

REVIEW

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Characterisation of food governance for alternative and sustainable food systems: a systematic review

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Abstract

Despite the various studies on food governance structured around alternative food systems (AFS), analysis of the essential characteristics of it which facilitate the sustainability of the food system (FS) is still incipient. This study aims to clarify the debate on the role of governance in sustainability of the FS by way of the following two objectives: (i) to characterise the analytical approach of the literature in the processes of structuring of food governance related to AFS, and (ii) to reflect qualitatively on the essential factors to be considered which ensure sustainable processes and trajectories of the AFS. The research methodology is based on a systematic review of the literature in order to define the approaches identified in the relevant studies in their analysis of the food governance process. From the results, a conceptual framework is proposed that determines the strategies related to food governance which can help meet the challenges of the AFS. A multi-actor and multilevel governance is identified that takes into account both structural and variable aspects linked to the interdependent relationships that are involved in the construction processes of the alternative food networks (AFN). We conclude our study by identifying certain gaps in the knowledge as well as new lines of study that we deem necessary in order to consolidate the AFS from a vision of sustainability.

Keywords: Food governance, Food systems, Alternative food systems, Sustainability, Systematic review

Background

The food system (FS) generates ever-increasing levels of food poverty, environmental degradation, resource scarcity and climate change (Marsden *et al.* 2018). The resulting effects are wide-reaching (Moragues-Faus *et al.* 2017): food insecurity, obesity, malnutrition, increased distances travelled for food, unsustainable FS and consumption of unhealthy food among the most vulnerable groups.

One of the main drivers of these effects is identified as a food governance crisis: existing governance regimes are unable to deliver long-term food security and sustainability (Marsden *et al.* 2018). Local food systems (LFS) are thought to contribute to sustainable development by addressing ecological, sociocultural and economic issues that the

dominant globalised and industrialised FS tends to outsource (O'Hara and Stagl 2001). However, Lamine et al. (2019) wonder to what extent proximity and spatial anchorage form a basis for a just and sustainable territorial development, or they are rather a source of territorial and social inequity and “elitist localism” (DuPuis and Goodman 2005). The solution to these problems requires a transformative change in the FS (Clapp 2016; Lang 2010; Van Der Ploeg 2010).

Along with the tendency to view local foods, on a local scale, as inherently better or more sustainable (Born and Purcell 2006; DuPuis and Goodman 2005; Hinrichs 2000; Lerin 2015; MacKinnon 2010), a need has been identified to consider the food governance approach as a way of redistributing power within the networks, to study the alternative nature of the LFS, referred to as alternative food systems (AFS), and, in doing so, strengthen trajectories towards sustainability and its transformative potential (Marsden et al. 2018; Prové et al. 2019; Sonnino and Marsden 2006).

For the present study, sustainable food system is defined as “a system that integrally brings together the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio-economic and environmental outcomes” (HLPE 2014). Béné et al. (2019) claim that in the general literature a strong consensus seems to exist that sustainability, in its most universal sense, is a multi-dimensional concept that incorporates three fundamental elements: the pursuit of social equity, the creation of human welfare (often presented as an economic dimension), and the maintenance of the environmental integrity of the resource-base on which the economic and social dimensions are built (UN 2005). A fourth dimension is often super-imposed on these three, one that involves time and the idea that the sustainability of today should not be achieved at the cost of the sustainability of tomorrow (Brundtland 1987). Together these four dimensions can be considered as the basis for an “holistic” interpretation of sustainability. So, there is a fairly widespread consensus that AFS constitute a powerful tool for achieving a more sustainable food chain across its ecological, social and economic dimensions (Seyfang 2006; Kloppenburg et al. 2007; Duram and Oberholtzer 2010; Goldberger 2011; Gliessman 2016; Mastronardi et al. 2019; Brunori et al. 2020), and it is from there that we understand sustainability in this paper.

In fact, many authors have advocated a process which is inclusive and democratic to define and address sustainability (Hassanein 2003; Kemp and Martens 2007; Maxey 2007; Robinson 2004). The discussion of the AFS highlights situations where the intensity and kind of relationships and the form of governance are not appropriate, thus, compromising the sustainability of the chain (Carbone 2017). In other words, the sustainability of the FS, and therefore, food security, is related to the governance system that is articulated around the AFS. In this sense, (Mastronardi et al. 2019) argue that “for a more complete assessment of sustainability as a whole, subsequent research developments should consider food governance” (p. 16). Focusing on this sociopolitical dimension of sustainability we clarify that “we live in a period when the interlinkages or potential synergies among food security, sustainability, sovereignty and their effective governance can no longer be taken for granted” (Marsden et al. 2018, p. 1302).

On the whole, and from a holistic perspective, AFS adopt institutional and political aspects that are articulated around FS (Feenstra 2002; Friedmann 2007; Marsden and Sonnino 2012). The alternative nature of these systems is related to the creation of new institutions that encompass production and consumption, including local administrations and other actors involved in the process that are not directly related to the FS (Bloom and Hinrichs 2011a; Gonzalez de Molina 2013; Goodman et al. 2012; Holt-Giménez and Altieri 2013; Levidow et al. 2014; López-García et al. 2018; Petersen et al. 2013). This integration of urban and non-agricultural actors in the transformations of the FS is establishing a new dimension of food governance based on inter-sectoral and inter-scalar action (cross-sectoral and cross-level). The complexity of these structures that encompass diverse actors and interests points to local food as a governance issue (Mendes 2007) but, because complexity throws into question hierarchical control, which goes from “top to bottom”, it is becoming increasingly necessary to study the food governance that is structured around these systems. In fact, in cases where AFS are not linked to appropriate multi-stakeholder and multilevel governance schemes and processes, their potential to improve social and ecological impacts has been questioned (Moragues-Faus and Morgan 2015; Moragues-Faus et al. 2017; Tregear 2011; Winter 2003).

Termeer et al. (2018) state that, although the number of articles related to food governance is increasing (Bizikova et al. 2014; Boström et al. 2015; Candel 2014; Drimie and Ruysenaar 2010; Duncan 2015; Jayne et al. 2006; Lamine 2015; Purdon 2014; Siddiki et al. 2015; Sonnino et al. 2014), only a few specifically deal with the issue of governance from the perspective of the FS. In order to address this gap, Termeer et al. (2018) discuss an approach for the analysis and diagnosis of food governance from a holistic perspective. Its framework of analysis is based on the results of the literature review of governance carried out by Hospes and Brons (2016). The analysis framework is applied to the diagnosis of government agreements developed to guarantee food security in Africa. In other words, the authors present the framework of food governance from the perspective of the FS that focuses on food security, while this study aims to offer a more exhaustive vision of the FS aimed at guaranteeing the sustainability of the agri-food system.

In this context, we pose the following research questions: What are the analytical approaches from which food governance has been conceptualised in the AFS? What are the relevant factors identified in the different food governance models that ensure a sustainable strategy? Specifically, the research hypothesis is as follows, “*certain relevant factors which characterise food governance that is structured around the AFS are the ones that really ensure paths towards sustainability*”. To this end, the problem that the research intends to respond to is “the lack of clarity regarding a clear definition or conceptual framework of food governance that is built around the AFS, which makes it difficult to determine exactly what the dependent variables are that constitute it and, as such, there is a certain risk of falling into the tendency of considering AFS as intrinsically more sustainable”.

Therefore, the main contribution of this study is the conceptual framework that relates the analytical approaches of food governance in the AFS with the relevant factors that are identified in each analytical category. In other words, it puts forward a conceptual framework that characterises the factors of food governance to be taken into account when guaranteeing the sustainability of AFS.

