concept as we frame it today, because it is only focused on how it delivers for humans and does not consider other species' needs, nor how we balance our needs in relation to the needs of other non-humans. The dominant instrumental framing risks marginalising the relational and intrinsic values of nature, directing conservation funding toward utilitarian outcomes, and undermining cultural and ethical dimensions of biodiversity. While the plural and complex character of biodiversity can create ambiguity and reduce focus, it also provides a space for diverse interpretations and uses, enhancing its transformative potential. If this plurality is made more visible and shared actors can better identify their own entry points to deliver value for nature aligning with the Nexus rapport 'in facilitating a holistic understanding of nexus elements [that] can increase knowledge and improve cooperation and decision-making' (IPBES, 2024, p. 17). Also, biodiversity as solutions framing, such as the case in the (IPBES, 2024) nexus report or the Nature-based Solutions (NbS) policy discourse, were less evident and may provide an opportunity for mainstreaming biodiversity. Lastly, the narratives do not pay specific attention to telecoupling, which highlights the global interconnections of food systems and their impacts on biodiversity. By focusing primarily on local biodiversity, the analysis risks overlooking the broader, transnational and transcontinental dynamics that significantly shape biodiversity outcomes.

This narrative analysis must be interpreted within its methodological boundaries. The selection of literature was limited to articles published from 2020 onward, which ensured a focus on recent debates but may also have excluded earlier contributions that remain relevant to understanding biodiversity narratives' dynamics over time. In addition, the analysis was conducted primarily through academic literature, which, while offering conceptual depth, may introduce an academic bias and overlook insights from policy documents, practice-oriented reports, or non-academic voices. The scope was further narrowed to seven narratives, meaning that certain mainstream perspectives, such as sustainable intensification, were not included. Moreover, the decision to analyse six articles per narrative provided only a modest empirical base. Nevertheless, this approach enabled a systematic comparison across narratives and created a useful foundation for the stakeholder dialogues, helping to ground discussions in existing debates while also opening space for new perspectives and showcasing the role the narratives can have in making invisible elements (e.g. assumptions, values, and worldviews) and their role in wider debates such as halting biodiversity loss, more visible.

6 Conclusions

Transforming global food systems is crucial for addressing biodiversity loss, climate change, and food insecurity. In this transformation, narratives are crucial in shaping perceptions and actions. This study examined how biodiversity is represented across seven key narratives (food sovereignty, agroecology, One Health, more-than-human, multifunctional landscapes, market-based frameworks, and regenerative food systems), highlighting gaps, variations, and opportunities.

All narratives recognise the current food system as fundamentally flawed (although in different ways), rooted in the 'industrial food system', but propose different responses. Narratives, like food sovereignty, agroecology, and regenerative food systems, overlap, while others diverge more strongly; variation also exists within narratives, with some being narrow and more aligned across the articles (e.g., More-Than-Human) and others broad and varied across articles (e.g., regenerative food systems). Most narratives took an anthropocentric perspective, except for More-Than-Human. They differ across dialectics, top-down versus bottom-up, radical versus reformist, and techno-optimism versus techno-pessimism, while nearly all favour public-led over market-led approaches, reflecting scepticism toward industrial food system framings.

In most narratives, biodiversity is not a central theme and is typically framed indirectly as an environmental factor negatively affected by current food systems, often reduced to biodiversity loss or its instrumental value. Its complexity and positioning under the broader sustainability agenda, where it is overshadowed by social, economic, and environmental dimensions, may contribute to its dilution and limited integration. To this end, biodiversity is rarely effectively operationalised and mainstreamed in food system narratives.

To address these blind spots, future efforts should focus on both developing approaches for transitioning away from harmful practices and rethinking interactions with dominant actors, while also integrating intrinsic and relational values of biodiversity into food system transformations. Each narrative reveals certain blind spots and biases with common issues, including limited attention to strategies for phasing out existing practices or engaging with dominant actors, for example on lock-ins. Another recurring gap is the tendency to frame biodiversity primarily in instrumental terms, overlooking its intrinsic and relational values.

