

Article

Practicing Fair and Sustainable Local Food Systems: Elements of Food Citizenship in the Simeto River Valley

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Abstract: This paper examines a community-based food system which emerged recently around the Simeto River Valley Agreement (SRA) in Sicily (Italy) through the lens of food citizenship. The concept of food citizenship develops an understanding of how food systems function to ensure that individuals and communities have agency, access, and engagement with their food. It allows for comparative analysis between global/industrial and community/alternative systems. This paper follows a methodological integration between action research and a case study approach. The action research process produced a networked governance structure derived from multiple initiatives which are currently initiating many thematic projects—amongst them, a local food system. Results indicate that formalizing governance structures derived from self-organizing behavior have led to an inclusive platform with a shared vision and goals. The governing structures, however, require continued efforts and capacity to engage collaboratively in implementing their strategic plans. Findings suggest that actors developing a food citizenship-focused system should (1) consider how the governance organizational structure enables fluid communication among members and leads to building trust, (2) seek alternatives to engage youth (especially in rural areas) and promote citizen engagement, and (3) develop strategies to seek technical and programmatic support for initiatives. These three aspects are key features which may be adapted to other such efforts in sustainable and local food systems. The complex networked approach to governance presented here and the shared vision for sustainability are considered key elements in fostering a successful alternative food system with the fundamentals of food citizenship at its core.



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1. Introduction

This paper discusses the empirical aspects of the community-based food system that emerged in the past few years around the Simeto River Agreement (SRA) in Sicily (Italy). Food systems are understood here as the inputs, processes (action and institutions), and outcomes necessary for food production, distribution, and consumption [1–3]. The expansion of globalized networks of production and distribution raised concerns about the sustainability of food production and consumption. These concerns are often expressed through a tension between industrialized and community-based food systems. Within this tension, this paper suggests that the concept of food citizenship [4–6] helps to frame the understanding of the roles that individual and collective actors have in a food system. From a theoretical standpoint, food citizenship requires individuals and communities to have agency to make decisions about the food they consume, which occurs if such actors are engaged with the action frames and institutions pertaining to decisions around food. Within this framework, the food citizenship model assumes that human agency can

contribute to improving human outcomes and environmental sustainability in the long run [5]. Therefore, as a normative target, interactions that exist among the actors and within the system are expected to contribute to enabling fair and sustainable food systems that ultimately reflect democratic collective goals.

Within this framework, this paper aims at exploring empirical aspects of food citizenship. Recalling the tension that exists between industrialized and community-based food systems, this paper analyzes the experience of a local food system through the food citizenship concept by specifically looking at the agents engaged in the systemic processes around the sustainability of food. The article gains evidence from the process of the SRA agreement in Sicily (IT) to further contextualize the trends and conditions which outline the food citizenship vision. The food system around the Simeto River Valley Agreement provides an interesting case of the praxis of food citizenship aimed at drawing some recommendations. In examining this case, the theoretical framework around food citizenship can be observed through two variables, governance around food and sustainability. Within sustainability, three aspects are observed: place/socioeconomic, agroecology, and fairness. The article discusses findings of a possible approach toward inclusive and sustainable food systems, providing evidence-based and theoretically sound information to policymakers, scholars, and advocates for the democratic improvement of food systems.

2. Background and Theoretical Framework

2.1. Industrial vs. Community-Based Food Systems

Food security as the main driver of food systems is a contentious concept. According to Mooney and Hunt [7], there are three frames that drive food security: hunger, community, and risk. Each entails specific policy positions and interests, while also expressing a multidimensional social problem that is addressed differently depending on which frame the action is positioned. Building on this perspective, a tension emerges between industrialized and community-based food systems. Such tension takes place around the normative and substantial ways in which scholars, practitioners, policymakers, and advocates understand the roles, processes, and outcomes of food systems. This tension is useful to understand how these two types of systems create arrangements to provide access to food, ensure long-term food availability consistent with environmental sustainability, healthy individuals, and communities, and enable agency among actors to make decisions about food. Ultimately, agents engaged in the systemic processes around food and their interactions determine the systems' outcomes in terms of agency and sustainability, for which the praxis of food citizenship is critical.

2.1.1. Industrialized Model

The global population began growing at an accelerating pace around the early 1900s and people started concentrating in urban areas. This began a trend of food production and distribution shifting from localized food maximization efforts to attempts which emphasize highly productive crops, that meet global demands, and that rely on food distribution networks. The overarching theme was finding a way to feed the world. As part of this process, in the mid-twentieth century came the Green Revolution that consisted of large investments in research development for the technological advancement of agriculture. Results of these initiatives include genetic crop improvements, development of crop and water management systems, and the use of agrochemicals for fertilization, pest/weed management, and soil improvements. These technological developments led to significant improvements in crop efficiency and lower prices. In many countries, it contributed to increased access to food, especially in developing countries [8–10]. However, technological advancements for improving food access soon faced the juxtaposition that increased capacity of the system to produce agricultural goods efficiently may also limit the capability to develop sustainable and fair food systems. Political economists suggest that this model of agricultural production, paired with local conditions, in many cases led to institutional arrangements that favor the concentration of land and power imbalances [8,11–13]. Fur-

thermore, this model of agricultural production led to externalities such as environmental pollution, damaged ecosystems and communities, and the commoditization of agriculture and land grabbing [14–18]. Under the industrialized model of agriculture, competitive advantages determine the amounts and types of agricultural goods required to respond to international trade demands [19,20]. However, when agriculture focuses on meeting global demands, often times, it neglects food-related local needs [21,22].

The agricultural revolution along with demographic shifts not only changed production in pursuit of food security but also contributed to reshaping consumer behavior and health outcomes. The rationale under the Green Revolution was to reduce hunger and malnutrition by expanding the capacity to produce nutritious foods at lower prices (crop efficiency) and make it accessible to populations that, due to geographic, climate, or socioeconomic conditions, did not have guaranteed access (price reduction) [9]. Therefore, since the 1960s, the reduction of hunger and stunning in developing nations was achieved through improved productivity of agriculture [23–25]. However, with the agricultural revolution and increased urbanization demanding easy and affordable access to foods, dietary patterns of consumption also shifted towards foods that are highly rich in vegetable oils, sugars, and animal products, leading to multiple forms of malnutrition observed through high levels of overweight, obesity, and diet-related non-communicable diseases (e.g., diabetes and cardiovascular disease) [26,27]. This critical change in the way that humankind produces, distributes, and consumes food has important implications for governance, economics, culture, and ecological systems. Although industrialized agriculture has achieved outcomes in terms of improving agricultural productivity and reducing hunger, the overall success of technological change is complicated when examining local institutional capacity for the adoption of such knowledge to achieve sustainable and fair practices which ensure food citizenship.