Study methodology

The systematic review enables us to define the context in which the studies related to food governance structured around the AFS have been developed (Grant and Booth 2009). In this way, we define the conceptual framework and its development, and the perspectives or approaches from which the analysis of food governance has been carried out in the reference literature. The reason for choosing a systematic review method is consistent with the research objective of linking fragmented knowledge and providing a holistic understanding that articulates the various disciplines that have analysed governance in AFS. Consistent with other systematic literature reviews (SLRs) published (Michel-Villarreal et al. 2019; Stiletto and Trestini 2021), we adopted the three-stage approach to SLRs proposed by Tranfield et al. (2003), integrating it with the Preferred Reporting Items for Systematic reviews and Meta-Analyses for Protocols (PRISMA) (Moher et al. 2015). The three-phase approach is structured as: planning the review, conducting the review, and reporting and dissemination.

Research strategy

Firstly, keywords (Table 1) derived from the research question were used for an extensive search in the Scopus electronic database, chosen both for its scientific rigour and for the recommendation and experience of Hospes and Brons (2016) in their literature review related to “the governance of FS”. The searches were carried out between July and November 2020. In addition, the Google search engine was used with the combinations of the search terms in Table 1. Finally, a manual search and “snowball” strategy was used to retrieve papers not located through the previous search strategies, up until December 2020.

The search terms used (see Table 1) included “governance” and its alternative terms, selected based on the research carried out by Candel (2014) and Hospes and Brons (2016). These concepts had to appear in the title, in the abstract, and/or in the keywords of each selected paper. In addition, the synonyms of “governance” had to be less than 5 words from “food system”, “alternative food network”, “local food network” or “sustainable food network”.

Also, in addition to using the general concept of “food system”, we decided to specify the search through the concepts that refer to “food networks”, since there is extensive literature that analyses the governance that is structured around specific alternative food initiatives. However, although we considered it relevant to characterise food networks

Table 1 Search terms used for each of the concepts

| Concept | Search terms |
|-------------------------|--|
| Alternative food system | (“food* system” OR alternative food* network” OR “local food* network” OR “sustainable food* network”) W/5 |
| Governance | (governance* OR govern- ment* OR govern* OR administra- tion* OR management* OR “policy- making*” OR “public* policy*” OR “collective* action*” OR “social* capi- tal*” OR democrac* OR cooperat*) |

(“alternative food network”, “local food network” and “sustainable food network”), we decided not to make the same characterisation for “food system”. By using the term “food system”, we obtained a wider search, while the word “alternative food system” would have restricted the number of items selected. We therefore identified 257 papers that included, from an FS perspective, an analysis of governance related to ensuring food sustainability. The search strategy applied can involve certain risks, especially in relation to the breadth of the concepts used. By opening the approach too much, the most extensive revision needs to be done later.

Item eligibility and selection

The papers selected by titles, abstracts and keywords through the database (257) were evaluated by reading the abstracts and checking them against the inclusion and exclusion criteria defined in Table 2. In addition, their relevance to the research question was taken into account.

When focusing on eligibility, the extensive literature covering FS that was from a conventional food system approach was excluded from the systematic review; in other words, all the extensive literature that focuses on the study of global agri-food system dominated by vertically integrated, large private enterprises that have undoubtedly contributed to achieving higher food output and productivity levels along the food supply chain. This success, however, has resulted in several negative economic, environmental and social externalities (Lutz and Schachinger 2013; Cleveland et al. 2014), which caused increased marginalisation, inequality and vulnerability of small family farms (Berti and Mulligan 2016).

For the remaining papers, no restrictions were applied in terms of language, year of publication or the country of origin of the research. By doing this, we aimed to broaden the view, speculating that any studies that focus directly on food governance built around the AFS would be valuable to the systematic review. Consequently, a total of 84 texts were selected, corresponding both to studies that focus on specific local initiatives and to those that analyse food governance from a broader geographical perspective.

The full-text versions were downloaded to Zotero’s citation management software (Zotero 5.0.92) for subsequent selection, taking into account the eligibility criteria and defined research questions. Ahmed and Al Dhubaib (2011) and Coar and Sewell (2010) recognise the effectiveness of this free software in managing bibliographic

Table 2 Criteria for inclusion and exclusion

| Concept | Criteria for inclusion | Criteria for exclusion |
|------------------|--|---|
| Type of document | Scientific papers from the Scopus database | Any other type of document, such as conference notes, book chapters, trade publications, etc. |
| Main topic | Food governance that is structured around alternative food systems | The remaining documents; those that do not reflect on specific aspects of food governance |
| Language | No restrictions | |
| Year | No restrictions | |
| Country | No restrictions | |

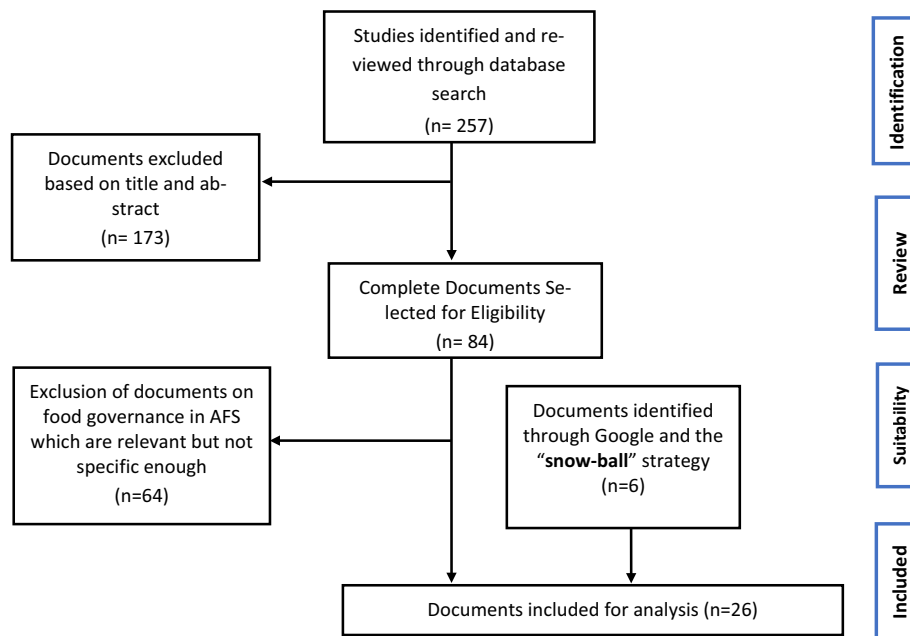


Fig. 1 Detailed process of the systematic review

references (Cooper et al. 2018). In this way, all the papers were evaluated as a group. Then, through the established criteria, a more exhaustive extraction was carried out, resulting in a total of 26 texts (see Fig. 1). Two independent researchers reviewed the full texts, with any disagreements being resolved through discussion and consensus. The information of each paper was dumped in a data form using the Microsoft Excel program. The variables included for a standardised extraction of the information were: author; date published; country; keywords; aim; analytical approach; relevant main findings.

Analysis and synthesis

The selected papers were organised in the Nvivo 12 software (NVivo Release 1.3 (535)) for analysis and synthesis of the information collected, as well as to classify and organise the data. The analytical method used was the thematic analysis, to take into account both the content and the context of the documents (Merton 1975). This research, in line with Ajates (2017), followed the six phases of thematic analysis of Braun and Clarke (2006): familiarisation with data, coding, search for themes, review of themes, definition and naming of themes, and recording of the analyses.

The encoding process followed two steps: The search strategy applied can involve certain risks, especially in relation to the breadth of the concepts used. By opening the approach too much, the most extensive revision needs to be done later. This second level allows us to systematise the success/failure factors analysed in the literature that shape the development of AFS at the governance level.

This process was an iterative process rather than lineal. The qualitative content analysis approach is a form of inductive and open coding in which codes and themes emerge

during the analysis process. In this way, descriptive codes are identified and assigned to subsequently create analytical codes iteratively as the process unfolds (Corbin and Strauss 2014). In this case, the codification generated the following basic codes: Diversity of actors/Level of participation/Decision-making/Redistribution of value/Mechanisms for mediation/Relations of interdependence/Common vision/Communication/Multi-level partners/Transversal perspective/Role of the administration. In practice, the focus of each paper analysed was interpreted and codified in one or several themes defined during the analytical process.

Analytical approaches: How is food governance conceptualised in alternative food systems?