To be meaningful, narrative analysis must not only offer multiple entry points but also keep open the conflicts and underlying power dynamics that shape which pathways are taken forward. In this way, narratives become a resource for both engagement and critical reflection, supporting biodiversity mainstreaming that is not only inclusive but also attentive to unresolved tensions. Mapping narratives provides a structured overview of complex food system transformation and biodiversity issues, acknowledging that no single framing captures all perspectives, and that polarisation is common. By highlighting diverse narratives, the overview helps make complexity understandable, fosters reflection and knowledge exchange, and identifies entry points tailored to different actors. This plurality transforms narratives from being diffuse or abstract into an entry point for engagement, where each narrative offers a pathway for engaging with food system change or mainstreaming biodiversity in ways that resonate with specific stakeholders. This entry point for engagement requires active follow-up in scientific research, but specifically in the science-policy interface and in mobilisation of actors. At the same time, it is important to recognise the risk that narratives are reduced to a 'pick-and-choose' menu, where elements are selectively appropriated without addressing the tensions, contradictions, or trade-offs they contain.

The discussions also demonstrated that collaborative efforts could foster connections and broaden perspectives, with participants shifting from relying on a single 'realistic' narrative to embracing multiple narratives. Overall, fostering dialogue on narratives benefits from awareness of perspective fluidity, attentiveness to group composition, safe spaces for reflection, and openness to

discomfort and self-examination. Engagement with different stakeholders revealed the subtle role of emotions and discomfort in narrative dialogue, highlighting how narratives resonate differently in personal versus professional contexts. While participants professionally favoured one narrative, they personally leaned toward others, showing that narratives can be leveraged pragmatically to get work done, strategically to persuade actors, or principledly based on personal values.

Further developing narrative-based dialogue tools could help participants share, listen, and open their mindsets, even on uncomfortable issues. Working with narratives offers a way to make hidden values, worldviews, and blind spots visible, fostering discussion on challenging topics and encouraging self-reflection. Awareness of context and the diversity of narratives is crucial, as it can determine whether discussions become polarising or pluralising. Ultimately, understanding how to work with narratives can transform them from invisible barriers to bridges for connection, learning, and inclusive dialogue. Given the scale of the food system transformation challenge and its deep connections to human–nature relations, values, production, and culture, biodiversity must become a more visible and central element in these discussions.

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Appendix 1 Analytical framework article analysis

Table A1.1 *Narrative Components*

| Narrative Component | Description |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Problem framing | (the presented key issues) |
| Solutions | (proposed responses) |
| Visions | (a description of a desired future, either broad or focused on one aspect) |
| Actors | (individuals, groups, institutions, organisations or non-human entities) |
| Values | (elements considered important and reflecting moral, practical or social values) |
| Assumptions | (aspects of the article seen as natural or normal and left unquestioned) |
| Blind spots | (excluded or ignored elements by the article) |
| Biases | (tendencies of the article that favor certain problems, solutions, actors values or worldviews) |
| Worldview | (deep-seated beliefs that shape how reality is perceived and how narrative components are connected) |
| Narrative function | (What role does the narrative play? E.g. 50epoliticizi, 50epoliticiz, describing, 50epoliticizi, 50epoliticizing complex issues) |
| Conceptualisation of key concepts | (How does the article define, understand or apply key concepts, for example, sustainability, resilience, regeneration. Examining how these concepts are framed is important, as it reveals underlying assumptions, values, and worldviews and offers analytical value by revealing different interpretations of the same key concepts) |
| Additional notes and reflections | (e.g. metaphors & symbols, emotional tone, rhetoric, |

Table A1.2 *The conceptualisation, positioning, and mobilisation of biodiversity within the narrative*

| Analytical element | Description |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Biodiversity conceptualisation | (How is biodiversity portrayed or conceptualised in the article? e.g. ecosystem, multispecies interdependence, or traditional ecological knowledge. And as which narrative component? e.g. solution, vision, value, worldview, assumption) |
| Dominance | (Whether biodiversity plays a central, marginal or invisible role) |
| Mobilisation of biodiversity | (Reflects the role of biodiversity in shaping priorities, exclusions, and actions. For example, enabling or constraining visions or solutions, influencing the inclusion/exclusion of actors, its relations to other topics (e.g. food security, climate adaptation, equity), or legitimising certain pathways for food system transformations) |
| Additional notes and reflections | |