2.1.2. Community-Based Approaches

Increased awareness about the externalities that industrialized food systems had produced led to changes in conceptions of food security. This shift expands the focus from achieving forms of food security that reduce hunger and undernourishment (individual access) to include implementing sustainable mechanisms of producing foods (long-term availability) that are nutritious and balanced (population health) and can engage citizens in their community processes (food governance) [2,26]. In the 1970s and 1980s, advocates began to delineate the features of alternative food systems, criticizing the industrial model for its negative environmental consequences as well as the depersonalization of processes around food and the detachment of consumers from the production sources, which led to different forms of malnutrition [27–29]. As a reaction to the negative externalities of the industrialized food production, this movement advocated for empowering communities at the local scale [30–34]. This movement, led by practitioners, advocates, and scholars, considers that in contrast to the globalist trend that the industrialized model became, the solution to create inclusive, sustainable, and resilient food systems lies in the local, community-level approach to food.

Alternative models suggest that local food systems can address the negative externalities of industrialized systems, such as environmental pollution, malnutrition, and detachment from food-related processes. These types of food systems incorporate practices such as sourcing foods from environmentally sustainable local places, engagement with consumers that acknowledge the importance of healthy foods and balanced diets, and active citizens that consider food to be a political aspect of collective life [33–36].

2.2. Theoretical Lens: Governance and Sustainability

While both forms of food systems seek to ensure access to nutritious foods, they differ in their understanding of what nutritious means, how to produce foods in a sustainable manner, and what citizen engagement means in a food system. In this regard, community-based aspirational models are better suited to seeking more comprehensive forms of

food security. The underlying assumption of these models is that food is one of the foundations of social human life and therefore has a community aspect and a political character. According to Gómez-Benito & Lozano [5], under this theoretical framework, “food citizenship would be an extension of the concept of general citizenship to the sphere of food” ([5] p. 137), where active participation is a necessary condition to determine autonomous individual actions and behaviors in food choices and to develop the necessary capacities to affect food-related policymaking. Looking at a food system through the lens of food citizenship may not necessarily mean consensus around the articulation of the system; it does mean that normative foundations function to determine the direction of action. However, it is important to acknowledge that in the praxis of food citizenship, individual and collective agents are bounded by specific context factors that hinder the capacity for full engagement in the food system. In this case, systems determine structural settings (governance) to promote sustainable practices that fall under the food citizenship model.

2.2.1. Governance

Food citizenship is often understood in terms of political participation and governance models. Governance in this sense can best be described as the structures which influence the system of food production, distribution, and/or consumption. Under community-based models, governance structures may manifest themselves informally as grassroots organizations, volunteer/non-profit management, or promotional entities which self-organize to contribute to the food system. In contrast, classical interpretations of governance structures would be most appropriately understood as formal political/government actors which utilize the rule of law to influence the food system; as such, a model of hierarchical governance aligns best with the industrialized food system [37].

These two systems of governance are often indicative of a distinct set of identified actors representing two types of food systems. Utilizing Marcia Caton Campbell’s stakeholders’ list, we can broadly illustrate the two systems of food stakeholders as (1) those in the global industrialized food system and (2) those in the alternative food system [38]. The actors in the globalized system include conventional groups such as large-scale producers, corporate farm management entities, the system of supply chain and value-added industries as well as the emergency food system and consumers. The alternative food system is comprised of actors which seek to challenge the globalized system. These actors approach food systems from multiple perspectives that encompass different disciplines and examine food and food systems in varying ways. Such lenses may include those observing food systems for ecologically sustainable practices, cultural relevance, nutritious viability, and/or ethical standards, amongst other perspectives [39–41]. The power distribution structures of the global industrialized actors seek to enhance productivity and profits with the goal of maximizing market share and/or seeking government alliances which increase the supply of available food. In contrast, the overarching themes of alternative food systems tend to align with the goals of food citizenship in which actors build a network of demand for foods which correspond to their preferences for justice, sound environmental responsibility, and citizenship/democracy [38,39,42,43].

Many of the outcomes and negative externalities originating from the Green Revolution have been attributable to the formal organizational governance structures which insulate and enhance the system of rewards for global or corporate food production. These formal measures include such policies as direct subsidies, tariffs, land policies, funded research, and a host of other protective measures which drive large-scale agriculture [44–46]. The goal of increasing the supply of global food created a large and powerful network which has succeeded in vastly enhancing the production of agricultural products, though it has also caused concerns about food citizenship.

In response to the perceived need for reclaiming food citizenship and building better food systems, the self-organized, and often local grassroots actors, unite for the purposes of achieving a shared vision of the food system [47,48]. This network-based approach in response to the prevailing food system can be driven through a singular and/or multi-

dimensional view of the food system and may utilize other actors or areas of alignment as previously alluded to in the actors for alternative food systems. These may include participatory frameworks of actors focused on health outcomes, those seeking environmental sustainability, planners and designers of community spaces or engagement activities, individuals focused on local economic development, groups who want cultural enrichment, and/or a bevy of other ideals which can drive or incorporate an alternative food system. Their mechanism for how to achieve these ends may also vary. These could entail direct farm to consumer sales, community gardens, co-ops, pick-your own, subscriber networks, farmers markets, buy local initiatives, etc. [32,49].

Traits of a self-organized or grassroots effort often include coalition building. Understanding that the global food system exists within a supply-driven world, creating knowledge of an alternative and thus demand precipitates a need to have some form of marketing or activism [50]. As the success of the global food system has generally entrenched the norms, actors, and practices, the alternative systems hinge on an ability to connect both need and desire. Scaling in an alternative food system becomes a challenge as the diverse actors, some formal and some non-formal, run into issues of boundaries and areas of disagreement [51]. The foundational democratic principles (food citizenship) of alternative food systems may cause discontinuity between actors; thus, sustainability may depend on leadership or a transition to a formal agreement framework [52]. Sustainability is not tied to a singular framework as alternative food systems vary in crops, design, demand, location, support, etc. The process of organization and localization of a food system can be quite messy and, in many ways, often contradictory and/or co-opted by globalized actors [50,53].

Many governance models are being built to bridge various actors in the food system. These innovations, which include consumer awareness and grassroots initiatives along with traditional governance structures, serve to increase the potential for sustainability [54]. Formal actors in the model proposed by the Green Revolution, including universities, federal governments, and multinational parties, are also working to provide support for alternative food networks [55,56]. However, the question of how to practically enhance community-based approaches for pursuing food citizenship remains open.

2.2.2. Sustainable Food Systems

Although the technological developments in agriculture led to important improvements in efficiency, cost reduction, and increasing food availability, agricultural intensification and commoditization of food continue to have important ecological impacts, such as deforestation, land degradation, and loss of biodiversity [14,57–59]. Additionally, as food systems became large chains of production and distribution networks, the phenomenon of anonymizing individuals occurred and detached people from their food sources, thus neglecting the role of individuals and communities in the food system. Therefore, alternative models seek to restore balance by reinforcing the meaning of place/culture for food systems, environmental sustainability, and a food system's capacity to address disparities (including health disparities). In this sense, three aspects need to be explored: the boundaries of the system; ecological concerns; and the opportunity of addressing disparities through sustainable food systems.

