REGIONAL FOOD STRATEGIES AND THE IMPLICATIONS ON SPATIAL JUSTICE

A COMPARATIVE CASE STUDY BETWEEN AMSTERDAM AND PHOENIX

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"If seeds in the black earth can turn into such beautiful roses,
what might not the heart of man become in its long journey towards the stars."
Gilbert K. Chesterton

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DEFINITION OF TERMS

DISCOURSE ANALYSIS (DA) – the categorization of ideas and concepts within talk and text that give meaning to a particular phenomenon.

FOOD SECURITY (FS) – access to sufficient, safe, and nutritious food that is culturally appropriate at all times.

REGIONAL FOOD STRATEGY (RFS) – the planning and implementation processes for the provisioning of enough food to supply a region's population sustainably – socially, spatially, and environmentally.

SPATIAL JUSTICE (SJ) – the unbiased, non-discriminatory, and equal access to basic amenities and the right of citizens to participate in the urban (re)development process.

URBAN FOOD GOVERNANCE (UFG) – the structures and processes designed to ensure inclusive participation in the urban food system transformation.

ABSTRACT

This master's thesis aims to shed light on the recent phenomenon of regional food strategies that aim for more localized food provisioning for urban and metropolitan areas. The discourse used in these strategies influences not only which stakeholders are included in the urban food governance process, but also influences the competition for urban and peri-urban space. It is imperative to highlight how discourse is used in regional food strategies and how this could potentially affect the fair use of and access to certain food resources within growing metropolitan areas. A search of current literature was done, and no research was found on how the discourse used in regional food strategies and urban food governance impacts spatial justice and food security within cities. This thesis aims to do so.

A comparative case study was used as they effectively analyze and synthesize patterns across phenomenon – regional food strategies – that unfold in different places – the two metropolitan regions of Amsterdam, North Holland the Netherlands and Phoenix, Arizona in the United States of America. A triangulation of qualitative methods, including discourse analysis, were used to enhance the validity of the research design.

The results revealed that both cases are characterized by fragmented governance, a lack of political urgency in addressing food system challenges, stakeholder conflict, and low to non-existent awareness of the RFSs among the public. Additionally, both cases are facing increased spatial inequalities that are effectively decreasing access to basic urban food resources.

KEY WORDS: regional food strategy, urban food governance, discourse, spatial justice

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1. INTRODUCTION

The issue of food insecurity is not new because cities have always had to rely on outlying agricultural land for food production to feed urban residents. However, the rapid urbanization of metropolitan areas in recent times poses significant challenges in sufficiently feeding a growing population on less land area with fewer natural resources, while also being extremely vulnerable to the effects of climate change and global health issues like the COVID-19 pandemic [1].

Historically, the notion of food insecurity has previously been a rural policy issue, which has led to problems in understanding urban food security [2]. The recent phenomenon of conceptualizing food provisioning at the city-region level has led to more localized Regional Food Strategies (RFS). RFSs can be defined as the provisioning of "as much (good) food as possible to meet a population's food needs is (that is) produced, processed, distributed and purchased at multiple levels and scales within a region—resulting in maximum resilience, minimum importation, and significant economic and social return to all stakeholders in the region" [3].

Béné, Oosterveer, Lammote, Bouwer, de Haan Grager, Talsma, and Khoury state that the different views of what future food systems need to meet sustainability and food security goals have led to divergent discourse structures on the nature of the 'crisis' and the 'remedies' to fix it [4]. These two counter perspectives within food system transformation are the Bio-Economic and Eco-Economic models, which will be discussed more in-depth in the theoretical section below. Furthermore, Peuch and Osinski voice that the conflict between these two perspectives is laden with power relations among the different stakeholders and has hindered food system transformation, making it "hard to achieve" despite the "consistent and long-standing concern" about the issue [5].

Therefore, the use of discourse analysis (DA) is needed to uncover how power and inequality "are enacted, reproduced, legitimated, and resisted by text and talk in the social and political" arenas [6]. DA is then helpful in uncovering the political discourse that controls and privileges access to scarce natural, social, and (spatial) resources [6]. Spatial Justice (SJ) can be characterized as the "equal, non-discriminatory, and unbiased access to…basic (urban) infrastructures and services" resources and injustices to this are often played out in the social and spatial dimensions of urban (re)generation and urban governance [7]. Concerning sustainable and just food systems, this means it is necessary to understand the relationship between the framing of food in urban food governance (UFG), who (or not) is included in this process, and the infrastructural transformation in metropolitan areas must address SJ issues. This thesis seeks to address this challenge by doing a cross-contextual comparison between two metropolitan areas – Amsterdam, North Holland, in the Netherlands, and Phoenix, Arizona, in the United States of America.

1.1. PROBLEM STATEMENT & RESEARCH QUESTIONS

A search of current literature was done, and no research was found on how the discourse used in RFSs and the style of UFG it creates could potentially impact SJ within cities. The broad span of each issue will not be tackled in its entirety as this thesis is meant to begin the investigation of these complex and interrelated concepts. A cross-contextual analysis will aid in Sonnino's call for developing better knowledge exchange mechanisms between cities in pursuance of exploring joint solutions to common challenges and disseminating

good practices [8]. It is essential to do so because *everybody* deserves to have adequate, available, and accessible food resources and the ability to shape their future regardless of socioeconomic status.

Accordingly, the following research and sub-research questions were set out:

RQ1   What is the regional food strategy for each city?

SRQ1   How is discourse used in the regional food strategy for each city?

SRQ2   To what extent is the discourse used in the regional food strategy affecting the fair use of and access to certain food resources within growing metropolitan areas?

1.2. CASE STUDIES

This comparative case study focuses on the metropolitan regions of Amsterdam, North Holland in the Netherlands, and Phoenix, Arizona in the United States of America. Clancy and Ruhf state that while the boundaries of regions are "fluid and nested," they can be defined by physical, socio-economic, cultural, and political factors [3]. These factors will be addressed in sub-sections 4.1 and 5.1 below.

Figure 1 depicts the Amsterdam Metropolitan Area (AMA) in the province of North Holland. The AMA is made up of 32 municipalities and two provinces: North Holland and Flevoland [9].

After WWII, it became typical in Dutch spatial planning to cluster urbanization, which separated farmers and growers into special agricultural development zones away from cities [10] [11]. These development zones are linked through a sophisticated logistical network that quickly and efficiently services world markets [12].
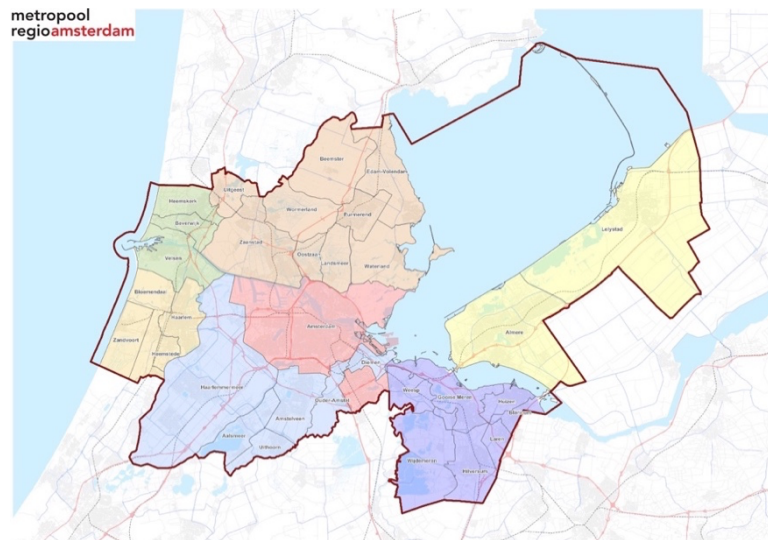

Figure 1 – The Amsterdam Metropolitan Area highlighted in the Netherlands [9].

Figure 2 below shows the Phoenix Metropolitan Area (PMA) highlighted in red within the state of Arizona. The PMA connects 27 cities and towns and 4 Native nations in 2 different counties – Pinal and Maricopa [13].

After WWII, suburban sprawl materialized because cheaper housing, increased transportation possibilities, relocation of manufacturers, and innovations in communications and agriculture made it possible for emigration to suburbs by residents who had higher socio-economic status [14]. Due to the country's vast size and complex governmental and intergovernmental structure, it is very difficult to generalize about urbanization patterns in the United States [15]. However, a study of spatiotemporal patterns in Las Vegas and Phoenix found similar metropolitan growth patterns such as patch density, edge density, and structural complexity that have led to increased landscape fragmentation [16].
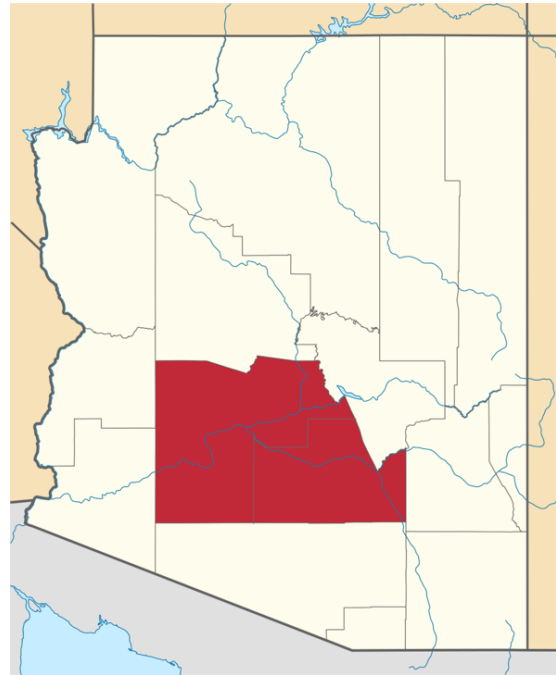
Figure 2 – The Phoenix Metropolitan Area highlighted in the state of Arizona [17].

1.3. LAYOUT

The structure of this thesis is as follows:

Section 2 explores the state-of-the-art academic literature on the divergent views on food system transformation, RFSs and UFG, as well as discourse, SJ, and urban food geographies. Section 3 explains the methodological framework including research design, research methods, and research process approach. Sections 4 and 5 are comprised of the results from the empirical research for each case study which are discussed in relation to the theoretical framework. Section 6 incorporates both case studies through a cross-contextual analysis and discusses the comparison across two axes. This section is also comprised of the final conclusion of the comparative case study in addition to recommendations for further research and the limitations of this study.

2. THEORETICAL FRAMEWORK

In this section, the theoretical concepts will be broken down and connected to one another to provide an analytical lens on how RFSs and UFG may impact future SJ within cities. The first sub-section discusses the two fundamentally different perspectives guiding the sustainable transformation of the future food harness cultural change. The third sub-section explains how to re-socialize and re-spatialize local food systems as to create new urban food geographies rooted in principles of SJ.

2.1. DIVERGENT VIEWS ON FOOD SYSTEM TRANSFORMATION

Marsden states that there are two counter perspectives on how the transition to future food systems should be handled [18]. The first perspective is that of the dominant agri-food industry framed around a "more sophisticated and technologically-framed bio-economic model based upon notions of technologically driven 'sustainable intensification'" [18]. Sustainability from the agro-industrial perspective is achieved through increasing yield on a decreasing amount of land by way of genetic engineering of crops and bio-based products [19]. This viewpoint relies on science and industry – supported by the government – as drivers of change [20]. Spatial characteristics of the bio-economic model are distinctive monofunctional clusters of economic food geographies that facilitate knowledge 'spillovers' among 'related' industries [19]. This continuation of the urban-rural divide leads to a disembedded and performative view of place [19].

Contrastingly, the second perspective formulates the transition on an eco-economic model and is rooted in more embedded forms of agroecological practices [19]. This viewpoint "challenge(s) the assumptions and framings of the dominant model that have inducted part of the ecological crises that (are) faced in the future of agri-food systems" [18]. Sustainability for this approach is based on the multifunctionality of food by reorganizing the intersections between society, environment, and economy to increase resiliency [19]. By doing so in a more place-based way, it is possible to engage a wider range of interests of both private, public, and civic stakeholders resulting in a re-calibration of the power relations between production and consumption interests in new ways [18]. Moreover, the eco-economic perspective believes that social movements, local stakeholders, and institutional innovation are distinct drivers of change [19]. The spatial characteristics of this model unfold as a diverse and multifunctional, yet fragmented, urban and rural landscape with strong relations in network interactions [19]. Lastly, Marsden specifies that economic enterprises within this viewpoint have "more than one primary function, and that contribute to biodiversity and enhance socio-economic aspects of life" [19].

However, Morgan articulates that there are two political drawbacks to this more localized view of food system transformation [21]. The first issue is that highly localized campaigns may not be able to leverage national political support as "their influence is too fragmented." The second issue is "the local trap" where "highly localized narratives" argue that "locally produced food is the most ecologically sustainable because it has lower food miles" [21]. However, this reasoning is based solely on a product's carbon footprint, which is not the only factor in measuring sustainability—socially, economically, and environmentally [21]. To these challenges, Sonnino expresses that cities must develop better knowledge exchange mechanisms "to explore joint solutions to common problems and to disseminate good practice" [21]. Furthermore, Watts et al. voice that the notion of a regional/local food

network may not necessarily be more sustainable as it can promote social and spatial exclusivity [22].

Nonetheless, these divergent modes of thinking will have different implications on the social and spatial fabric of future cities. Morgan declares that designing sustainable urban food policies is "one of the greatest societal challenges of the twenty-first century" that "will face many barriers" as alternative perspectives pose a fundamental shift in the "vested interests (of) the conventional food system" [23].

2.2. REGIONAL FOOD STRATEGIES & URBAN FOOD GOVERNANCE

Urban and metropolitan areas hold large-scale mitigation and adaption capacity through setting goals, novel governance approaches, and policy interventions [24]. However, the "often poorly controlled" urban sprawl has led to socio-spatial inequality, pollution, and environmental degradation, as well as geographic, economic, and cognitive distancing [23]. Conaré sets forth that the multidimensionality of food within a local city system has the potential to impact other sectors of a regional government such as public health, social justice, energy, water, land, transportation, and economic development [25]. Hence, the integration of food within the city, instead of outside, will play a pivotal role in the cities of the future.

The recent phenomenon of RFSs can incorporate "different aspects of the system in a common framework: production, processing, distribution, access, consumption and waste management" that are integrated into the broader transition to urban sustainability [23]. Marsden states that the important overall features of regional food strategies are [18]:

1. Clarity of an overarching vision
2. The adoption of an integrating approach, especially across different government departments like public health, transport, and environmental and rural affairs
3. Raising the public and political need for change involving all aspects of the food system
4. Wider involvement of stakeholders such as consumers and health groups
5. Establishing mechanisms and metrics to evaluate and monitor progress
6. Harnessing cultural change as an explicitly spatial strategy

It should be first noted that harnessing cultural change as a spatial strategy will only occur when shared ideologies and assumptions alter at the level of spatial planning [26]. For this to happen, the decision-making process needs to be speedy, fair, consistent, and must coincide with new policy frameworks that go beyond the traditional 'narrow land use regulatory framework' [26]. Lord and Shaw advocate that spatial planning can integrate aspects of both vertical – levels of governance – and horizontal – across both sectors and space and that cultural change occurs as a spatial strategy when shared ideologies and assumptions impact the level of spatial planning [26].

Thus, UFG can facilitate both the vertical and horizontal infrastructure needed for urban food production. This includes the prevention and re-use of food wastes while also addressing health issues, food safety problems, and access to nutritious foods for disadvantaged groups [24]. Renting states that food then "provides a starting point to address such issues in an integrated way" with UFG as an important tool in building interconnections and synergies between agendas by developing meaningful connections and commitment among all the sectors of a local government [27]. Moreover, UFG can create the necessary conditions for creating collaborative networks between multiple stakeholders, i.e., municipal workers, private food retailers, citizens, academia, and/or the national government through food policy councils [27]. Cabannes and Marocchino express that although food is now being integrated into regional and city plans, it has not been "made visible to a wider audience" and, therefore, the reflections, limitations, and successes remain scarce [28].

Additionally, Peuch and Osinski state that the myriad of actors involved in the inclusive governance of RFS includes power relations that are influenced by underlying factors such as time, resources, expertise, and coalition building [5]. Their study of the Walloon region of Belgium found that perceptions and visions among different actor groups seemed to be "vast and uncoordinated" [5]. They state that successful RFSs will involve overcoming communication barriers among the different actors within the regional food system who have different values, visions, goals, operational approaches, and who often speak different languages. Rossi says the factor requiring the most effort to remedy will be the mutual prejudices that come with exclusion, power imbalances, and lock-in mechanisms [29]. This falls in line with van Dijk's statement that "power relations are discursive, discourse is historical, and discourse is a form of social action" [6]. He describes that "the way social-power abuse and inequality are enacted, reproduced, legitimated, and resisted by text and talk in the social and political" arenas have repercussions on the control of or privileged access to scarce natural, social, and (spatial) resources [6]. Keating enumerates on this by saying that the "choice about how to formulate place (has) consequences for what happens next in conversations" that outlines actual and perceived boundaries that ultimately have different implications for access to and the sharing of knowledge" [30]. Thus, discourse is deployed in the reproduction of social dominance by the hegemonic groups in society who integrate political discourse into laws, rules, norms, habits, and space [6]. Therefore, public space becomes "a powerful tool for controlling access to resources and opportunities" that is "maintained by the use of language in how public space is treated and viewed" [30].

2.3. DISCOURSE, SPATIAL JUSTICE, & URBAN FOOD GEOGRAPHIES

Massey interpreted that the spatial organization of society—peoples, objects, and the built environment—is fundamental to understanding discourse and its role in the orderly production of social life [31]. In other words, the cultural categorization of space shapes how people arrange themselves—who can participate and how as well as informs certain possibilities for interaction [30]. Thus, space becomes a landscape of (urban) activity filled with contestation and negotiation around the construction of meaning – a social instrument of both production and control. Keating states that the domination over the symbolic

meaning of space is played out in how space is allocated and more often than not "offers a more detailed guide to status relations than speech in many societies" [30].

Soja explains that space is an ideological concept that is socially produced, often contested, and constantly changing [32]. Due to this, Basset expresses that urban (re) development processes have resulted in uneven development patterns that have caused spatial injustices [33]. SJ can be defined as the socio-spatial dialectic between the economic and social conditions of different groups and the geography of injustice – how the social production of space impacts social groups and their opportunities to access basic urban amenities [34]. SJ can then be characterized as the "equal, non-discriminatory, and unbiased access to… basic (urban) infrastructures and services" [7]. Harvey states that the 'right to the city' is more than just the individual liberty to access urban resources; it is the right to change oneself by changing the city and doing so with others – a collective power to shape and reshape the processes of urbanization [35].

Thus, the 'right to the city' is embedded in philosophical and political concepts that must be addressed through practices of transparency and the formation of solidarities across different scales of governance in order to change or reconfigure these inequalities [36]. Furthermore, SJ can be achieved by way of urban (re)development through the "rules, processes, or options that are meant to meet the basic needs of all urban dwellers regardless of their living areas" [7]. In the spirit of the 'right to the city,' urban citizens have the right to contribute to the development of their city in which inclusive governance can advocate for geographical space that is justly managed, where the rights of all people to own and use spatial resources are recognized and protected [7]. Therefore, Lord and Shaw state that spatial planning must become part of "a wider process of change in the nature, function, and organization of local public services" to go beyond narrow regulatory frameworks (ibid, p. 64). Subsequently, there is a need to emphasize the discourse characterized by the uneven development patterns of urban regeneration to decrease the relocation or displacement of individuals and groups across space and social structures due to processes [33] [30].

Displacement across social and spatial structures within food systems has been framed around concepts such as food deserts, the gentrification of alternative food systems, and food sovereignty. Wolf-Powers articulates that limited geographic access, for example food deserts, has become central in public policy research on food security [37]. Multiple studies have shown that "residents of food deserts—disproportionately low-income and racial and ethnic minority groups—are also more likely to experience food insecurity and contend with higher rates of overweight, obesity, and their comorbidities" [38]. Wolf-Powers expresses that the emerging policy discourse has been more focused on an entrepreneurial social policy paradigm that favors real estate development over direct economic relief [37]. Instead, Wolf-Powers suggests reframing the discussion on food access around the shortage of basic income and the need for higher wages [37]. On the other side of the spectrum.

Similarly, the gentrification of the alternative food systems has also been criticized in that the discourse of 'locality, quality, and sustainability' creates a specific cultural and economic pattern of food provisioning built on affluence and appropriation of urban space [39] [40] [41]. Food sovereignty, in which the idea of food democracy sits, aims to shift the demands of markets and corporations away from the core of food system policies and give more rights to the people to define their own (local) food system [42]. In addition, everyone

has the right to access healthy, fresh, and culturally appropriate food produced in an ecologically sound manner, i.e., increased diversification of cultural food patterns and production practices [43].

Thus, the discourse on food security holds symbolic power in the socioeconomic and political dynamics that shape 'social realities' by "legitimiz(ing) arbitrary social distinctions that are not intrinsically spatial but that gain solidarity when expressed through physical space" [44]. Sonnino states that the challenge of feeding a growing and increasingly concentrated urban and metropolitan populations has led to the emergence of a "powerful and long-lasting productivist discourse" that aligns with the Bio-Economic narrative mentioned above in the first sub-section of the theoretical framework [44]. The counter perspective, the Eco-Economic narrative, directs attention toward more access-based approaches that concentrate on food distribution issues [44]. Consequently, Gatrell, Reid, and Ross state that "the spatial dynamics of local food systems are difficult to unlock and define," as they are comprised of many inter-related socio-spatial dynamics such as accessibility, food production, poverty, community development, sustainability, public health, and economic development. They articulate that the discipline of food geography can contribute to these challenges [45]. Correspondingly, Rossi articulates that in order to re-spatialize and re-socialize urban food geographies in the principles of SJ means re-embedding the economic into the social in the fullest sense – "the relationship among food, actors engaged around it, places, and ways of production and consumption" need to entirely be redefined [29]. Creating a new urban food geography based on principles of SJ inherently implies a greater complexity in relationships that will challenge the co-creation and co-management of values in the inclusive urban food governance process [29]. Coulson and Sonnino highlight that a focus on the micro-politics of everyday governance processes "emphasizes the importance of power and SJ "and bringing everyone together to move towards a more sustainable food system [46].

This thesis will use what is stated above as theoretical framework. Figure 3 below visualizes the two divergent views in the RFSs and UFG process and how using a lens of spatial justice can help in understanding future implications on the spatial restructuring of the metropolitan areas of Amsterdam and Phoenix.
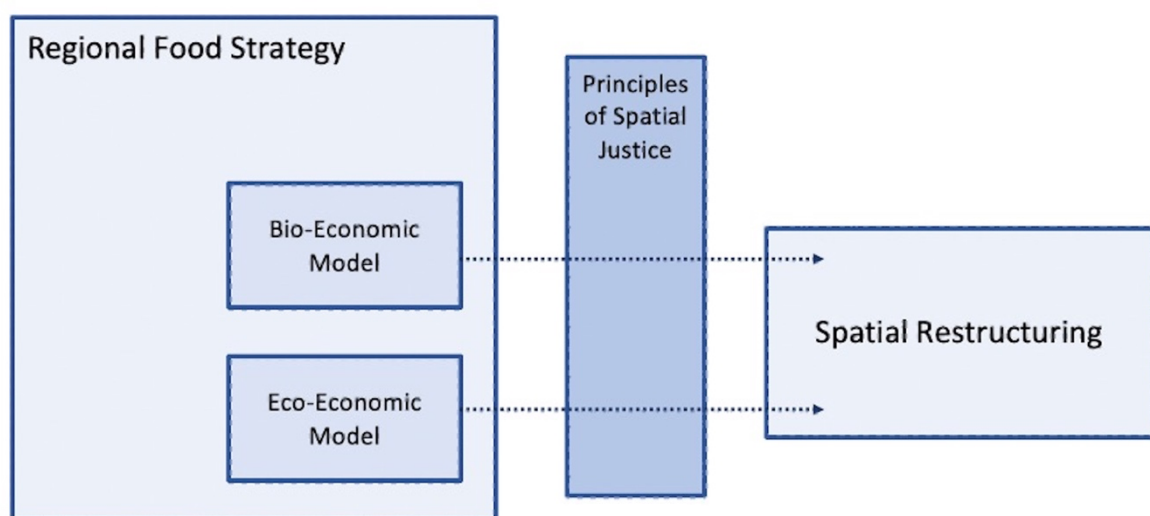
Figure 3 – Theoretical Diagram.

In order to accurately represent SJ, the seven principles from Uwayezu and de Vries were used, and some were adapted from land tenure to represent food security [7]:

1. Citizen engagement in urban (re)development programs.
2. Equality of opportunities to use or develop their land resources.
3. Recognition and protection of their rights to land resources.
4. Facilitation of access to land and/or food for poor and low-income groups.
5. Fair compensation when any urban (re)development program infringes on the rights of property owners.
6. Decreased spatial inequalities and promotion of access to urban amenities for all people.
7. Integration of all people into the urban fabric and a decreased risk of food insecurity.

The following section expands on the methodology that will be used in this comparative case study between the two metropolitan regions of Amsterdam, North Holland in the Netherlands and Phoenix, Arizona in the United States of America.

3. METHODOLOGICAL FRAMEWORK

In this section, the methodological design, methods, and process for the cross-contextual analysis will be explained. Reflections on the social and scientific relevance along with the limitations and ethical implications are included in the cross-contextual conclusion section (6.3) of this thesis.

3.1. RESEARCH DESIGN

Case studies aim to explore complex social issues to gain a holistic view of an unknown phenomenon by exploring its contextual conditions [47]. This in-depth examination of a single case, such as an implementation process, is selected when it is not feasible to undertake an experimental design. This method is designed to prepare grounds for future research instead of theory testing [48].

Comparative case studies "involve the analysis and synthesis of the similarities, differences, and patterns across two or more cases that share a common focus of goal" and utilize both qualitative and quantitative methods [49]. To do so, specific features of each case should be described in-depth at the beginning of the study to avoid 'data overload' [49]. To avoid data overload, a clear research question based on smaller units should be stuck to and the selection of interviewees and documents/websites should adhere to the critical constructs of the research theme. Moreover, the analysis should be separated into two parts – case analysis (identifying unique patterns across a case) and cross-case analysis (identifying generalized patterns across cases) – and data analysis must overlap data collection with field notes taken to remember vital points [49].

Bartlett and Vavrus state that 'highly effective' comparative case studies can synthesize information across space, scales, and time [50]. However, as this is a master's thesis, only scales and space will be considered.

- The vertical comparison considered the influences across different levels, such as the international, national, regional, and local levels.
- The horizontal looks at not only contrasting one case with another, but also traces social actors, documents, or other influences across these cases. This could include how similar policies or phenomena unfold in distinct locations that are socially produced and intricately connected [51] [52].

This cross-axial comparison between two case studies can produce knowledge that makes it easier to generalize about causal questions like how and why particular programs/policies work or fail to work [49]. By explaining how the context influences an intervention's success (or not), it is possible to improve following interventions to achieve the original intended outcome [49].

Furthermore, the results should be presented in tables to summarize the evidence and to verify emergent relationships between constructs. Lastly, it is vital to find the right point of closure when the data has reached a point of theoretical saturation [53].

3.2. RESEARCH METHODS

3.2.1. IN-DEPTH INTERVIEWS & DOCUMENT ANALYSIS

Guion, Diehl, and McDonald express that an in-depth interview is an excellent tool to use to explain the planning and evolution of specific programs [54]. They explain that this structured, yet open-ended and discovery-oriented method allows for a deeper exploration of "respondent's feelings and perspectives on a subject" [54]. While they specify that there is no substitute for face-to-face communication, this was not possible due to COVID-19 and the different locations of each case study.

Gross states that document analysis is used as a systematic procedure to examine evidence on a certain phenomenon [55]. This repetitive review, examination, and interpretation of the data sheds light on the empirical knowledge and meaning of a certain construct [55]. Combined with other methods, such as in-depth interviews and other data sources, it can "corroborate or refute, elucidate, or expand on findings…which helps to guard against bias" [55].