Table A1.3 Article Context and Analytical Overview

| Contextual factor | Description |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Focus & Framing | |
| Article summary | (brief summary of the article’s aim, findings and key argument) |
| Normative intent | (What kind of change or stability does the article promote? e.g. descriptive, reformist, transformative, critical, status quo-reinforcing) |
| Food system transformation | (What kind of food system transformation does the article envision, imply or promote? And how and by whom is this transformation imagined?) |
| Type of knowledge | (What kind of knowledge is being used and legitimised? e.g. scientific, local/indigenous, interdisciplinary, participatory (co-developed), policy/strategic or critical (questioning dominant understanding) knowledge?) |
| Scope & Context | |
| Scale | (local, regional, national, or global) |
| Geographic focus | (country, region, or continent) |
| Sectoral domain | (e.g. agriculture, forestry, trade) |
| Disciplinary domain | (e.g. public health, conservation, agronomy) |
| Dimensions covered | (dimensions discussed, e.g. cultural, environmental, economic, social) |
| Temporal framing | (time frame narrative: urgent, long-term, short-term, or historical) |
| Institutional setting of the author(s) | (Institutional affiliation of the author(s), along with the country where the institution is based) |
| Systemic & Political Embedding | |
| Geopolitical context | (geopolitical context, international frameworks (e.g. CBD, IPBES, SDGs), national or regional agendas (EU green deal), trade dependencies, colonial legacies, donor influence) |
| Food system stage | (elements of the food system e.g. production, consumption, drivers, outcomes) |
| Additional notes and reflections | |
| Additional notes & reflections | |

Table A1.4 Dialectic propositions

| Dialectic propositions | Description |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bottom-up to top-down pathways | (From grassroots, participatory approaches to centralised, policy-driven interventions, give a score from -2 (bottom-up) to +2 (top-down) and optionally a short reflection or explanation in general and/or on the given score) |
| Reformist to radical change | (From incremental policy tweaks to deep, structural transformation of systems, give a score from -2 (reformist) to +2 (radical) and optionally a short reflection or explanation in general and/or on the given score) |
| Anthropocentric to ecocentric needs | (From human-centered development to prioritising ecological integrity and the consideration of non-human needs, give a score from -2 (anthropocentric) to +2 (ecocentric) and optionally a short reflection or explanation in general and/or on the given score) |
| Techno-optimism to techno-pessimism | (From confidence in technological solutions to scepticism about their transformative power, give a score from -2 (techno-optimist) to +2 (techno-pessimist) and optionally a short reflection or explanation in general and/or on the given score) |
| Market-led to public sector-led | (From market-driven innovation to government or collective responsibility in leading change, give a score from -2 (market-led) to +2 (public sector-led) and optionally a short reflection or explanation in general and/or on the given score) |
| depoliticising to politicising | (whether an issue is framed as politically contested and shaped by power dynamics (-2), or presented as neutral, technical, and outside political debate. (+2)) |

Appendix 2 Votes Dialogue Session

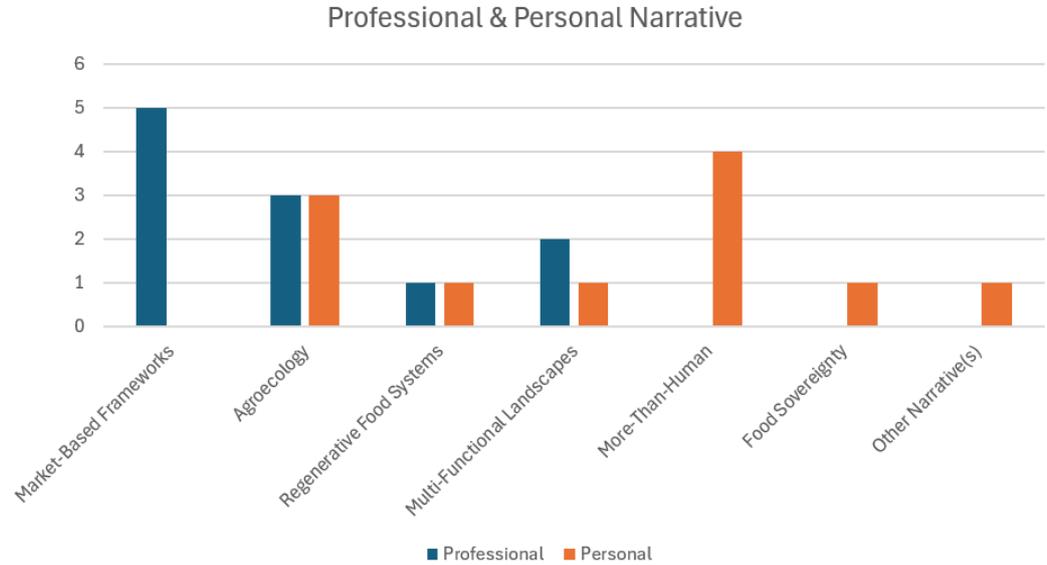


Figure A2.1 An overview of the votes of the professional and personal narratives in the dialogue session with practitioners

To explore
the potential
of nature to
improve the
quality of life



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The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 7,700 employees (7,000 fte), 2,500 PhD and EngD candidates, 13,100 students and over 150,000 participants to WUR's Life Long Learning, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.