The boundaries of the system can be explored in reference to the actual political boundaries, the spatial/physical boundaries, and/or cultural boundaries. These features are often embedded in terms like local or global when referring to a system which aligns within one of these boundaries. As means to balance out the negative externalities of globalization and industrialization in agriculture, the community-based food systems approach suggests that alternatives exist at the local scale to counterbalance such effects. Johnson [60] states that advocates of community-based food systems attribute expected outcomes to the local scale, which may not be necessarily true due to the boundaries of the system. For instance, better quality and freshness of foods, implementation of environmentally sustainable practices, or engaging in local purchasing practices as ways to

contribute to revitalize local agricultural economies are at times attributed to the local aspect of food systems. This may be the case, but scale (local) does not determine the outcomes; it is the actors engaged in the process who determine the desired outcomes and the path to achieve them. Brown and Purcell [61] indicate that there is a ‘trap’ around the use of the concept of ‘local’ among food systems advocates, scholars, and planners [30,35,61]. They argue that “political ecologists assume that organization, policies, and action at the local scale are inherently more likely to have desired social and ecological effects than activities organized at other scales” ([61] p. 607). Born and Purcell [50] suggest that the focus on ‘local’ can interfere with the search for broader outcomes of food systems; that is, when ‘local’ becomes the desirable outcome, it replaces broader and perhaps more important food system goals. Hitting the local target can make the system miss its actual goals of sustainability, health, fairness, or citizen engagement. It can also obscure alternatives which exist at different scales; for instance, there are cases in which sourcing from places which have better conservation practices than the local ones can better help to improve sustainability than focusing on local sourcing exclusively. From the discussion about scale, it is fair to say that local cannot be an *a priori* requirement of sustainable and fair food systems. Instead, the networks, processes, and shared vision determine the expected outcomes and boundaries of the system, whether these are geographic or not. Proximity matters only if it contributes to sustainability and agency as key outcomes of a food system.

A critique from community-based food system advocates towards industrialized systems is that due to the increasing use of technology in agriculture, there is limited use of local knowledge in the agricultural process, which may result in detachment from the food production process and ecological damage. On the supply side, for farmers in the globalized agriculture context, the expansion of technology is meant to adapt to the global demands for commodities, many times at the expense of the local ecology. The effects of using technology without understanding the limits of the environment may create hazards for the sustainability of the environment. The premise of effectiveness, reducing risks and cost-saving by adapting the use of technology had failed to recognize local practices that have allowed small farmers to adapt to local conditions [32,33,57,62]. As a counter-movement, agroecology considers how local knowledge and small farmer practices help to preserve biodiversity while supporting community-based food security: “these services include the preservation of traditional farming knowledge, local crop and animal varieties, and native forms of sociocultural organization” ([57] p. 35). By implementing these practices, community-based agriculture is expected to further reduce the ecological footprint of agricultural distribution by reducing the travel times of produce and foods. In fact, by looking at the case of the SRA, we will see that there is a collective interest to preserve the environmental services of the river while maintaining agricultural production. However, technology is not a limitation for the advancement of sustainable systems, but its excessive reliance can lead to negative externalities. Nowadays, technological change not only takes place within networks of specialized research centers, experiment stations, and large-scale farmers, but it is becoming more common that research and development in agriculture occurs in collaboration with farmers of all types. In addition, agricultural research is paying close attention to the development of technologies that contribute to reducing the ecological footprint of agriculture. There exist multi-stakeholder collaborations which build on the idea that smallholder agriculture has valuable knowledge that can inform agricultural practices for long-term sustainability and the preservation of biodiversity. This builds knowledge to find low-cost alternatives which aid small farmers in accessing technical assistance to incorporate sustainable and suitable technologies [26,63–67]. Therefore, alternatives exist in the practices associated with agroecology, which are also technologically sound, while research and development in agriculture keeps working towards better forms for environmental sustainability in food systems.

Food systems can contribute to fair access to food and have the ability to address disparities. The food citizenship framework strongly focuses on the importance of social justice in terms of access and knowledge of foods that are affordable and healthy [4,6,68].

The ‘rights’ approach underlying the food citizenship framework comes with individual and collective responsibility that frames choice [5]. Problems of malnutrition relate to not only lack of food but, in many cases, excess in the consumption of non-healthy foods (animal protein, sugars, fats, and processed carbohydrates). The problem of new forms of malnutrition related to the industrialization of foods is in many cases related to food insecurity among low-income populations, on which there is a significant burden (especially in developed countries) due to increasing rates of overweight, obesity, and non-communicable diseases affecting the health outcomes. Food-insecure places may not lack food (from a caloric standpoint) but lack nutritious foods and health-conscious diets [21,29]. Food fairness does not exist if consumers are food-insecure [69] or have limited knowledge of the dynamics within the food system, which may incentivize unhealthy choices. Food fairness and social equity are aspirational values which apply to consumers engaged in the relationships that happen around food to build agency and make informed decisions [30,70,71]. This requires having access to a variety of foods, knowing the nutritional components, understanding options for sustainable choices, and knowledge about the food chain process. Awareness about the processes and actors in the food system is critical for food citizenship, as communities have traditionally developed norms around production and have assigned social roles to the members of the society engaged in the local food system.

3. Question, Methods, and Materials

Through examining the SRA in Sicily, Italy, within the theoretical lens of food citizenship, this paper addresses the question: What features of the SRA make it a feasible case to understand how food citizenship praxis can create inclusive and sustainable food systems? Food citizenship, as the political dimension of food, is concerned with the individual and community capacity to make decisions about food access and consumption practices, and, therefore, it is the premise to identify the necessary pieces of the system and how they interact to seek sustainable and fair food systems. Under that assumption, and building on the theoretical framework here, we will look at the governance practices developed around how these are framed to address sustainability aspects of the food system in the SRA case.

The empirical analysis for this paper follows a methodological integration between action research [72] and the case study approach [73]. Starting with a community mapping initiative [74] conducted in 2009 in the Simeto River Valley in Sicily (IT), an action research process has produced a governance structure derived from various initiatives and networks that are currently developing many thematic projects: amongst them, some relate to building a local food system. Action research embeds research from scholars and local actors, through various tools including participatory mapping, providing information, or connecting diffuse areas to overcome the collective action and boundary issues and is a relevant feature in the co-production of food knowledge [56].

Specifically, the direct engagement of one of the authors in a decade-long action research process has provided elements for tracing the steps of the process and provides first-hand knowledge of successes, opportunities, and challenges that exist in the food system of the SRA. The engaged author has been involved in a long-term university-community partnership that has produced the SRA [75] that is both a governance structure and a bottom-up strategic plan and is evolving even today toward an ecomuseum experimentation [76]. Within this partnership (since 2009), one of the authors has been engaged in activities involving local farmers, ecologists, administrators, and inhabitants of the area, through various initiatives such as a successful community mapping campaign [77,78]. These empirical sources of data have been synthesized in peer-reviewed papers and disseminations’ reports, oral presentations, and community materials. Under this approach, the authors conducted a content analysis of 18 pieces of secondary material. This content analysis was conducted using NVivo 11 software using a predefined coding book to gather the actors involved, their interactions, roles, processes within the organizational structures, and outcomes (organized into achievements, challenges, and opportunities). Two of the

authors conducted manual coding of the secondary sources, results from each coder were further compared to identify similarities and differences and to further prepare results. This methodological approach, along with the use of the food citizenship framework, allows for an understanding of how self-organizing/grassroots organizations interact with the local public institutions and higher education institutions in the revival of the local food systems. The interaction and discussions for the analysis between authors that are fully engaged in the processes, and those who are not, allow for a better understanding of the case itself but also help to identify valuable lessons learned from the case that serve to illustrate the praxis of food citizenship.