Furthermore, de Vaus enumerates that a triangulation of methods can improve the internal validity of a case study by linking different data sources to 'reasonable accounts' of the phenomenon at hand [53]. This holistic approach of multiple data sources can lead to a full understanding of the context as a whole [53]. De Vaus also states that the case study design uses non-probability sampling, i.e., replication logic, to argue external validity [53]. Therefore, the addition of QDAS software will help improve internal and external validity.

3.2.2. DISCOURSE ANALSYSIS (DA) WITH TECHNOLOGY

Discourse is defined as "an ensemble of ideas, concepts, and categories through which meaning is given to a certain phenomenon" [56]. Discourse analysis (DA) is beneficial in probing automatic behaviors in cross-cultural interactions by highlighting cultural beliefs and values that create certain discourse patterns [57]. Furthermore, DA is useful in overcoming static divisions in a phenomenon with conflicting viewpoints through understanding "how interrelationships are constantly produced, reproduced, challenged and transformed" through talk and text [56].

Wilson states that a political lens on discourse analysis "help(s) to explain the social and political concerns of actors, institutions, polities" [58]. Kiesling asserts that a more critical focus on discourse analysis can uncover how discourse might reinforce and construct power differences within politics, business interactions, the law, and education [57]. Thus, 'political discourse' – talk or text produced by or for political actors – can be useful in highlighting the particular discursive structures used in the discussion and implementation of certain policies that are constructed around particular 'emblematic' themes [56]. By describing these discourse structures in the context of social interaction, it is possible to understand conflicting viewpoints on social and political issues [6]. The methodological process for DA is the coding of 'raw' data in pursuance of finding 'patterns,' i.e., emblematic themes in the in-depth interviews and documents [56].
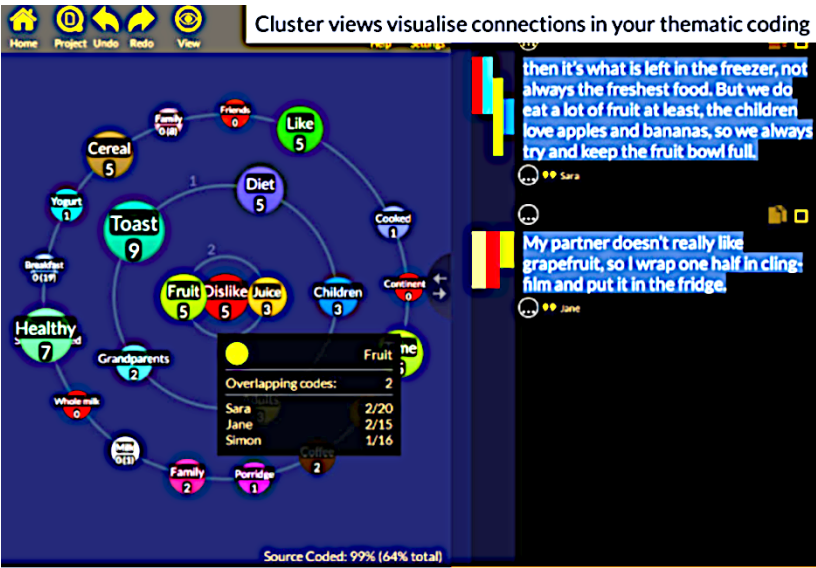
Consequently, this thesis took a more critical focus on the discourse in UFG to pinpoint the 'emblematic' themes in which RFSs are generally discussed (adapted from [56]). By coding the "ideas, concepts, and categories" in the discourse of RFS, especially connected to the bio-economic or eco-economic paradigms, it should be possible to ascertain the future

implication on the spatial reorganization of the two cities. However, Hajer conveys that the main challenge of discourse analysis is "combining the analysis of the discursive production of reality with the analysis of the socio-political practices from which social constructs emerge and in which actors are engaged" [56]. In order to combat this challenge, the use of technological innovations in qualitative data analysis will be applied.

Quirkos is a Qualitative Data Analysis Software (QDAS) that is useful in qualitative research because it helps analyze transcripts, documents, websites, and content through the coding of certain predefined thematic categories. By doing so, it helps save time, enables data visualization, and increases validity and auditability of qualitative research – thus, supporting a more comprehensive interpretation of large amounts of data [59]. Figure 4 below visualizes the thematic coding done in Quirkos.

Figure 4 – Thematic coding with Quirkos [60].

The coding of interview transcripts was thematically categorized with the emblematic themes stated in the theoretical section above. Moreover, secondary data like documents were also be coded with the same thematic categories. By organizing, categorizing, and labeling each respective format within each case, general impression of 'suspected' patterns emerged. Lastly, the iterative and cyclative process of combing the aggregated data and cross-referencing each case against one another helped understand the similarities and differences between the two countries and the phenomena of RFSs overall.

3.3. RESEARCH PROCESS

The research design for this comparative case study lasted from July 2021 to July 2022. The most prominent limitation was the non-response rate of the potential participants that were contacted. This is discussed more in the Limitations section. To fill in the gaps resulting from the non-response rate, additional sources were used like documents, research articles, and news articles. This is represented in Table 1 below. More detailed information of each method can be found in Appendix 9.1.

Table 1 – Overview of mixed methods by case study.

	IN-DEPTH INTERVIEWS	DOCUMENTS	RESEARCH	NEWS ARTICLES
AMA	5	8	9	3
PMA	6	9	10	6

The documents and in-depth interviews were coded both deductively (starting from theory) and inductively (repeated themes in documents and interviews).

4. AMSTERDAM METROPOLITAN AREA CASE STUDY

In this section, the results of the Amsterdam Metropolitan Area (AMA) case study will be presented. The first sub-section discusses the background context. The second sub-section examines the current state of agriculture in the AMA. The third sub-section presents the results from the methodological inquiry in relation to the research questions. The fourth sub-section connects the results to the theoretical framework. Dutch organization and project names are used first, but the English translation will be used throughout the rest of the thesis.

4.1. AMSTERDAM METROPOLITIAN AREA CONTEXT

In this sub-section, the geographic, cultural, economic, and political background context of the AMA case study are discussed.

4.2. GEOGRAPHY

The Amsterdam Metropolitan Area (AMA) is also referred to as Metropoolregio Amsterdam (Metropolitan Region of Amsterdam); for clarity, AMA will be used. The AMA is a collaboration of two provinces – North Holland and Flevoland – as well as the 32 local municipalities [9]. All of Flevoland has been reclaimed from the sea and has one of the largest shares of natural areas out of all the provinces [61]. The total land-use area is 1601.92 km^2 (618.5m^2), and the population for the AMA in 2018 was 2,457,296 [62]. The Netherlands is one of the most densely populated countries in the world, and the AMA is one of the most densely populated regions in the Netherlands with 14% of the total country's population [63] [64] [9].

The AMA is located in a warm, temperate, and humid zone with an average temperature of 11.2°C (52.2°F) in 2019 [65]. The Netherlands has rainfall in every season, receiving 894 millimeters (35.1 inches) of rain in 2020 [66]. Figure 5 below is an orthophoto of the AMA, which highlights the low-lying, flat, and fertile land area within which this historic metropolis has been built.

Figure 5 – Orthophoto of the AMA [67].

Since medieval times, the Dutch have meticulously set up intricate water management techniques such as dikes, polders, canals, lakes, rivers, and windmills to improve drainage and protection from floods [68] [69]. The AMA lies in the basin of the IJ river. Due to unfirm ground, the building of urban areas along the coast consists of driving concrete piles into the silt, sometimes 20 meters (65.6ft) deep [68].

4.3. CULTURAL

The AMA has seen more population growth than all other regions in the Netherlands [70]. The projected population for the AMA in 2050 is 1.07 million [71].

In 2019, the population was split almost evenly between genders – 49.3% male and 50.7% female [62]. Considerations for non-binary and gender-nonconforming people have not been included in Dutch census reporting. The migration background of residents in the AMA consists of 23.6% non-western immigrants, 14% western immigrants, and 62.3% native Dutch [62]. According to the municipality of Amsterdam, Amsterdam is one of the most diverse cities in Europe with around 180 different nationalities [72].

The average income in 2019 was €34,300 per year compared to the national average of €31,000 per year [62]. In 2019, 15.5% of the MRA population was considered low-income, and 3% were on work or social assistance from the Dutch government [62].

4.4. ECONOMIC

In 2019, the gross domestic product of the AMA was €161.4 million [70]. The AMA specializes in the industries such as culture, transport and storage, leisure and tourism, information and communication technologies, and financial services [70] [73].

Moreover, the AMA serves as an important gateway for goods and services through the international airport – Schiphol – and the Port of Amsterdam. Schiphol is the second biggest airport in Europe for aircraft movement and the port of Amsterdam is the fourth largest port in Europe [74] [75]. This makes the AMA one of the largest logistics hubs for North-West Europe [76].

Lastly, it is worth mentioning that the central government has committed to a fully circular economy by 2050 [77]. The reasons stated were the increased global demand for raw materials like food, electrical goods, and clothes [77]. Therefore, the Dutch government is working with multiple stakeholders – public authorities, financial institutions, knowledge institutions, industry, trade unions, as well as civil society and environmental organizations to "find smarter and more efficient ways of using raw materials" [77]. Innovation and sustainability have been prominently placed on various policy agendas of individual municipalities and the Amsterdam Economic Board [73].

4.5. POLITICAL

The Dutch political system is a constitutional monarchy made up of a parliamentary democracy with proportional representation, meaning that minority political groups only need .66% of overall votes to be represented [68] [78]. The Netherlands has three tiers of government – central, provincial, and municipal. In 2020, there were 20 political parties represented in parliament [79].

Municipalities in the MRA are characterized by a municipal council – alderpersons – and a mayor [80]. The Municipality of Amsterdam states that coordinated plans and policies between regional partners are important because "daily urban systems do not care about administrative boundaries" [81]. In their 2021 study of the governance style of property development in Amsterdam, Tasan-Kok and Özogul found a fragmented policy landscape

characterized by divergent attitudes and intra-organizational discrepancies [82]. Divergent attitudes were illustrated by contradictory regulations across diverse scales of governance due to differences in "norms, meanings, and values for governance systems" [83]. Intra-organizational discrepancies were defined by uncoordinated efforts and opposing or shifting political ambitions because of conflicting "personal and political priorities of individual alderpersons" [82]. Moreover, participants criticized alderpersons for "lacking overarching goals and long-term perspectives" [82]. All of these combined contributed to fuzzy narratives around policy agendas which in turn created fragmented relations and a 'chaotic' governance style [82].

4.6. CURRENT AGRICULTURE IN AMSTERDAM METROPOLITAN AREA

In this sub-section, agricultural data is used to understand the ability to feed residents in the metropolitan area. Agricultural data specific to the provincial level is limited, therefore, current statistics of agricultural production in the Netherlands are used as well.

Over half of the Netherlands' total land surface area is farmland, representing 1% of all farmlands in the EU [84]. Farmers in the Netherlands produce cereals, pulses, potatoes, sugar beets, fodder roots, brassicas, vegetables, melons, and strawberries in addition to meat products: poultry, swine, cattle, fish, and dairy [85] [86]. In 2020, Dutch agricultural exports increased by an estimate 1% in 2020 despite the COVID-19 pandemic, totaling €95.6 billion [85]. The largest shares of exported products were meat and meat products, eggs and dairy products, and vegetables [86]. The largest shares of imported products were meat, dairy, fruits, nuts, spices, and cocoa [84]. The Netherlands is the second largest exporter of agricultural products behind the United States with the top countries being Germany, the United Kingdom, Belgium, France, and China [85].

The Ministrie van Landbouw, Natuur, en Voedselkawliteit – LNV (Ministry of Agriculture, Nature, and Food Quality) states that "less than 3.5% of the (Dutch) labor force works in agriculture, horticulture, or fisheries" [84]. In 2010, 221,630 persons were employed in the agricultural sector, a fall of 23.2 % from 2000 [84].

As for the AMA, one-third of land is used for agricultural production [87]. 40.8% of Flevoland is farmland and 38.4% of North Holland is farmland [61]. In 2020, there were 2,771 farms, a decline of 5.8% from 2016 [88] [89]. The demographics of farmers in the AMA is that they are mostly male and majorly between the ages of 45 and 64 [86]. In 2017, the combined gross annual sale of value agricultural products in 2017 was over €3.5 million [90]. The following tables break down the agricultural products of Flevoland and North Holland provinces by weight (Table 2) and by head (Table 3).

Table 2 – Sugar beets, potatoes, and cereals are from 2012 (sources can be found in Appendix 9.2).

	Flevoland	North Holland
Sugar beets (1000t)	844	387
Potatoes (1000t)	901	387
Cereals (1000t)	159	91

Dairy milk (1000t)	316	768

Table 3 – Animals from 2013 (sources can be found in Appendix 9.2).

	Flevoland	North Holland
Dairy cows (head)	32,740	80,550
Cattle (head)	66.240	157,710
Sheep (head)	11,450	150,620
Goats (head)	5,120	11,520
Pigs (head)	40	40
Poultry (1000 head)	610,000	1,000,000

Currently, there is an online food ordering company – Boeren en Buren (Farmers and Neighbors) – where residents can find unique products directly from their region and a fair price is given to the farmer [91]. This initiative is trying to shorten the food chain by setting up decentralized neighborhoods [92]. There are currently 23 'Buurderij' (Neighborhood) pick-up locations in the province of North Holland, and some locations offer home delivery (Figure 6) [93]. A map of UA as well as community and school gardens within the municipality of Amsterdam can be found in Appendix 9.3.
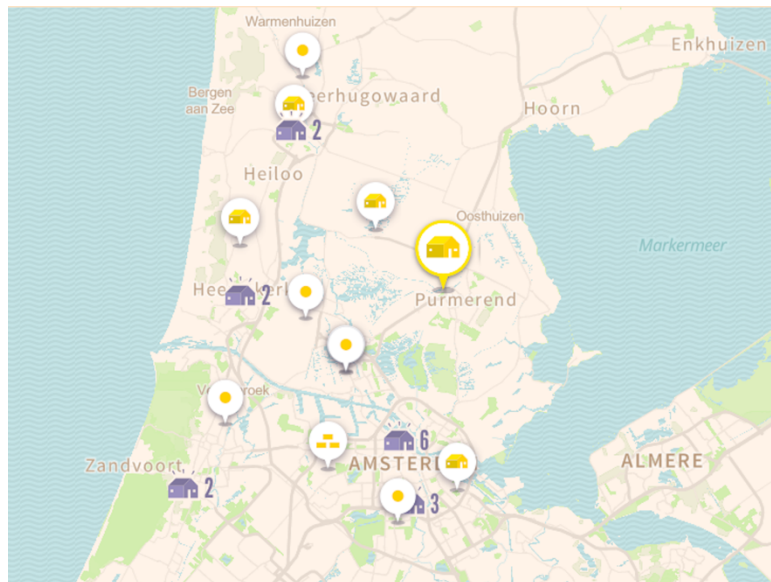
Figure 6 – Boeren en Buren map of neighborhood pick-up locations in the province of North Holland province [94].

4.7. RESULTS

In this sub-section, the research question and sub-research questions are explored below backed by the results of the methodological inquiry. The first sub-division examines the state of the AMA's RFS and UFG. The second sub-division delves into the discourse used in both talk and text in the RFS and UFG to understand how food policy is constructed around particular emblematic themes. The third sub-division scrutinizes in what way the discourse used could potentially affect SJ in the spatial restructuring of the AMA.

4.7.1. **RQ1 –** WHAT IS THE REGIONAL FOOD STRATEGY FOR THE AMSTERDAM METROPOLITAN AREA?

In this sub-division, the state of the AMA's RFS is discussed and includes who is in charge, the budget, programs and initiatives, and monitoring mechanisms used. This is followed by a characterization of the UFG style with criteria being what stakeholders are included (or not) in the RFS, the visibility of the RFS, and the personal reflections of participants on their influence or authority in creating and implementing the RFS, and how participants move from discussion to action.

4.7.1.1. **REGIONAL FOOD STRATEGY**

> *"A well-functioning, circular and sustainable regional food system in the Amsterdam Metropolitan Area and surrounding agricultural areas is important for the climate, landscape, economy and health of all residents."*
> *– Voedsel Verbindt* [87].

In 2007, there was the first attempt at a municipal food strategy (MFS), Proeftuin Amsterdam (Living Lab Amsterdam), based off the of the London Food Strategy. Proeftuin Amsterdam was a collaboration of governmental authorities like the municipality of Amsterdam, the municipality of Zaanstad, the province of North Holland, the Groene Hart Stuurgroep (Green Heart Steering Group), and the LNV [95]. The focus was on supporting green infrastructure and healthy food [10]. One participant stated that while there were 'very strong bottom-up dynamics,' there was a lack of political will to continue working on the topic.

In 2013, the Amsterdam Economic Board (AEB) was asked by the sitting alderman to look into local food system security if there were shocks to the system. Therefore, a new round of collaboration started again between the municipality of Amsterdam, AEB, Amsterdams Natuur Educatie Centrum (Amsterdam Nature Education Center), and Amsterdamse Aanpak Gezond Gewicht (Amsterdam Approach to Healthy Weight) program [95]. Rabobank researched this concern and found that even though almost everything is available in the region, only 20% ends up on the plates of Amsterdam residents. In 2014, the Food Vision for Amsterdam was presented in front of council. However, a change in political parties shortly after meant that while the food policy still remained on the agenda, few objectives were achieved [95].

In 2017, there was a second informal attempt with a participative event, yet again it was not endorsed by the municipal council that was elected a couple months after. The Food Council MRA (FCMRA) was also started in 2017 to develop a regional platform for food democracy. FCMRA is dedicated to a *"sustainable, healthy food environment that is available and affordable for everyone"* by linking a diverse set of stakeholders like residents, entrepreneurs, and the government [96]. By connecting stakeholders and facilitating conversations, they aim to jointly find solutions to metropolitan food issues and catalyze systemic change. In the spring of 2017, three ministries – Economische Zaken en Klimaat (Economic Affairs and Climate), Buitenlandse Zaken (Foreign Affairs), and Volksgezondheid, Welzijn en Sport (Health, Welfare, and Sport) – and twelve municipalities signed the City Deal 'Food on the Urban Agenda' (CDFUA). The CDFUA advocates for safe, healthy, and sustainable food and was presented to the cabinet in 2015 as well as the National Food Summit [97]. Participation in the international Milan Urban Food Policy Pact was an

important reason for its creation [97]. What makes CDFUA unique is its network from different levels of government.

In 2018 there was a final informal and last attempt which is still active in the current RFS, but relationship dynamics are 'complicated' between stakeholders. Participants stated that the RFS was finally conceived after a *"growing consciousness"* of serious problems with the current food system like biodiversity, health, and education. Health was one of the most commonly cited reasons for starting the RFS and will be discussed more in section 4.3.2.1. Other municipalities with food strategies/visions connected to the RFS are Almere, Amstelland-Meerlanden, Amstelveen, Gooi en Vechtstreek, Haarlem, and Lelystad. The Haarlem Food Vision is a civil society based report.

A4 stated that while it "*took a long time*" to solidify a regional food platform, Voedsel Verbindt – VV (Food Connect) was established by the municipalities of Amsterdam and Zaanstad, the provinces of North Holland and Flevoland, and Rabobank in 2020. One of the main objectives of the platform is to shorten the food chain and have 25% of all food regionally produced by 2040. This objective is being met by facilitating connections between different types of stakeholders like governmental and educational institutions, citizen movements, and businesses (farmers, banks, retail producers, etc.) [98]. The themes of VV are our circular food economy, healthy eating is healthy living, smarter food flows - cleaner transport, food landscape: food from your own region, captivate and bind talent for the food economy, learning from our own data [98].

The budget for the RFS consists of €250,000 for the program bureau, which is not used to fund projects. Initiatives either receive subsidization from the government, in-kind contributions, or are paid for by learning institutions. Additionally, the RFS is a part of two or three EU proposal projects with *"substantial amounts of money."*

In terms of the monitoring mechanisms to analyze the implementation process, one participant stated that every municipality has its own elaborate monitoring system but was unclear about the criterion. A3 stated that the RFS is monitored by a project agenda and a dashboard that monitors the status of different projects. One participant was cynical stating that there is *"no ambition"* to relate food to the donut economy and that that should be further explored. A4 expressed that the municipality of Almere uses surveys to monitor their MFS.

When asked how the RFS for the AMA was functioning, the sentiment was that it is still in the beginning stages of the transition process. A1 state that there is "*not much impact as (of) yet, it's really rhetoric still…. just a trial-and-error process*." A5 said "*I'm happy that something is moving now. But yes, it would be really good if it gains a bit more momentum*." Lastly, two participants noted the particular challenge of keeping a focus on food when there are multiple sustainability transitions happening simultaneously. This will be discussed more in section 4.3.3.1.

4.7.1.2. **URBAN FOOD GOVERNANCE**

When asked who was in charge of managing and negotiating the RFS, two participants stated that VV was in charge. However, one participant said, *"no one right now and that's really sad."*

All participants voiced that the visibility of the RFS is low to non-existent among the general population, consisting of the 'usual suspects' who are already concerned about the food system. A3 narrated that those interested are usually highly educated native Dutch residents and that many cultural groups are missing. A1 stated that the RFS "*is invisible*" to a very large group of the population and "*these visions have not been truly participative so far*" despite the rhetoric of co-governance from the municipality of Amsterdam. They stated that civil initiatives have been ignored, indicating a top-down governance style, which is a "*very elitist movement at the moment.*" A2 confirms that citizens are not as involved as he would hope and, also, that scientists could be better involved. Contrastingly, A3 stated that VV is trying to adjust policies from the bottom up to 'make policies work better.'

Furthermore, all participants expressed that important stakeholder groups like the 'urban poor,' among others, are missing from the RFS. This was mainly referred to the Moroccan and Turkish populations, who are 'very difficult to engage.' A3 affirmed that it is more difficult to reach population groups with different cultural backgrounds and who may have difficulties reading and speaking Dutch. They stated that it is hard to engage all 179 different nationalities in the MRA, but it is something that VV is trying to achieve by working with farmers to grow traditional fruits and vegetables as well as with cooks from different backgrounds to *"try to make it more feasible"* for non-native Dutch residents. Additionally, A2 set forth that urban farmer entrepreneurs are left out due to lack of experience in producing food in an urban setting with contaminated soil and lack of space.

The most referenced limitation was the governance style of the MFS in Amsterdam. Two participants noted that the food agenda is highly fragmented across the multiple municipal departments, therefore, there is no ownership and funding. This is compounded with the changing municipal officials who have different agendas and 'political egos.' Interestingly, one participant expressed that transition management needs teams that are 'very open-minded for change,' which is sometimes difficult for a municipality to do because they are responsible for residents, and that 'big cultural' change is 'hard to do' in an institution.

Additionally, some participants noted the lack of the municipality of Amsterdam to take up a participatory process which includes local social food movements. This is supplemented by de Bruijn's 2020 study in which they found that the governance style in Amsterdam surrounding grassroots UA was *"rigid silo-structure"* which urban growers felt lacked communication, accountability, and that was somewhat 'patronizing' [99]. While UA has been established by the urban planning department in Amsterdam as a legitimate form of land use linked to sustainable urban development, his participants were frustrated with the unsuccessful implementation of municipal initiatives like the Food Information Point, and that funding majorly came from existing limited greening budgets. This frustration was also expressed by A2, who had a project that was denied funding even though it fits the goals of the RFS.

In their personal reflections of their involvement in the RFS, all but one participant expressed that they have authority in the creation process. Each participant noted that this is because of their expertise and involvement in past and present food system

transformation work. A1 said that he sits on multiple committees and boards and advises a wide range of stakeholders. A3 stated that he has authority in creating food system policies at the municipal and provincial levels. A4 said that the MFS for Almere *"feels like it is already created,"* but that they can help in the realization of it.

Four out of five participants acknowledged that they have some influence over the implementation of the RFS, though to varying degrees. One participant stated that it was connecting scientists, municipal officials, and private companies to facilitate discussions on how experimentation in an Urban Living Lab setting can attract attention from people passing by and get them interested in the topics of food and circularity. Another participant described that they recommend civil society advocators to 'stick together' and leave their egos at the door, which is ignored most of the time. The same participant stated that they have influence because they find funding for projects. The one participant who stated that they did not have influence explained that it was because they do not live the AMA.

Relationship building, facilitation, and education/outreach events were the most cited ways to move from discussion to action.

4.7.2. **SRQ1 –** HOW IS DISCOURSE USED IN THE REGIONAL FOOD STRATEGY FOR THE AMSTERDAM METROPOLITAN AREA?

In this sub-division, the top three emblematic themes ascertained from talk (interviews) and text (documents) from the methodological inquiry are explained in-depth.

4.7.2.1. **QUIRKOS RESULTS – DISCOURSE ANALYSIS**

Figure 7 is an overview of emblematic themes found in both talk and text about the RFS for the AMA. Each node, a total of 95, represents the ideas, concepts, and categories, and therefore, outline the different values, visions, goals, and approaches of the RFS.

Figure 7 – AMA emblematic themes.

Coding data revealed that the political focus of the RFS in the AMA is centralized around concepts such as health, economy, local government, farming, sustainability, and circularity. Overall, the concept of the circular economy (CE) is tied to notions of sustainability and innovation, a weaving thread between the top emblematic themes. Sustainability and innovation are key concepts in Dutch

governance, and CE is seen as a process to achieve these goals [100]. Therefore, only the top 3 emblematic themes will be discussed with a brief description of each in order to understand how interrelationships are produced, reproduced, challenged, and transformed through talk and text [6].
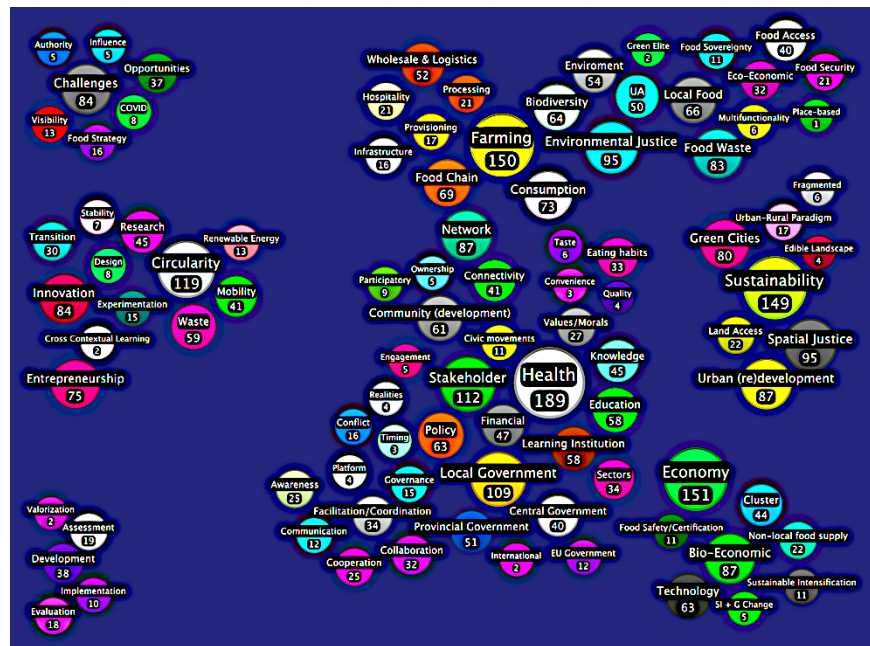
HEALTH: The emblematic theme of Health had 189 mentions between both documents and interviews, is depicted in Figure 8 below. The most common overlapping sub-categories include local government, food strategy, and circularity.

Figure 8 – Health emblematic theme and overlapping sub-categories.