The literature that considers using the concept of “food governance” as a variable in the process of analysing AFS coincides in recognising the existence of a wide range of actors that are seen as crucial. From this approach, the literature focuses on understanding these actors and the relationships that coexist between them. Bearing in mind the complexity that AFS have to deal with, Pereira and Ruysenaar (2012) consider that food governance is the laborious art of guiding the multiple agents and institutions that are operationally autonomous from each other, but find themselves structurally associated through reciprocal interdependence.

Analysing the academic output around governance in AFS, we find that different approaches are put forward by different authors, demonstrating that the topic still attracts an open debate. For example, Pereira and Ruysenaar (2012) refer to adaptive governance. They consider the FS to be a complex socio-ecological system, where the actors self-organise within a flexible network, better for adapting to unforeseen challenges. Building an adaptable system means developing skills to foster resilience and face uncertainties (Folke et al. 2005). Termeer et al. (2010) claim that the multilevel governance recognises the interactions that occur between the various levels, but at the expense of a transaction cost brought about by trying to coordinate the multiple actors involved. But adaptive governance not only aims to reconcile the interactions that are articulated between the multiple levels and scales; it also considers the interactions that are structured transversally (cross-level and cross-scale) (Pereira and Ruysenaar 2012).

Reference is also made to reflexive governance, which considers the role of dialogue, collective action and collaboration in guiding social dilemmas (Sonnino et al. 2014). In simple terms, reflexive governance focuses on the central role of social learning as a mode of governance, fostering adaptation and collaboration between stakeholders at different scales and stages, as well as collective cognition and social capital formation, both necessary for effective collective action. In this way, by creating “more inclusive discursive arenas” (Sonnino et al. 2014, p. 3), reflexive governance can both acknowledge and respect a wide range of perspectives and framings of the problem or issue under discussion.

In addition to the various approaches and analyses that coexist in relation to food governance, Sonnino and Marsden (2006) point out that governance not only has a horizontal facet that materialises in the interpretation of the sociocultural sphere, but also a vertical facet that has to do with the relationships that are established from the local to

the broader socio-economic system. In this regard, Moragues-Faus et al. (2017) emphasise that governance must be promoted not only at multiple scales (vertically), but also among different sectors and communities engaged in the fight against food insecurity (horizontally).

In this sense, most of the studies that the bibliographical revision yielded aim to analyse the governance of the AFS focus on the relational aspects articulated around the horizontal plane. We should point out that there may be certain approaches that the literature review was not able to detect, but we will address some of these in “Success/failure factors for sustainability in AFS in relation to their governance” section of this paper. In this context, we have identified two analytical approaches that refer to AFS, and that have developed their own conceptual framework related to food governance: alternative food networks (AFN) and urban food governance (UFG) (Fig. 2).

First, we look at the analytical approach focused on studying food governance that is structured around the AFN. In this paper, AFNs—which in the literature are variably called local food systems (Hinrichs 2000; Allen 2010; Papaoikonomou and Ginieis 2017), short food supply chains (Aubry and Kebir 2013; Mundler and Laughrea 2016), value-based food supply chains (Bloom and Hinrichs 2011b; Berti and Mulligan 2016), community-based food systems (Markow et al. 2014) or organic food networks (Favilli et al. 2015) are defined as coalitions of actors pursuing alternative modalities so as to allocate resources to the food chain, make food production happen and govern the chain’s processes (Manganelli et al. 2020).

Contributions addressing the governance of AFN tend to identify the challenges of AFN and the creation of networks between alternative food initiatives (Levkoe 2014; Levkoe and Wakefield 2014), the difficulties these initiatives face as they develop, navigating often adverse institutional environments (Stroink and Nelson 2013), and the role of institutional arrangements in supporting alternative food initiatives (Blay-Palmer 2009; Fridman and Lenters 2013). It is in this framework where Manganelli et al.

| Conceptualization of food governance through AFS | | |
|--|--|--|
| | Alternative Food Networks | Urban Food Governance |
| <i>Objective</i> | <ul style="list-style-type: none"> - Distribution of value added - Socio-ecological resilience - Scale jump | <ul style="list-style-type: none"> - Food Security - Urban food policies - Food democracy |
| <i>Approach</i> | <ul style="list-style-type: none"> - Reflexive and Collaborative governance | <ul style="list-style-type: none"> - Multilevel and Adaptive governance |
| <i>Characterisation</i> | <ul style="list-style-type: none"> - Strategic partnerships - Power distribution - Reflexive self-organisation | <ul style="list-style-type: none"> - Holistic perspective - Cross-level and cross-scale interactions - Trans-local approach |
| <i>Specific initiatives</i> | <ul style="list-style-type: none"> - Value Based food Supply Chains - Local food networks - Community supported agriculture | <ul style="list-style-type: none"> - Food Policy Networks - Food Policy Councils |

Fig. 2 Conceptualization of food governance developed through the two analytical approaches identified

(2020) define food governance as “the reflexive self-organisation of independent actors involved in complex relations of reciprocal interdependence; this self-organisation is based on continuing dialogue and resource sharing to develop mutually beneficial joint projects and to manage the contradictions and dilemmas inevitably involved in such situations” (p.5).

Within the literature that analyses food governance that is structured around AFN, a closer look is taken at the dynamic nature of local food governance due to its potential to develop a more robust territorial approach that ensures the ongoing improvement of the socio-ecological resilience of the FS (Klassen and Wittman 2017; Moragues-Faus and Sonnino 2019; Sonnino 2016). In this sense, Lever et al. (2019) argue that a focus on “place” as constituted relationally through temporal, spatial and social processes and struggles (Sonnino et al. 2016) is crucial to identify an approach to food governance that can contribute to FS reform in an age of austerity. Using a fundamentally normative tone, scholars have highlighted the potential of local governance to facilitate greater civic engagement, transparency and participation in the FS (Sonnino 2016).

A second analytical approach identified is the one that has resurfaced in recent years, concerning the food security that is taking hold within the UFG. According to Sonnino et al. (2019), an emerging but still very fragmented literature is extolling the potential of more place-based urban food governance approaches that are attempting to counteract the regressive impacts of neoliberalism by nurturing civic engagement and supporting collective action. Urban food policies are often seen as tangible efforts to develop synergies between diverse stakeholders and traditionally disjointed policy domains (Wiskerke 2009). Ongoing debates about the importance of furthering citizen participation (Hassanein 2003) in the development of food policy are reflected in attempts to reconfigure local food governance across cities and their rural hinterlands through various policy initiatives. In this respect, the role of governance is perceived as both a driver of, and a potential solution to, food insecurity (Pereira and Ruysenaar 2012; Hospes and Brons 2016).

Drawing on examples from across Europe (Moragues-Faus and Morgan 2015; Morgan 2015), North America (Blay-Palmer 2009; MacRae and Donahue 2013) and Latin America (Rocha and Lessa 2009; Ashe and Sonnino 2013a, b), this body of work celebrates urban food governance as part of an attempt to put environmentally sustainable and nutritious food on the political agenda (Lever et al. 2019).

This analytical approach also refers to local food governance, but in particular, these are studies focused on the first phases of implementation of urban food policies (Mendes 2008), the innovative mechanisms related to governance that have been deployed around the public purchase of sustainable food (Ashe and Sonnino 2013a, b; Morgan and Sonnino 2010; Sonnino 2009) and multi-stakeholder associations such as the food policy councils (FPC) (Blay-Palmer 2009; Sonnino and Spayde 2014).

The systematic review gives us several authors who analyse the food governance around the FPC (Siddiki et al. 2015; Bassarab et al. 2019; Prové et al. 2019; Sonnino 2019). The FPC are promoted as an expression of food democracy, creating a space for professionals, business, government and community members to learn together and to galvanise collective action around policy strategies to address complex FS issues. In this

sense, FPCs generally focus on the representation of different segments in the FS, on multi-stakeholder collaborations, knowledge sharing and building, and shifting power to the local level (Bassarab et al. 2019). In recent years, governments have increasingly employed collaborative governance strategies, collaboration among diverse stakeholders in organisational and policy contexts is expected to help address complex problems not easily solved by a single organisation or stakeholder group, facilitate shared understanding of problems, improve the transparency of decision-making processes and deliver contextually appropriate solutions (Siddiki et al. 2015). In doing so, they add to the effectiveness of the policy process by making the process more transparent, inclusive and open (Harper et al. 2009; Schmidt 2013; Sørensen and Torfing 2018; Bornemann and Weiland 2019).