In addition to the action research experience and knowledge from one of the researchers and the systemic categorization of peer-reviewed and not peer-reviewed literature of the subject matter detailed above, the authors utilized two other sources of evidence: secondary sources that informed the context, such as archive research within the SRA body of non-formal documents, and in-depth interviews. Specifically, the last source of evidence has been the core of the SRA food system inquiry. Between June and September 2020, 10 in-depth semi-structured interviews were conducted and analyzed involving key actors, such as administrators and leadership of the SRA (3 interviews), farmers engaged in leadership activities within the biodistrict (2 interviews), and the organizers of the Ethical Purchasing Group (5 interviews). Similarly to the secondary sources that resulted from one author engagement, we conducted a content analysis of the results, using the same predefined coding book, and two-way manual coding. All data analyses were further used to examine and compare with the key ideas of food citizenship, to broaden our knowledge of the main successes and challenges of this food system.

With such a methodological approach, this paper explores, presents, and discusses the landscape of the food system in the Simeto River Valley, highlighting the main features of this experiment, the critical issues that emerge from this form of civic food network, and the horizons of their work. By using the food citizenship framework, the authors consider that, under specific conditions, a fair local food system can enhance food citizenship by offering an opportunity to reconnect fragmented territorial relationships while also ensuring sustainable food access and agency.

4. Results

This paper examines the food system component of the SRA and the examples of initiatives (i.e., ethical purchasing groups, government initiative, the current ecomuseum process) working towards the development of a sustainable food system. The SRA was established in 2015 as a partnership between the University of Catania, a network of local associations, and 10 municipalities along the middle course of the Simeto river (Figure 1). Within the framework of the Agreement, in 2016, there was a proposal to establish a biodistrict. The biodistrict is a multi-stakeholder organization aimed at experimenting with a territorial governance structure. The biodistrict has multiple goals, including the development of a sustainable and fair food system in the region. In the framework of the SRA, there is a focus on agroecological issues to support more decisive network action between local producers and consumers, intended to incorporate food citizens in a process of rising awareness. According to the agents engaged in this process, the overall initiative would contribute to constructing a fair and sustainable food system. This local initiative seeks to reconnect the citizenship aspects of traditional food systems while also recognizing the necessity of ensuring food access, environmental sustainability, and engagement. This section summarizes findings using actors, interactions, processes, and outcomes in terms of governance and sustainability. First, there is a description of the landscape and the contextual factors that are significant to consider for the purpose of analyzing the food system.

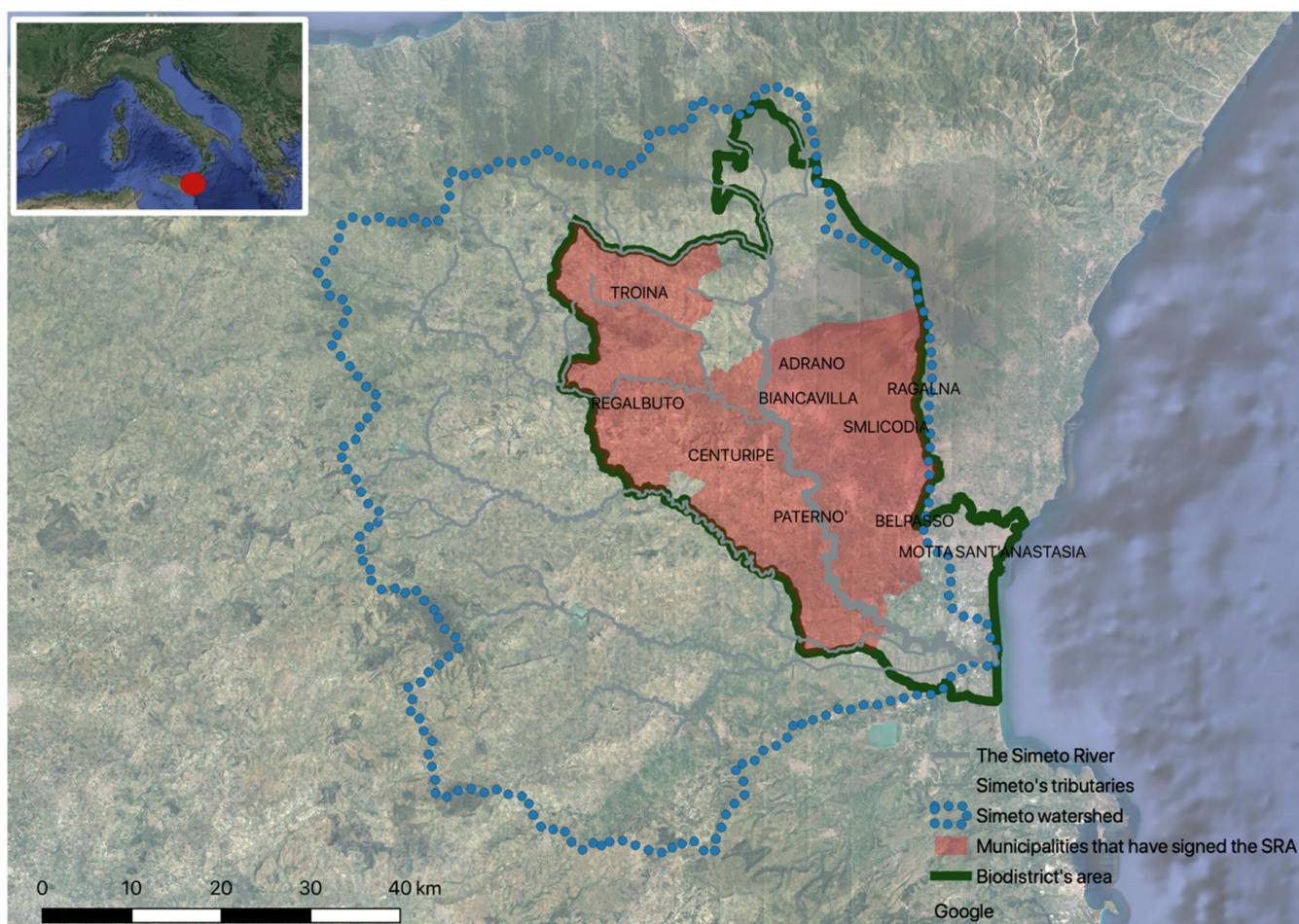


Figure 1. The Simeto river region.

4.1. The Landscape

The biodistrict is an association that aims at grouping smallholding farmers, municipalities, schools, grassroots associations, environmental associations, consortiums, and individuals in an organizational structure aimed at reinforcing the agricultural sector within the new territorial governance system that was constructed through the SRA. The actors that have mobilized around the SRA are far-reaching.