LOCAL GOVERNMENT: most of the discourse on health and local municipalities is focused on providing fresh, healthy, and sustainable food to residents to combat obesity and other diet-related illnesses. In the municipality of Amsterdam alone, there is the Amsterdam Approach to Healthy Weight program, the JumpIn program, and the Jongeren op Gezond Gewicht (Young People at a Healthy Weight) program. All these programs target the intersection between exercise, food choice, and nutrition in maintaining a healthy weight for residents of all ages. The
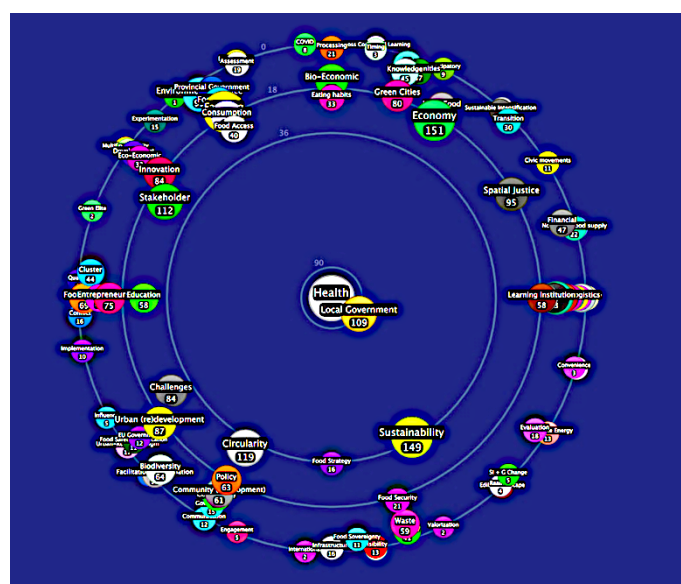
municipality of Amsterdam offers education and the building of new infrastructure to spearhead a healthy lifestyle. The JumpIn program specifically looks at health inequalities related to socio-economic status at a neighborhood level [87]. Furthermore, the municipality of Almere has the Stad & Natuur (City & Nature) program which aims to make eating fresh and healthy food more attractive by focusing on self-experience through planting, tasting, harvesting, and cooking as a form of environmental and health education [87].

FOOD STRATEGY: was mentioned in relation to food access and innovation. Both interviewees and documents addressed the overabundance of unhealthy food products in lower-income neighborhoods. This will be discussed more in section 4.3.3.2. Furthermore, the municipality of Almere explicitly sets out in its food strategy the *"ambition to make healthy food choices attractive, affordable, and accessible to all residents"* [101]. This means investigating the different needs of the city, partly from the perspective of the diverse cultural and socio-economic backgrounds [101]. The municipality plans to support initiatives like the Farmers and Neighbors initiative, but with Flevofood and the Food Bank. Thus, stimulating a short food chain through increased points of sale for fresh, locally produced, and affordable foods [101]. In total, there are 8 municipalities invested in promoting healthy food landscapes [87].

In terms of innovation, there are a total of 36 initiatives and programs in the AMA focused on promoting a healthy lifestyle [87]. The municipality of Almere is also concentrating on making the city an Urban Living Lab (ULL) around themes such as health, sustainability, and the economy like the project of Oosterworld (Free World) [102]. ULLs are sites of place-based research where locations within the city are used as test beds or incubators for sustainability issues [103].

CIRCULARITY: Interestingly, Circularity was tied to the overall health of the city as a functioning system, a 'healthy' circulation of resource flows like materials, capital, knowledge, data, and energy [104]. The plans to transition to a circular economy (CE) include – high-quality processing of organic waste streams, shortening the food chain, and encouraging healthy and sustainable food consumption. The high-quality processing of organic waste streams and shortening of the food chain will be discussed later in this thesis.

A shift in residents' eating habits towards a more sustainable diet is also joined with the transition to a circular economy. Conjoined with the statement above, the municipality of Amsterdam aims *"to increase the consumption of regionally produced plant-based foods"* as it will contribute to healthy lifestyles as well as *"to more efficient use of agricultural land,"* thus, reducing of climate change exacerbators [105]. Furthermore, the municipality of Amsterdam is also looking into whether (or not) they can change to policy for advertisements in public spaces so that there more attention is paid to healthy, sustainable food and less attention to unhealthy food with a large ecological impact [105]. This will be talked about more in section 4.3.3.2.

ECONOMY: this emblematic theme was quoted 151 times between both documents and interviews. The Figure for this emblematic theme can be found in Appendix 9.4. The most common overlapping sub-categories were circularity and cluster.

CIRCULARITY: was used in reference to the CE. The municipality of Amsterdam's Circular 2020-2025 document stated that *"to become a thriving and inclusive city, we need to make our economy circular"* as CE contributes to significant reduction of the city's environmental footprint as well as provides employment [105]. There was a strong focus on capturing and high-quality processing of organic waste streams. The municipality of Amsterdam is using campaigns to raise awareness about how to separate food waste as well as how it can be prevented [105]. There is also stakeholder engagement in the hospitality industry around capturing food that is still usable and finding the best destination for it [105]. In total, there are 28 municipalities with raw material reuse goals and ten municipalities working on circular procurement [87]. The municipality of Amsterdam aims to *"give local and regional suppliers an extra incentive to become circular as well"* through circular procurement (H).

CLUSTER: was mentioned in three out of nine documents. The concept was used in relation to creating *"well-organized cluster(s)"* of sharing and developing knowledge for a positive impact on the regional food economy ([106]; [87]). By strengthening the Agri & Food cluster in the AMA, the Amsterdam Economic Board intends the cluster to become a top innovative region of Europe and thus, position Amsterdam as *"a global business hub: a hub of trade, people and information"* [106]. To this AEB states that *"collaboration is key"* among the *"network of companies, knowledge institutions, governments, and other relevant organizations"* [106]. Moreover, VV is modeled after the Greenports, which are spatial economic clusters that function as logistic 'mainports' for the entire agrifood chain [107]. There is a Greenport in Alkmaar, Greenport North Holland North, that is currently working with knowledge institutions to research topics such as digital and smart farming, seaweed in healthy dairy farming, and hydrogen for agrologistics [108]. They also have multiple education programs for young adults and are committed to strengthening the relationship between business and education to provide *"enough innovative entrepreneurs and employees for companies"* [87].

FARMING: The next emblematic theme was quoted 150 times between both documents and interviews. The Figure for this emblematic theme can be found in Appendix 9.5. The most common overlapping sub-categories were circularity, environmental justice, green cities, and urban (re)development. The latter two will be discussed below in Section 4.3.3.1.

CIRCULARITY: the municipality of Amsterdam states in their circularity report that circular agriculture (CA) can positively contribution to creating a robust regional food system [105]. First, CA could provide a more diverse supply of regional food products that meets local consumption demands [105]. This aligns with the health and shortened food chain goals stated above. Second, CA can close nutrient cycles which helps to combat climate change by way of less imported livestock feed and chemical pesticides and fertilizers [105]. Therefore, soil health is improved through less input of nitrogen and phosphorus and less energy is required [105]. For both, the municipality articulates that it must play an active role in connecting different food chain stakeholders by providing a platform for collaboration

and building infrastructure [105]. There are ten municipalities that are investing in soil health through agricultural production [87].

ENVIRONMENTAL JUSTICE: 'Nature-inclusive agriculture' was attributed to climate and environmentally friendly agriculture and was used synonymously with CA. The idea was also used in conjunction with 'climate-adaptive design' for challenges in the food system like subsidence of peat fields, CO_2 emissions, biodiversity, and soil contamination.

The Agriculture and Landscape in the MRA document states that a strong commitment to 'nature-inclusive' grassland, underwater drainage, and 'wet farming' can help limit land subsidence and CO_2 emissions [109]. Paludiculture, aka 'wet farming,' is a form of agriculture on peatland that allows raising livestock and growing crops that like a higher water table while simultaneously restoring and preserving the health and functioning of the peat [110]. Arable farming, aka 'dry farming,' is also trying to play a greater role in sequestering CO_2 in the soil by focusing on less tillage, composting, and crop choice [109].

'Nature-inclusive agriculture' was also used concerning biodiversity conservation [109]. The Agriculture and Landscape in the MRA document declares that agricultural conservation has helped in increasing meadow bird populations as well as improving water quality and storage capacity [109]. Experiments with 'flower- and herb-rich grassland' at Wageningen University and Research show *"how food can be produced within the boundaries of nature, the environment, and the living environment"* [111].

Lastly, the issue of soil contamination from agricultural practices was mentioned regarding fertilizer use and the composting of household food waste. In 2015, the Programma Aanpak Stikstof (Nitrogen Approach Program) was introduced by the Rijksinstituut voor Volksgezondheid en Milieu (National Institute for Health and the Environment) to combat nitrogen-based soil pollution [112]. However, farmers protested the program by driving their tractors on the highways outside of Den Hague because they feel that the program is geared more for the economy instead of nature, and that they are shouldering the weight of reducing the amount of nitrogen [113]. Soil contamination was also used in reference to the processing of household food waste. The issue is how to extract chemicals from imported food products, like coffee grinds or orange peels, so that the chemicals do not go back into the soil in Amsterdam when the compost is reused for urban food production. A2 mentioned that AMS Institute is working on adapting an app that larger-scale farmers currently use for soil contamination, but for use by urban farmers.

4.7.3. SRQ2 – TO WHAT EXTENT IS THE DISCOURSE USED IN THE REGIONAL FOOD STRATEGY AFFECTING THE FAIR USE OF AND ACCESS TO CERTAIN FOOD RESOURCES IN THE AMSTERDAM METROPOLITAN AREA?

In this sub-division, the discourse structures used in the AMA's RFS and UFG are posited against SJ in the food system – contestation for space and fair and just access to food resources.

4.7.3.1. CONTESTATION OF FUTURE (URBAN) SPACE

One of the main findings was that there is a high competition of space in the AMA between different uses and functions. These include the concepts of livability, Green Cities, farmland preservation, and tensions with the clean energy transition.

The municipality of Amsterdam's website states that *"livability and affordability are under pressure,"* therefore, the 'urgency is high' to create a 'human metropolis' that is focused on equal opportunities and sustainability [81] [114]. Multiple municipalities are drafting new healthy policies with special attention to the theme of livability, i.e., physical and mental wellbeing of inhabitants, specifically the inclusion of greenery in future urban development. The concept of green cities came up frequently in the relation to urban (re)development as it is necessary in providing *"urgent urbanization issues with appropriate answers"* [101]. This can be achieved through 'climate-adaptive' or 'nature-inclusive' urban planning and the integration of UA into 'green contours' within cities [105]. The City of Almere is inspired by the Garden City concept by Sir Ebenezer Howard and it is also the permanent site of the Floriade 2022 World Expo, an expo on innovations in the field of horticulture with the theme of growing green cities [115]. Additionally, the municipality of Leylystad and a Haarlem civil society led group emphasized edible landscaping as a way to combine green and food agendas. The Voedselvisie Haarlem (Haarlem Food Vision) places also emphasis on ample room for experimentation in zoning plans and regulations to allow for edible rooftops across the city in order to improve biodiversity. Compellingly, the municipality of Amsterdam states that while *"urban agriculture can help to define the green contours of the city,"* it must not *"conflict with the densification of the city in these areas"* [105]. Thus, vertical agriculture (VA) should be investigated and used to save valuable building land [105].

The tension between green cities and the need for more housing is alluded to in the MRA 2050 Comprehensive Plan: *"A large number of factors play a role in considering where, when, and how space can be used…We have to make choices, given that space is scarce and not all ambitions fit together seamlessly. Moreover, we have to invest, but that too cannot be done everywhere at the same time"* [116]. Subsequently, after 2030 the Harlemmermeer and Flevoland polders are set to become the sites of overflow housing needed for the urban expansion of the Randstad (Amsterdam, Utrecht, The Hague, and Rotterdam). Yet, these polders are currently majorly used for agricultural production and hold significant cultural and historical value to the Netherlands. The 'characteristic' open and vast agricultural landscape is one of the main reasons that tourists come to the area, provides green recreational connections for Dutch cyclists, and protects endangered species of flora and fauna [116].

Confusingly, the MRA 2050 Comprehensive Plan states that development is driven by the need to improve the quality of life, but also expresses that *good agricultural land should be preserved when considering spatial claims* in the landscape as it *"remains necessary for the food supply"* [116]. For example, the document states that in the Gooi and Vecht region is necessary to set up areas for peak water storage, thus, would benefit from 'switching to other land use' like in the field of agriculture [116]. Additionally, *"the Flevopolder still offers many opportunities to amply contribute to the large construction programs that the MRA is involved in"* [116]. However, the document also states that agricultural lands are important part of the culture and history of the region but are not always protected [116]. The Agriculture and Landscape in the MRA document addressed this contraction by saying that: *"It is strange that agriculture is only mentioned a few times in the Spatial Economic Action Agenda 2016-2020 of the MRA"* since *"agriculture occupies almost a third of the*

MRA's land area, produces for both the global and regional markets and is therefore a strong face-maker and an important economic player" [109]. Correspondingly, it states that pride in agricultural land should go beyond the museological and recreational value and that the sustainable future of agricultural activity does not have to be at odds with densification pressures in the region [109].

Most participants were not optimistic about how the RFS will affect the spatial configuration of the region in the future. A1 stated that there will be a 'drastic change' to the landscape in regard to open spaces. They stated that a core issue with urban planning in the municipality of Amsterdam is that every green space is seen as a potential building site. They expressed, *"my fear is, since the funding is in the corner of building, that the building industry in the end be the winner and that greening the city will be perceived as (an) important (task for) other municipalities outside of Amsterdam…You can see that happening in the domain of urban agricultural already."* A1 then expressed that there is a contradictory form of practice where the municipality of Amsterdam is 'preaching of the gospel of intensification' on one hand while also 'preaching the gospel of the green city' on the other.

This contradiction can be seen in the case of the Lutkemeerpolder located between Amsterdam Nieuw-West and Schiphol International Airport. The Lutkemeerpolder has been used for agricultural production since 1908 and is the last piece of land used for large-scale food production[1] in Amsterdam [117]. In 2013, the municipality of Amsterdam approved plans for the Business Park Amsterdam Osdorp II to be developed by Schiphol Amsterdam Development Company (SADC) [117]. In 2017, one of the farms on the polder, de Boterbloem (The Buttercup), had their user agreement terminated and there have been a series of appeals by a former alderman and Behoud Lutkemeer (Conservation Lutkemeer). All the appeals have been dismissed, even after The Buttercup received 13,000 signatures from residents for the continuation of the care farm. A care farm is a farm that combines food production with programs for addicts and homeless people with psychological problems [118]. In 2018, the municipality of Amsterdam made a statement that it would cost around €33 million ($34.8m) to revise the zoning of the land use plan [117]. As of 2022, one participant stated in his in-depth interview that The Buttercup raised some €200,000 ($211,000) and a donor gave another €1 million ($1,060,000), "*so it's more or less now on the desk of the municipality again*."

Lastly, it was mentioned by two participants that agricultural land is also under pressure from the transition to clean energy. A3 stated that "*we have to be very careful with energy transition that we do not have only solar panels above our grasslands*" that are used for dairy cows. They went on to state that "*we have to keep our focus on the food strategy, but not shut our eyes completely for the other transition*." The sustainability agenda for the municipality of Lelystad put it nicely: it is unsustainable to use fertile agricultural land for generating energy, like solar parks, and an optimal combination to achieve both goals must be explored further. In addition, two participants commented about the use of solar panels on rooftops and in greenfields.

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[1] 'het Amsterdamse Bos' farm is primarily focused on catering and grazing cows for education purposes [117]..

Here SJ is framed around livability, Green Cities, farmland preservation, and tensions with the clean energy transition. The implications on current and future spatial justice are discussed in sub-section 4.4.3.1.

4.7.3.2. FOOD SECURITY & JUST ACCESS

According to the municipality of Amsterdam, one in five households live in poverty and that it is the municipality's legal responsibility to actively implement policy to alleviate poverty [119]. In the Netherlands, poverty is measured by the general level of prosperity in society [120]. According to CBS, the most vulnerable groups are those with lower levels of education, receive social assistance, ages 55-65, single-parent families, and refugees [121]. Income inequality is relatively low in the Netherlands with a risk of 13.2%, well below the European Union average [122]. This is because of high income tax on the wealthy and increased government spending that creates a strong social security and healthcare system [123].

A 2014 study on food insecurity among Dutch food bank recipients found that 40.4% of recipients reported very low food security [124]. Of that percentage, 56.6% reported that they had to skip a meal in the previous three months because they could not afford food [124]. No data was found on the AMA level for food insecurity. During the COVID-19 pandemic, the Red Cross distributed food aid across the Netherlands – 2,200 shopping cards and food boxes per week – to undocumented migrants, the homeless, labor migrants, students, entrepreneurs, and single-parent households [125]. Traditionally, food aid in the Netherlands is managed by private charities and social organizations, but the central government gave €4 million ($4.2m) to fund insufficient food supply and increased costs due to the pandemic [126]. Additionally, another study found that Dutch residents perceived changes towards decreased food security during the COVID-19 pandemic [127]. More than half of the participants of the study reported eating less fruits and vegetables and less healthy in general [127]. Again, no data was found on the AMA level.

The municipality of Almere states that the COVID-19 pandemic highlighted how vulnerable many families and stakeholders in the food chain are [101]. Therefore, the local level is 'crucial' to ensure access to food for the most vulnerable inhabitants [101]. When asked if there were parts of region that do not have access to fresh fruits and vegetables, two participants stated that it is 'not like food deserts (voedselwoestijnen) in the United States,' while one participant said the outskirts of the city. A food desert is defined as a geographic area where access to healthy and affordable food options are severely limited [38]. There is a high supermarket density in the Netherlands, therefore, from this perspective the availability of food physically nearby is not an issue in food security [125]. In addition, there is adequate infrastructure for bicycling and public transportation (Appendix 9.6.), which makes it easier to access certain locations. Nevertheless, Silvis, Bergevoet, and Dagevos state that *"food insecurity at a generic level is quite different from food security for certain (vulnerable) groups who more quickly end up in situations of food insecurity due to poverty"* [125].

Coincidingly, most participants referred to the 'lack of money in the wallet' to buy healthy foods and the health repercussions of cheap, processed foodstuff with a lot of salt and sugar. A1 stated that the central government has "*made it worse because they have raised the taxes on fresh vegetables and fruits instead of lowering it*," and says it has been met with a lot of opposition. Interestingly, A3 mentioned that there are plans with the Farmer and Neighbor initiative to offer 15 kilo bags of fresh fruits and vegetables for around €6 for

those with the *'smallest wallets.'* A4 expressed that the municipality of Almere offers these types of initiatives but that residents do not know about it.

All participants stated different obstacles in creating more just access to fresh foods – income policy, spatial planning of healthy food outlets, food sovereignty, and short food chains. A1 stated income policy as a challenge. They also mentioned that the large spending of the Amsterdam Approach to Healthy Weight program that has been 'fairly unsuccessful,' in the sense that obesity has gotten worse among immigrant populations. Two participants mentioned the difference in the spatial availability of healthy/unhealthy food outlets. A5 mentioned a project by the Gemeentelijke Gezondheidsdienst (Municipal Health Service), the municipality of Amsterdam, and Flevo Campus that mapped the hotspots of healthy and unhealthy food establishments in the city. It was found that 85.6% of all food retail outlets in Amsterdam are considered unhealthy and this map can be found in Appendix 9.7. [128]. A5 then said that *"if you do not dedicate space to more healthy food outlets, it is not going to happen by itself,"* but that there are various legal issues that the municipality faces from food outlets due to restrictions. This focus on the health part of food access is corroborated by the Quirkos emblematic theme Health stated above. When asked how they envisioned the RFS affecting the spatial configuration of the region, A4 expressed that it would be nice to walk out of the train station and see a matching vision of a healthy, green food environment, *"not a Burger King and McDonald's."* Interestingly, A3 mentioned that a big trend in the coming years will be "*food as the new medicine*" and there are considerable illness funds from the central government and private institutes that are going into the RFS.

An additional barrier to just access was framed around food sovereignty - the cultural appropriateness of food items and edible landscaping. A5 specified that food access is not only about obesity, but about the social food environment where people with different cultural backgrounds can find appropriate food for their diet. A4 mentioned that when residents get their packages of fresh foods there is not a lot known afterwards – in the sense that does the package fit into their lifestyle, and if not, is there more education needed? A2 stated that while culinary heritage enriches the diet available in cities, it also has a negative impact from the *"highly unsustainable"* practice of importing foreign goods. Consequently, AMA farmers should be growing culturally appropriate produce, but that raises the prices. Furthermore, the Voedselvisie voor Haarlem (Food Vision for Haarlem) document produced by Harlem Food Future envisions food sovereignty through a 'good connection' of different stakeholders in the regional and national food system and the creation of edible landscaping in public space [129]. The municipality of Haarlem states that edible landscaping promotes health of inhabitants and can set a good example for other municipalities. The municipality of Almere also promotes edible landscaping as a way to create a Green City [101].

Lastly, A3 added that one of the biggest challenges is getting a fair price for the farmer since creating a short food chain means creating a different logistic system in which prices are still very high and investment is needed. RaboBank's Food Forward platform is investigating the Taskforce Short Chains bill signed by the Minister of Agriculture to help make regional products mainstream. The CEO of Rabobank Amsterdam stated that Greater Amsterdam is the region in the Netherlands *"suitable for developing and testing the food of the future"* and provides a space for experimentation with distinctive regional production methods and products [130] [76]. This is because of a large share of purchasing power and an above-average share of people interested in trying new foods like meat/dairy substitutes and local organic food [130] [76]. Additionally, the municipality of Almere is working with the

Flevo Campus to experiment with 'zero-kilometer' supermarket shelves [101]. However, the Amsterdam Circular 2020-2025 Strategy voices that regional and sustainably produced food is often more expensive due to global market prices not considering the price for deforestation and resource depletion [105].

Here the discourse on food security pertains to income inequality, spatial restriction of unhealthy food establishments, food sovereignty, and short food chains. Implications on SJ will be discussed in sub-section 4.4.3.2.

4.8. AMSTERDAM METROPOLITAN AREA CASE STUDY DISCUSSION

In this sub-section, the results of the AMA case study will be viewed within the theoretical framework. The first sub-division assesses the comprehensiveness of the RFS. The second sub-division highlights the two narratives in the RFS and the resulting conflicts resulting. The third sub-division debates current and future spatial implications due to how discourse used. The fourth sub-division is an assessment of SJ based on previously set out criteria that was adapted for sustainable and just food system transformation.

4.8.1. ASSESSMENT OF THE AMSTERDAM METROPOLITAN AREA REGIONAL FOOD STRATEGY

The high rate of declined and ignored interview requests suggests that RFS is still a new concept for many relevant organizations in Amsterdam. The data collected describes the AMA's RFS as a more formal, top-down initiative mainly by governmental organizations. In order to assess the comprehensiveness of the AMA RFS, Marsden's [18] six important criteria will be discussed:

1. *OVERARCHING VISION:* the RFS is distinctively concentrated around the emblematic themes of sustainability, circularity, economy, health, local government, and farming. The concentration of these topics routinely coming up together suggests a concentrated effort to solidify goals in the RFS.

2. *INTEGRATIVE APPROACH:* this is starting to happen through the platform Voedsel Verbindt (VV), and all levels of government are involved. However, two participants stated it is 'still rhetoric' and could gain 'more momentum.' Additionally, there is a lot of frustration with the fragmentation of the MFS in Amsterdam across multiple departments because there is no ownership and funding. While some participants fear the 'gospel of intensification,' a 2021 study found that the governance style of property development in Amsterdam was also a 'fragmented policy landscape' characterized by divergent attitudes, intra-organizational discrepancies, and contradictory regulations across diverse scales of governance [82].

3. *RAISING THE PUBLIC AND POLITICAL NEED FOR CHANGE:* A1 said there is 'growing awareness' among the general public about food system challenges. Furthermore, the

involvement of all scales of governance indicates that there is political awareness around the need to transition to a sustainable food system.

4. *WIDER INVOLVEMENT OF STAKEHOLDERS:* this is still a challenge for the AMA RFS. VV engages with stakeholders like Rabobank, both provinces, the municipalities of Amsterdam and Zaanstad, in addition to the prominent food business in international food trade, farmers, and entrepreneurs. However, multiple participants stated that local social food movements are not well included and that the governance style of the municipality of Amsterdam can be 'patronizing.' Moreover, all participants stated that important stakeholder groups are missing like those of different cultural backgrounds and those who are of lower socioeconomic status. No suggestions were made on how to improve this.

5. *MECHANISMS AND METRICS TO EVALUATE AND MONITOR PROGRESS:* these are different between municipalities and could be unified under the RFS. In addition, tying the RFS to already established monitoring mechanisms like the donut economy for evaluating CE could crystalize the transition to a sustainable food system.

6. *HARNESSING CULTURAL CHANGE AS AN EXPLICITLY SPATIAL STRATEGY:* as stated above, all (vertical) levels of governance are included in the RFS, some of which have more spatial impact than others. However, the RFS is not being integrated horizontally i.e., fragmented across multiple municipal departments and there has been no impact at the level of spatial planning. It is noticeable that there is a shift away from the traditional Dutch way of urban planning in that there is no longer the strong notion of keeping nodes of urbanization interspersed among agricultural areas. The halving of the number of farms over the last 20 years hints at a continued effort in the ideological concept of FS based on increasing yield on smaller parcels by way of genetic engineering and new modes of technology for farming [19]. Furthermore, there are still differences in ideologies and assumptions of what the RFS should be, thus, a cultural change has not occurred as a spatial strategy [26]. Lastly, the RFS is only provided in Dutch and English, which leaves out the other 178 different nationalities that live the AMA. While it may not be feasible to translate the RFS into every single language, the translation into the most common languages used would increase stakeholder engagement, visibility, and accessibility [26]. This would go beyond narrow regulatory frameworks of spatial planning and toward a more inclusive UFG that creates transparency and solidarities in the 'right to the city' [26].

4.8.2. DISCOURSE USED IN THE URBAN FOOD GOVERNANCE PROCESS

The talk and text produced and reproduced in the AMA is different between talk and text. A majority of the documents, and one in-depth interviewee, were classified as the Bio-Economic paradigm. The rest were of the Eco-Economic paradigm. The following paragraphs explain the AMA RFS with reference to both paradigms' views on how transitioning to sustainability should be accomplished, drivers of change, spatial characteristics, and views on place related to the AMA RFS.

The Bio-Economic Paradigm is the dominant discourse of the AMA RFS. Eight out of nine documents favored this discourse concerning how transitioning to sustainability should be accomplished, drivers of change, spatial characteristics, and views on place related to the AMA RFS.

It should be first noted that the discourse within this paradigm is Malthusian inspired. For example, the director of Food & Agri MRA at Rabobank expressed that *"by 2050, the world will have ten billion mouths to feed (so) global food production must increase"* [106]. To reach this goal, sustainability in the food system must be achieved through sustainable intensification – the increasing of yield on a decreasing amount of land by the genetic engineering of crops and bio-based products [19]. Firstly, Seed Valley in Greenport North Holland North is one of the biggest companies globally for seed breeding for new varieties of plants that *"give higher yields, are resistant to drought, or which are suitable for modern cultivation methods"* [131] Greenport North Holland North is also currently working with knowledge institutions to research topics such as digital and smart farming [108]. To deal with the challenge of aging farmers, Greenport North Holland North also has multiple education programs for young adults and is committed to strengthening the relationship between business and education as to provide *"enough innovative entrepreneurs and employees for companies"* [87]. Secondly, one of the six angles of VV is finding 'smart solutions' for raw materials in the region for a bio-based economy. The repercussions of a bio-based economy raw materials away from the food system is beyond the scope of this thesis. This viewpoint relies on technical innovation, the dissemination of knowledge, and stimulating business in open cultivation are seen as drivers of change [87]. Thus, science and industry supported by the government are a 'must' to prevent future food shortages [20].

The spatial characteristics of the Bio-Economic viewpoint are distinctive monofunctional clusters of economic food geographies that facilitate knowledge 'spillovers' among 'related' industries [19]. The concept of Cluster was mentioned in three out of nine documents. In the Agri & Food in de Metropoolregio Amsterdam (Agri & Food in the Metropolitan Region of Amsterdam) document, AEB states that *"well-organized cluster(s)"* of sharing and developing knowledge for a positive impact on the regional food economy [106] [87]. By strengthening the Agri & Food cluster in the AMA, the Amsterdam Economic Board intends the cluster to become a top innovative region of Europe, thus, positioning Amsterdam as *"a global business hub: a hub of trade, people and information"* [106]. Moreover, VV is modeled after the Greenports, which are spatial economic clusters that function as logistic 'mainports' for the entire agri-food chain [107]. Subsequently, these clusters become a dis-embedded and performative view of place the further the urban-rural divide [19].