In this approach, the definition of the food governance of Kjaer (2004) is adapted to the context of UFG “all modes of governing encompassing activities carried out by different actors to guide, steer, control or manage the pursuance of food security” (Moragues-Faus et al. 2017, p.185).

Categories of analysis: How has food governance been analysed in the alternative food systems?

This section presents the results related to the categories of analysis that the literature review gives us in relation to the study of food governance in AFS, thus completing the conceptual framework developed by the literature regarding the food governance approach. The encoded information is based on the categorisation that Granovetter (1985) makes between the “structural embeddedness” and the “relational embeddedness” in the framework of social relations.

Sonnino and Marsden (2006), attempting to combine network governance and political economy approaches, make an important advancement by referring to the concept of embeddedness, first introduced by Polanyi (1944) and elaborated by Granovetter (1985), as a holistic concept to theorise the governance of AFS.

In this sense, structural embeddedness, or what Gallar et al. (2014) call the *hardware* of agroecological transition processes, is related to network structure through which actors can efficiently exchange information and knowledge (Gonzalez-Brambila et al. 2013). Structural embeddedness captures the impact of the structure of relations around actors on their tendency to cooperate with one another (Granovetter 1992), where the term “structure” refers to the manner in which relations are articulated (Zukin and Dimaggio 1990). It refers, therefore, to the characteristics of the procedure, and encompasses the architecture of the links. Structural embeddedness describes the impersonal configurations between the actors of a network (Yan et al. 2015). It makes reference to the rules and institutions; mechanisms on which the actors are formed and which structure their actions.

Although structural embeddedness is closely related to relational embeddedness or what Gallar et al. (2014) call the *Software* of agroecological transition processes, an attempt has been made to distinguish between them in order to better analyse the factors that ensure food governance capable of guaranteeing trajectories towards food sustainability of AFS.

Refining the conceptualization of Granovetter (1985), Nahapiet and Ghoshal (1998) define relational embeddedness as “personal relationships people have developed with each other through a history of interactions” (p.244). Key aspects of relational embeddedness include the presence or absence of links between the actors that make up the network, along with other characteristics such as connectivity, interpersonal closeness and relational trust (Moran 2005). These attributes of social relationships are used to determine social capital, since Bourdieu’s (2010) original characterisation of social capital “emphasises that the usefulness of social capital arises from ‘lasting’ and ‘durable’ social relations, which require the expenditure of significant ‘time and energy’” (p. 249), implying relationships that have a considerable degree of familiarity and mutual consideration. In addition, beyond relational embeddedness based on personal interaction, other authors suggest the concept of cultural political embeddedness, referring to identity, interdependence and coherence within the network (Kirwan 2004; Moore 2006; Carolan 2006; Trabalzi 2007).

With this in mind, the literature review gives us three main categories of analysis (Fig. 3): (1) the organisational structure, or what Gallar et al. (2014) call the *Hardware* of agroecological transition processes; (2) the social capital that is reconstructed in the articulation of social relations, which these authors call *Software*; and (3) the multilevel alliances that are structured within the AFS. In other words, it points to the relationships of interdependence that are articulated between the various levels of the AFS. Within

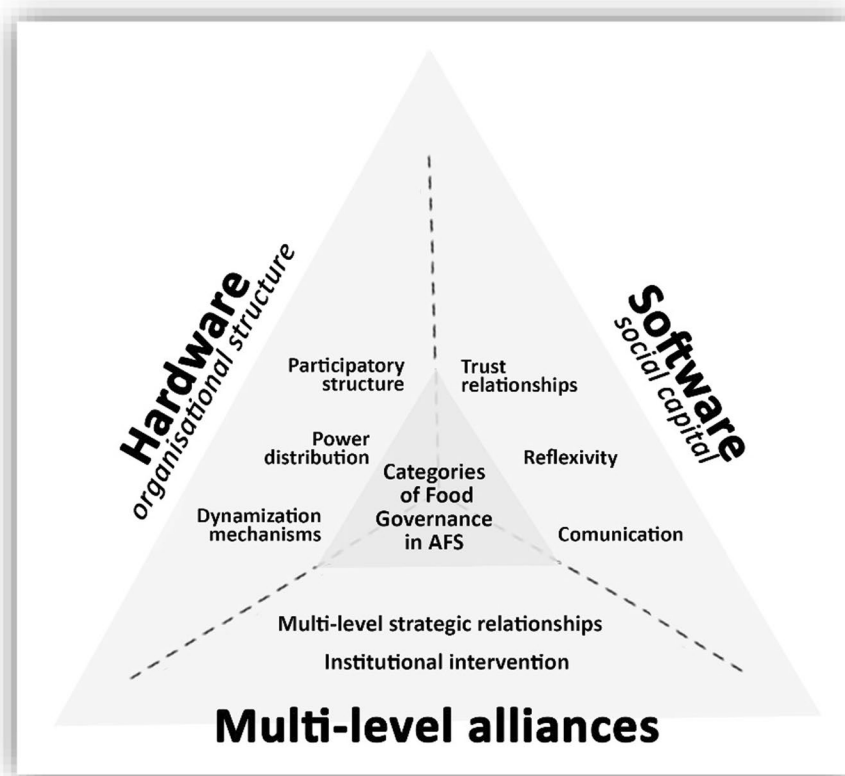


Fig. 3 The three categories of analysis that define and make up food governance

each category, we have identified the analytical aspects considered in the literature reviewed (Table 4).

The hardware of food governance

There are a considerable number of authors who study food governance from an approach based on the organisational structure that help strengthen its processes; this is from the *Hardware* perspective of food governance.

The literature focusing on the study of **UFG** addresses food governance from the perspective of organisational structure, to analyse the level of democratisation of the FPC development processes (Bassarab et al. 2019), identifying the spaces of representation that are being created to develop the processes. Le Blanc et al. (2014) differentiate between structures that allow farmers to be actively included in decision-making processes and structures where there is moderate intervention by members. Koski et al. (2018) distinguish between a descriptive representation versus a fundamental representation when defining participation in FPC.

Another of the backbones of the field of food governance *Hardware* relates to the spaces that are structured for decision-making. From the perspective of **AFN**, power is also exercised at a local level, since control can be concentrated in certain groups of actors of the FS (Lever et al. 2019). In this sense, an approach to the procedures and social norms that are created for decision-making and the distribution of added value within AFN provides a pertinent vision to advance the analysis of food governance.

The process perspective that these authors refer to when characterising the governance system structured around AFN is an important aspect. According to Mount (2012), AFN are defined not so much by the goals and values that are shared within the network, but by the process by which these goals and values are shared. It is important that the decisions that are made generate legitimacy in relation to the nature of the process, rather than in relation to the nature of consensus (Beck et al. 2003). Pimbert (2009) also captures this essence of process by stating that “the form of negotiation is often seen as containing value over and above the ‘quality of the decisions’ that emerge” (p. 44). Therefore, the self-reinforcing nature of the process becomes the basis of the governance system.

The software of food governance

The *Software* perspective of food governance refers to the relationships of interdependence that are articulated within the networks, focusing on the characterisation of the social capital that is reconstructed in these relationships. In general, the literature that is part of this approach is based on **AFN**.

The literature analysed in the review defines the social capital that is articulated around the AFN in various ways, but all the authors concur in recognising its scope. Reference is made to the definition provided by Bourdieu (2010) in which social capital is described as the positional advantage that networks and social groups can secure within a large social system of structural relations with an inequitable distribution of resources and power. The authors review the function that social capital fulfils and

analyse the intangible aspects of social capital that affect social relations within the networks.