On one side, there are people that have been long engaged in associations of the civil society (called Vivisimeto, Comitato Civico Salute e Ambiente, Cultura & Progresso, etc.). Within these associations, some people have a background as local administrators, some of them are ecologists, some of them are farmers, some are middle-aged inhabitants with a commitment to taking care of the landscape. In 2015, they converged in the Participatory Presidium of the SRA, an umbrella association which is based along the Simeto River Valley. On the other side, there are the farmers; some of them are also part of the Presidium and the biodistrict, but others have been engaged only in the specific framework of the biodistrict. Not only does the biodistrict involve farmers; it also incorporates citizens interested in fair and sustainable food chains.

The biodistrict groups farmers from the following municipalities: Adrano, Belpasso, Biancavilla, Bronte, Centuripe, Maletto, Maniace, Motta S. Anastasia, Paternò, Ragalna, Regalbuto, S. M. di Licodia, Troina, and Catania. Here, a total of 521,937 people live [79]. However, the biodistrict still represents a niche of people that have decided to bind in the association.

The biodistrict is located between the fertile slopes of the Etna Volcano and lands that have been nurtured thanks to the Simeto river, which is the largest hydrographic

basin in Sicily (418,600 ha) (see Figure 1). According to Urso [80], the biodistrict covers an area of approximately 168,000 ha in the aforementioned 14 municipalities. Given the geographic boundaries of the Simeto river valley, the “local” variable manifests as a geographic proximity and the complex cultural/historic interactions that exist in this region. It necessitated a strategic approach to pursue the food system goals of sustainability and agency.

The proportion of agricultural landscape of the 14 municipalities is high; 86% of the total land is agricultural land, 41% is arable, 30% forestry, and 27% permanent meadows and pastures [81]. Main crops in the region include fruits (i.e., red oranges, cherries, prickly pears, strawberries, apples, peaches, olives, grapes), nuts (i.e., pistachios, almonds), wheat, and vegetables [80]. Of a total 11,626 farms (in 427,294 ha), there are 680 organic farms, with a rich and diversified basket of high-quality products in a region which hosts the largest number of certified organic operators in Italy [82]. This is a significant number considering that interviewees for this case state there are low incentives to run organic farms due to the high costs and complex bureaucratic procedures. In addition, small farmers in the area of the biodistrict face challenges such as limited access to markets [83] due to the local consumption practices that facilitate access to large-scale retail markets, rather than smaller and localized markets. Furthermore, according to a preliminary survey conducted in 2015 in the framework of a summer school [84], the area suffered a 16% decrease in the revenue of farms, compared to a 60% increase in production costs between 2010 and 2015. This phenomenon is only further compounded by the closure of a large number of companies, the loss of official workers, the growth of undeclared work, and serious forms of exploitation of agricultural laborers who are hired by agro-eco-mafias, as detailed by various inquiries [85].

Local consumption practices occur along changing demographic trends. Catania is not only the largest urban center in the area of study, but its metropolitan area has over 1 million people and is among the largest in Italy, with an increase in the number of retail chain stores [86]. This trend is accompanied by a high prevalence of overweight and obesity (24% and 13%, respectively) in the region of Sicily, where school-age males are more prone to obesity, as well as those living in urban areas, compared to those living in rural areas [87,88]. Moreover, high youth unemployment rates (over 50% above the Italian average of 35%) push young people out of rural areas, emigrating in search of a job (every year 20,000 people leave Sicily), which alters the demographic landscape of this food system.

4.2. Food System Governance Structure

In this section, we introduce the main elements of the governance structure that comprises the food system component of the SRA, as well as a couple of examples of grassroots initiatives that are active parts of the system. Figure 2 presents the structure and the actors that are engaged in the process, and interactions that exist around these bodies. It is worth noting that, factually, the SRA was the first organizational governance structure, followed by the biodistrict, and the third in the process of emerging is the ecomuseum. The local governance structure is evolving along the years, and in the following section, we present such evolution.

4.2.1. The Participatory Presidium

The Participatory Presidium is an umbrella association which groups around 50 grassroots associations that are based in 10 municipalities of the Simeto Valley area. The Presidium was born in 2015: after several years of collaboration, the associations—which had previously bound together in a coalition against the 2002 Regional Waste Management Plan [89]—decided to form a long-term alliance with the aim of including other associations. The Participatory Presidium represents an organizational framework for grassroots representation in order to have a common voice in the interaction with public institutions (such as municipalities and the university) within the SRA system.

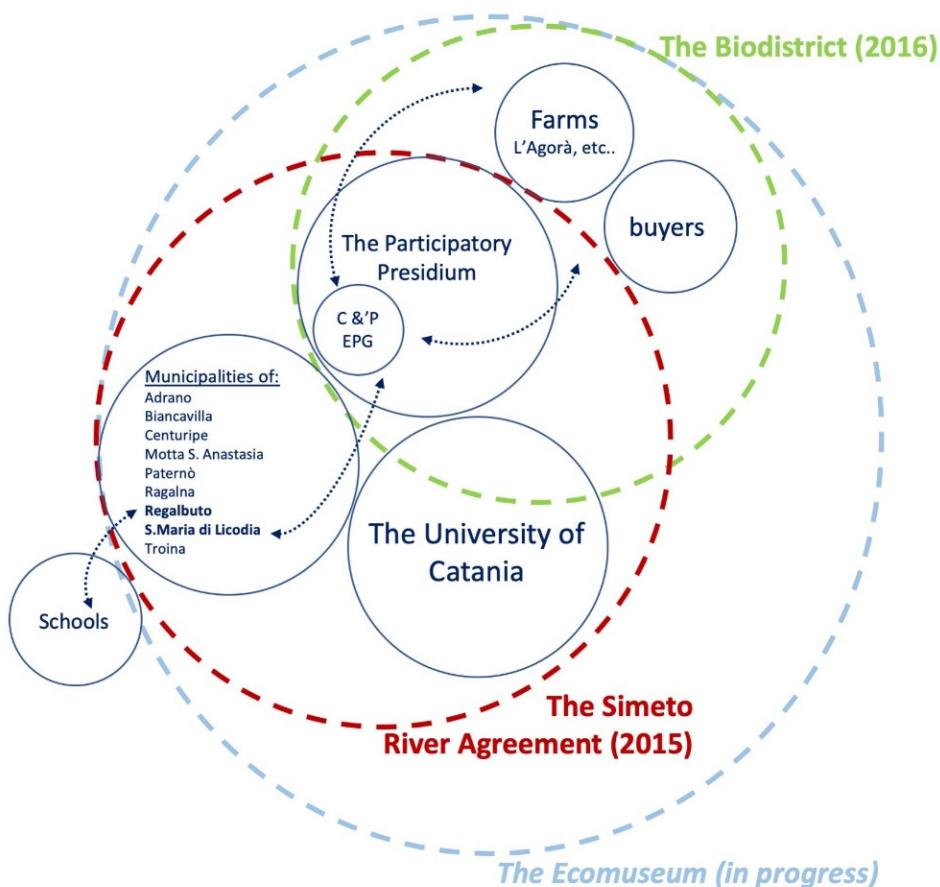


Figure 2. Parties involved in the food system component of the SRA biodistrict in relation with the evolving governance structures.