Interestingly, the platform for the RFS (VV) in both talk and text was overwhelmingly Bio-Economic discourse with 53 citations and 13 citations for the Eco-Economic paradigm. However, as for how to transition to sustainability should be achieved, it is through facilitating the connections between different types of stakeholders, which is an Eco-Economic belief. Yet, keep in mind that there are differences in meaning between cooperation, coordination, and collaboration. Cooperation entails separate goals with an agreement to not interfere with each other. Collaboration means the act of creating something collectively which would not have been possible individually. Coordination means a coordinator directs the actions of stakeholders to achieve a common goal. In VV's Reconnaissance document, VV mentions cooperation nine times, collaboration 17 times, and coordination four times.

The Eco-Economic paradigm was cited in three out of nine documents and by 3 participants. Out of all the documents, the municipality of Almere was the most Eco-Economic. As stated in the previous paragraph, relationship building, facilitation, and education/outreach events were the most mentioned ways to move from discussion to action. This corresponds with the Eco-Economic viewpoint that the involvement of a wide range of local stakeholders and social movements as a driver of change in the transition to sustainability [19]. However, the sentiment of local social movements that they are not involved as much as they would like leads to a lack of *"rooting"* of the RFS. Furthermore, A1 criticized the industrialized, globalized food system for damaging the environment by way of unhealthy soils, polluted water systems, etc. This is concurrent with the Eco-Economic paradigm's challenging the assumptions and framing of the dominant agri-food model and the negative externalities [18]. Therefore, a more place-based view of place was cited by these participants and the municipality of Almere. For example, the municipality of Almere states that there needs to be an improved connection between urban and rural areas with strong network connections that will raise awareness of 'knowing where your food comes from'. This corresponds to the spatial characteristics of the Eco-Economic viewpoint. Moreover, the multifunctionality of food was referenced multiple times over talk and text as a way of achieving a sustainable region. Most prominently related to SJ is the case of the Lutkemeerpolder and the negation of the farm's multifunctionality by the municipality of Amsterdam as a legitimate reason for the polder to not become a Business Park. Additionally, there are two municipalities that are advocating for edible landscaping to increase resilience by reorganizing the intersections between society, environment, and economy [19]. Lastly, three of the Bio-Economic documents mentioned biodiversity (an Eco-Economic concept) as an important goal for future urban (re)development.

The two divergent views on the future of the food system in the PMA has led to *"complicated"* relationships between stakeholders. A1 stated that the RFS has not been truly participative and that is it a *"very elitist movement at the moment."* This corresponds with the top-down governance style found above. Furthermore, A1 stated that the RFS is a *"formal strategy for their own profits"* and that *"affordable food for low-income people is not a priority."* Furthermore, there are frustrations by participants over the fading interest after election cycles that has led to no ownership of the food agenda, unsuccessful implementation of previous promised municipal initiatives, and little to no funding for current or future initiatives. However, all of these issues of intra-organizational discrepancies, lack of overarching goals, and divergent attitudes were also found by Tasan-Kok and Özogul in their study of the governance style of property development policy in Amsterdam. Since the biggest challenge for the food system is the competition for space for housing policy, it seems as if there are just fuzzy narratives around policy agendas which in turn create fragmented relations and a 'chaotic' governance style [82].

4.8.3. DISCOURSE USED & IMPLICATIONS ON SPATIAL JUSTICE
4.8.3.1. CONTESTATION FOR (URBAN) SPACE
In the sub-section 4.3.3.1., implications on SJ were focused on themes like livability, Green Cities, farmland preservation, and tensions with the clean energy transition.

The sentiment of the MRA 2050 Comprehensive Plan that not all ambitions for urban space will fit together and only some will be financed implies a domination over space that is controlled by the political elite who get to determine the allocation of basic amenities that fit their agenda. This is contradictory to the statement that the urgency is high to create a

livable AMA with equal opportunities. Furthermore, the domination over space becomes more prominent when viewed with the contradictory statements over the future spatial development of the Harlemmermeer and Flevoland polders. On one hand, there is the cultural and historical agricultural value of these polders that 'must be preserved' and remain necessary for food supply. On the other hand, these polders are set to be sites of overflow housing for the Randstad after 2030. These conflicting viewpoints within the same document highlight how discourse is used as a form of power and how space is used as a social instrument of production and control over society. As many participants fear, the 'gospel of intensification' might overrule.

Additionally, the switching of land uses away from farming in the Gooi en Vecht region negates the vital resources that agricultural production gives to not only the region, but to the world. Similarly, the battle over the Lutkemeerpolder and the invalidation of the multifunctionality of The Buttercup as a legitimate reason to not become Business Park voids their rights to embed different dynamics into the social and spatial fabric of the AMA and contribute to the development of their city [35]. Moreover, The Buttercup's rights to own the land they farm on is not being recognized and protected which is leading to displacement across spatial and social structures, and therefore, leading to spatial injustices [33] [30]. Finally, the plans for the polder as a Business Park, even with strong opposition from the community, emphasizes how the cultural categorization space informs who can participate and certain possibilities for interaction in the urban (re)development process [30]. This is interesting because the Lutkemeerpolder actually fits into the cultural categorization of space seen with the promotion of Green Cities by the municipal, provincial, and central governmental policies. Even the MRA Comprehensive plan states that the implementation of 'nature-inclusive' spatial development at all scales of governance is vital. The preservation of agricultural land within the AMA will remain necessary for the transition to a sustainable regional food system *and* a circular economy.

The Amsterdam Circular 2020-2025 Strategy report states that circular food production in and for urban areas is a 'building block' for the future. However, almost every document and some interviewees have relegated UA to mainly a *"social function: awareness, participation, and connection,"* and not the amount of food it could potentially supply to inhabitants for FS purposes [105]. The choice to formulate and maintain one specific function of UA gives prominence to how discourse is produced and reproduced as a powerful tool to control access to resources and opportunities, and sheds light on how public space is treated and viewed [30]. Coincidingly, de Bruijn found that UA practitioners were frustrated with the municipality of Amsterdam's inability to appreciate that holistic nature of their work pointing towards an exclusive governance process with preestablished laws, rules, norms, habits, and space (cite; [6]). Additionally, de Bruijn states that *"the lack of growing space constrains both the scaling up of existing projects and the creation of more growing enterprises"* [99]. This statement again highlights the displacement of UA across spatial and social structures in the uneven development patterns of the AMA. Furthermore, it emphasizes how micropolitics are enacted through everyday talk and text in light of a specific vision of future food systems because 'UA can never feed the whole city.'

Lastly, the competition for space and vital resources can be seen in the challenge of transitioning to clean energy while also transitioning to a sustainable food system. There is a lot of discourse around smart mobility and logistics in Amsterdam. The ecological footprint (CO2 emissions) of the AMA's food system was also tied to clean energy and sustainable mobility. Amsterdam's Circular 2020-2025 Strategy document articulates that

"40% of a city's ecological footprint is determined by the way the city is supplied with food" [105]. The fossil fuel required for production, distribution, and consumption in addition to the amount of space occupied worldwide for production [105]. Therefore, VV is looking at how electric or hydrogen-powered transport can help this intensive food logistics region work towards becoming an energy neutral sector [87]. However, A5 questioned: *"how far (can we) reform the system?"* They expressed that finding more environmentally friendly ways to transport food in the food chain is an improvement but does not necessarily change the structural environmental pressures.

4.8.3.2. FOOD SECURITY AND JUST ACCESS

In the sub-section 4.3.3.2., the implications on SJ were income inequality, spatial restriction of unhealthy food establishments, food sovereignty, and short food chains.

Regarding income inequality, the adamancy of most participants that there are 'no food deserts' in the AMA like in the United State is partially false. Wolf-Powers states that despite having food outlets *spatially* accessible, the primary barrier is still *a lack of income* [37]. Furthermore, Shannon argues that food deserts are a subset of the socio-spatial research of 'obesogenic environments' areas that have less opportunities for healthy eating [132]. The heavy focus on health, especially for low-income residents, in the Netherlands is problematic because it carries on the social stigmas of 'inappropriate behavior' of individuals who inhabit these neighborhoods while negating the economic and racial structural elements that shape places [133] [132]. It has been found that prosperity is not shared equally in the Netherlands – the top 20% earn four times as much as the bottom 20% – and that unemployment is a bigger problem for migrants, especially those of non-western backgrounds [134]. These observations are currently contradictory to the municipality of Amsterdam's six ambitions for urbanization: inclusive, sustainable, vital, healthy, livable, and compact [114]. This highlights how discourse holds symbolic power by legitimating arbitrary social distinctions that are not intrinsically spatial but gain solidarity when expressed through physical space [44]. The reassessing of zoning to spatially restrict unhealthy food outlets is a step in that direction. As Uwayezu and de Vries note, SJ can be achieved by re-developing urban areas through mandatory rules that ensure residents' basic needs are met regardless of where they live [7].

Only the municipality of Almere specifically sets out the notion of food sovereignty in their food strategy: *"the ambition (is) to make healthy food choices attractive, affordable, and accessible to all residents"* [101]. The municipality of Almere states that the COVID-19 pandemic highlighted how vulnerable many families are [101]. Therefore, the local level is 'crucial' to ensure access to food for the most vulnerable inhabitants [101]. The municipality of Almere states that shortening of the food chain by increasing points of sale through initiatives like Farmers and Neighbors could provide *"fresh, locally produced, and affordable foods"* for everyone [101]. However, while the aim to create a short food chain in the AMA is necessary to source food regionally, it could also potentially be responsible for the displacement of residents across both spatial and social structures. As one participant stated – the creation of a different logistic system still needs a lot of investment – which would increase the price of the regionally produced projects. Additionally, the Amsterdam Circular 2020-2025 Strategy voices that regionally and sustainably produced food is often more expensive due to global market prices not considering the price for deforestation and resource depletion [105]. The increased prices for regional products based on concepts like 'locality, quality, and sustainability' would create a specific cultural and economic pattern of

food provisioning based on affluence and appropriation of urban space [40] [41]. The inequality of purchasing power of lower-income residents would not let them be able to afford such products, and therefore, can be interpreted as a gentrification of the food system [39].

The results of this section and the one above indicates that the AMA is facing a new urban food geography filled with complex and interconnected challenges. One where residents will increasingly lack access to decent food and basic food infrastructures in the spatial restructuring of metropolitan areas. This is discussed further in the following section.

4.8.4. ASSESSMENT OF SPATIAL JUSTICE

In order to assess SJ in the present and future planned RFS activities, the criteria set out by Uwayezu and de Vries were used [7].

The experiment of Quirkos revealed that the RFS is being organized around the emblematic themes of health, economy, local government, farming, sustainability, and circularity. The key concepts such as sustainability and CE emerging in all of the top 5 themes indicates a strong interrelationship that is being produced and reproduced without a lot of challenge. However, there is a merging and transformation of the dominant Bio-Economic paradigm towards an Eco-Economic approach of stakeholder engagement and importance of biodiversity. Yet, there are questions about if this is social washing and greenwashing or not? Greenwashing is the use of environmental concerns and social washing is social concerns to promote products, policies, or activities that actually have the opposite consequences [135].

Furthermore, the RFS is being implemented top-down and there are frustrations that include – local civic movements feel that they have not been involved, issues with a 'patronizing' attitude, as well as the fragmentation of the food agenda across multiple departments which has resulted in a lack of ownership and little to no funding and few objectives having been accomplished so far. All participants felt they have influence over the implementation, but only three participants felt that they have some authority in the creation of the RFS. Moreover, the wider involvement of stakeholder groups, like those of different cultural backgrounds or those of lower-economic status is partial to non-existent in the RFSs and MFS. This is also relevant to the broader urban (re)development programs in general making it impossible to re-calibrate power relations [18].

Additionally, there is no recognition or protection of residents' rights to land or food resources. First, there is a denial that there are food deserts in the AMA. This was disproven above by Wolf-Powers statement that the biggest barrier to food access is 'money in the wallet' and less about physical proximity [37]. Thus, there is contestation and negotiation around the symbolic meaning of food and space within the AMA that is being used to maintain and legitimize arbitrary social distinctions that gain solidarity when expressed through physical space [44]. Second, the promotion of a shorter food chain, while necessary, could potentially gentrify the regional food system by increasing prices for regionally produced products. Third, the competition for urban space has seen the push of food production away from the inner metropolitan area, i.e., Lutkemeerpolder and UA in Amsterdam, even though it is stated multiple times in future spatial development and green agendas that it has a place in the city. In general, there is no adequate compensation rights that have been infringed upon by the urban (re)development project, i.e., The Buttercup on

Luktemeerpolder versus the Business Park. This is concurrent with Sonnino's statement that a productivist discourse fundamentally separates rural intensive production systems and mass urban consumption spaces both ideologically and physically. This will not only increase spatial inequalities, but it will also decrease access to basic urban food amenities. This is important because it affects food insecurity issues for *all* residents as well as the spatial fabric of the AMA.

4.9. AMSTERDAM METROPOLITAN AREA CASE STUDY CONCLUSION

By contextualizing the recent global phenomena of RFSs in the local setting of the AMA, this case study contributes to the understanding of how RFSs might impact SJ in the future.

The DA revealed specific discursive structures framed around health, sustainability, food production, and the circular economy that is used in the discussion and implementation of the RFS. These emblematic themes illustrate the cultural beliefs and values in the AMA that are used in the transition to a more sustainable food system.

The dominance of the Bio-Economic paradigm reveals that there is a more productivist technological intensification that focuses on clustering agricultural spatial activities outside of Amsterdam. Therefore, there is a replication of the same current food geography of rural production and urban consumption. This food geography will only continue to increase food insecurity, as seen by the COVID-19 pandemic. Furthermore, the concept of 'no food deserts in the Netherlands' brings to light the socio-spatial dialectic between different groups that are literally producing geographies of food injustice in lower-income neighborhoods. Additionally, there is a potential of a shortened food chain in creating a gentrified foodscape. A recommendation would be to increase communication in different languages about culturally appropriate produce that is being grown in the AMA, which would increase the demand and decrease prices in a shortened food chain.

Furthermore, while the Bio-Economic stakeholders state they are engaging a wide range of stakeholders, this was not the sentiment of Eco-Economic participants, one who said that *"relationship is complicated"* and that the RFS is only for the profit of the Bio-Economic paradigm. Moreover, the food agenda needs to be integrated into one department in municipalities so that a change in political parties does not affect the ownership or funding of projects. However, this seems to be a broader issue of a 'fragmented policy landscape' with fuzzy narratives across different scales of governance [82]. Therefore, there must be a practice of transparent governance so that AMA residents have equal opportunities to participate in the 'right to their city.' Lastly, though the AMA has sufficient agricultural capacity to supply the needs of residents,' the metropolis is largely dependent on importation. In addition, the economy of the AMA is contingent on the high amount of processing and exportation of foreign goods. To address the wider political and socio-economic context of food insecurity in the AMA, there is a need to 'bridge the gap' between conflicting stakeholders and create a common language.

In thinking about whether the RFS in the AMA replicates spatially inequitable food systems, there are more questions than answers at this point. Will migrant and poor stakeholders be included in the RFS? Will UA have a place in the Green Circular City of the future or will the 'gospel of intensification' win? Are the Bio-Economic stakeholders social washing and greenwashing their image? Interestingly, VV posted that the war in Ukraine has increased the interest of residents in regional food cultivation [136]. Will this increase the visibility of the RFS?

5. PHOENIX METROPOLITAN AREA CASE STUDY

In this section, the results of the PMA case study will be presented. The first sub-section discusses the background context. The second sub-section examines the current state of agriculture in the PMA. The third sub-section presents the results from the methodological inquiry in relation to the research questions. The fourth sub-section connects the results to the theoretical framework.

5.1. PHOENIX METROPOLITAN AREA CONTEXT

In this sub-section, the geographic, cultural, economic, and political background context of the PMA case study are discussed.

5.1.1. GEOGRAPHY

The Phoenix Metropolitan Area (PMA) consists of Maricopa County and portions of Pinal County. This metropolis is also described as Phoenix-Mesa-Glendale Metropolitan Statistical Area and Phoenix-Mesa-Scottsdale Metro; for clarity Phoenix Metropolitan Area (PMA) will be used. The total land area for the PMA is 14,587 square miles (37,780 square kilometers) and the population of the PMA in 2020 was 5,059,909 [137] [138].

The PMA is located in the Sonoran Desert, a low or subtropical desert, with temperatures ranging from a high of 122°F (50°C) to a low of 17°F (-8.33°C) [139]. It lies in the basin of multiple mountain ranges with the Salt River and its tributaries flowing through it [140]. Figure 9, an orthophoto of the PMA, emphasizes the desert nature of "the Valley of the Sun."

Figure 9 – Maricopa County and Pinal County [141].

Arizona, along with the western United States, is entering its 22nd year of drought, considered a mega-drought [142]. By 2100, the Southwestern United States is expected to see 85 more days each year with temperatures over 100°F degrees [143]. Figure 10, a drought map, shows the severity of the water crisis. In the 1960s, the Central Arizona Project (CAP) program was set up to divert water from the Colorado River by canal systems because farms were depleting ground and surface water [142]. Agreements established in 1922 divided Colorado River water among seven Southwestern states, of which Arizona is the most junior in water rights [142]. Water in Arizona is allocated proportionately: about 25% agricultural, 33% towns and cities, 10% Native American communities, and 33% to replenish underground aquifers [144]. Recently, farmers had trouble repaying CAP loans and struck deals with higher-priority users, like the city of Tucson and Indigenous communities [142].

In 2019, the Drought Contingency Plan (DCP) was designed to protect the Colorado River system and reservoirs falling below critical levels through voluntary reductions and increased conservation [145]. Originally, farmers had continued water rights through 2030, but the severe drought has led to immediate cutbacks and an end to guaranteed water supply as of 2022.
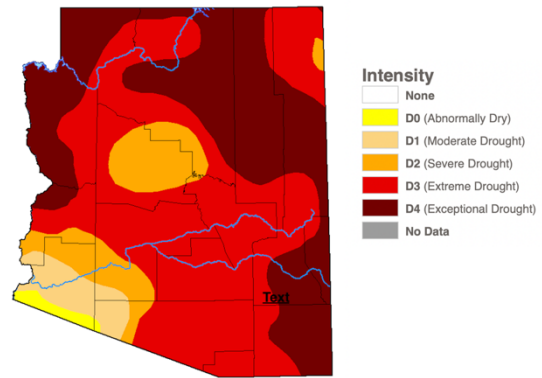

Figure 10 – Arizona drought map in July of 2021 [146]*.*

5.1.2. CULTURE

The PMA grew 18% from 2010-2019, making it one of the top 10 fastest growing metropolitan areas in the United States of America [147]. The Maricopa Association of Governments (MAG) has projected a population of 7,595,100 by 2055 [148]. The median age for PMA residents is 36.9 with an even gender split – 49.7% male and 50.3% female [149]. Non-binary and gender-nonconforming people have not yet been included in US census reporting. The ethnic composition of the PMA: 55% white, 31% Hispanic, 5% Black or African American, 4% Asian, 2% Native American, and 3% multiple races or other [137].

The median household income for PMA residents is $64,427 (€55,502) per year in comparison to the national average household income of $41,950 (€39,972) per year [137] [150]. The average hourly wage is $26.38 (€22.73) [151]. However, in 2020 it was estimated that around 12% of people of all ages were living in poverty in both Pinal County and Maricopa County [152] [153].

5.1.3. ECONOMY

In 2019, 69% of the total exports of the state of Arizona were from the PMA estimated at $15.1 billion (€13.01b) for the industries of aerospace products and parts, electronic components, navigation and electro medical instruments, fabricated metal products, and electrical equipment [137]. The top countries importing from the PMA were Mexico, Canada, China, India, and the United Kingdom [137].

5.1.4. POLITICAL

Arizona is a political swing state with top state leaders currently Republican. However, in the 2020 presidential election, the state swung Democrat and elected Joe Biden [154]. Past political affiliations have also tended to lean towards the Republican party [155]. Fink stated that the libertarian governance style of Arizona favors top-down policymaking led by the private sector concerning the topic of urban development [156].

5.2. CURRENT AGRICULTURE IN THE PHOENIX METROPOLITAN AREA

In this sub-section, agricultural data is used to understand the ability to feed metropolitan area residents.

With the possibility of planting or harvesting every month of the year, Arizona produces leafy greens, cabbage, dates, melons, citrus, apples, potatoes, tomatoes, corn, wheat, olives, nuts, dates, and meat products: poultry, swine, cattle, dairy, fish, and shrimp [157]. In 2018, Arizona exported agricultural products to 70 countries and across the United States which created $23.3 billion (€20.09 billion) in revenue in 2018 [157]. According to the Arizona Farm Bureau, Arizona is tenth in the United States for organic production and the fastest growing product groups are nuts, especially pecans, and wine [158]. In 2017, there were 162,000 agricultural workers, 40% women, with an average age of an Arizonan farmer of 58 [157]. Interestingly, Indigenous farmers make up 57% of the agricultural operations, majorly women, farming 20.6 million acres (8.33 million hectares) [157].

In 2017, there were 2,600 farms in the PMA with a combined gross annual sale of $2.1 billion (€1.81 billion) [159]. The average age of farmers in the PMA is 59 years old, majorly white, and split between male – 57% – and female – 43% [159]. Four Indigenous communities own 77 farms totaling 456,000 acres (184,536 hectares) [159]. Figure 11 shows the harvested acreage by type of product. The largest share of harvested acreage in the PMA is silage and greenchop for local livestock feed [159]. The smallest share includes food products: fruits and nuts, vegetables, and grain [159]. Furthermore, livestock and animal product farms are 46% of total farms and attributes 62% of agricultural production value for on-farm agriculture in the PMA [159]. In 2019, on-farm production within the PMA contributed $4.3 billion (€3.71 billion) annually, supporting over 13,000 direct jobs and 11,000 indirect jobs [159]. The top countries exported to are Canada, Vietnam, Mexico, Saudi Arabia, and China [159]. The top countries imported from are Mexico, Chile, Peru, Canada, and Thailand [159]. For more detailed information on exported and imported products by country, see Appendix 9.8.
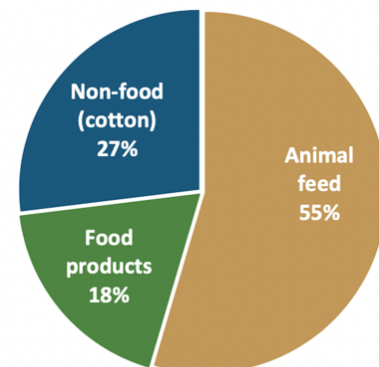

Figure 11 - PMA Harvested acreage by type of product [159].

From 2012 to 2017, the number of farms in the PMA declined from 3,417 to 2,636 [159]. More information on this is discussed in the sub-section 5.3.3.1. Only 2% of farms in the PMA are owned by large corporations and about 53% of all farms in the PMA are less than 10 acres in size [159]. Family-owned and operated farms account for 72% of these smaller-scale farms, most of which produce more than one product, such as livestock and crops to feed their animals [159].

See Appendix 9.9. for maps from the Good Food Finder showing the PMA farms and ranches, farmers' markets and retailers, food artisans, and beverage artisans [160]. The Good Food Finder is a collaboration between the Maricopa County Food System Coalition (MarCo) and Local First Arizona (LFA) to provide information for residents interested in local

food and to *"1. Create awareness of local resources; 2. Increase understanding of potential community connections around food; and 3. Identify opportunities to meet community needs through existing assets"* [161].

5.3. RESULTS

In this sub-section, the research question and sub-research questions are explored below backed by the results of the methodological inquiry. The first sub-division examines the state of the PMA's RFS and UFG. The second sub-division delves into the discourse used in both talk and text in the RFS and UFG to understand how food policy is constructed around certain emblematic themes. The third sub-division scrutinizes in what way the discourse used could potentially affect SJ in the spatial restructuring of the PMA.

5.3.1. RQ1 – WHAT IS THE REGIONAL FOOD STRATEGY FOR THE PHOENIX METROPOLITAN AREA?

In this sub-division, the state of the PMA's RFS is discussed and includes who is in charge, the budget, programs and initiatives, and monitoring mechanisms used. This is followed by a characterization of the UFG style with criteria being what stakeholders are included (or not) in the RFS, the visibility of the RFS, and the personal reflections of participants on their influence or authority in creating and implementing the RFS, and how participants move from discussion to action.

5.3.1.1. REGIONAL FOOD STRATEGY

> *"How does the fourth most populous and fastest growing county in the United States feed itself when faced with daunting land, water, and development challenges? How do we preserve our diverse agricultural heritage and grow a food system in Maricopa County that is equitable, healthy, sustainable, and thriving?"*
> *– Maricopa County Food System Coalition* [161].

In the late 2000s, food policy coalitions began to form to address PMA food system challenges [162]. P1 stated that prior attempts "*never really stuck*" (In-depth interview). P3 stated that discussions around community FS began in the late 1990s. They stated that the Community Food Security Coalition was a group of passionate community members who received funding from the United States Department of Economic Security to look at the production, consumption, and distribution "*as a whole in a non-emergency way.*" Unfortunately, P3 said, they eventually ran out of money and the group disbanded in 2012. In late 2013 to early 2014, multiple organizations started talking about farmers' markets and community gardens to improve the food environment, and how to deal with policy and systems change. Then Vitalyst Health Foundation began financially backing some initiatives to bring people together. Simultaneously, Valley of the Sun United Way was already addressing anti-hunger issues.

The MarCo, a key organization, started in 2015 to unite people interested in food, nutrition, and local food production [161]. MarCo's broad range of stakeholders include *"representatives from agriculture, health, social service, academia, food outlets, food*

processing and distribution, the private sector, foundations, and public policy agencies" with a mission *"of supporting and growing a food system that is healthy, equitable, sustainable, and thriving"* [163]. The Coalition plays the role of convener, connector, advocate, and resource to improve social connectivity, collaboration, and awareness around community food [164]. Their three strategic priorities include developing consistent messaging, supporting the adoption of policies and regulations that strengthen the community food system, and fostering urban food [164]. There are currently three workgroups: policy, urban agriculture, and food loss and food waste [165]. In the fall of 2015, MarCo received stakeholder input to determine priority areas for assessment. In 2016, they received funding from the Gila River Indian Community Grant Fund to complete a comprehensive regional food assessment [161]. The assessment emphasized *"issues facing growers, eaters, and the networks that link the two"* in addition to the *"economic contribution of on-farm agriculture, municipal policy, and the productive resources of land and water"* [161]. In 2017, the Regional Food Asset Map by Arizona Good Food Finder and Local First Arizona expanded. In 2018, the University of Arizona Cooperative Extension reviewed health and food access data as well as the economic contribution of agriculture to Maricopa County. In that year two additional reports came out: Building Community Food Networks through Community Foods by Meter, Goldenberg, and Ross and Community Food Conversations Report by Community Alliance Consulting. In 2019, the Planning Center of Tucson issued Local Food System Public Policy Summary and Falvo reported on Local Food in the Sonoran Desert: How Water and Land Influence Production in Maricopa County. The results of these collective assessments are being utilized to develop thorough recommendations for building stronger connections, especially between growers and civic leaders, and keeping the community food conversations going on food sharing and community building [161]. MarCo narrates that the key distinction between themselves and other organizations is that they put people and their relationships at the center of our thinking and efforts [161]. Moreover, MarCo engages with stakeholders in advocacy efforts at state and federal levels to *"ensure supportive policy environments and adequate allocation of resources at local levels"* [161].