Those authors who focus on the *Software* aspects of governance do so from the reflexive perspective of food governance. Kirwan et al. (2017), for example, state that through reflection the actors develop an awareness of their way of acting and, in this way, they are able to create new frames of reference. In this framework of reflexive governance, another key factor that is repeatedly analysed in the literature is the communication strategies that are developed between the various levels, such that “knowledge and power are closely intertwined, and knowledge production, use and dissemination determines what is conceived as important, as possible, for and by whom” (Gaventa and Cornwall 2006, p. 122).

The multilevel alliances

The last analytical category covers the perspective of multilevel governance. These generally include authors who refer to the scale of the FS. This approach is developed from the analytical framework of UFG, and is emphasised in the UFG, in particular, through the consolidation of the FPC.

The multilevel governance aims to recognise the importance of the scale in which the interactions that are articulated between the multiple agents of the FS take place. Thus, Sonnino (2019) and Sonnino et al. (2019) place the AFS in its relational context, a context that is not delimited geographically, but rather through the relationships of interdependence that exist between the various agents that make up the FS. They refer, for example, to the distribution of responsibilities, resources, power relations and rights assigned to each agent. This new localism that emerges at the urban level is named “trans-localism” and becomes a framework for creating or consolidating “networked relationalities” between food production and consumption (Sonnino 2019, p. 11). A growing body of work theorises “translocality” as a tool for addressing socio-spatial dynamics in an increasingly mobile world of networked places (Greiner and Sakdapolrak 2013).

Researchers and practitioners maintain that sustainability involves the intersection of environmental, social and economic issues, as well as requiring actors to break through both functional and geographical silos to address the complexity of real-world challenges. It is impossible to find fixed matches between levels on the administrative and ecological scales. Therefore, solving sustainability problems requires more systematic, multisector and multilevel approaches (Homsy 2018; Sharma and Kearins 2011).

Multilevel governance, with its focus on activating relevant cross-level interactions, is considered to have more potential for dealing with complex multiscale problems. In fact, Homsy et al. (2019) state that multilevel governance sits in contrast to a decentralised, polycentric approach that celebrates local action or a top-down, hierarchical approach that privileges central control. Thus, local food policy groups are (horizontally) connecting to share knowledge and resources, or interacting (vertically) with other scales of food governance (Santo and Moragues-Faus 2019).

Various authors, such as Folke et al. (2005), Pereira and Ruysenaar (2012) and Termeer et al. (2010), from the perspective of adaptive governance, recognise the many links that are woven between the various levels of FS.

Table 3 Factors of food governance that guarantee trajectories towards the sustainability of AFS

| | | Alternative food networks | Urban food governance |
|--|-------------------------|---|---|
| The <i>Hardware</i> of food governance | Participatory structure | <i>Participation of actors in decision spaces</i> (Bloom and Hinrichs 2011b; Berti and Mulligan 2016) | <i>Diversity of the actors involved</i> (Sonnino et al. 2014; Siddiki et al. 2015; Ajates Gonzalez 2017) <i>Inclusiveness of vulnerable groups in collaborative spaces</i> (Sonnino et al. 2014; Siddiki et al. 2015; Bassarab et al. 2019) <i>Connectivity/representativeness of members</i> (Siddiki et al. 2015; Bassarab et al. 2019) |
| | Power distribution | <i>Structures that contribute to altering power relations</i> (Darolt et al. 2016; Lever et al. 2019) <i>Redistribution of value along the channel</i> (Berti and Mulligan 2016) | |
| | Dynamization mechanisms | <i>Mechanisms for process facilitation and shared norms during the process</i> (Bloom and Hinrichs 2011b; Favilli et al. 2015; Berti and Mulligan 2016; Kirwan et al. 2017) | |
| Food governance <i>Software</i> | Trust relationships | <i>Mutual support and relationships of trust between the agents involved</i> (Bloom and Hinrichs 2011b; Mount 2012; Nelson et al. 2013) | <i>Dynamics that emerge for inclusion/exclusion</i> (Bassarab et al. 2019; Prové et al. 2019) |
| | Reflexivity | <i>Ability to build a common vision and identity, shared values</i> (Mount 2012; Glowacki-Dudka et al. 2013; Favilli et al. 2015; Ajates Gonzalez 2017; Hubeau et al. 2017; Kirwan et al. 2017) | |
| | Communication | <i>Transparency and accessibility of the flow of information</i> (Mount 2012; Ajates Gonzalez 2017; Hubeau et al. 2017; Kirwan et al. 2017; Adelle 2019) <i>Legitimisation of the diverse knowledge to produce a holistic and plural knowledge</i> (Adelle 2019) | |

Table 3 (continued)

| | Alternative food networks | Urban food governance |
|----------------------|------------------------------------|--|
| Multilevel alliances | Multilevel strategic relationships | <i>Diversity of multilevel partners involved</i> (Pereira and Ruysenaar 2012; Termeer et al. 2018; Sonnino 2019) <i>Ability to create feedback loops between the various levels</i> (Pereira and Ruysenaar 2012; Sonnino et al. 2014; Candel and Pereira 2017) <i>Transversal and holistic perspective of the FS</i> (Sonnino 2016, 2019; Bassarab et al. 2019; Sonnino et al. 2019) |
| | Institutional intervention | <i>Agreements with the competent administrations</i> (Pereira and Ruysenaar 2012) <i>Role of the administration (based on streamlining bottom-up processes)</i> (Sonnino 2019) |

Success/failure factors for sustainability in AFS in relation to their governance

Based on the results obtained from the systematic review related to food governance concerning the AFS, we focus our discussion on deepening and systematising the central questions and debates linked to the factors that the literature identifies as essential when it comes to ensuring more sustainable social and ecological impacts (Table 3). Therefore, the discussion section aims to answer our second research question; what are the relevant factors identified in the different models of food governance that ensure a sustainability strategy? Within each category of analysis from which food governance is studied, there are certain determinants that guarantee more sustainable AFS.

The hardware of food governance: organisational structure and power relations

Analysis of the organisational structure articulated around the AFS reveals references to several factors that intervene and configure the governance model. Of special note, from the analytical approach of the AFN, is the degree of diversity of the different participating agents, especially the inclusion of their concerns and needs (Berti and Mulligan 2016). From the perspective of UFG, Siddiki et al. (2015) state that homogeneous organisations are incapable of representing the community because they have limitations in their interests, while the most diverse ones get caught up in disagreements. Ajates (2017) emphasises the need to bring unlikely partners together to meet common needs. Sonnino et al. (2014) also point to the integration of the actors who are often neglected by the hegemonic narrative and who are on the margins of the FS; difficulties are mentioned in reinforcing the participation of vulnerable communities, and the leading role of social classes with high levels of education. This “eliticization of participation” is perpetuated due to the

lack of information feedback to the most vulnerable sectors, especially in the case of unorganised sectors of civil society.

The literature that addresses this multi-actor perspective focuses on the representativeness of the agents that participate in the FPC (Bassarab et al. 2019; Siddiki et al. 2015). In other words, when defining who participates in collaborative spaces, both the composition of actors and the representative nature associated with each of them must be considered in order to assess the contribution of each actor involved in the process. Likewise, Termeer et al. (2018) refer to the principle of inclusiveness when assessing the question of who is included and who is excluded from collaborative spaces, thereby reflecting the inherent political nature of FS.

From the collaborative governance approach, Ansell et al. (2020) argue that the collaborative process is more successful if the inclusion of agents is strategic and selective. In this sense, while participation is essential for collaboration to work, inclusion is not simply a matter of “the more the merrier”. Collaborative governance notes that access to the collaborative process is perhaps the most fundamental issue in the entire structure.