In 2002, the Sicilian region issued a Waste Management Plan, which would have required the construction of 4 to 5 mega-incinerators, one of those to be located inside a Special Area of Conservation close to the Simeto river [89]. The local community, creating alliances between various municipalities, opposed this plan through a social mobilization inspired by principles of environmental justice and concerns about suspected mafia infiltration in the Sicilian waste business [90]. The mobilization succeeded in its goal of stopping the plan, which was withdrawn by the regional administration. This sense of accomplishment and acknowledgement of issues affecting the local community motivated participant organizations and institutions to continue collaborative efforts to address local shared problems. Specifically, two associations—Vivisimeto, based in Paternò, and Comitato Civico Salute e Ambiente, based in Adrano—maintained the movement's activity and reached out to some researchers from the University of Catania to experiment and collaborate in practicing new forms of local development. In 2008/2009, the partnership started experimenting in a community mapping initiative [74,77,78]. During the initiative, some thematic areas emerged as strategic areas to be addressed. The local food system was one theme. Other themes include the quality of water, eco-tourism, renewable energy systems, and, in general, addressing the quality of life of the Simeto Valley community and its ecosystems [75,91].

After the community mapping initiative, the numerous associations involved in this process decided to strengthen their alliance and to formalize their partnership with the University of Catania. They decided to involve municipalities in the development of their “self-organized” strategic plan and to institutionalize the process with governmental bodies at the local level (through the SRA—see below) and at a multi-level scale, applying for the National Strategy for inland areas [92]. The Italian Strategy for Inland Areas has been developed since 2013 in the framework of the EU territorial cohesion policy [93].

The Strategy aims at enhancing services for guaranteeing basic rights such as education, healthcare, and mobility [94]. To this aim, in February 2015, the involved associations formed the so-called Participatory Presidium of the SRA. Although the Presidium emerged around the SRA, it exists beyond the Agreement itself: it continues to maintain a self-organized component while it tries to push for the co-production of strategies and projects with formal and informal institutions.

The Participatory Presidium grouped around 50 associations located in 10 municipalities (Adrano, Biancavilla, Centuripe, Motta S. Anastasia, Paternò, Ragalna, Regalbuto, S. M. di Licodia, and Troina), where a total of 181,820 people live [79], in order to organize the bottom-up component of the SRA, a partnership that was about to be signed. At this stage, efforts from the Presidium focused on identifying governmental alliances that would engage in the collective effort. The local representatives of these 10 municipalities started engaging in the process and signed the SRA.

4.2.2. The Simeto River Agreement

In May 2015, the aforementioned 10 municipalities, the University of Catania, and the Participatory Presidium signed the ‘SRA’. The SRA is a voluntary partnership inspired by the model of river contracts [95–98] aimed at implementing various EU directives such as the 2000/60/EC ‘Water’ and the 2007/60/EC ‘Flood Risk’. The idea underlying river agreements is represented through the metaphor of a tree which seeks to provide meaning to the revival of a community from its roots (heritage and identity of the people and the place), trunk (the institutional framework), and foliage and fruits (community-based initiatives intended as innovative ways to address socioeconomic challenges while ensuring environmental justice). Among the strategic objectives and actions of the Agreement, the following are significant for the food system: sustaining the local production of quality food and agroecology-based farms through specific governance structures. Specific conceptual areas and actions of the agreement appear in the signed documents including: (1) Improving the water cycle (in urban as well as in agricultural environments); (2) Improving the waste management cycle; (3) Promoting local energy production and distribution using renewable sources (mainly solar power installed on top of buildings); (4) Promoting community-based practices for recognizing and taking care of landscapes and cultural heritage; and (5) Promoting a local and sustainable food system. The last goal has been endorsed by the Participatory Presidium, which, in 2016, pushed for creating the biodistrict of the Simeto Valley.

There are examples of engagement and buy-in from local public institutions such as the schools’ cafeterias in the municipality of Regalbuto, which seeks to introduce local purchasing initiatives to revitalize the local foods and hopes to address consumer behavior around healthier food options. This serves as an example of the public–private actor engagement working towards the shared goals/values regarding food. According to one of the interviewees, this required engaging in multiple discussions to convey the importance of local procurement and the need to reconsider practices around food consumption and distribution.

4.2.3. The Biodistrict

The biodistrict appeared in 2016 and is a governance structure pushed by the Participatory Presidium within the framework of the SRA (see Figure 2). The biodistrict involves producers and consumers that come from a higher number of municipalities (14) compared with the one involved in the SRA (10). At the beginning of its life, the biodistrict counted around 90 farms, schools, and buyers in its network. It was created under the umbrella of the Italian Association called the Associazione Italiana per l’Agricoltura Biologica (AIAB). Under this framework, it has specific goals related to the development of organic agriculture in the context of incentives and regulations from the European Union (EU). According to its strategic plan, the promotion of organic products is linked to the promotion of the territory as a means to achieve a full development of economic, social,

and cultural potential. The biodistrict's action plan contains the following objectives: (1) Promote the conservation and sustainable use of the ecosystems and landscapes of the valley; (2) Improve the citizens' quality of life in rural areas; (3) Enhance biodiversity; (4) Promote and strengthen cooperation and communication between the actors of the biodistrict; (5) Increase local farmers' income; (6) Increase employment opportunities and the quality of work; (7) Educational activities (support the dissemination of research results and improve cooperation between farmers and universities/research centers); (8) Increase and improve the attractiveness of rural areas; (9) Strengthen the link between sustainable and inclusive development strategies of rural areas and those of urban areas; (10) Promote and improve European, Mediterranean, and international cooperation; and (11) Promote forms of social agriculture that integrate the multifunctionality of organic farms.

The actors that have mobilized around the SRA and the biodistrict are numerous. Among them, there is the Association Cultura & Progresso located in the town of Santa Maria di Licodia (Sicily, Italy) that has promoted an Ethical Purchasing Group for the Simeto Valley. This effort and others are described in the following paragraph as an example of the specific characteristics of the actors involved in the process.

4.2.4. The Ethical Purchasing Group and Other Cooperation

In order to provide expansions of activities, several actions have been initiated by local actors. Among the associations engaged in the Participatory Presidium and in the biodistrict, there is one grassroots association called Cultura & Progresso (Culture and /is Development), based in the municipality of Santa Maria di Licodia (7628 inhabitants), mainly composed of youth (under 30). This association started in 2012 with the aim of fostering civic engagement, especially among young people. One of the experimental projects of the association has been to create an Ethical Purchasing Group (EPG) called "Simeto EPG" (the EPG from now on). The EPG began in 2015 thanks to the work of the entire association and a constant commitment of around five young women. There is today a partial overlap between the EPG's farmers and families and the biodistrict's one. Today, the association is trying to grow the EPG through the project called Fooddia Ca' Furria and other sources of economic resources (such as the EU Community-Led Local Development (CLLD) Measure 16.4 aimed at promoting "food directly from the farmers"). Most of the EPG work has been focused on fostering the concept of being 'food citizens': increasing awareness of how to reconnect the natural–rural–cultural dimensions of the local community. Meanwhile, the EPG has practically experimented with organizing producers and consumers in a cooperative effort. The ultimate goal is to sustain the local food system with an ethos based on sustainable principles and social inclusion. Over the years, the EPG continued its practical activity within the framework of the biodistrict as a pilot, but few other practical initiatives have been put in place within the biodistrict. This endeavor has not been easy to pursue. Interviewees pointed out that the biodistrict effort is similar to the failure of many cooperative attempts that have been conducted in the Valley in the past. As one of the EPG's organizers surmises,

The EPG has been one of the first experiences for the local producers to bind together in a different way compared with the past, when the cooperative experiences have failed: as a matter of fact, there are no cooperatives in the Valley today. Consortiums lack, too. We have some good practices, but most are far from the Simeto area. The few existing consortiums are led by a single strong producer and the other ones follow it, but they are not really bottom-up organizations.