P1 stated that Pinnacle Prevention (PP) helps convene the Arizona Food Systems Network (AFSN) to create a statewide sustainable food system strategy with financial support from Vitalyst Health [166]. AFSN is *"a community of local, state and regional food systems advocates, practitioners and leaders who have a vested interest in collaborating to improve the food system for all Arizonans"* [166]. AFSN plays an integral role in food policy advocacy work in the Arizona Senate. P1 stated that Double Up Food Bucks took a couple of tries to be approved and that AFSN helped in passing the new Agricultural Workforce program (Senate Bill 1150) that provided over $1 million (€950,000) between 2022 and 2024 to develop the Arizonan agricultural workforce [167]. Finally, they hold monthly online meetings, Lunch & Listen AZ Anti-Hunger and Food System Advocacy, and bi-weekly Tribal Food Sovereignty calls with Local First Arizona and Partnership with Native Americans [168].

LFA is another organization in the creation and implementation of the RFS for the PMA. LFA is a nonprofit organization that works with community and economic development [169]. In 2019, they brought together local restaurants, caterers, and farms to provide high-quality meals to families affected by COVID-19 [170]. Furthermore, there is an employee from the city of Phoenix's Office of Environmental Programs and Public Health Department (OEP) interested in brownfield redevelopment and utilizing these spaces as food spaces after remediation of contamination. In 2020, LFA partnered with the City of Phoenix, the City of

Tempe, and Arizona State University to tackle challenges in the local food system by starting Urban Living Labs on topics such as conserving farmland, helping local food businesses, adopting sustainable practices, and elevating Indigenous leadership [171].

When asked about the overall functioning of the RFS, the consensus of in-depth interviewees was that the RFS is a little chaotic, "*not at all predictable,*" and "*it's not really functioning as any kind of coherent system at this point.*" P5 expressed that "*all the pieces are there, but the puzzle parts don't fit together.*" Furthermore, there are no concrete mechanisms for monitoring and evaluating implementation. Other challenges mentioned were the lack of awareness of the general public and decision-makers, many individual programs without consolidated efforts to re-localize the food system, and the scaling up of small-scale growers against 'Big Ag.' When asked about opportunities and trends in the RFS, they suggested food sovereignty regarding diversity and inclusion of black, indigenous, and people of color (BIPOC), engagement of rural communities, forward contracting for farmers, composting of food waste, and local purchasing of local products for economic development among others.

5.3.1.2. URBAN FOOD GOVERNANCE

When asked who is responsible for managing and negotiating the RFS, two participants articulated that PP is "*trying to do it for the whole thing,*" but other than that, everybody has their silo focus focused on whomever they get their funding from and do not branch out that much (or) talk to each other. Compellingly, P1, who works at PP, said that "*it would be nice (if there was) leadership and ownership of the entire kind of work around the region, but I'd say there are still some efforts that are happening outside of the coalition.*"

Furthermore, all participants stated that the visibility of the RFS is low to non-existent.

A majority of participants also expressed that important stakeholder groups are missing from the RFS. P2 wants to see more cities and more people with authority like city council members, agencies, municipal departments, and even landowners involved in the RFS. They suggested that making things mandated would get things done, where community member organizations can say, "*No, we want this to be a priority.*" P6 voiced that everybody's perspective needs to be heard "*because to get where we want to get, we are going to need everybody on board and not pit people against each other.*" They suggested that the 'big players' like school systems, hospitals, and prisons must be involved. P3 asserted that there is always somebody unreached, and that there are always new opportunities for engagement. Most participants advocate for a collaborative process for designing and implementing the RFS.

In their personal reflections on their involvement in the RFS, most of the respondents stated that they have some authority in the creation and implementation process as people listen to them and request their help. All participants said that they have some influence in varying degrees. When asked about how they go from discussion to action, participants stated that they use relationship building, facilitation, and education/outreach to build different dynamics between stakeholders.

5.3.2. **SRQ1 –** HOW IS DISCOURSE USED IN THE REGIONAL FOOD STRATEGY FOR THE PHOENIX METROPOLITAN AREA?

In this sub-division, the top five emblematic themes ascertained from talk (interviews) and text (documents) from the methodological inquiry are explained in-depth.

5.3.2.1. **QUIRKOS RESULTS – DISCOURSE ANALYSIS**

Figure 12 is an overview of emblematic themes found in both talk and text about the RFS for the AMA. Each node, a total of 71, represents the ideas, concepts, and categories that outline the different values, visions, goals, and approaches of the RFS.

Coding data revealed that the political focus of the RFS centered around concepts such as farming, stakeholders, health, financial, and FS. Only the Top 5 will be discussed for the sake of brevity, with a figure for the emblematic theme, a brief description, and a few quotes to understand how interrelationships are produced, reproduced, challenged, and transformed through talk and text.
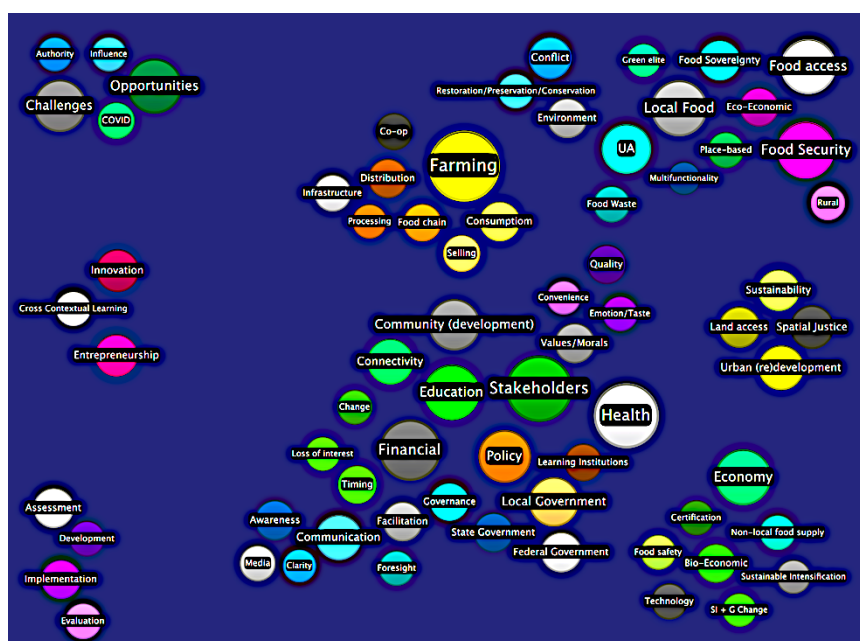

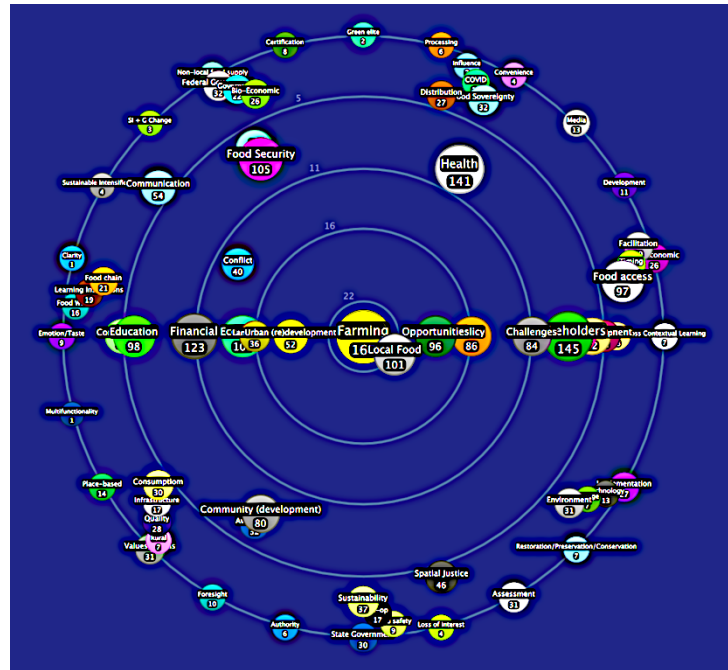*Figure 12 – PMA emblematic themes.*

FARMING: The emblematic theme of Farming had 167 mentions between both documents and interviews, is depicted in Figure 13. The most common overlapping sub-categories include food production and conflict over water and land access.

FOOD PRODUCTION: is seen as a way to support *"fresh, healthy, and affordable food"* for all residents of the PMA [161]. Policy and regulations by local municipalities could be amended to require a certain percentage of food to be bought locally to encourage local food production [161].

Figure 13 – Farming emblematic theme and overlapping sub-categories.

CONFLICT OVER WATER AND LAND ACCESS: It was also mentioned that local municipalities could include agriculture as an integral component of municipal economic strategy (ibid). This makes sense when reviewing food production in both counties, yet the political ideology of more powerful stakeholders favors commercial and housing development over farming. The topic of farmland preservation and contestation for urban and peri-urban space is discussed in section 5.3.3.1. Other challenges faced by farmers are cost increases leading to declining income, the older age of farmers, feeling isolated, the increased price of purchasing land, and changing climate.

STAKEHOLDERS: The next emblematic theme, Stakeholders, was quoted 145 times between both documents and interviews. The Figure for this emblematic theme can be found in Appendix 9.10. The most common overlapping sub-categories were food sovereignty, acquisition and attainment of stakeholders, and lack of awareness.

FOOD SOVEREIGNTY: P3 said, "_I am excited that more tribal entities are being engaged, and also, their sovereignty is being honored. So that it is not like 'we are going to come in and we know what to do' kind of thing. It is like, 'Would you be willing to join us at the table and share if there any support that would make sense?' not the other way around_." This coincides with MarCo's Best Practices for Policy document in that _"decisions should be representative of local people and community stakeholders"_ [172]. MarCo elaborates by stating that a collaborative process builds relationships based on trust and mutual respect [161]. Furthermore, the Local Food Local Place (LFLP) document states that its _"community engagement process took additional steps to consider how to make the engagement process more equitable and inclusive of residents who have traditionally been left out"_ [173].

STAKEHOLDERS ACQUISITION: The acquisition and attainment of stakeholders for RFS involvement was mentioned as one of the biggest challenges. Again, all interviewees stated that RFS had low visibility, which could be improved. P1 stated that MarCo has over 100+ members, but only steady membership of a couple dozen, and that a broader range of stakeholders could be included, but for MarCo, it's more that people come find them. P5 said that every year, PP sends a mass mailing to the zip code next to the farm raiser site which generates interest, but then it dwindles after a while. P3 explained that you can

organize in so many ways to reach everyone, but that "*there is work to be done there.*" P6 said that there can be great initiatives or laws, but how do you get people to see that this is part of their value system?

LACK OF AWARENESS: The general public and elected public officials were considered unaware of the challenges of the current globalized and industrialized food system. P6 stated that gardens at schools are important, teaching kids where their food comes from and what fresh fruits and vegetables taste like and relating it to every academic subject. P2 suggested advocacy work to teach residents where their food comes from and connect them to local farmers.

The importance of a multi-stakeholder governance process was expressed by multiple in-depth interview participants as well as in documents. P2 stated the need to have a discussion with all stakeholders, especially food banks, to see "*how can they fill in the gaps to make sure we have a food system that is accessible to everyone.*" P5 expressed that there has to be a lot of coordination between organizations to tackle this issue. The MarCo Best Practices for Policy document stated that policy should support local food banks by involving them in discussions on and assessing of community needs [172]. P3 said that Arizona has a "*very sophisticated emergency food distribution network,*" but "*there's holes in it.*" Therefore, it is essential to coordinate among city departments on programs and policies affecting food system sustainability and security to reduce food deserts [161]. More on food deserts in the PMA is discussed in section 5.3.3.2. MarCo again highlights the need for solutions from all levels of government are needed to reverse the trend of food insecurity in addition to finding grants to enhance access to create a more secure local food system [172]. Furthermore, the Arizonan Preventing Hunger Action Plan asserts that the government —both state and federal— along with communities should ensure support for local hunger and poverty prevention programs [174].

HEALTH: This was the third most mentioned emblematic theme with 141citations. The Figure for this emblematic theme can be found in Appendix 9.11. The most common overlapping sub-categories were nutrition and food access.

NUTRITION: Most of the health narrative came from MarCo and the City of Phoenix, emphasizing public health issues such as Type-II diabetes, obesity, high blood pressure, and coronary heart disease. The last two exceed national averages in Maricopa County. P6 stated that almost 50% of children in the Indigenous communities have Type-II diabetes. Arizona spends $4.8 billion per year on diabetes [175] [176]. Fascinatingly, P5 mentioned a new program – Produce RX – where doctors will prescribe food as medicine to treat illnesses like diabetes and high blood pressure.

Nutrition was also used in relation to the *"unhealthy"* national food system. P4 said, "We have a food system in our country that's broken, that delivers unhealthy food to people, and only supplies about a three-day supply of food to any urban area." P6 described the subsidization of corn syrup and soy products, specifically hydrogenated oils, that are pushed on US residents by big agribusiness. They said, "*Let's subsidize . . . healthy food and make sure that everyone can afford to feed their family . . . with high quality food*" (personal communication).

FOOD ACCESS: Interestingly, 'nutritional disparities' among low-income residents was framed as 'nutritional access' by P3 and P5. Furthermore, the MarCo Comprehensive Plan constructs healthy food around the concepts of equity, health, sustainability, and resilience [161]. The City of Phoenix's 2025 Food Action Plan (PFAP) states that *"healthy food is defined as food that is fresh, nutritious and grown without harming its producers or our environment"* [173].

Currently, P1, P3, P5, and P6 all work with local growers to provide healthier food options for children at school as well as at home. P6 stated something that was thought-provoking: *"This is sort of ridiculous, but I could not ever figure out why schools did not make better food, you know? Most schools now have what are called warming kitchens. They do not have kitchens where you can cook food—all kinds of great vegetables and great stuff to put together and make great soup or stew."* The lack of food preparation equipment in school cafeterias highlights the highly processed foods being fed to kids daily with no way to insert food from the school garden into their diets. P5 expressed the need to provide farm bags to parents with foods that are easy to cook and culturally appropriate.

FINANCIAL: The fourth emblematic theme had 123 citations. The Figure for this emblematic theme can be found in Appendix 9.12. The most overlapped sub-category was funding. Other sub-categories mentioned, urban (re)development for the local economy and the affordability of food, will be discussed in the next section.

FUNDING: One example is Sun Produce Co-op (SPC) who faces the challenges of minimal funding, but makes it work with "*bubble gum and paperclips*." SPC cannot charge as much as they want for their produce because then nobody would be able to afford the food.

Furthermore, P3 expressed that SPC's main challenge is a lack of infrastructure. They stated that they are losing their industrial cooling for storing fresh produce from farmers, so they are looking for a co-location space like a food hub (personal communication). The lack of distribution infrastructure like processing and packaging businesses was also mentioned and will be discussed in sub-section 5.3.3.1. To combat this issue, the PFAP recommends to *"incorporate agriculture, food processing, and distribution into existing and future economic development plans"* [173]. There has been some support for infrastructure development in the City of Phoenix through an American Relief Fund grant for 1 million (€890,000) for urban agriculture. Lastly, the Arizona Food Policy Coalition (AFPC) report proposes inviting well-resourced investors to invest in riskier, innovative solutions (Pinnacle Prevention 2017).

FOOD SECURITY: This was the fifth most mentioned emblematic theme, with 105 citations. The Figure for this emblematic theme can be found in Appendix 9.13. The most common overlapping sub-categories were SJ (physical access, livable wage, and affordability of necessities), governance, the federal government, and the Prepper movement. The first three will be discussed in the sub-section 5.3.3.2.

PREPPER MOVEMENT: P4 mentioned the Prepper social movement, where people proactively prepare for emergencies—natural, social, economic—that could disrupt the national food system. Activities include growing and preserving their own food, learning basic medical skills, and adapting off-grid technology [177]. This survivalist movement based on self-sufficiency is skeptical of the 'just-in-time inventory' of manufacturers and the *"three-day supply"* practice of most governments and organizations [178]. Therefore, P4 advocates for backyard gardens to combat the massive food shortages seen in the COVID-19 pandemic. P4 elucidates: *"There are a lot of people that have stepped up and started gardening and growing fruit trees since the pandemic started. I do not think it is nearly what it needs to be. You know, if there were 10,000 new gardeners here in Phoenix, it needs to be 100 times that."* He continued to express that with the distribution systems breaking down**,** *"I don't see the level of action that needs to be happening."* However, it has been noted that the Prepper movement is still elitist, limited to those who are privileged. More on the effects of the COVID-19 pandemic on the PMA food system will be discussed in sub-section 4.4.1.

5.3.3. SRQ2 – TO WHAT EXTENT IS THE DISCOURSE USED IN THE REGIONAL FOOD STRATEGY AFFECTING THE FAIR USE OF AND ACCESS TO CERTAIN FOOD RESOURCES IN THE PHOENIX METROPOLITAN AREA?

In this sub-division, the discourse structures used in the PMA's RFS and UFG are posited against SJ in the food system – contestation for space as well as FS and just access to food resources.

5.3.3.1. CONTESTATION FOR (URBAN) SPACE

One of the main findings of the in-depth interviews was that all participants were pessimistic about preserving farmland under pressure from political officials' focus on urban (re)development. When asked how they foresaw the RFS affecting the city's future spatial configuration, P5 said that farms will be pushed out of Maricopa County, P6 said *"We better hurry*," and P4 said not at all—because there is no consideration for food in PMA planning.

For example, the city of Goodyear wanted to buy the Duncan Family Farm for city expansion. The farm sells organic produce nationally and also for the local nutrition assistance DUFB program. P3 stated that the neighbors of the farm called into city officials and told them that they moved because the farm was there and that they did not want the traffic or crime that comes with more dense living. During a municipal planning meeting, they asked if the developers had thought of preserving some of the farmland like the neighborhood had wanted, *"'And they said, 'Oh, no, we'll do that next time.' I put my mic off, and I was like, 'Really? There is going to be a next time?'"* They said that they had 'dollar signs in their eyes' with the jobs and urban development that it would bring. To finish, they pessimistically state, *"Nobody cares."*

P1 said that the city of Goodyear was hoping that a big tech company would bring a billion-dollar manufacturing facility to the region at the expense of the farm. This issue of government officials not recognizing the importance of preserving agricultural land for food production in the PMA has also been mentioned in combination with other farms such as Pinnacle Farms, Blue Sky Farms, and Crooked Sky Farms. In a short phone call with Meter

for this thesis, they stated that Crooked Sky Farms is now gone, being replaced by the water sewage plant that was built for new housing developments in the city of Phoenix [179].

The tension of new housing and development encroaching on farmland was supplemented by three online news articles. Joshua Bowling from the AZ Republic discusses the complex problems facing PMA farmers [180]. Bowling spoke to the Justice Brothers U-Pick farm, a 91-year-old family-owned citrus orchard. They stated that they feel pressure from not only urban (re)development, but also because services that clean, wax, and package produce have also disappeared from the PMA [180]. They now send their citrus to Rio Rico, Mexico which is then shipped back to Tempe [180]. The Justice Brothers are currently shifting to a direct-to-consumer model, planning an on-site processing facility for their citrus and meat products [161].

Moreover, multiple participants noted the urgency for creating farmland preservation policies like land conservation easements and community land trusts, and it was also included in three of the nine documents. The PFAP recognizes food production as the highest and the best use of land and proposes mixed-use agricultural land use classification and zoning district as a means of preserving agricultural land and that local municipalities should explore the use of mixed-use agricultural land use zoning district citywide [173]. The PFAP also encourages the incorporation of food processing and distribution into existing and future land use plans and encourages the *"development of agricultural land as a buffer between incompatible land uses"* [173]. The MarCo Best Practices for Policy document advocates for a realistic approach to the preservation of farmland through a variety of solutions including code provisions to create agricultural zoning districts, allowing for agritainment—or farm-based entertainment, approving agriscaping—the use of appropriate edible landscaping, and allowing for on-site sales of food produces in community gardens [172]. MarCo states that these policies can serve as road maps and accountability tools for local decision-makers [172]. Cities in the PMA already considering these adaptations to local policy in comprehensive plans are Buckeye, Mesa, Phoenix, and Queen Creek [172].

Unfortunately, only 1% of the comprehensive plans analyzed mentioned agriculture. The PMA Future 50-year Plan states *"most of the surface water in the state today is used for agriculture irrigation, but this has been steadily changing as municipal areas grow and lands used for agricultural [are in] decline"* [181]. The 50-Year Plan expresses that the interests of cities and farmers were compatible in the past, yet the severe drought will test if the *"long-held assumption"* that the conversion of crops to houses is a better use of water [181]. Next, the Pinal County Comprehensive Plan mentions the rapid rate at which farmland is sold for residential development, but with the long history of agriculture in the county, the plan *"intends to support agriculture as a land use as long as it is economically feasible"* [182]. However, the preservation of farmland does not seem to be a priority by the Maricopa Association of Governments (MAG), which can be seen in their future land use planning map. Figure 14 is the map from MAG that shows the difference between the PMA's existing land use and projected future land use [183]. A larger view of the map can be found in Appendix 9.14.
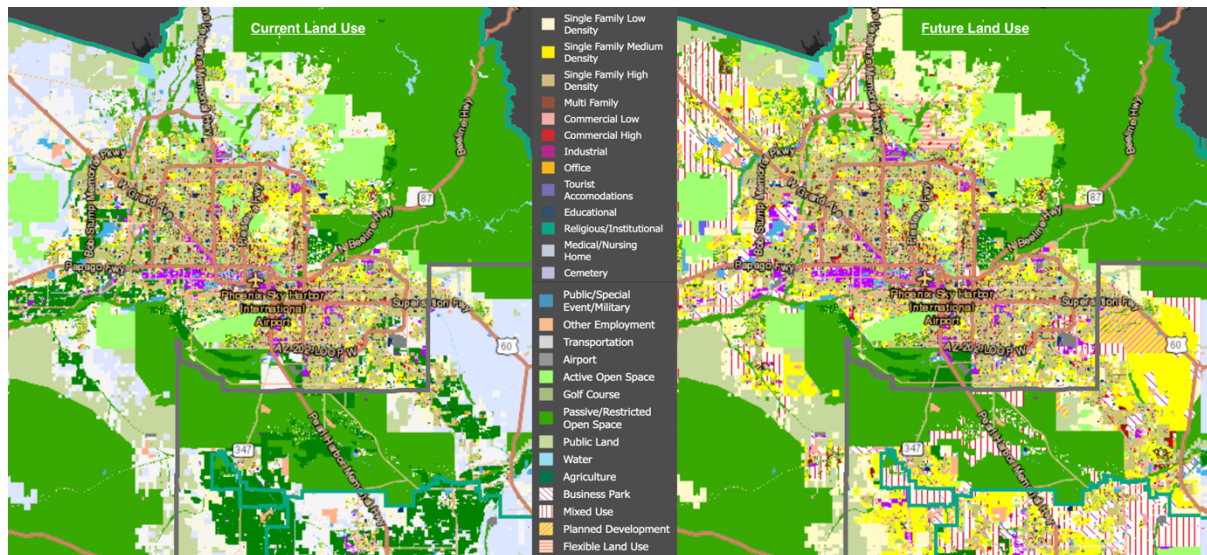
In 2000, there were 640 m² (1657 km²) of agriculturally zoned land in Maricopa County, which has now decreased to 410 m² (1061 km²) in 2019, while residential has increased from 540 square miles (1398 km²) to 750 m² (1942 km²) [183]. It can be seen in the future land use map that agricultural land (dark green) is projected to decline even more, being replaced by single family medium density housing (yellow), mixed-use (white with vertical pink stripes), planned development (yellow with perpendicular pink stripes), commercial low density (peach), and industrial development (purple). A majority of retained agricultural land will be Indigenous. It was confirmed by Meter that regional planners are reserving future farming for land owned by the tribal government [179]. Interestingly, these Indigenous tribes also happen to be the top water right holders. The MarCo Comprehensive Plan mentioned GRIC's long legal struggle to regain their water rights and their plans to *not* double their irrigated cropland acreage [161].

During the COVID-19 pandemic, PMA farmers filled gaps in the globalized food system. P5 stated that SPC saw exponential growth, from $120,000 (€114,000) in 2019 to just shy of $500,000 (€442,000) in 2020. This indicates that there is a local capacity to feed residents of the PMA and that farmland should be preserved.

Here the discourse is centered around the lack of municipal officials to recognize the importance of food planning for the future, issues around the policy of rezoning land for multifunctional economic development, the decline of food infrastructure, and conflicts over natural resource use. The implications on SJ in the future are discussed section 5.4.3.1.

5.3.3.2. **FOOD SECURITY & JUST ACCESS**

Arizona exceeds national averages of poverty and food insecurity rates [175] [176]. As stated above, it is estimated that in 12.5% of residents in the PMA are food insecure. Additionally, 67.5% of those who are food insecure are estimated to be below the poverty threshold [184]. In 2018, there was a total of 805,977 residents in the PMA on the Supplemental Nutrition Assistance Program (SNAP) – with 69% working poor, 29% elderly [185] [186]. The program is administered at the federal level by the USDA's Food and Nutrition Service; however, states operate the program by certifying eligible households

and issuing benefits [186]. Maricopa County alone depends on $900 million (€857 million) of federal aid each year to provide food relief to low-income residents [184]. For both counties, it is estimated that over $300 million (€285 million) of additional support is required to meet basic food needs (ibid). During the COVID-19 pandemic, the SNAP program in Arizona received $500,000 (€442,000) from Governor Ducey with an additional $2 million (€1.77 million) a year for the next three years [187].

In addition to SNAP, Arizona provides the Double Up AZ program where recipients receive double the amount (dollar for dollar, up to $10) of Arizona-grown fruits & veggies, dried beans, edible plants, and seeds at specific SNAP retailers [188]. PP initiated this program in 2016 with 20 farmers' markets and farm stands, 3 CSA delivery sites, and 2 mobile markets with 80 different stops—including 8 rural communities and 1 tribal community. SNAP purchases of Arizona-grown fruits and vegetables at participating farmers' markets increased an average of 154% across all sites, reaching 2,443 recipients from 2016 to 2018 [189].

There are 55 food deserts in Maricopa County alone [38]. Again, neighborhoods with no SNAP retailers raise concerns about social and environmental justice [38]. Figure 15 shows the food deserts in Maricopa County and Pinal County.
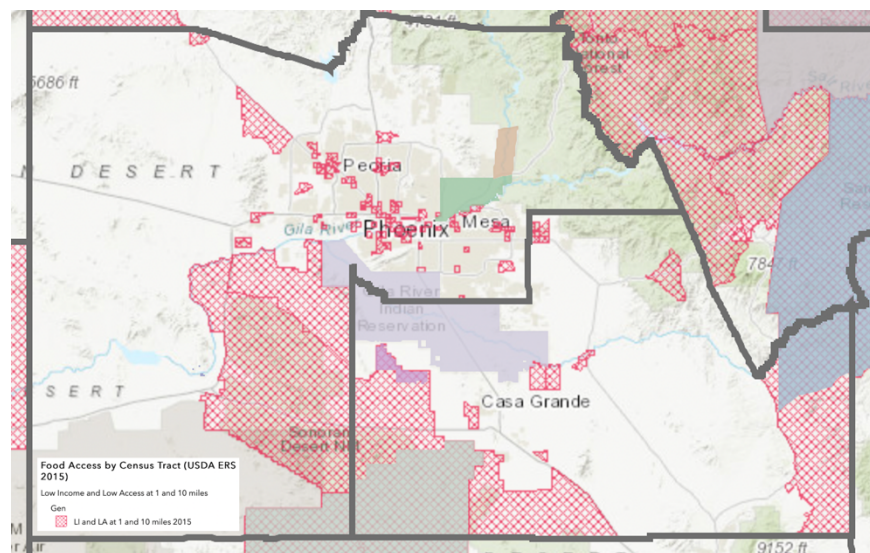

Figure 15 – Food deserts in the PMA by the Arizona Department of Health Services [190].

Moreover, LILA census tracts used by USDA for nationally assessing food deserts likely overestimate food access in poor neighborhoods because of spatial aggregation [191]. When asked if there were any areas in the PMA that do not have access to fresh food, all participants said yes. P6 elaborated, "*I really think that we need to look at zoning and make sure that every neighborhood has access to full on grocery stores that have an array of high-quality food. I mean, that should be a part of the public infrastructure. It should not be seen as a kind of, you know, 'Safeway does not want to go into that neighborhood.' That is not good enough.*"

The AHPAP cites that historical redlining, i.e., no investment in low-income neighborhoods, has led to food deserts in the PMA. P6 recently wrote a paper on how structural injustices affect the food system and particularly minority neighborhoods. The historic redlining of these neighborhoods has left them without 'the same kind of spaces' like parks, commercial developments, and full-scale grocery stores. These sentiments were

supplemented by P2 statement that Trader Joe's studies areas for medium income level, crime levels, and what is the culture like before they put a store somewhere.