On the one hand, the background and values represented by the members involved in these processes are analysed, values based both on personal experience and on the professional role of each one (Baldy and Kruse 2019). On the other hand, reference is made to the representativeness of the community food networks in the FPC, that is, the alliances that the members of the committee may have with other local organisations. In this sense, the individual versus organisational representation of the participating agents is differentiated. In line with Bryson et al. (2006) this connectivity improves the legitimacy of any collaboration, although there are certain nuances to be taken into account. Those who propose structural embeddedness claim that the connectivity of actors and groups lowers the costs of collaboration by facilitating information flows. But it is also observed that too much connectivity among limited groups can be counterproductive (Burt 1992; Uzzi 1996), since “over-embeddedness” in certain actors limits the ability to collaborate in a broader sense.

The literature that deals with the analytical framework of AFN insists that it is important not to lose perspective, and considers that power can also be exercised at a local level. Darolt et al. (2016) study the social innovations related to the structures that are created for decision-making and the participatory management models within AFN. Some studies highlight the notion of “food democracy” (Hassanein 2008; Wilkins 2005), “citizenship agriculture” (Lyson 2012) and “citizenship food networks” (Renting et al. 2012).

Within this analytical approach of AFN, Berti and Mulligan (2016), from the VBSC perspective, also focus on the ability these channels may have to distribute power along the channel. They assert that, to understand the distribution of power within the strategic networks, it is necessary to investigate what the mechanisms of involvement of the different actors are within the network in strategic decision-making (pricing, operations, logistics, crop planning finances, long-term goals and strategies, investments, connection and activities with the community) as well as what the democratic rules

for decision-making are. In this regard, these authors highlight two strategic categories to ensure equitable relations between the various agents involved. On the one hand, “distributive justice”, which has to do with the redistribution of value along the chain. Emphasis is placed on the mechanisms implemented to ensure the welfare of all participants, including fair margins, prices based on reasonable calculation of costs, fair wages and stable and consolidated agreements that are maintained in the long term.

On the other hand, Berti and Mulligan (2016) also insist on the importance of “procedural justice”, that is, equal access for all agents to participate in decision-making and governance of the process. From the perspective of collaborative governance, Ansell and Gash (2008) state that power imbalances are especially problematic when stakeholders do not have the necessary organisational infrastructure to be represented in collaborative governance processes.

Certain authors speak of the fundamental role of mediation in facilitating integration (Sonnino et al. 2014), others call for the need to define and share the operational strategy of the process (Favilli et al. 2015). The importance of reaching consensus on explicit agreements, democratic rules or mechanisms for the involvement of the various agents is also highlighted (Berti and Mulligan 2016; Bloom and Hinrichs 2011b). These resources for mediation, more than moderating interpersonal relationships, play an important role in the construction of collective processes. Chiffolleau et al. (2016) refer to formal rules or devices, or people who contribute to ad hoc coordination. Likewise, some authors refer to the importance of the leadership that emerges when it comes to facilitating decision-making, channelling the various problems or ensuring the integrating capacity of the process (Favilli et al. 2015).

To analyse the level of negotiation that occurs during the process, Kirwan et al. (2017) refer to the norms relating to the process; that is, the norms that define what is meant by participating in the food network. The wider the agreement reached when establishing the norms, the greater the capacity to consider alternatives and, in this way, transcend an issue. AFN that establish an open governance structure and a familiarity with the renegotiation of boundaries are seen to be in a better position to adapt to the inevitable changes than those based on a fixed set of norms that defend boundaries (DuPuis and Goodman 2005). This negotiation of expectations, and the process of reaching certain consensus, demands time and energy, but at the same time, it creates governance models that are resilient and sustainable in the long term.

The literature that analyses the processes around UFG also refers to dynamization mechanisms as the backbone of food governance. In this case, from a negotiation process perspective, the need to seek procedural legitimacy is stressed, paying attention to the way in which the negotiation process is organised (Prové et al. 2019). Among the mechanisms to facilitate FPC processes, the importance of analysing the dynamics that emerge for inclusion/exclusion is highlighted, that is, the accessibility for certain actors and/or local organisations to participate in collaborative processes (Bassarab et al. 2019).

The software of food governance: social capital

Social capital becomes a central axis when analysing governance that is structured around AFN and tends to be perceived positively due to its ability to strengthen civic engagement (Nelson et al. 2013). Certain authors believe that the basis of the concept

comes from relationships that seek articulation and help develop trust, forge a shared identity, establishing itself through common values, and participate in collective action (Barraket 2005; Ostrom and Ahn 2009; Putnam 1993). Bloom and Hinrichs (2011b) emphasise the importance of trust, confirming that trust ensures fairness, stability and predictability in processes. In fact, more than trust between people, it is the trust that is established between the participating organisations that is important, since interpersonal trust can be an unstable resource (Stevenson and Pirog 2008). Mount (2012) looks at the importance of understanding trust as the predisposition of all the actors to participate in the AFN, giving less importance to the result of the exchange process (Morris and Buller 2003; Watts et al. 2005).

The reflexive perspective of food governance also affects aspects related to social capital, accentuating the importance of inclusive dialogue and the recognition of multiple perspectives of the problem in order to, through constant negotiation, be able to outline an appropriate and satisfactory line of action (DuPuis and Goodman 2005). The literature on reflexive governance that is framed within the AFN focuses on the need to “legitimate (Funtowicz and Ravetz 1993) and to contribute to a shared meaning of the “common good”” (Kirwan et al. 2017 p. 358). Taking into account that the diversity that is articulated around the AFN is the general rule rather than the exception, Mount (2012) states that rather than identifying new goals and values, governance requires reconciling the various pre-existing goals and values, i.e. the social benefit that the articulation should contribute to each one of the members of the network (Bloom and Hinrichs 2011b; Hubeau et al. 2017).

This approach has also been worked on at the level of food cooperatives, and Ajates (2017) highlights the need to transcend from Multi-Stakeholder Cooperatives to Open Cooperatives. Referencing Mooney (2004), the author highlights how the “rationalisation of an antagonistic economic relationship in its formulation of “producer groups” and “consumer groups” who simply carry on the battle in another sphere is divisive and against the original cooperative vision of an organisational structure that could merge and unify those interests and needs for a common good” (p. 86).

Favilli et al. (2015) also focus on the need to align around a common vision and/or create a shared perception of the problem. In this regard, they refer to the “boundary object”, that is, an entity shared by several different communities but viewed or used differently by each of them, yet robust enough to maintain a common identity across sites (Star and Griesemer 1989). Relationship building can have many different aspects, but generally includes constructive dialogue and attempts to align stakeholder perspectives and interests. Under collaborative governance, at some point in the collaborative process, stakeholders must come to a common understanding of what they can achieve together. The interdependence that can exist between the various agents encourages commitment when it comes to participating and, thus, more trust is generated between the parties involved (Ansell and Gash 2008).

The governance that develops within each food network significantly influences the creation of group responsibility, adaptability, legitimacy and identity (Glowacki-Dudka et al. 2013; Mount 2012). From the perspective of reflexive governance, this construction of group identity is developed around the search for alternatives to the conventional FS,

so that the emotional, the spiritual and/or a physical space become key pieces in creating an identity reconnect (Mount 2012).

Within this framework of AFN, the role of dialogue and the development of collective action to reach mutual understanding are highly valued. According to Kirwan et al. (2017), communication and information are particularly important in terms of transparency and accessibility, to ensure an opening of the consciences of the actors involved throughout the food network. In this way, the transparency of information flows, and organisation of responsibility, can help develop ethical stakeholders (Maye et al. 2019). The work of Hubeau et al. (2017) also reveals that the exchange of information, transparency and effective communication, in terms of quality and frequency, are key factors to be analysed when defining food governance.

In this line, Adelle (2019) goes one step further and analyses the democratisation of knowledge as an essential element to ensure horizontal governance. As the author states, the AFN can also link producers in a given geographical area generating a collective learning process that leads to a rapid diffusion of knowledge, best practice and innovation while also providing avenues to retain traditional knowledges. This refers to the legitimisation of a diversity of knowledge, including lived experience and daily practice, such as artistic knowledge or other forms of representation (Santos 2006). The need to ensure the production of holistic and plural knowledge is mentioned in order to have the capacity to address complex problems (such as food insecurity). As such, reflexive governance is capable of recognising and respecting a wide range of perspectives and framing of the problem or issue being addressed, since this “can create innovative and more inclusive discursive arenas” (Sonnino et al. 2014, p.3).