One of the public authorities interviewed for this research confirms the difficulties of promoting cooperative initiatives in the territory "because in the past they have often failed". However, they are truly necessary for the socioeconomic revitalization of the Valley. In his words,

"I think it is our goal to follow a different path compared with the past. But we need to have clear targets and indicators to verify if we are doing well. Also,

there should be no duplications in definitions: organic agriculture, agroecology ... These are labels but we need clear procedures for farmers, otherwise farmers choose something else because it's easier. We need to simplify and to communicate well with the producer and with the consumers, encouraging the consumption of good local products." Semi-structured interview with local authorities July 2020.

The municipality of Regalbuto is implementing several actions which pair with the biodistrict effort. For example, the public schools' cafeterias are selling local products and promoting a healthy diet for children. This action has produced a positive snowball effect on the entire community: the sale of local products has increased as families are now starting to buy the same products served at school for domestic consumption.

However, beyond specific initiatives such as the EPG based in S. M. di Licodia and the Regalbuto schools' cafeterias, the necessity of forming the governance structure of the biodistrict remains. It emerged in order to experience a different way of cooperating based on environmental sustainability, social inclusion, and the direct engagement of various territorial actors, as well as to communicate better and to push such specific experiences out of the municipal boundaries, working on a Valley-wide scale. In the words of the biodistrict's president, which runs a multifunctional farm called "Agorà—Fattoria Sociale",

The Biodistrict aimed to find a match between producers and consumers: through various initiatives, we are trying to show to the consumers the benefits that are derived from the consumption of organic and local products; to the producers, we are stressing the importance of cooperation. The EPG and other specific initiatives have been a great example for that. However, the Biodistrict's functioning requires a lot of full time (effort) and it is not possible to do it only on a voluntary basis. It is necessary to find economic support to do extensive cooperative work in the territory at all levels, in order to make all people understand what it means to improve the environment and the quality of life through agriculture.

In addition, within the framework of the SRA, the Presidium is also pushing an initiative that is related with the intersection between food, local heritage, landscape, identity, eco-tourism, biodiversity, and social inclusion: it is the ecomuseum [99]. From January 2020, the Participatory Presidium created a specific working group called the "Ecomuseum Team" that has worked with students and scholars, generating initial ideas for the program to begin a pilot year of experimentation [76]. The complex ecomuseum governance structure has contact points with the biodistrict and aims at finding some integrated operational tools for overcoming the difficulties pointed out by the interviewees.

4.3. Outcomes

By looking at the landscape and institutional arrangements, this case provides valuable information about the successes and challenges that this local food system has faced since it emerged as a grassroots initiative to overcome a socially pressing situation. Based on our theoretical approach, we highlight the achievements for governance and sustainability and discuss some specific challenges.

4.3.1. Governance Achievements

The establishment of the SRA and biodistrict marks a successful incorporation of multi-stakeholder platforms aimed at contributing to the efforts of constructing a governance structure for sustaining the local food system's organization in the long run. As detailed here, the SRA is an initiative that emerged as the result of collective grassroots effort to overcome a pressing social and environmental need. The initiative that emerged as a decentralized effort later turned into a strategic planning initiative with a local food system component condensed in the biodistrict. It is important to highlight the role played by the organizations that first reached out to the University of Catania who were able to acknowledge the role of participatory research in highlighting possible paths

toward sustainable practices in multiple thematic areas, including food. The university played a key role, collaborating with grassroots organizations to collectively determine ways to achieve the vision of the system (food citizenship in the case of the food system component). Although the biodistrict's formalization and buy-in from the municipalities is still an ongoing process, they are integrated as part of the SRA. As part of the biodistrict efforts, they received funding from the EU to develop targeted implementations on some of their working areas (2—Improve the citizens' quality of life in rural areas; 4—Promote and strengthen cooperation and communication between the actors of the biodistrict; 5—Increase local farmers' income; 6—Increase employment opportunities and the quality of work; 7—Educational activities (support the dissemination of research results and improve cooperation between farmers and universities/research centers); 8—Increase and improve the attractiveness of rural areas; 9—Strengthen the link between sustainable and inclusive development strategies of rural areas and those of urban areas).

Although the process that led to the emergence of the SRA and the biodistrict started from efforts led by grassroots organizations, further in the process, municipal governments started participating. According to the Mayor of Regalbuto, they are committed to raising awareness among citizens about the importance of healthy diets and revitalizing the community through the local food system. In parallel with their participation in the SRA, they have implemented actions such as (1) local food procurement for the school canteen (cafeteria) with an investment of 200,000 Euros per year, (2) a communication strategy to increase awareness about healthy diets and how choice can be connected to local food consumption, (3) supporting local producers and solidarity with buying groups (free access to farmers' markets), (4) cooking demonstrations with local products, and (5) summer activities for children to engage in agricultural activities. What these initiatives show is that public commitment to local food systems with a food citizenship lens can provide funds and organizational capacity to enhance the overall mission of the system.

In addition, the effort from Cultura & Progresso to further establish the Ethical Purchasing Groups within the framework of the SRA and the biodistrict illustrates youth capacity to develop innovative approaches to fundamental issues around food security such as access to food. The group emerged as an activist alternative to respond to the challenges posed by globalization: youth unemployment, rural migration, and the complex interactions between humans and the environment. As part of their efforts, Cultura & Progresso developed the project FOODdia ca Furria, stating, "This project aims at promoting organic and from-farm-to-table products, supporting the many local farms and producers working respectfully of living beings and natural environments, of traditional crops and recipes, of our identity" [100]. The volunteer work and persistent effort from its members afforded them the opportunity to obtain funds to continue their efforts towards sustainable food systems in the Simeto River Valley region.

4.3.2. Place/Culture and Environmental Sustainability-Level Achievements

The SRA received EU funding for the improvement of the water cycle, helping to fulfill one of its goals: improving the water cycle in urban and agricultural environments. An initiative submitted by the SRA received funding from the EU Life Project. Its name is LIFE SimetoRES—Urban adaptation and community learning for a RESilient Simeto Valley. The project aims at improving the water ecological cycle of the Valley not just from a technical standpoint but from a community-based perspective, involving schools as agents for increasing awareness and preparedness for climate change.