Bleasedale's study on the CCS complements this idea. Their participants expressed that the local large chain supermarkets located inside their community were inferior to the same brand supermarket outside of their community, which had better selection of fresher produce, more health-conscious options, and better sales [192]. P1 also reported that low-income residents want healthy food and try to seek it out, but there is nothing available. He presented that with MarCo's Community Food Conversations, they spoke with residents in Glendale, East Tempe, Escalon, and South Phoenix who expressed that their produce is not as fresh as more well-off areas, and while they are offered culturally appropriate foods, they are not able to obtain the organic options they would like. Furthermore, P5 mentioned the unhealthy options available to low-income residents. He stated that the bulk of what he sees in emergency food boxes is *"no good at all"* and that some of the produce only lasts two or three days. P2 related the need for healthy food within local food banks, saying that there is a rule in DUFB that 10% of what they give away should come from local farms but *"they are not quite there yet."* Four of six participants acknowledged the DUFB program as a way to improve access to healthier foods for low-income residents.

Interviewees most commonly said that obstacles to food access were a lack of money and time for lower-income residents to obtain appropriate food. P2 mentioned the barrier of income pricing—food costs are rising faster than salaries—making food affordability an issue. The PFAP states that the people most vulnerable in Maricopa County *"often have limited time to cook, live far distances from grocers, and are on a tight budget"* especially for communities of color, rural, and tribal areas [173]. This coincides with P3's statement that some residents in the PMA are hindered by their immigration status. P3 described: *"There are pockets that I have seen with my own eyes—of immigrants that have come to this country, some of them are undocumented, and so they do not go out and get food because it is terrifying."*

Additionally, the federal government's restrictiveness adds barriers to just access. P5 describe the federal food distribution programs as too 'buttoned down' and restrictive. P5 said that SPC struggles with people with SNAP not being able to order farms bags online. Furthermore, P5 stated that funding from the federal government for FS programs is the main challenge and that more programs need to be measurable. This would help in justifying the need for funding from 'outside the system' as there are questions by some about how much of an impact the federal programs make.

Here the discourse is centered on FS as an issue of physical access, availability of healthy food options, a livable wage, affordability of necessities, and the restrictiveness of the federal government. Implications on SJ will be discussed in sub-section 5.4.3.2.

5.4. PHOENIX METROPOLITAN AREA CASE STUDY DISCUSSION

In this sub-section, the results of the PMA case study will be viewed within the theoretical framework. The first sub-division assesses the comprehensiveness of the RFS. The second sub-division highlights the two narratives in the RFS and the resulting conflicts resulting. The third sub-division debates current and future spatial implications due to how discourse

used. The fourth sub-division is an assessment of spatial justice based on previously set out criteria that was adapted for sustainable and just food system transformation.

5.4.1. ASSESSMENT OF THE PHOENIX METROPOLITAN AREA REGIONAL FOOD STRATEGY

The high rate of declined and ignored interview requests suggests that the RFS is still a new concept for many relevant organizations in Phoenix. Data collected describes PMA's RFS as a more informal, bottom-up initiative by organizations that are passionate about a socially and environmentally just food system. In order to assess the comprehensiveness of the PMA RFS, Marsden's six important criteria will be discussed [18]:

1. *OVERARCHING VISION:* the RFS is clearly focused on the emblematic themes of farming, stakeholder engagement, health, financial difficulties, and FS. P3 stated: "*I think (the goals) are [clear]…but I believe that some (organizations) do better than others in measuring them and communicating them.*" P5 reported that the RFS is mostly focused on the City of Phoenix and Maricopa County and not Pinal County at the moment. Furthermore, it is important to note that one in-depth participant did not know that an RFS existed.

2. *INTEGRATIVE APPROACH:* some are adopting this stance for assessing the PMA food system. MarCo has undertaken a comprehensive assessment to address production, distribution, access, consumption, and food waste management, yet, declining local processing infrastructure still needs to be addressed. The need for a multifaceted approach is embedded in the discourse about transitioning to sustainability and fairer access to food resources in the PMA. P2 said that the RFS is "*just barely peeking over the horizon. I do not think the magic connection has come together.*" There was a shared sentiment that people work within own domains but without enough community partnership. P1 said that "*it is not easy to make it happen.*" For example, with the city of Phoenix, it took a passionate person in a position of power who dedicated extra time and energy to get everyone else onboard. Interestingly, P5 expressed that the COVID-19 pandemic started more cross pollination among different organizations because they lacked food for their programs 'in their silos,' so they were forced to form partnerships with local farmers. He described that before the COVID-19 pandemic, SPC was seen as "*a bunch of farmers trying to push their food into the food chain,*" but now he rarely meets anybody in the food system world that does not know about SPC. P2 expressed that the general public gained awareness about the globalized food system's fragility since COVID-19 and hopes that increases RFS visibility.

3. *RAISING THE PUBLIC AND POLITICAL NEED FOR CHANGE:* The RFS in the PMA is strong in discourse about raising awareness of government officials and all stakeholders about all aspects affecting the food system. While the discourse on a sustainable, healthy, and just PMA food system is present in the City of Phoenix's OEP department, government officials need greater awareness to implement a more robust food system infrastructure. Coincidingly, P1 went on to say that Double Up took a couple of tries to receive funding from the state and that they need more state level leaders to support and fund initiatives like this. He said, "*They do not blink an eye at a freeway project that costs billions of dollars. Now, these are completely separate funding sources, so you can't really compare, but a few million in this space would go a long way.*" For context, the United

States Department of Transportation recently spent $500 million (€476 million) on the South Mountain light rail in South Phoenix with the new Arizona infrastructure bill [193]. P1 went on to say that more decision-makers need to recognize that they can make an impact on the food system, but they are 'far from that.' P2 and P3 echoed the need for food infrastructure development, especially for a distribution network. Additionally, the PFAP document states, *"where feasible, use existing financial resources for food production and infrastructure. Pursue grants and other funding opportunities that will enhance the community's access to healthy foods"* [173].

4. *WIDER INVOLVEMENT OF STAKEHOLDERS:* As stated above, the acquisition and attainment of stakeholders was mentioned as one of the biggest challenges, with current participants only the people specifically interested in food. Furthermore, the low visibility among the general public about current food system issues, as well as the RFS, heightens the need to campaign, potentially through increased media coverage. The implementation of concrete food policy councils could make RFSs and UFG visible to the wider population within cities while also promoting more cross-departmental integration in municipal governments [27].

5. *MECHANISMS AND METRICS TO EVALUATE AND MONITOR PROGRESS:* While some people in the PMA are working on this, measuring FS in general is not well established.

6. *HARNESSING CULTURAL CHANGE AS AN EXPLICITLY SPATIAL STRATEGY:* Two actions seem relevant to sharing ideologies and assumptions impact the level of spatial planning [26]. First, advocating for 'knowing where your food comes from' supports farmland preservation and improves the local food system, connecting farmers and consumers. However, Lord and Shaw express that many of the ideas and initiatives designed to encourage and facilitate change ultimately do not produce the anticipated or desired outcomes [26]. In the PMA, this is coupled with government officials lacking understanding or willingness to include food production into the spatial planning for the future feeding of a growing metropolis. Martin describes this as a culture of 'complacency,' where local authorities are in a comfort zone or do not believe that their authority is required to radically improve and transform existing structures, process, and power bases [194]. Second, only one document is provided in a different language; the PFAP is offered in Spanish (Plan de Acción Alimentario 2025). In order to include all actors, all documents for the RFS should be offered in all foreign languages spoken in the PMA. This would increase visibility and accessibility of knowledge for implementing a more sustainable food system, going beyond narrow regulatory frameworks towards a wider, inclusive governance style that respects community priorities through stakeholder engagement [26].

5.4.2. DISCOURSE USED IN THE URBAN FOOD GOVERNANCE PROCESS

The talk and text produced and reproduced in the PMA on the concept of the RFS is concentrated around the eco-economic paradigm; however, it should be noted that no bio-economic food actors participated in this thesis. The following paragraphs explain the AMA RFS with reference to both paradigms' views on how the transition to sustainability should

be accomplished, drivers of change, spatial characteristics, and views on place related to the PMA RFS.

For the Eco-Economic paradigm, four examples highlight the use of the multifunctionality of food as the way to transition towards a sustainable food system.

1. MarCo exemplified the concept of the multifunctionality of food in their comprehensive assessment of the Maricopa County food system and in their diverse set of initiatives and workgroups. MarCo is attempting to *"reorganize the intersections between society, environment, and economy"* to catalyze change towards a resilient future food system [19].

2. Integrating the benefits of a local food system – environmental, social, and economic – into local municipal departments like Public Health and Environmental Programs demonstrates that food can reach across a wide spectrum of societal challenges.

3. P2 stated that besides farmland preservation, they also work with farmers on soil health. Embedding agro-ecological practices into the PMA social and spatial fabric has the potential to increase biodiversity, increase carbon dioxide and water sequestration through healthy soils, and also decrease the urban heat island effect.

4. The agritainment diversification of business models for farms can increase revenue, providing agricultural education through pick-your-own fruits and vegetables and outdoor recreation like swimming or fun runs [195]. Thus, by connecting farmers and residents, farms emerge as having *"more than one primary function, and that contributes to biodiversity and enhances socio-economic aspects of life"* [19]. The spatial characteristics unfolding from the diverse and multifunctional landscape that has multiple benefits like strong network relations over a fragmented urban-rural landscape, reducing farmer isolation, and raising the quality of life of residents [19].

Furthermore, in the discourse of the PMA RFS, one of the main drivers of change that was mentioned was increased relationship-building and education among a broad range of stakeholders as to take strategies from discussion to action. However, all participants agreed that essential stakeholder groups are missing in the RFS; thus, more outreach is needed to increase the visibility of the of RFS and educate the public and government officials about the detriments of the conventionalized food system. Moreover, MarCo's emphasis on putting people and their relationships at the 'center' of their thinking and efforts further highlighting their propensity for inclusive governance and food sovereignty.

Similarly, yet differently, P6 advocated for more place-based solutions to engage a wide range of stakeholders in various interactive dynamics. This is imperative for geographical space to be justly managed. Through re-calibrated power relations, in the spirit of 'right to the city,' focusing on transforming normative values and the social construction of how food is embedded and fostering institutional innovation would drive change for the eco-economic paradigm [18] [19].

Morgan finds one drawback to the eco-economic paradigm's highly localized view on food system transformation: the influence of local efforts becomes too fragmented, and therefore, may not be able to leverage national political support [21]. Local efforts do seem

fragmented, majorly the city of Phoenix with no inclusion of Pinal County. Though MarCo's advocacy at different scales of governance – local, state, and federal – "*in order to help ensure supportive policy environments and adequate allocation of resources*" can also be seen as institutional innovation as a change driver [161]. Morgan's [21] drawback – the local trap – was supported by the study by Schoon, Talbot, and Xiong which estimated the difference in "water use, energy demands, and CO_2 emissions….associated with the production (land preparation and growing operations, chemical inputs, irrigation) and the transportation" of a head of lettuce to travel the Phoenix metro area from a local level within Maricopa County and Monterey County on the central coast of California [196]. The research found that a head of lettuce from Maricopa County was more resource intensive—more than double in energy demands and emissions—than a head of lettuce from Monterey County [196].

The Bio-Economic paradigm coincides with the AZDA agro-industrial model of food production as well as the tendency for PMA's spatial planning to omit urban food production. First, the productivist discourse in the AZDA Arizona's Agriculture document states that "*modern technology helps farmers . . . use what they need and no more*" mimics the national agriculture discourse of using technological innovations such as bio-engineered crop varieties for increasing yield on a decreasing amount of land [157]. Additionally, current PMA farmers' concerns over natural resources lead to switching to more drought hardy crops and innovative watering technologies to survive. Both of these examples hint at a transformation of the future food system modeled on notions of a technologically driven 'sustainable intensification' [18]. This reliance on science and industry as drivers of change supported by the government sums up the bio-economic paradigm.

Similarly, Wolf-Powers finds that limited geographic access has become central in public policy research on FS [37]. They express that the recent policy discourse has been more focused on an entrepreneurial social policy paradigm favoring real estate development over direct economic relief [37].

Second, the difference between the current and future land-use maps pictured above in section 5.3.4.1 shows that current farmland will continue to be permeated with non-agricultural uses and ultimately pushed to production to the outskirts of the metropolitan area [197]. However, since no Bio-Economic stakeholders participated in this case study, it is hard to analyze what type of spatial characteristics they would view for PMA's future food system. Yet, if the process continues in this way, it will further the urban-rural divide and lead to a fragmented, dis-embedded, and performative view of place [197] [19]. Sonnino explains that this fundamental ideological and physical separation between rural intensive production systems and mass urban consumption spaces has been a key factor shaping the geography of food plays an important role in the creation of urban food geographies [44].

The two divergent views on the future of the food system in the PMA has led to conflict between stakeholders. P3 expressed that "*more traditional commodity producers are threatened by the small-scale vegetable producers*" and that the issue of sustainable practices and natural resources is a contentious subject. Both P3 and P6 mentioned needing a common language by bringing all stakeholders together as to bridge the gap and overcome static divisions in the food system transformation. Bridging the gap will not only be important in the conflict between smaller-scale producers and larger industrial farmers,

but also among those with conflicting viewpoints about the urban (re)development of the PMA. Through practices of transparent governance and formation of solidarities it is possible to reconfigure these inequalities [33].

The results of this section and the one above indicate that the PMA is facing a new food geography filled with complex and interconnected challenges. One where residents will increasingly lack access to decent food and basic food infrastructures in the spatial restructuring of metropolitan areas. This is discussed further in the following section.

5.4.3. DISCOURSE USED & IMPLICATIONS ON SPATIAL JUSTICE
5.4.3.1. CONTESTATION OF (URBAN) SPACE

In sub-section 5.3.4.1. above, the implications on spatial justice is comprised of the lack of municipal officials to recognize the importance of food planning for the future, issues around the policy of rezoning land for multifunctional economic development, the decline of food infrastructure, and conflicts over natural resource use.

The low mention of agricultural land and/or farming (1%) in the Pinal County and PMA comprehensive plans as well as the lack of food system planning by MAG, leads to the belief that the rules, processes, or options that are meant to meet the basic needs of all urban dwellers are not being met [7]. Furthermore, the adamant statements by multiple participants that municipal employees should be more involved in farmland preservation and support local growers through different changes in policy points to an exclusive governance process, where the political elite choose how spatial resources are used. This was exemplified in the Duncan Family Farms case where "*we'll do it next time*" was used as a waiver for urban (re)development.

Moreover, the discourse used by PMA decision makers, i.e., better to zone for residential and put pipes in, has increased the relocation and/or displacement of farms across space and social structures (Crooked Sky Farms, Blue Sky Farms, Duncan Family Farms). Thus, the rights of local farmers to own the land they farm on are not being recognized or protected and, therefore, are leading to spatial injustices. This coincides with Meter's (2021) conclusion that *"the interest of those who want to build housing and commercial building developments (are) closer to the decisioning-making process than farmers (are)"* [198]. Correspondingly, Meter (2021) found that farmers felt isolated from local municipal leaders and perceived them as having no understanding of the issue of feeding their citizens locally and, subsequently, not doing anything about protecting existing farmland. Meter stated that the PMA was one of the worst in public discourse around FS and local food than the other 144 cities he has assessed [198]. Moreover, the tension between land developers and local food movements highlights how the ideological concept of space is socially produced, often contested, and constantly changing [32]. Therefore, there is a need to address practices of transparency in local governance in order for farmers to protect their right to own and use spatial resources [7]. Additionally, Pinnacle Farms problems with rezoning their land for agritainment – an expensive and complicated process – negates their rights to contribute to the economic, social, and environmental development of their city. Further, it hinders their ability to embed different dynamics in the social and spatial fabric of the metropolitan area through the multifunctionality of food. This denial of farmers' rights to

control the mechanisms and policies of food production and distribution is concurrent with food sovereignty.

Another major issue in establishing fairer and more just access in a sustainable way is the decline of food processing and distribution infrastructure – which leads to less access to local produced food. MarCo states that the quality of life of residents is negatively impacted when less food is grown and sold locally, which results in more difficult access to healthy, high-quality, and affordable foods for residents of all socio-economic statuses. To combat this challenge, MarCo has recognized this challenge and recommends the expansion of city grant programs to encompass *"increase(d) access to food infrastructure and working capital"* [172]. This could help SPC in solidifying their distribution infrastructure. Moreover, the PFAP recommends policy change in the form of updating codes and ordinances to develop a healthy food infrastructure through food entrepreneurship in producing, processing, distributing, and selling should be recognized as integral to the economy and encouraged to grow and thrive in Phoenix [173].

Lastly, conflicts over natural resources will only continue to exacerbate due to climate change. White, Leah-Jones, Maciejewski, Aggarwal, and Mascaro state that the struggle between farming and urbanization will lead to competition for not only water, but also in electricity [199] [142]. They express that *"serious water and energy shortages could occur under various policy futures, leading to a series of cascading effects on the local economy"* [199]. This is increasingly becoming concerning considering the quick urban renewal in the PMA focused on the technology industry like data centers that use a large amount of energy and water needed to operate [200] [201]. Nonetheless, the variability of future scenarios only adds the complexity to of the transition to a sustainable food system in the PMA.

5.4.3.2. FOOD SECURITY & JUST ACCESS

In section 5.3.4.2. above, the implications on spatial justice were defined as the historic redlining of certain neighborhoods, the framing of the foodscape as a struggle, and the gentrification of the local food system.

The historic redlining that has created food deserts in the PMA translates to Keating's statement that the domination over the symbolic meaning of space is played out in how space is allocated and certain access to vital (food) resources [30]. The fact that Safeway and Trader Joe's choose not to go into lower-income neighborhoods because it is deemed to be unprofitable *"offers a more detailed guide to status relations than speech in many societies"* [30]. The discriminatory practices of location placement enacted by these large supermarkets draws attention to how space is used to *"maintain and legitimize arbitrary social distinctions that are not intrinsically spatial but that gain solidarity when expressed through physical space"* [30]. In other words, the cultural categorization of space by large supermarkets shapes who can participate and how, informing certain possibilities for interaction [30].

Additionally, the low number of retailers that accept SNAP within the 55 food deserts can be defined as the socio-spatial dialectic between the economic and social conditions of different groups that produce a geography of food injustice in lower-income neighborhoods in the PMA. P1 said that MarCo is also working on the corner store initiative where gas stations or the $1 stores will provide fresh produce from local farmers. However, in 2017,

Lacagnina, Hughner, Barroso, Hall, and Wharton found that regional supply chain members perceived a lack of consumer demand, low purchasing power of end consumer, and failure to achieve scale economies (among others) as barriers to supplying healthy and affordable produce in PMA food deserts [38]. Barriers like these were mentioned by P6 as unacceptable reasons to not supply high-quality food to lower-income residents. They said that zoning needs to be revamped so that every neighborhood has access to full on grocery stores that have an array of high-quality food, which should be a basic part of the public infrastructure. P6's insight on how reassessing zoning for the right to access basic public infrastructure highlights Uwayezu and de Vries's sentiment that SJ can be achieved by way of urban (re)development through mandatory rules that make meeting the basic needs of residents obligatory, regardless of where they live in the PMA [7]. Furthermore, P6 stated that in order to address unequal access, people who work *should* be paid a living wage that covers the ability to buy high quality food for their families as well as the county needs to improve access to transportation. Here, limited geographic access has been reframed around the shortage of basic income and public transportation infrastructure. The PMA public transportation map can be found in Appendix 9.15. This is concurrent with Wolf-Powers' statement that those who work full-time jobs *should* be able to achieve equal, non-discriminatory, and unbiased access to decent food and basic food infrastructures [37].

This sentiment coincides with Bleasdale's findings that a majority of his participants framed their foodscape – the physical food environment – as *"one of struggle;"* a struggle to get to their desired stores, a struggle to attain fresh and healthy eating options, a struggle to afford high-quality food [192]. In reference to attaining fresh and healthy eating options, one of the biggest barriers was not having good access to necessary transportation (car, bus) or it was too far to reach on foot [192]. He found that residents created a *"network of social bonds based on food acquisition"* where people with cars would take their neighborhoods to desired stores outside of their living proximity [192]. The social networks formed to combat issues of spatial segregation elucidates a collective power to shape and reshape their 'social realities' under the processes of urbanization [35] [44]. Bleasdale states that what begins in conversation, takes form physically as crystalized as social geographies in disadvantaged neighborhoods to cope with *"the existing conventional food system with which they are already familiar"* [192]. Lastly, the discourse of CCS residents' framing their foodscape 'one of struggle' to obtain foods that fit in their personal food choices emphasizes the displacement of individuals and groups across *both* spatial and social structures [33] [30]. Additionally, the current inability of the federal government to accept online payment for SNAP and DUFB adds an extra 'struggle' and lets the federal government dominate the symbolic power over the socio-economic and political dynamics shaping of *"social realities"* [44].

The displacement across both spatial and social structures can also be attributed to the Good Food Finder map. While efforts to emphasize local food producers and retailers, which is necessary in re-localizing the food system, the Good Food Finder map is partially based on food and beverage artisans. This can be interpreted as a gentrification of the food system based on the social construction of the meaning of food around concepts like 'locality, quality, and sustainability' [39]. This discourse process increases prices for these food products and creates a specific cultural and economic pattern of food provisioning built on affluence and appropriation of urban space [40] [41]. For example, the Azukar coffee shop in South Phoenix got its start with assistance from a local incubator called Hustle PHX [173]. The LFLP document states that Azukar is *"is a good example of how such tools can help create food destination opportunities within the Central Avenue*

Corridor," yet faces the challenge of offering food and drink options that are affordable to the surrounding low-income households [173]. Consequently, this challenge limits the ability to attract new local customers' [173]. However, Azucar's owners stated that they have out-of-town customers from as far away as London that do not carry the preconceptions about South Phoenix that some Phoenix residents may have [173]. Not to be overly critical, but Azucar can be seen as creating a specific cultural and economic pattern of food provisioning built on affluence and the appropriation of urban space in South Phoenix [40] [41]. Furthermore, Azucar also represents discourse focused on the social entrepreneurial paradigm favoring real estate development over direct economic relief [37]. Further, the gentrification of the local food system by 'food and beverage artisans' underscores how discourse becomes a political and socio-economic symbolic power used in the social production of space that ultimately impacts certain social groups opportunities to access basic urban amenities [44].

All of these factors in this section and the one above indicates that the discussion on both contestation for urban space and just access have implications on a new urban food geography. The PMA is filled with complex and interrelated challenges where urban residents do not have unbiased access to decent food and basic food infrastructures and services in the spatial restructuring of the food system for metropolitan areas. This is expounded upon in the following section.

5.4.4. IMPLICATIONS ON SPATIAL JUSTICE

In order to assess spatial justice in the present and future planned RFS activities, the criteria set out by Uwayezu and de Vries were used [7].

The experiment of Quirkos revealed that the RFS is being instituted for a healthy and just food system purpose with a focus on farmland preservation, nutritional health, as well as food access and security. It is being instituted bottom-up from passionate citizen groups and has slowly been adopted top-down by a few municipalities. However, all participants felt that they have some influence, but no authority in the creation and implementation of the RFS.

The specific projects being commissioned are: SPC's farm bags delivered to school distribution points (especially for low-income kids), farmland preservation with LFA, adding fresh fruits and vegetables to corner stores in food deserts, Produce RX, food sovereignty discussions with local Indigenous tribes, and policy advocation at state senate level. These programs are mainly geared toward low-income populations. Compellingly, edible landscaping like food forests were mentioned to address equity in access. Yet, most interviewees mentioned inadequate funding for programs and operations. Furthermore, most of these programs are occurring in the inner metro, with only one program serving rural areas.

Moreover, stakeholder engagement is partial to non-existent in the broader urban (re)development programs. In relation to local food system development, Bleasdale stated that it is majorly well off, educated residents that lead the food coalitions most likely can leave their place of employment for some time, have dependable transportation, get reimbursed for travel expenses, and are very likely paid to organize the meeting as a part of

their job; while it costs the garden organizers to overcome geographical and economic inconvenience to act as unpaid expert advisors, sometimes with a 'digital divide' – not always having the same technology for communication [192]. Since Bleasdale's study, there has been the LFLP project in CS that aims to engage a lower-income population in creating a more just foodscape. This program, in conjunction with the corner store program, partially facilitates access to land and food for low-income groups. Yet, it still seems as though the reality is still like Meter found, that land developers are closer to decision makers than farmers and food justice movements [198]. Therefore, there is little to no equality in opportunities for PMA residents to use or develop their land resources. Additionally, there is no recognition or protection of residents' rights to land and food resources – with the exception of the long fight for local Indigenous tribes to regain water rights. Ineptly, the 2050 comprehensive spatial plan expects them to carry the weight of future local production, even though GRIC has clearly stated that they will not increase production. This is an explicit spatial injustice.

Overall, there is no fair compensation when any urban (re)development program infringes on the rights of property owners. Therefore, spatial inequalities have increased and have effectively decreased access to basic urban food amenities. *This affects all PMA residents by integrating an increase of food insecurity issues into the urban fabric.*

5.5. PHOENIX METROPOLITAN AREA CASE STUDY CONCLUSION

This case study contributes to the understanding of how the recent global phenomena of RFSs could potentially impact SJ by contextualizing it in a local setting of the PMA.

Emergent emblematic themes from DA revealed that farmland preservation and food insecurity were particular discursive structures used in the discussion and implementation of sustainable food system policies (adapted from [56]). These structures highlight the cultural beliefs and values that are used in the contestation and negotiation in the transition to a sustainable food system in the PMA.

The static division between the eco-economic paradigm (access-based approach of RFS) and bio-economic paradigm (urban (re)development focused on intensification of the current food system) illuminate how the interrelationships between ideological and physical space are *"constantly produced, reproduced, challenged and transformed"* through talk and text [56]. Furthermore, it discloses how discourse reinforces and constructs power differences in relation to the use of space and food insecurity. The analysis showed that local municipal officials were unable to recognize the importance of FS in future spatial planning, and the federal government is seen as 'restrictive,' and those factors displace individuals and groups across *both* spatial and social structures [33] [30]. In the spirit of the 'right to the city,' local governments need to practice transparent governance practices and advocate for equal opportunities for PMA residents to use or develop their land resources. This is necessary for rebalancing power relations**.**

Nonetheless, the divergent modes of thinking (bio-economic and eco-economic) will have different implications on the social and spatial fabric of the future cities in the PMA. Therefore, there is a need to 'bridge the gap' between and create a common language

between conflicting stakeholders to address the wider political and socio-economic context of food insecurity.

Although the PMA has an agricultural capacity to fulfill a fair share of residents' consumption needs, the metropolitan food system is heavily reliant on importation, roughly $10 billion (€8.8 million) per year [198]. Local political officials should be concerned about how to feed a growing population in a world with increasing shocks to the globalized food system. The cascading effects experienced during the COVID-19 pandemic, like the breakdown of the supply chain, saw demand for local food increase. Cars were lined up to receive free food from local farmers and full CSA subscriptions. This poses the question, *"Did Maricopa County learn about its fragile food system?"* [202]. But did they?

There are more questions than answers at this point when looking at whether (or not) RFSs are replicating spatially (in)justice food systems in the PMA. Some include: How does the PMA retain land for food production amidst multiple competing priorities? What monitoring mechanisms need to be created to evaluate current initiatives? What type of future initiatives would be best to undertake equal, non-discriminatory, and unbiased access to decent food and basic food infrastructures and services in the spatial restructuring of the PMA? These questions will be imperative in the just management of geographical space and should be addressed by future research.