Multilevel alliances: strategic alliances and institutional intervention

Certain factors are identified that strengthen alliances and multilevel relationships between the various actors involved in the AFS. Pereira and Ruysenaar (2012), for example, emphasise the need to transcend from monocentric governance to more complex adaptive systems that are based on collaboration between the various agents that operate on different scales (social and ecological) in order to deal with the complexity, uncertainty and transformation that the FS supports (Folke 2006). These are studies that from adaptive governance address the food security of the agri-food system, from the analytical approach of the UFG.

In an attempt to transcend from the multilevel governance to an adaptive governance, Termeer et al. (2010) state that adaptive governance not only aims to reconcile the interactions that are articulated between the multiple levels and scales, but also considers the interactions that are cross-structured (cross-level and cross-scale). Cross-level interaction refers to the interactions among levels within a scale. Institutional cross-level interactions, for example, occur when there is vertical interplay between regimes located at higher and lower levels of social organisation (Young 2006). Cross-scale refers to interactions across different scales, for example, between ecological and jurisdictional scales.

Addressing these levels requires combining a “top-down” approach (too insensitive to the constraints and opportunities that arise at the local level), with a “bottom-up”

approach (indifferent to the repercussions that the local actions might have on a more global level) (Termeer et al. 2010). The establishment of bottom-up collaborative arrangements would likely benefit from some degree of top-down management, to guide and facilitate the establishment of collaborations that better align with the different constraints inherent in the FS. This is because governance not only has a horizontal facet, but also a vertical facet concerning the relationships established from the local to the broader socio-economic system. Sonnino (2019) also reiterates the importance of extending the vertical axis of UFG, where there are few key actors operating on larger scales (such as regional representatives, and especially national ones).

The literature reviewed shows the need to cross the two vertebral axes. Lever et al. (2019), for example, state that “while civil society groups are deemed to have the drive and capacity to bring about change through community growing and urban agriculture initiatives, for instance, local authorities are seen to have the ability to influence longer-term priorities through public procurement, territorial and spatial planning and the development of local infrastructure” (p.99).

In the context of this literature which focuses on the analytical approach of UFG, Sonnino et al. (2014) express the need to create feedback loops between the various levels that operate simultaneously, to ensure that food policies respond to the new challenges that lie ahead for the AFS, such as food insecurity. The authors, through the study of Brazil’s food security policies, claim that decentralisation has also entailed a distribution of tasks and responsibilities across the state and civil society at multiple levels. This decentralisation takes place through feedback loops between policy decisions, implementation, outcomes, change, innovation and redesign. This is a dynamic that allows governance to respond to the challenges of sustainability.

Another of the aspects of multilevel governance is that which refers to polycentric coordination nodes (Lee 2003 in Folke et al. 2005), considered necessary to self-organise and retain flexibility, thus ensuring the viability of the system. According to Pereira and Ruysenaar (2012), these self-organised and embedded units operate across multiple scales through the interdependence that is articulated between the various agents involved. The diversity of responses that emerges means they are better positioned to deal with uncertainty and change (Folke et al. 2005) and in this way, strengthen their resilience. Another characteristic of this polycentric model is the ability to maintain specialised sub-units while at the same time improving the connectivity between them (Lankford and Hepworth 2010; Ostrom 2010; Termeer et al. 2011).

Above all, multilevel governance suggests taking into account a systemic perspective of the FS (Sonnino 2019). In other words, the idea is that “complex issues are linked, there are multiple actors in the system who are connected, and integrated solutions are required” to deal with complexity (MacRae and Donahue 2013, p. 5). This vision of food governance proposes as a key objective the development of “an integrated, cross-sectoral approach to food policy, which links initiatives within public health, environmental sustainability, community development, education, agriculture, cultural and economic development, waste management, urban planning/land use and tourism” (Sonnino 2016, p. 196).

The literature suggests that many urban food strategies take a holistic approach to reformulating the FS. Studies which explore the dynamics related to governance structured around FPC highlight the need to address a systems-based perspective on membership from across three axes: across domains (e.g. health, education, economic development), across the supply chain (e.g. production, retail, distribution) and across sectors (e.g. public, private, community) (Bassarab et al. 2019). Members become “boundary spanners” by crossing organisational and sector boundaries, creating a bridge that enables a systems-oriented approach (Williams 2002).

Regarding the role that institutions play in the construction of this “network of relationships” that reflects the adaptive food governance, Pereira and Ruysenaar (2012) insist on more decentralised governance mechanisms. These authors believe that institutions should be thought of as one more element of the whole, and thus move governance towards relations of interdependence. This requires replacing conventional notions of risk governance, stability and control by a governance system that is sufficiently flexible, integrated and holistic to deal with the complexity, uncertainty and violence of the FS (Bohle et al. 2009). In this sense, the role of institutions is reduced to stimulating ideas and guiding grassroots organisations to deal with turbulence and complexity. Therefore, such endeavours require leadership which disrupts existing patterns, encourages novelty and interprets rather than creates change (Pereira and Ruysenaar 2012; Ramalingam et al. 2008).

Likewise, from the meta-governance approach, Moragues-Faus and Sonnino (2019) point out that the role of institutional managers is based on: establishing the rules of the game; shaping discourses/narratives/identities; and/or distributing resources (Jessop 2003). This literature identifies numerous strategies for successfully managing networks, including building trust, shaping interactions and changing the institutional rules of established networks (Sørensen and Torfing 2007).

Sonnino (2019) highlights the need to establish institutional agreements that facilitate the coordination and integration of the different actors and sectors, especially during the urban food strategy implementation stage.

Conclusions

The systematic review of the literature reveals that food governance is receiving greater scientific attention. In fact, in 2021 the literature analysing the governance of AFS increased by 28%, taking into account the eligibility approach that has been used in this study. Food governance has received different interpretations according to different authors, but the diversity of approaches has not hindered the development of complementary ideas from various schools. The coexistence of multiple approaches that have been feedback to each other can be seen, such as adaptive governance, the multilevel governance or reflexive governance.

However, on the edge of these multiple approaches can be found fragments of knowledge about food governance that are barely connected. The governance that is structured around the AFS appears as an area that is still not clearly defined in certain aspects. In addition, the lack of clarity regarding a clear definition or conceptual framework makes

it difficult to determine exactly what the dependent variables are that constitute it. The systematic review developed in this paper aims to fill this gap.

The aim of this study has been to contextualise the various analytical approaches developed in the literature regarding the food governance and, by doing so, collect the relevant factors that different food governance models identify to ensure a sustainable strategy. Therefore, the main result of the study is the conceptual framework that relates analytical approaches of food governance in AFS with the relevant factors that are identified in each analytical category. In other words, the study offers a conceptual framework that characterises the factors of food governance to be taken into account when guaranteeing the sustainability of AFS.

Firstly, we find that the FS fields in which food governance has been studied conceptually and practically represent a diversity of typologies. The literature review shows studies that focus on **AFN**, and in recent years a literature concerned with food security has resurfaced, around **UFG**.

Secondly, the systematic review gives us three categories of analysis seen in the literature selected: the organisational structure that take hold around the AFS; the social capital that is reconstructed in the articulation of social relations; and the multilevel alliances that are structured within the AFS.

Each analytical approach is seen to address certain analytical categories of food governance and, by doing so, certain factors that condition ecologically sustainable and socially just trajectories are identified in each framework. The two analytical approaches are concerned with aspects related to the organisational structure, among others, the diversity of actors involved in decision-making spaces, the inclusiveness of vulnerable groups, the representativeness of members, the structures that contribute to altering power relations, the redistribution of value along the channel and mechanisms to streamline processes. This process approach in which governance is rebuilt, developed and nurtured is what ensures the sustainability and resilience of the FS. Likewise, sustainability should be considered not as a specific entity that can be measured based on watertight criteria, but something that is necessary to problematize. In fact, many authors have advocated a process which is inclusive and democratic to define and address sustainability (Hassanein 2003; Kemp and Martens 2007; Maxey 2007; Robinson 2004).