In addition, the Simeto area has been selected as an Experimental Area of National Significance for the Italian Strategy for Inland Areas. This Strategy aims at implementing the EU territorial cohesion policy and it has a focus on improving basic services for citizens of depopulated and marginalized areas: education, healthcare, and mobility. The strategy also funds community-based projects aimed at enhancing local development, such as Living Labs [101]. This achievement will help in meeting various SRA goals simultaneously.

4.3.3. Challenges

The case of the Simeto River Valley food systems approach has had some impactful achievements that are opening a wide range of opportunities to improve sustainability and agency. However, based on the review of secondary sources and analysis of interviews, one of the most challenging aspects of this governance structure is its limited planning and administrative capacity within the public sector. According to the multiple actors engaged in the process, there is agreement regarding what the vision is but they face difficulties in cooperating because of a lack of clear roles and tasks, lack of trust due to failed past cooperative experiences, lack of capacity building for leadership, lack of public funds invested for supporting the organizational structure, and difficulties in maintaining the actors' engagement with the biodistrict's goals. Although the persons interviewed for this case analysis agreed upon food citizenship as the main goal of the local system, strategies to orient the multi-stakeholder governance platforms towards concrete goals, by planning the stages, resources, and expected outcomes, are proving difficult to clarify a defined set of actions ready to be implemented, beyond a shared vision.

In addition to limited planning and administrative capacity, sustainability challenges emerge. Despite the achievements of the SRA in terms of becoming a governance body and engaging consumers and producers as well as the public and private sector in the local food processes, the SRA still lacks in terms of widening the range of its involvement with respect to the most marginalized persons. Another pitfall regards the tangible effects of the SRA on ecosystems and the landscape. Many territorial criticalities (such as illegal dumping grounds along the river, water pollution, water scarcity, flash floods in urban areas, etc.) persist despite the efforts to reduce them, but the SRA has presented preconditions for tackling them through specific programs, such as the aforementioned EU Life Project.

5. Discussion

In terms of governance, both the SRA and the biodistrict could be considered achievements as they provide an organizational structure for public institutions—municipalities and the University of Catania—and various social actors embedded in the Participatory Presidium. The SRA operates as a common framework based on shared values and visions. Within the SRA, the involved institutions and actors have constructed a specific strategic plan aimed at fostering local development in various thematic and intertwined assets, including agroecology. The biodistrict also functions as a specific governance structure with a thematic focus on agroecology. The biodistrict has been envisioned and pushed by the Participatory Presidium as an organizational tool aimed at coordinating farmers with municipalities, schools, the university, and the grassroots organizations trying to enhance the concept of food citizenship in the Valley, which can then be considered a foodshade [43]. However, it still lacks operationalization. The organizational structure of the biodistrict has been identified but few practical actions have been implemented, such as the example of the EPG or the schools' cafeterias. Now, the challenge is moving from the level of structure to the level of implementation.

This governance structure focused on the shared vision of food citizenship (among other principles) illustrates a commitment and capacity for alternative food networks to organize and institutionalize. While the establishment of the SRA and the biodistrict can be considered achievements themselves, as they represent a complex and intertwined governance structure, there are long-term impacts and arrangements that will need to be explored to evaluate the impact of food system changes and citizen perspectives. The efforts of the derived Presidium and the overarching inclusive nature of projects and decision-making illustrates increases in the inclusivity of engagement and socioeconomic relations of the involved actors. The local governance structures as a whole still need time, capacity enhancement efforts, and resources in order to move from organizing actors to implementing actions. The networks that have been created though are rooted in values which are inclusive of food citizenship themes and will continue to build toward sustainable, community-focused outcomes.

6. Conclusions

This article discussed issues pertaining to food systems through the lens of food citizenship by looking at the governance structure derived from the SRA and the sustainability practices promoted by its actors. Theoretically, it builds on two interconnected variables that define the boundaries of a food system: governance and sustainability. This approach takes the food citizenship dimension and embeds it in a theoretical framework to examine which attributes of the food system ensure that individuals and communities have agency to make decisions around food in a sustainable manner. Using the aforementioned theoretical framework, the article looked at the case of the SRA in Sicily to further contextualize the trends and conditions which outline the food citizenship vision and provide findings of a possible approach toward inclusive and sustainable food systems. From the analysis of the case, there are three elements to highlight as areas of attention for the successful implementation of local food systems: strong organizational structure and capacity building, youth and citizen engagement, and technical/programmatic support.

In response to the perceived need for reclaiming food citizenship and building a better food system, the self-organized and grassroots actors that pushed the creation of the SRA and the biodistrict currently face organizational challenges to sustain the alignment of goals through the alternative food system. The vision of food citizenship requires a plan with concrete action items along with short- and long-term goals and the identification of resources to achieve them. This collaborative effort can continue expanding with the help of organizational, administrative, and planning capacity building that may help to reduce uncertainty among potential participants but will also contribute to building trust among producers who had negative experiences engaging in cooperative activities prior to the SRA framework. Building trust also starts by engaging in constructive dialogues around the economic relations that are occurring in the food system. The case illustrates that grassroots volunteer work was critical in the early stages of the process, but additional funding is required to afford extra efforts. EU grants and public funding have helped to fund some initiatives, but more sustainable mechanisms should be sought to expand the economic viability of the food system. Food systems are embedded in economic relationships, which cannot be disregarded as important parts of initiatives of this type [35].

Efforts from activist organizations such as Cultura &’ Progresso, the Ecomuseum, or local administration illustrate that specific actions with limited scope have the potential to create shockwaves. Under a complex systems approach, one action can produce multiple reactions. In this case, small initiatives, we believe, have the potential to create positive externalities that will impact the food system and its agents. Here, the role of young persons that currently face challenges including unemployment and disenfranchisement from local dynamics can be future change agents. This can be achieved through channeling capacity for innovation (both technically and socially) towards concrete actions that contribute to seeking sustainability, social justice, and local development. Similarly, the engagement of actors from both formal government structures and grassroots structures as well as the inclusive nature of the decision-making process allow for a democratic buy-in and support from citizens. This increases social capital and can further lead to future networks for collaborative initiatives.

Based on the case study presented here, smallholder farmers particularly can benefit from technical assistance that understands the importance of local knowledge to preserve biodiversity and the ecosystems. This support can emerge from extension services and research institutions. Under a food citizenship approach to food systems, enabling access to agricultural technical assistance that is consistent with agroecological values and sustainable development should serve as a strategy to empower producers while creating opportunities for economic development, further political engagement, and introduce different actors, which is necessary in the development of a local food system. This is a strategy which can contribute to ensuring social, economic, and environmental sustainability as expected outcomes of a food system, as suggested in this article.

These three aspects are key features which may be adapted to other such efforts in sustainable and local food systems. As indicated in the research, a key focal point is understanding that local is not a goal in and of itself, but the engagement of knowledgeable actors to create a sustainable and inclusive food system which corresponds to their demands should be the overarching goal. While this analysis truly highlighted the structural and organizational functions of this particular system, it is expected that the agreeable ends will make coordination and consensus feasible through the democratic processes. This complex networked approach to governance and the focus on sustainability will be the key elements in fostering a successful alternative food system with the fundamentals of food citizenship at its core.

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