6. CROSS-CONTEXTUAL COMPARISON

In this section, the results of each case study are summarized and synthesized. The first sub-section is the vertical comparison – a true 'compare and contrast' logic. The second sub-section is the horizontal comparison, which will discuss the RFSs in consideration to why and for whom spatial justice is important within food system transformation. These comparisons are followed by the final conclusion, social and scientific relevance, and limitations to this study.

6.1. VERTICAL COMPARISON DISCUSSION

Table 4 below is used to verify emergent relationships between constructs as set out by Bartlett and Vavrus [50]. The constructs are used as specific bounded units to identify patterns among the data of each case study. Therefore, the constructs on the left hand of the table are accompanied by differences (split columns) and similarities (one row).

Table 4 – Differences and similarities between case studies.

	AMA	PMA
RFS	Health, sustainability, food production, the circular economy	Health, farmland preservation, funding, food insecurity
	Not visible to a wider population	
	Fragmented across agendas/municipal departments	
	Issues with funding initiatives	
	All levels of government are involved, but no unified support from all levels simultaneously	
STAGE	Intermediate – more policy, some action.	Beginning – starting policy, some action.
	More research and experimentation (Urban Living Labs)	Little to no research or experimentation
UFG	Top-down	Bottom-up
	Lack of participatory process in food system transformation *and* urban (re)development	
	Rigid, 'silo' thinking	
LEVELS OF GOVERNMENT	All and financial support from all levels.	All (but less national)
	All levels of government are involved, but no unified support from all levels simultaneously	
FOOD SYSTEM	High distribution infrastructure	Low distribution infrastructure

	Competent in agriculture sector to feed some of the regional population	
	Diversification of income (ex. agritainment, care farm)	
	Declining age of farmers	
FOOD ACCESS	Higher income equality	Lower income equality
	Food deserts	
	Gentrification of the alternative/health foods	
DISCOURSE STRUCTURE	Bio-Economic	Eco-Economic
SUSTAINABILITY	Sustainable Intensification	Multifunctionality
SPATIAL CHARATERISTICS	Clusters	Place-based
DRIVERS OF CHANGE	Stakeholder engagement	
CONFLICT?	Yes, between stakeholders with different discourses and over natural resources	
URBAN (RE)DEVELOPMENT	Metro is putting pressure on outlying municipalities	
	Agricultural land being lost to urbanization.	
	Decline in number of farms, but increased size.	
	Land developers closer to the decision-making process	
SPATIAL JUSTICE?	No	

As Table 4 shows, there are more similarities (18) than differences (10). This highlights how a certain phenomenon (RFS) develops more or less in the same way in different contexts, in this case – two Western cultures. An RFS in an Eastern culture or in developing countries could develop much differently.

Furthermore, the concept of RFSs emerged around the same time in each case study, however, they are at different stages. The AMA has multiple MFSs and is farther along in regional policy, while the PMA has one MFS and is at the beginning of regional policy. Both have RFS platforms (VV and AZSFN) for stakeholder engagement and consider this as a driver of change for sustainability. Additionally, all levels of government are involved, albeit PMA less state and national, but all levels do not provide unified support simultaneously.

There are also many corresponding challenges like a lack of wider stakeholder engagement, low to non-existent visibility of the RFS among the general public, and issues with funding initiatives. This is even with different types of governance styles (top-down and bottom-up). Furthermore, participants characterized the UFGs in both cases as stuck in 'rigid' silo thinking with little cross pollination between municipal departments. Additionally, participants were frustrated with more discourse than action.

The similarities in the unfolding of the RFSs could be due to increased knowledge of the detriments of the industrialized, globalized food system – which was mentioned by multiple

participants in both cases. Moreover, the increased attention to non-emergency FS due to the COVID-19 pandemic was also emphasized in both cases, even with different levels of distribution infrastructure.

Lastly, the convergence of top emblematic themes (Health, Farming) as well as how the two RFSs are being implemented on the ground despite different discourse structures features how corresponding ideologies, processes, and policies are produced, reproduced, challenged, and transformed through political discourse on an international scale. Moreover, it highlights how stakeholders in two different countries comparably respond to local food issues despite having different geographies, cultures, politics, and food system dynamics.

6.2. HORIZONTAL COMPARISON DISCUSSION

Barlett and Vavrus state that the horizontal comparison juxtaposes a homologous unit – RFS – between case studies in the light of the conceptual framework – spatial justice within food system transformation – and why and for whom it matters [203].

As seen in Table 4 above, there is no spatial justice in both case studies based on the criteria set out by Uwayzu and de Vries [7]. There is not a shared ideology or assumption between stakeholders at the level of spatial planning. This is because urban governance is not grounded in spatial justice at the levels of the urban (re)development and sustainable food system transformation, and therefore, are not responsive to all individuals needs [7]. Therefore, the cultural organization of space dictates who can participate and how leading to the lack of basic urban food resources for those with lower socioeconomic status.

The spatial processes are unfolding similarly in Amsterdam and Phoenix metropolitan areas. This includes increased urbanization pressure on outlying municipalities for housing and other functions, which is resulting in the loss of agricultural land. Most participants were pessimistic about urban (re)development taking over viable food production space within the metros and did not think that their RFS would change the spatial configuration significantly. This indicates that housing and commercial development is held at a higher value and in which some participants believed that land developers are closer to the decision-making process.

Additionally, participants also stated that local municipal officials are not concerned about non-emergency FS in spatial planning, saying that it will be solved 'elsewhere,' even despite the different discourse structures. Thus, it can be concluded that the Bio-Economic productivist perspective of ideological and physical separation of intensive rural production spaces and mass urban consumption spaces is prevalent in both cases among those with a higher degree of decision-making power [44]. The contradictory viewpoint – decline of farmland inside the metros and food production shifted to 'elsewhere' – will have future implications on the social and spatial structures of residents by increasingly embedding food insecurity issues into the urban fabric This should be of great concern, especially with the fragility of the globalized food system seen during the COVID-19 pandemic. In the AMA case study, food insecurity issues are compounded by the unwillingness to accept that food deserts exist in the Netherlands due to a high rate of *physical* proximity, reducing decreased food access to 'small wallets.' This highlights the symbolic powers of discourse that legitimizes arbitrary social distinctions that are not necessarily spatial but gain

solidarity when expressed through physical space. However, as Wolf-Powers states, the biggest barrier to food access is 'money in the wallet' and less about *physical* proximity [37]. Thus, they suggest reframing the discussion of food access around the shortage of basic income and the need for higher wages, despite differences in income equality between both countries. Coincidingly, the promotion of regional artisanal products as an attempt to shorten in the local food chain could potentially gentrify the food system, making them inaccessible to certain residents. While necessary for sustainable food systems, there should be standards in place to make regionally produced products affordable as to not recreate specific cultural and economic patterns of food provisioning built on affluence and appropriation of space [39] [40] [41]. Interestingly, edible landscaping was promoted in both case studies which could change the meaning of local foods and change the instruments of production and control. While in the PMA this was seen as a way to increase access to healthy food, in the AMA it was included as a part of a new phenomenon of 'nature-inclusive' urban planning, but with less emphasis on food access.

Lastly, one of the main challenges in transitioning to a more inclusive sustainable regional food system for both case studies is the greater complexity in relationships and the co-creation and co-management of values, or the meaning of food at the cultural level [29]. The incorporation of the concept of food sovereignty by some stakeholders into the RFSs – the provisioning of culturally appropriate and affordable foods and inclusion of all residents in the transformation of the food system – indicates that there are attempts to redefine the discourse around food in an ethical way [29]. Like Osinski and Peuch, it was found that there were "vast and uncoordinated" perceptions and visions among stakeholders [5]. Multiple participants expressed frustration with the lack of a *truly* participatory process in the creation and implementation of the RFSs, which has led to conflict and mutual prejudices. Several participants who were a part of civil society movements expressed that they invite all stakeholders to the table, but do not feel that it is reciprocated by governmental officials. This highlights the micro-politics of power and spatial justice and emphasizes the importance of bringing everyone together in the movement towards a sustainable foo system. Furthermore, the co-opting of concepts like biodiversity and stakeholder engagement by the AMA Bio-Economic perspective entails either a convergence of visions or greenwashing.

Lastly, there is a conflict over natural resources in both case studies, albeit different – an overabundance versus a lack thereof. In the AMA case study, there was a framing of an 'overabundance' of nitrogen and other chemicals that is leading to soil contamination, and therefore, a 'threat' to future food production. In the PMA case study, a lack of water is and will continue to affect food production, along will all sectors. The tensions between sustainable transitions in both cases will only worsen with continued climate change.

6.3. CROSS-CONTEXTUAL CONCLUSION

This research aims shed light on the recent phenomenon of RFS by identifying them in two different countries and how the discourse used could potentially affect spatial justice and subsequent food insecurity in the future. The results indicate that both RFSs are still in the initial stages of development and face similar challenges despite having different geographies, cultures, politics, and food system dynamics. In both cases, fragmented urban (food) governance was characterized by a lack of a participatory process, where

residents do not have the power to shape and reshape the food transformation process despite having either a top-down/bottom-up governance style or a Bio-Economic/Eco-Economic perspective. Additionally, both metropolitan areas are already facing spatial justice issues due to the dominance of urban (re)development being held at a higher value than other land use functions, especially (urban) food production. Additionally, there are food deserts in both countries where there is unequal, discriminatory, and biased access to decent food and basic food infrastructures and services. The combination of the two previous statements means that spatial inequalities are increasing and effectively decreasing access to basic urban food amenities. This affects *all* residents by integrating a dynamic of increased food insecurity issues, both spatially and socially, into the metropolitan fabric of both cases. Finally, the COVID-19 pandemic further highlighted the fragility of the globalized food system, and local political officials in both metropolitan areas should be concerned about how to feed a growing population in a world with increasing shocks to the system.

The similarity of results between both cases signifies that the phenomenon of RFSs does not have a 'home base' and are socially produced and intricately connected across the local, national, and international scales. While perceptions among stakeholders on visions of where the RFS were generally organized, they were still wide in range. This highlights the importance of how corresponding ideologies, processes, and policies are produced, reproduced, challenged, and transformed through political discourse. The novel research method of Quirkos for DA helped in finding the convergence points between each RFS and between countries. Something unexpected that was revealed in this exercise was the dominance of the Bio-Economic paradigm in the AMA and the Eco-Economic paradigm in the PMA. Previous biases expected that the Netherland would be Eco-Economic because of the central government's focus on circular agriculture and that the United States would be Bio-Economic due to the federal government's propensity for industrialized agriculture. However, only one participant was considered to be Bio-Economic, and therefore, the dominance of this perspective should be studied further.

As stated above, there are more questions than answers on how RFSs and urban food governance will impact SJ and FS in the future. Additional research that is needed is arranged below by case studies, methodological, or theoretical and stated in bullet points below for conciseness.

Case Studies:

- Amsterdam Metropolitan Area:
    - Collective data at a provincial level for the AMA, like the Applied Economics research for the PMA, could give a better overview of future possibilities. It seems that Rabobank has this information, so open sharing of this knowledge is necessary in the spirit of the 'right to the city.'
        - Rabobank information could also help in assessing a 'local trap' in the AMA.
    - Is stakeholder engagement and biodiversity in the AMA Bio-Economic perspective either a convergence of visions or greenwashing?
    - Due to the adamance of all AMA participants except one that food deserts exist in the Netherlands begs the question – What do Dutch food deserts look like and how can they be defined further?

- Phoenix Metropolitan Area:

- o Was the London Food Strategy a catalyst for the MFS for Phoenix? The main stakeholder did not respond to emails. If it was, then there could be more connections if the LFS was a catalyst for the emergence of RFSs.
  - o The *explicit* injustice of food deserts like access to a decent wage and the lack of public transportation infrastructure should be explored concerning urban food geographies and spatial justice.
  - o How are the increasing development of homes, commercial properties, and data centers going to influence future water supply and subsequently food insecurity?

- • Both
  - o There needs to be more investigation into the conflict and mutual prejudices between stakeholders. Could they be due to different spoken languages? Exclusion from power imbalances? Lock-in mechanisms of an industrialized food system? Political environment? Or differences between going from discussion to action?
  - o How are the other sustainability transitions in both contexts competing for space in the urban (re)development process? Why and for whom does this matter?
    - ▪ Compared to Phoenix, what is the legitimacy of solar panels in the Netherlands? Maybe a different form of energy, like geothermal, would be better as it would not interfere with agricultural land and could help in the production of warmer crops.
  - o There is a huge knowledge gap in comparing Western RFSs to those in Eastern countries and in developing nations. As Barlett and Vavrus state, a comparison between countries can treat nations as sovereign containers when international stakeholders and institutions have a great deal of influence on national policy, especially in countries with a high level of debt [203]. Future studies on RFSs in Eastern countries (if any) would highlight if there are 'traditional' notions of context and culture of RFSs and would frame the broader sociopolitical and economic relevance of FS. Furthermore, those studies could focus on the fluid meaning of FS and how certain stakeholders produce, reproduce, or resist food system policies.

Methodological:

- • The addition of the transversal axis comparison over time would historically characterize the development process in both cases.
  - o How could the transversal axis influence the Quirkos results?

Theoretical:

- • How does non-emergency FS manifest through policies like RFSs, and how does it affect the everyday lives of residents?
- • To what extent does conflict over natural resources affect the RFSs?
- • Could edible landscaping increase spatial justice in the food system?
- • Due to the macro scale of urban food geographies and spatial justice, more research is needed.

Even though the association between RFSs, UFG, FS, and SJ still remains complex, this study contributes to a better understanding of how these concepts might relate since there

have been no previous studies. This thesis spans broadly across many domains and topics and is not meant to represent each in its fullest integrity.

As stated above, the sharing of knowledge has different implications to access and has consequences on what happens next in discourse and the formulation of place. Additionally, metropolitan areas that more capacity for mitigation and adaption. Therefore, the exchange of knowledge is imperative in the designing of future food security strategies and policies that are spatial just and responsive to *all* people. In the spirit of the 'right to the city' transparency and the creation of solidarities is needed across the different scales of governance to reconcile the inequalities that are now being produced. A greater awareness of the micropolitics produced, reproduced, and contested will help in the re-spatializing and re-socializing of urban food geographies.

6.4. SOCIAL AND SCIENTIFIC RELEVANCE

Peuch and Osinski explain that the success of transformative RFSs only happens "under certain conditions and in specific contexts" [5]. IPES-Food report in 2017 specifies that the large number of actors, locations, and activities related to the transition to sustainable food system makes it difficult to change the course of action [204]. One of the main challenges is the "unraveling the patterns of social interaction between different actors involved in agri-food practices" and the consequential spatial implications the power relations [205]. Consequently, there is a substantial knowledge gap in understanding the dialectical relationship between the framing of food and infrastructural transformations that could enhance the understanding of the role of food in the city-making process.

Sonnino, Tegoni, and de Cunto recognize that cities are the optimal scale to address the "complex socio-ecological issues" present in our current food system [206]. Therefore, it is important to re-examine how urban spaces are developed and used, and how urban inhabitants are fed [207]. Sonnino sets forth that viewing urban FS as a failure of rural production has ultimately hindered interventions and delayed the role of cities as food system innovators [8]. To do so, the dissemination of knowledge is imperative to design future strategies and policies that are grounded in spatial justice. By discerning how food is interpreted and applied differently in the two different urban contexts of Amsterdam and Phoenix, it will be possible to advance these cities as food systems innovators that are fair and just [8].

Lastly, the COVID-19 pandemic has highlighted the need for social innovation within the contemporary food system. Cattivelli and Rusciano explored how self-organized initiatives for food provisioning have contributed to an increase in food accessibility in a period of time characterized by restrictions on personal practice and mobility [208]. They state that there is an importance of a "combined commitment from local communities" interested in reconnecting with local food practices in reaction to FS issues [208]. This features the need to develop better knowledge exchange mechanisms between cities in pursuance of exploring joint solutions to common challenges, especially in a fragile, globalized food system [21].

6.5. LIMITATIONS

A comparative case study design is a holistic approach to studying a phenomenon in a certain place and time as to have a 'full' understanding by using multiple data sources. They are ideal for a small number of participants with a large number of variables as it is "necessary to understand (the individual) parts of a case within the context of the whole" [53].

There are some limitations pertaining to the external validity of the case study design due to the low number of sampled results not being able to be generalizable to larger populations; however, de Vaus states that this is not the nature of case study designs [53]. He states that experiments using non-probability samples argue external validity on the basis of replication logic and not sampling logic [53]. Further, I hope that by using QDAS software, the amount of inevitable human error was minor. Moreover, tying results to a theoretical background also makes it possible to generalize to wider populations [53]. However, Barlett and Vavrus state that a comparison of a homologous entity (RFS) at the same scale (metropolitan area) run the risk of reifying culture when the actions and discourse of a group of actors are disconnected from the sociopolitical context in which they are situated" [200].

One limitation of the internal validity of the case study design is that it is hard to "screen out the influence of 'external' variables" [53]. This threatens the internal validity by removing variables of their meaning and may lead to misunderstanding results. At the same time, the use of triangulation, i.e., a variety of different data sources, helps to link results to those of another method to yield reasonable accounts of the phenomena at hand [53].

Lastly, it was hard for me to find the right point of closure to when the data had reached a point of theoretical saturation throughout out both case studies [2].

6.5.1. SAMPLING

The most prominent limitation faced in the AMA and PMA case study was the non-response rate of participant inquiries. The working of the inquiry email could have been formulated better – maybe no response because 'involved in the creation of the RFS' was not appropriate phrasing or maybe 'regional food strategy' was not the correct term to use. The email can be found in Appendix 9.16.

The first round of inquiry emails for the AMA case study was sent to 25 people, to which eight responded. Out of those who responded, five people confirmed interviews. I believe that it was easier to get participants in this case study because there were more first contacts and mutual connections.

The first round of inquiry emails for the PMA case study was sent to 33 people, to which one person responded – P1. P1 was instrumental in the snowball sampling process which led to P2 and P3. Contacts from P3 resulted in two more participants. Snowball sampling can be efficient in finding respondents in hard-to-contact populations and requires less money and time. However, a disadvantage could be that the sample is a non-accurate reading of the target population [209]. Snowball sampling led to a similar 'background' of participants – which are people currently involved in MarCo.

An additional 18 people were contacted, with P5 being the only one who responded. A Google form with the interview questions was included in this last round of inquiry emails, however, this resulted in zero responses. P1 stated that there are multiple studies about RFS in the PMA right now, so there is a possibility that this has something to do with the non-response rate.

Finally, there is a potential that Zoom fatigue, or too many online meetings, was a factor in the non-response rate for both case studies.

6.5.2. INTERVIEWING & QUALITATIVE DATA ANALYSIS SOFTWARE

The first interview with P1 was a pilot interview to improve interview questions. For participant P4, questions were modified from 'regional food strategy' to 'local food system' because they were not aware that there is a RFSs. The first couple of questions had RFS, but it seemed futile since they just kept answering *"I don't know."*

De Vaus explains that the key limitation of in-depth interviewing is leading or limiting answers [53]. In my last thesis, I had the problem of filling in people's sentences when they were trying to speak in English. I did better this time by challenging myself to stay quiet and wait for longer pauses to continue talking. In the PMA case study, this could have been because English is the native language of the participants included. Although I used my field journal to jot down notes to ask afterward if my questions are not answered by the conversation, I still interrupted P3, P4, and P5 when I was enthusiastic about what they had just said. I tried to do better in the AMA case study, I still interrupted when passionate about certain topics.

Concrete methodological limitations for QDAS is non-existent. Therefore, I will state my reflections and what I could have been done better next time. The process of coding in-depth interviews and documents in Quirkos was quite time-consuming as they had to be read through two or three times to make sure that all themes were coded for. Furthermore, the AMA case study came out differently than the PMA case study. This could be due to that I coded it differently with more text for each node (AMA was by paragraphs and PMA was by sentence). This could have produced the more centralized themes found in the AMA case study. However, I deleted the Almere Food Strategy document (large groupings of local government and od FS) and nothing really change. Additionally, I believe that I was more overly critical of the AMA case study because I am more familiar with the context, but it could have been because I coded it second.

6.5.3. CRITERION VALIDITY

Since there are no known studies on the effects of RFSs or UFG on spatial justice and food insecurity, there is no issues with the criterion validity of the interview questions i.e., not related to any other established measuring instrument [53].

6.5.4. CONTENT VALIDITY

To correct content validity, interview questions need to be fully operationalized to assess if all aspects of the concepts were tested [53]. For the concept of a RFS, interview questions

were used from the Food and Agriculture Organization (FAO)'s City Region Food System toolkit from 2018 [210]. The interview guide can be found in Appendix 9.17.

- The question – What are the main strategies that you apply? – was adapted to – What are the main strategies that you apply to go from discussion to action? – for better clarity. This could be updated in the FAO toolkit.
- The question – What is a rough estimate of the budget for resources (human resources, specialized equipment, or institutional capabilities) needed for the operation of the regional food strategy? – was removed from the PMA case study after the interview with P3 because it was not known. This could perhaps be due to the early stage of the PMA RFS and that they are not at this step yet.

In addition, the challenge of finding a comprehensive conceptual framework around assessment criteria for spatial justice in general, and especially not for sustainable food system transformation, further increases the criterion validity.

6.5.5. CONSTRUCT VALIDITY

De Vaus states that construct validity in a research design refers to how well the results obtained from data collection fit with theoretical expectations [53]. Since both case study results support the theory, it reflects the validity of the measurement (interview questions) of RFS and SJ [53].

6.5.6. ETHICS

De Vaus states that since case studies use a variety of different methods, a greater range of ethical issues arise [53]. Yet, due to the reliance on in-depth interviews, participant observation, and other methods like content analysis, the ethical issues that appear are less of an issue compared to other designs. I will receive informed consent from in-depth interview participants on the use of information in this thesis as well as about recording the conversation. Participants will be left unidentifiable, and no physical or psychological harm will be imposed on participants during the process. Finally, although I did not plan to change participants' perception on the RFSs, UFG, SJ, or FS in the city transformation process, there is a possibility that the interview process changed the view of participants'.

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8. APPENDICES

8.1. DETAILED INFORMATION FOR EACH METHOD PER CASE STUDY

AMA In-Depth Interviewee's Companies	
A1	Food Council MRA, Amsterdam Network for Food Planning
A2	AMS Institute
A3	Voedsel Verbindt
A4	Municipality of Almere
A5	AERES University of Applied Sciences Almere, Voedsel Anders Netwerk NL

AMA Documents	
1	Circulaire Proef-Tuin van West: Verslag verkenning (2016) – Tuinen van West
2	Agri & Food in de Metropoolregio Amsterdam: Duurzame groei door samenwerking (2017) – Amsterdam Economic Board
3	Verkenningsdocument (2018) – Voedsel Verbindt
4	Landbouw en Landschap in de Metropoolregio Amsterdam: Naar een duurzame toekomst voor veehouderij en akkerbouw (2018) – LTO Noord, Water, Land & Dijken, CONO Kaasmakers, Friesland Campina
5	Groen Voedselhart Almere Voedselstrategie 2021–2025 (2020) – Gemeente Almere i.s.m. Food Cabinet Amsterdam
6	Amsterdam Circular 2020-2025 Strategy (2020) – Gemeente Amsterdam
7	Verstedelijkingsconcept Metropoolregio Amsterdam 2030/2050 - versie II (2021) – Rijksoverheid, Metropoolregio Amsterdam
8	De uitdagingen voor Groot Amsterdam (2021) – Rabobank Food Forward

AMA Research Articles, Theses, and Reports	
1	Food insecurity among Dutch food bank recipients: a cross-sectional study (2014) – Neter, Dijkstra, Visser and Brouwer
2	Van Proeftuin Amsterdam tot Voedsel Verbindt: De ontwikkeling van regionaal voedselbeleid binnen de Amsterdamse metropoolregio (2019) – Allen
3	Discovering the values of the Lutkemeerpolder: The battle for Urban Space - Bio-polder vs. Business-Park (2019) – Science Shop WUR
4	Voedseldruk in de stad Amsterdam (2019) – Amsterdam Health & Technology Institute
5	Growing the Grassroots: On grassroots urban agricultural innovation and local policy frameworks in Glasgow and Amsterdam (2020) – de Bruijn
6	Fragmented governance architectures underlying residential property production in Amsterdam (2021) – Tasan-Kok and Özogul
7	Kijk op voedselzekerheid: eerste antwoorden op enkele vragen (2021) – Silvas, Vergevoet, and Dagevos
8	Veranderingen in ervaren voedselzekerheid en eetgedrag in Nederland sinds de COVID-19-uitbraak (2021) – van der Velde, Numans, and de Jong
9	"Too big to fail": the resilience and entrenchment of food aid through food banks in the Netherlands during the COVID-19 pandemic (2022) – Dekkinga, van der Horst, and Andriessen

AMA News Articles	
1	*Farmers cause road chaos as tractors block motorways, head for The Hague* (2019). Dutch News
2	*Agricultural exports staying rooted* (2021). Centraal Bureau voor de Statistiek.
3	*Zouden we in Noord-Holland volledig ons eigen voedsel kunnen verbouwen*? (2022). NH Nieuws

PMA In-Depth Interviewee's Companies	
P1	Pinnacle Prevention, Maricopa County Food System Coalition, and Arizona Food Systems Network

P2	Local First Arizona
P3	Sun Produce Co-op and Maricopa Country Food System Coalition
P4	Urban Farm
P5	Sun Produce Co-op
P6	Arizona State University

PMA Documents	
1	Greater Phoenix Regional Atlas: A Preview of the Region's 50-Year Future (2003) – Greater Phoenix 2100 Steering Committee & Arizona State University
2	Creating Our Future: Pinal County Comprehensive Plan (2015) – Pinal County
3	Arizonans Preventing Hunger Action Plan: Nine Strategies to Increase Food Security (2017) – The Arizona Hunger Advisory Council
4	A Snapshot of Arizona Food Policy Coalitions: Strengths and Opportunities (2017) – Pinnacle Prevention
5	Guide to Arizona Agriculture (AZDA) (2018) – Arizona Department of Agriculture (AZDA)
6	Community Action Plan for South Phoenix, Arizona: Local Foods, Local Places Technical Assistance (2018) – USEPA, USDA, CDC, & the City of Phoenix
7	A Comprehensive Assessment for Maricopa County (2019) – Maricopa County Food System Coalition
8	Maricopa County Food System Local Best Practices: Policies and Regulations (2020) – Maricopa County Food System Coalition
9	2025 Food Action Plan: Healthy Food for All (2020) – The City of Phoenix

PMA Research Articles, Theses, and Reports	
1	Is Local More Sustainable in Phoenix, Arizona? (2012) – Schoon, Talbot, and Xiong
2	Gardens of Justice: Food-Based Social Movements in Underserved, Minority Communities (2015) - Bleasdale
3	Stakeholder Analysis for the Food-Energy-Water Nexus in Phoenix, Arizona (2017) – White, Leah-Jones, Maciejewski, Aggarwal, and Mascaro
4	Supply Chain Barriers to Healthy, Affordable Produce in Phoenix-Area Food Deserts (2017) – Lacagnina, Hughner, Barroso, Hall, and Wharton
5	Building Community Networks Through Community Foods (2018) – Meter, Phillips-Goldenberg, and Ross for Maricopa County Food System Coalition's Food Assessment Team
6	Contrasting Governance Learning Processes of Climate-leading and -lagging Cities: Portland, Oregon, and Phoenix, Arizona, USA (2019) - Fink
7	The Environmental Footprint of Data Centers in the United States (2021) - Siddik, Sehabi and Marston

PMA News Articles	
1	*Family farms made Phoenix livable, so why are so many going away?* (2019). Bowling – Arizona Republic.
2	*As Water Sources Dry Up, Arizona Farmers Feel the Heat of Climate Change* (2019). Wilcox – Civil Eats.
3	*Arizona's water supplies are drying up. How will its farmers survive?* (2019). Miller – National Geographic.
4	*'A raging crisis': Metro Phoenix is losing its family farms and local food sources* (2020). Davis – Arizona Central.