With regard to the social capital and the interdependence relationships that are created between the members, the democratisation of the processes is sustained by certain background elements related to the common identity of the various agents and their shared values. From the perspective of **AFN**, reference is made to the logics, values and objectives that the participants share when building more sustainable networks.

Another category is one which considers multilevel alliances, from the literature focused on **UFG**, which emphasises the need to seek multilevel partners and to encourage complexity through bottom-up processes, as long as equitable conditions are guaranteed in the process of consolidating food governance. In addition, multilevel governance suggests taking into account a systemic perspective of the FS (Sonnino 2019). In other words, the idea is that “complex issues are linked, there are multiple actors in the system and they are connected, and integrated solutions are

required” in order to manage complexity (MacRae and Donahue 2013, p. 5). Climate change, environmental degradation, consumption patterns, population growth, price volatility and technological innovation are some of the threats that the literature analysed through the systematic review identifies as factors that affect the sustainability of the FS.

The political implications identified as essential considerations in the structuring of food governance are what ensure the sustainability of the AFS. This is essential in contexts in which the AFS are losing their integrity when it comes to articulating with urban or institutional actors that do not come from the agrarian sector. They are also essential factors to build upon when seeking coordination between the various experiences, avoiding fragmentation and ensuring scaling-up that guarantees sustainable objectives. The results that the systematic review of the literature shows refer to the study of governance in the processes of scaling-up or, at least, the perspective of scale is emphasised when analysing the food governance.

We conclude by highlighting certain gaps identified in the study of food governance that is structured around the AFS and, based on these weaknesses, propose future lines of research. It has been shown that part of the literature that analyses food governance focuses on defining challenges that ensure more sustainable FS, but in many cases more empirical work is necessary. In this sense, situated diagnoses are needed to identify the difficulties that food governance faces when building more sustainable food systems. Whatever the situation, it is not an easy task, since, while it is necessary to adopt localised strategies, it is also necessary to work from a process approach to ensure long-term strategies and structural aspects that guarantee the democratisation of multi-actor networks. Above all, there is a need for local policies that can influence national and international policies, with a view to broadening the impact of AFS at a territorial level.

Our conclusions have been to provide a common conceptual framework of food governance that is capable of linking the various approaches to food governance. We believe the framework we propose to be useful in future research for gathering evidence that helps promote AFS move towards sustainability. Likewise, we consider it important that the agents involved in these processes value and use this contribution as a framework to advance in the development of sustainable food strategies and identify gaps and/or critical aspects that may be occurring in real processes. In this sense, it can be useful for politicians and agents involved in public food strategies, because it characterises certain aspects related to institutional intervention and multilevel strategic relationships, essential factors to be considered in order to support the development of AFS which promote sustainable strategies.

Appendix

See Table 4.

Table 4. Literature that analyses the governance system structured around the AFS

| Bibliographic references | Field of study | | Key concepts related to food governance | |
|----------------------------|---|--|---|--|
| | Software: social capital | Hardware: organisational structure | Multilevel alliances: strategic alliances and institutional intervention | |
| Adelle (2019) | Food democracy Food security Food sovereignty | | | Cognitive justice, Knowledge democracy, Co-production and sharing of knowledge |
| Ajates (2017) | Sustainable food systems Multi-stakeholder cooperatives Food policy | | Solidarity economy, Pro-commons, Open cooperatives | |
| Bassarab et al. (2019) | | Food democracy Food policy council Collaborative governance | Membership, Participatory democracy, Organisational structure, Spaces for co-learning, deliberation and decision-making | |
| Berti and Mulligan (2016) | | Alternative agri-food networks Short food supply chains Value-based food supply chains Food system sustainability | | Small farm competitiveness, Organisational strategy, Innovative intermediary organisational forms |
| Bloom and Hinrichs (2011b) | Regional food system Value chain Alternative goals | | Distribution networks, Strategic partnerships | |
| Candel and Pereira (2017) | | | Food system Food security Food policy | Policy integration |
| Darolt et al. (2016) | | Alternative food networks Short distribution channels Sustainable agri-food system | | Social cooperation and partnership, Food democracy, Social innovation, Power relations, Decision-making and participatory management |
| Favilli et al. (2015) | Organic food networks Local development | | Innovation networks, Cooperation between actors | |

Table 4. (continued)

| Bibliographic references | Field of study | Key concepts related to food governance | |
|------------------------------|--|---|---|
| | | Software: social capital | Hardware: organisational structure and institutional intervention |
| Fridman and Lenters (2013) | | | Adaptive governance Municipal food policy/strategy Food policy council Community food security |
| Glowacki-Dudka et al. (2013) | Sustainable local food networks Community development Local food system | | Social capital, Trust, Shared goals, Connection and reciprocity |
| Hubeau et al. (2017) | Agri-food system Sustainability Governance networks | | Systems approach, Collaboration success, Risk sharing and drivers to participate |
| Kirwan et al. (2017) | Food supply chain Transitions to sustainability Reflexive governance | | |
| Lever et al. (2019) | | Food system Local food governance Socio-ecological resilience | |
| Maye et al. (2019) | Ethics and agri-food governance Agri-food system sustainability | | Ethics: Multiple stakeholder perspective, Shared norms, Procedural attributes, Encourage actors |
| Mount (2012) | Local food system Alternative agriculture Scale | | Synergies between food system actors, Relational approach, Accumulation of power, Number of coordinated positions |
| Nelson et al. (2013) | Community food initiative Alternative food system | | Collective social responsibility, Processes of knowledge production, use and communication Value-added, Direct exchange, Shared goals and values |
| Pereira and Ruysenaar (2012) | | | Social capital, Civic engagement |
| | | | Institutional structures |
| | | | Monocentric, multilevel and adaptive governance Food security |

Table 4. (continued)

| Bibliographic references | Field of study | | Key concepts related to food governance | |
|--------------------------|--------------------------|--|--|--|
| | Software: social capital | Hardware: organisational structure | Multilevel alliances: strategic alliances and institutional intervention | |
| Prové et al. (2019) | | Local food system Sustainable and democratic FS Food policy council Governance of urban agriculture | | Socio-political inclusion and exclusion, Power struggles, Procedural justice, Politics of scale |
| Siddiki et al. (2015) | | Local food system governance Food policy council | | Stakeholder composition, Collaborative policy-making venues, Food policy actors, Personal or organisational interests |
| Sonnino et al. (2014) | | Food system Food security policies Reflexive governance | Adaptation and collaboration between actors at different scales and stages | |
| Sonnino (2016) | | | Local food systems Food security Policy analysis | Urban food strategies, Governance coordination |
| Sonnino et al. (2019) | | | Multi-actor urban governance Sustainable urban food systems | Food policy innovation, Systemic/holistic approach |
| Sonnino (2019) | | | Local food governance Urban food governance Municipal food policies | Integrated food strategies, Trans-localism in the food system, Civil society participation, Flexible and inclusive approach to relocalization, Systemic approach |
| Termeer et al. (2018) | | | Food system governance Food security | Governance arrangements, Holistic perspective, System-based problem framing, Connectivity, Adaptability, Inclusiveness, Transformative capacity |

Abbreviations

| | |
|-----|---------------------------|
| AFN | Alternative food networks |
| AFS | Alternative food systems |
| FS | Food system |
| FPC | Food policy council |
| LFS | Local food systems |
| SFS | Sustainable food systems |
| UFG | Urban food governance |

Acknowledgements

Not applicable.

Author contributions

AO-A is the main author. MB-Z and MC-P are the principal investigators of the project. The three authors actively participated in defining the research questions, selecting the appropriate articles from the relevant database and then writing the final paper. All authors read and approved the final manuscript.

Funding

The University of the Basque Country has financed the publication of this article.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations**Competing interests**

The authors declare no conflict of interest. The funder had no role in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

Received: 22 December 2022 Revised: 21 April 2023 Accepted: 27 May 2023

Published online: 08 June 2023

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