8.2. TABLE 2 & 3 SOURCES

Table 2

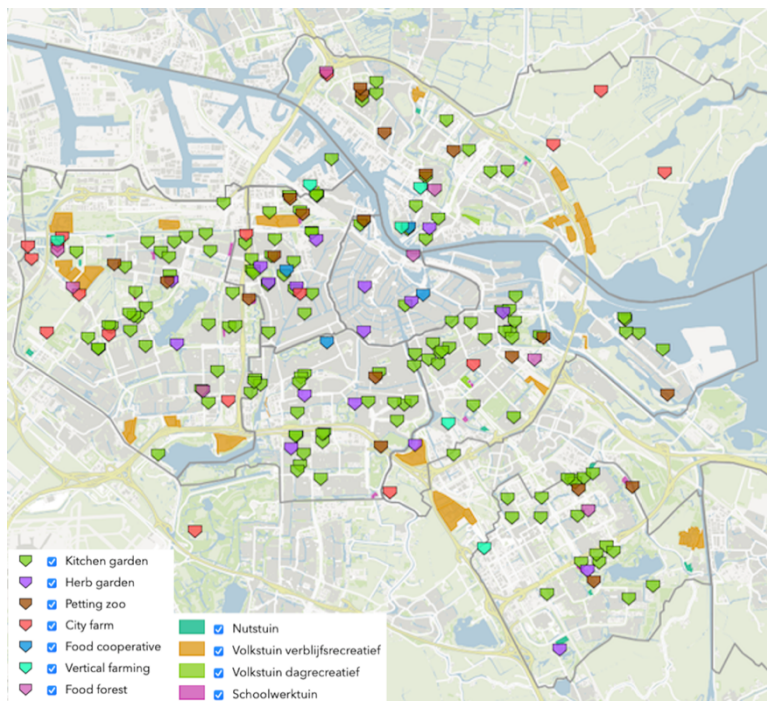|	Flevoland	Noord Holland
Sugar beets	https://knoema.com/atlas/Netherlands/Flevoland/Sugar-beet-production	https://knoema.com/atlas/Netherlands/Noord-Holland/Sugar-beet-production

Potatoes	https://knoema.com/atlas/Netherlands/Flevoland/Potatoes-production	https://knoema.com/atlas/Netherlands/Noord-Holland/Potatoes-production
Cereals	https://knoema.com/atlas/Netherlands/Flevoland/Cereals-production	https://knoema.com/atlas/Netherlands/Noord-Holland/Cereals-production
Dairy milk	https://knoema.com/atlas/Netherlands/Flevoland/Cows-milk-obtained	https://knoema.com/atlas/Netherlands/Noord-Holland/Cows-milk-obtained

Table 3

	Flevoland	Noord Holland
Dairy cows	https://knoema.com/atlas/Netherlands/Flevoland/Dairy-cows	https://knoema.com/atlas/Netherlands/Noord-Holland/Dairy-cows
Cattle	https://knoema.com/atlas/Netherlands/Flevoland/Cattle	https://knoema.com/atlas/Netherlands/Noord-Holland/Cattle
Sheep	https://knoema.com/atlas/Netherlands/Flevoland/Sheep	https://knoema.com/atlas/Netherlands/Noord-Holland/Sheep
Goats	https://knoema.com/atlas/Netherlands/Flevoland/Goats	https://knoema.com/atlas/Netherlands/Noord-Holland/Goats
Pigs	https://knoema.com/atlas/Netherlands/Flevoland/Pigs	https://knoema.com/atlas/Netherlands/Noord-Holland/Pigs
Poultry	https://knoema.com/atlas/Netherlands/Flevoland/Poultry-broilers	https://knoema.com/atlas/Netherlands/Noord-Holland/Poultry-broilers

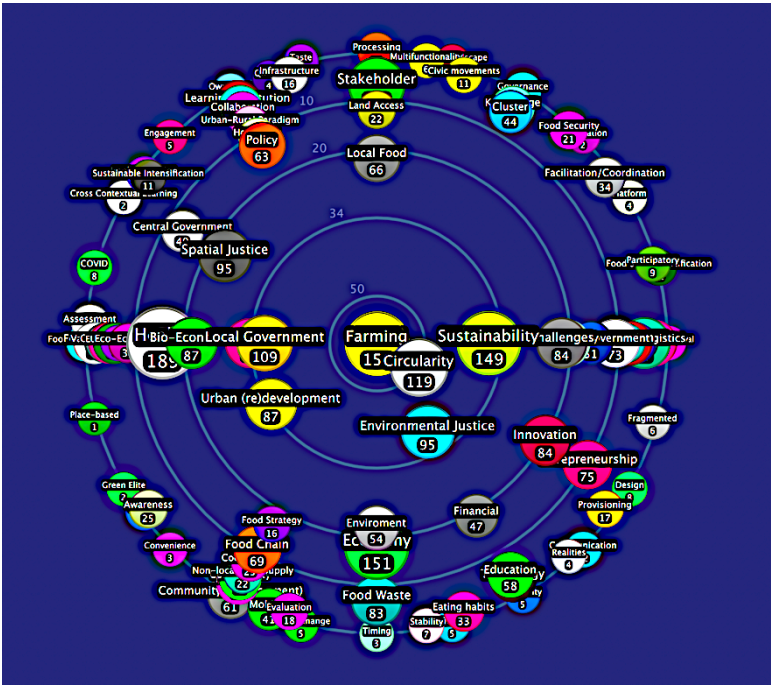## 8.3. URBAN AGRICULTURE & GARDENS WITHIN THE MUNCIPALITY OF AMSTERDAM

https://maps.amsterdam.nl/stadslandbouw/?LANG=en

8.4. AMA ECONOMIC EMBLEMATIC THEME PICTURE

8.5. AMA FARMING EMBLEMATIC THEME PICTURE

8.6. AMSTERDAM PUBLIC TRANSPORTATION MAP

https://www.gvb.nl/sites/default/files/daglijnenkaart2022.pdf

8.7. AMSTERDAM HEAT MAP
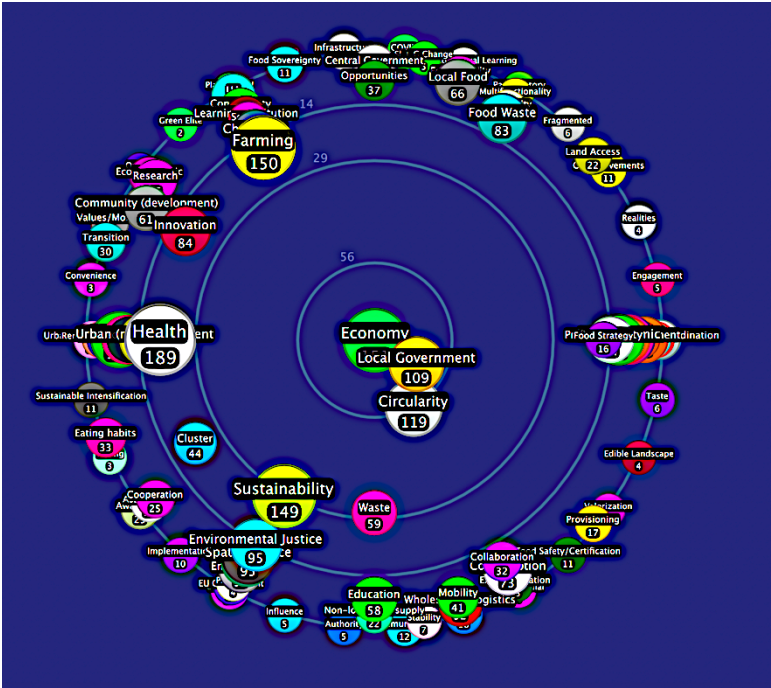
8.8. PMA EXPORTED AND IMPORTED PRODUCTS BY COUNTRY

TOP FIVE EXPORT PRODUCTS BY DESTINATION COUNTRY

Product/Country	Value of Exports
Other Feeds & Fodder	**$80,816,493**
Saudi Arabia	$50,945,864
China	$16,625,515
New Zealand	$7,605,735
Mexico	$4,524,623
United Arab Emirates	$1,114,756
Noncitrus Fruits	**$108,376,054**
Canada	$84,627,575
Mexico	$22,158,747
Japan	$1,480,372
South Korea	$69,600
Dominican Republic	$39,760
Other Dairy Products	**$105,982,384**
Vietnam	$55,730,104
Mexico	$34,153,165
Columbia	$10,107,484
Argentina	$3,123,065
Taiwan	$2,868,566
Cotton	**$86,206,652**
Bangladesh	$13,895,441
Vietnam	$28,021,706
Pakistan	$19,885,605
China	$19,268,188
South Korea	$5,135,712
Orange Juice	**$81,224,880**
Canada	$20,367,028
European Union	$28,641,819
Mexico	$20,015,613
Vietnam	$8,636,358
Columbia	$3,564,062

Source: USDA Economic Research Services, State Agricultural Trade by County of Origin and Destination, 2020.

TOP FIVE IMPORT PRODUCTS BY ORIGIN COUNTRY

Product/Country	Value of Imports
Total All Products	**$3,568,106,922**
Cucumbers	**$311,488,556**
Canada	$1,289,226
Mexico	$310,199,330
Grapes	**$322,458,655**
Chile	$9,337,755
European Union	$323,200
Mexico	$301,167,965
Peru	$11,629,735
Other Vegetables	**$402,288,619**
Canada	$4,307,840
Ecuador	$14,639
India	$11,073
Mexico	$395,654,352
Thailand	$2,300,715
Peppers	**$453,113,288**
Canada	$2,376,985
European Union	$139,948
Mexico	$450,596,355
Tomatoes	**$658,412,730**
Canada	$1,316,700
Mexico	$657,096,030

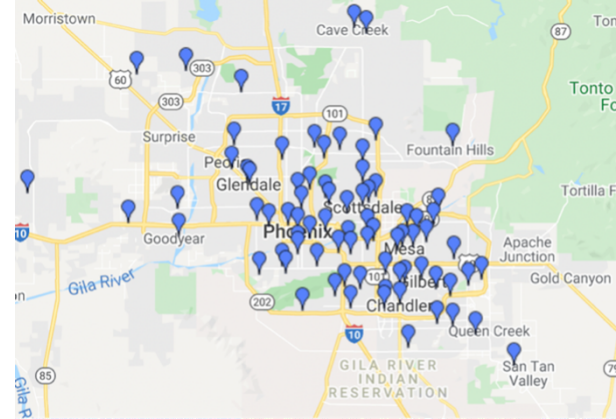Source: USDA Economic Research Services, State Agricultural Trade by County of Origin and Destination, 2020.
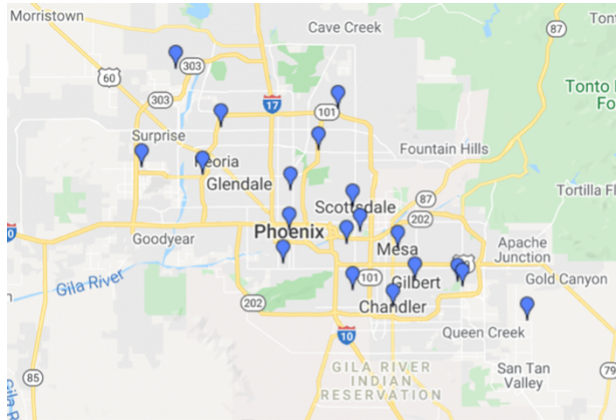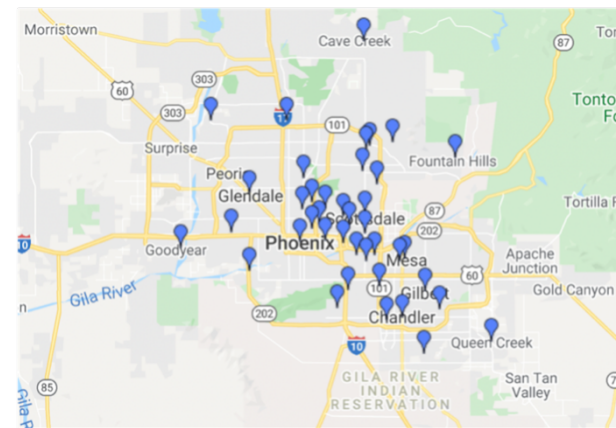
8.9. GOOD FOOD FINDER MAPS

Farms and Ranches
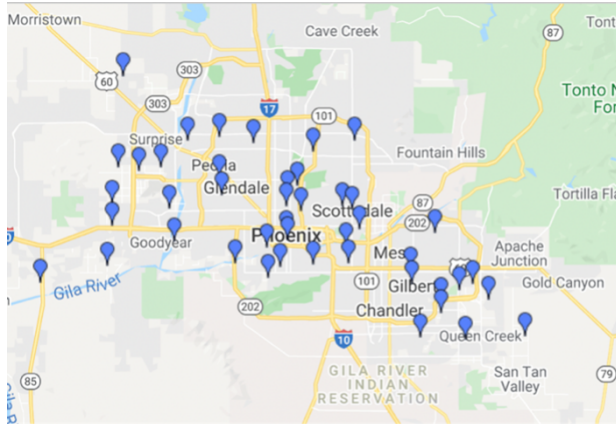
Food Artisans
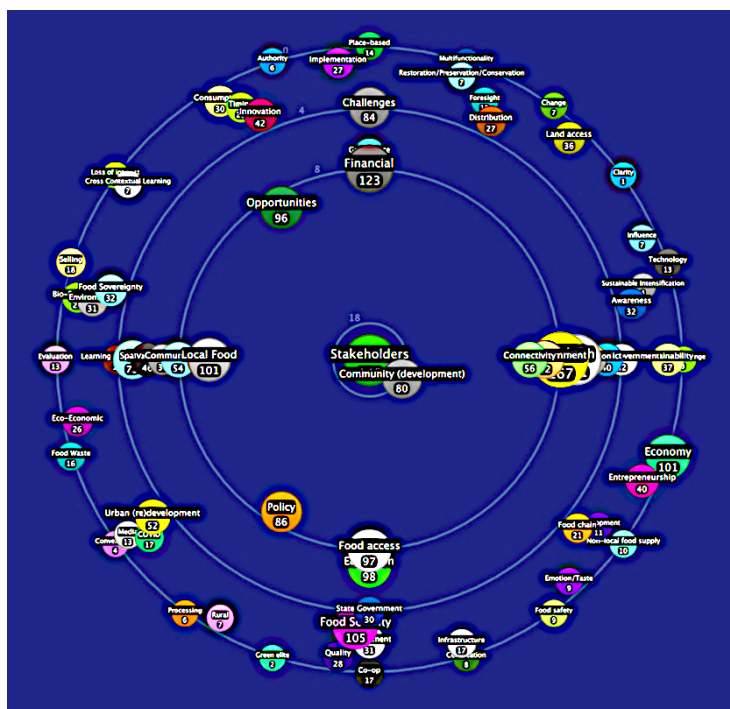

Farmers Markets and Retailers
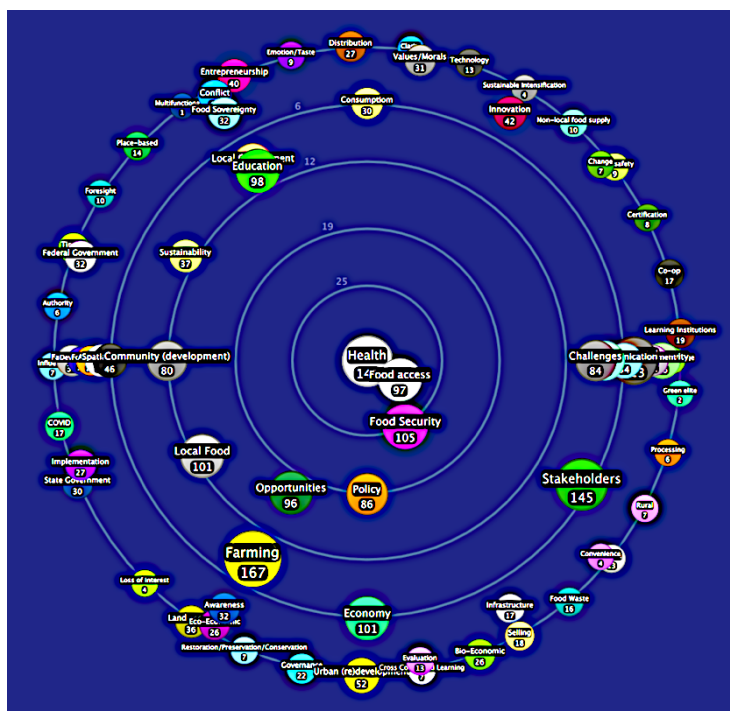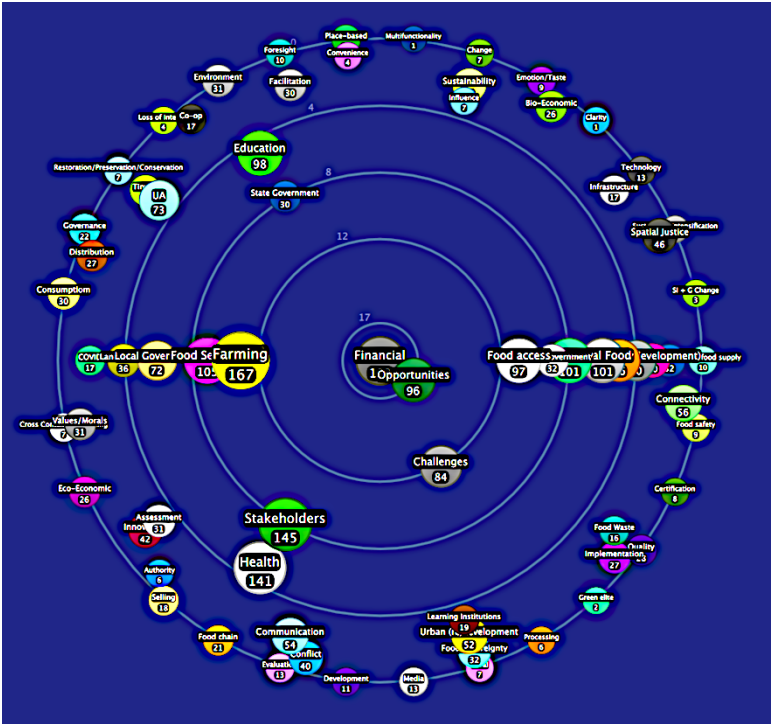

Beverage Artisan
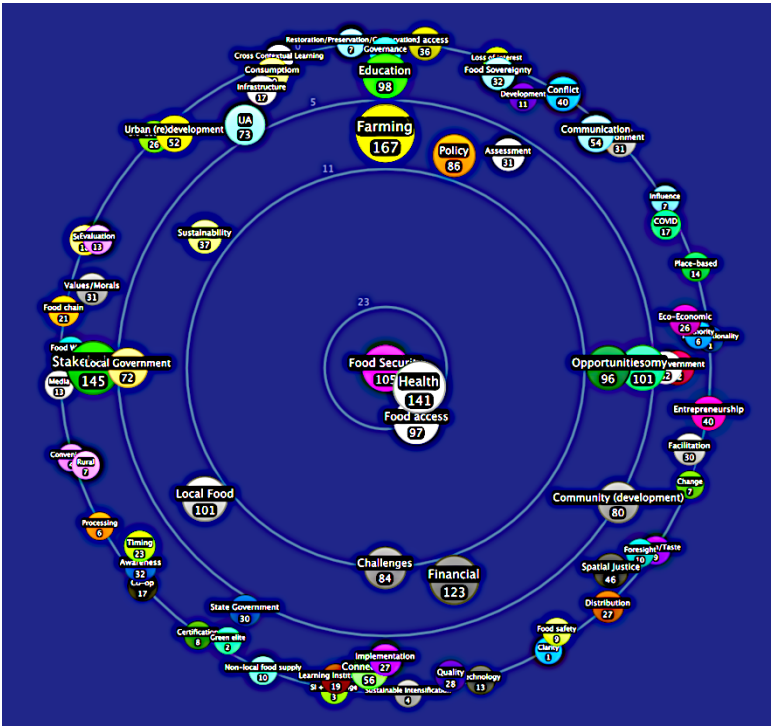

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8.10. PMA STAKEHOLDER EMBLEMATIC THEME PICTURE

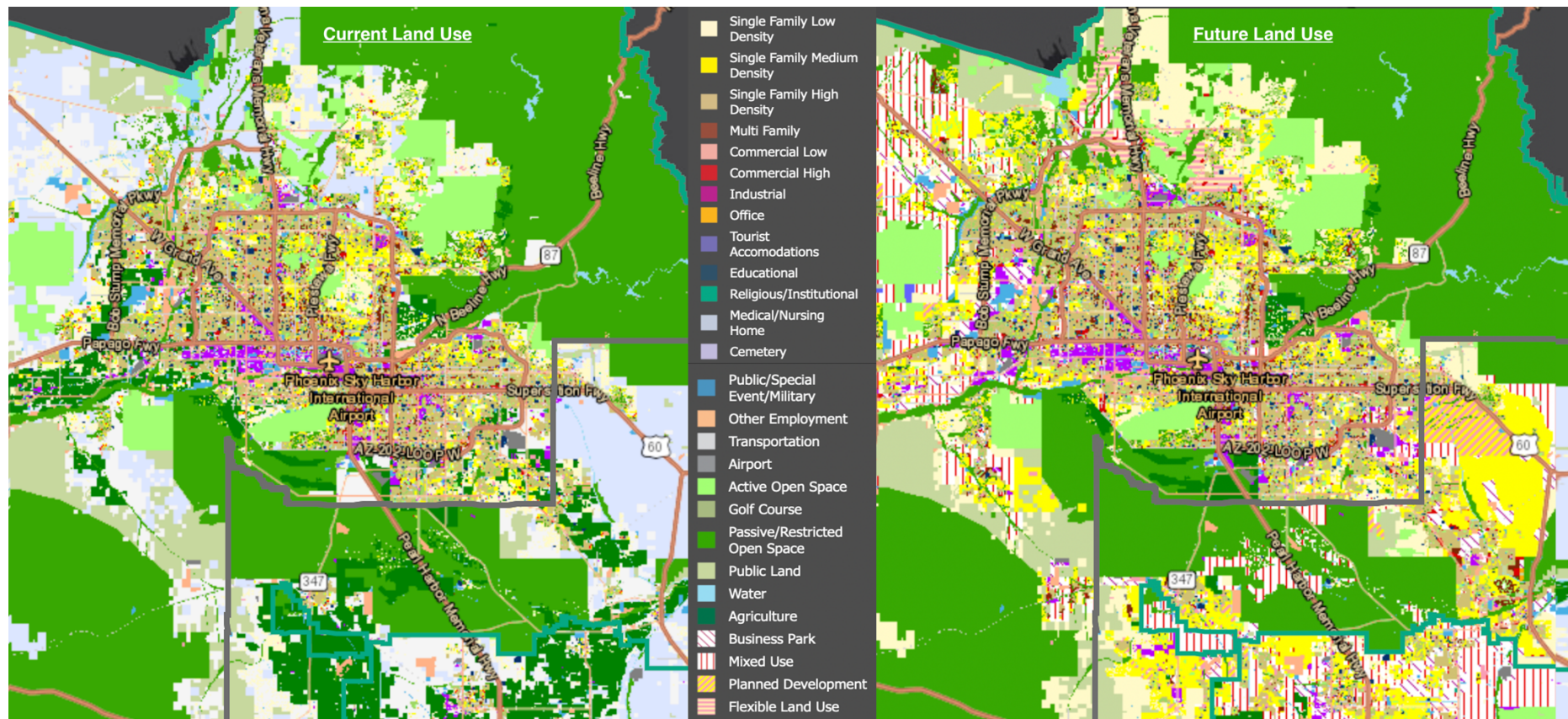## 8.11. PMA HEALTH EMBLEMATIC THEME PICTURE

8.12. PMA FINANCIAL EMBLEMATIC THEME PICTURE
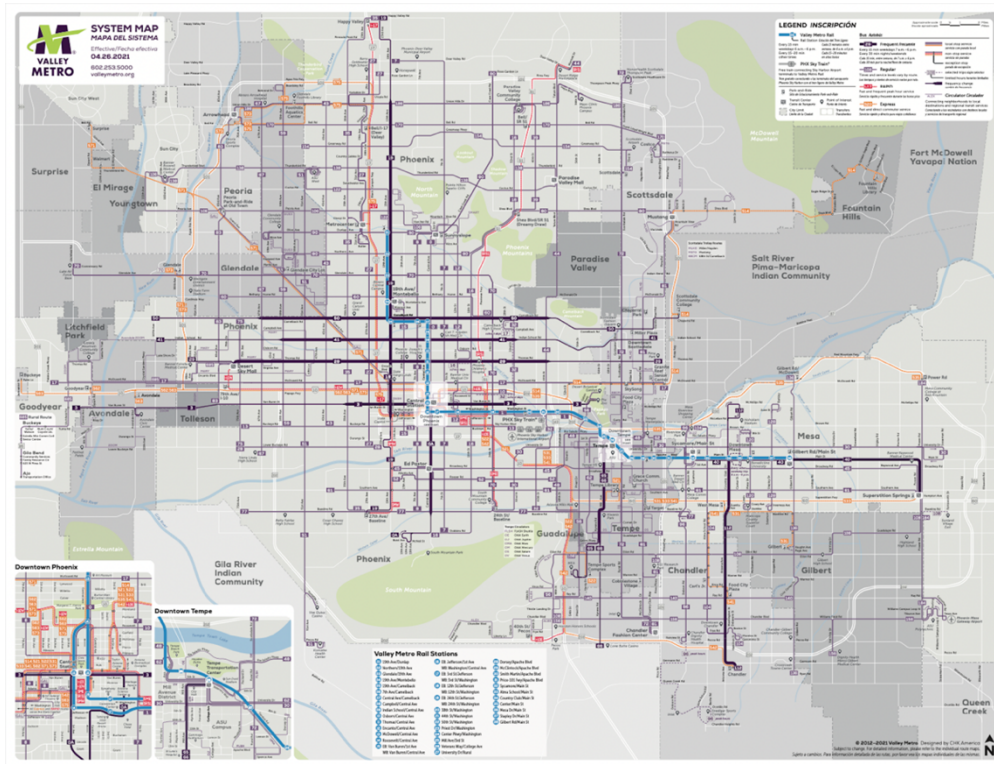

8.13. PMA FOOD SECURITY EMBLEMATIC THEME PICTURE

8.14. LARGER VIEW OF PMA LAND USE MAP

https://geo.azmag.gov/maps/landuse/

8.15. PMA PUBLIC TRANSPORTATION MAP

https://drupal-space.nyc3.cdn.digitaloceanspaces.com/s3fs-public/uploads/event-resources/4_val_mag_restyled_29.5x22.5625_220322_no_crops.pdf

8.16. PARTICIPANT INQUIRY EMAIL

Dear……,

My name is Deidre Fereday and I am a graduate student in the Metropolitan Analysis, Design, and Engineering program at AMS Institute in Amsterdam. The MADE program is a joint degree between Delft University of Technology and Wageningen University and Research. My master's thesis is a comparative case study between the regional food strategies of Amsterdam and Phoenix.

I found you through the ……website and I am wondering if you have time for a one-hour interview to speak with me about the regional food strategy for the Amsterdam Metropolitan Area (AMA). I would like to know the history of the regional food strategy, which stakeholders are included, and how future plans could affect the fairer use of and access to certain food spaces within the PMA.

If you do not have the time, I would appreciate a suggestion of another colleague that could help me. I look forward to hearing back from you soon.

Sincerely,

Deidre Fereday, *MDR*

Graduate Researcher
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AMS Institute – MADE program
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https://www.linkedin.com/in/deidrefereday

8.17. INTERVIEW GUIDE

In order to determine each case study's RFS, the following questions were asked to the participants. When necessary, questions like why or why not or could you please explain further were asked.

- Identifying the past, present, and future planned activities for each case study's RFS:
    - When was the RFS for Amsterdam/Phoenix conceived?
        - By whom? And why?
    - What is a rough estimate of the budget other resources (human resources, specialized equipment, or institutional capabilities) needed for the operation of the regional food strategy?
    - Who is responsible for managing and negotiating the RFS?
    - What mechanisms are applied to monitoring and evaluating the implementation process?
    - What current trends do you see in the RFS?
    - What opportunities do you see in the RFS?
    - What challenges do you see in the RFS?
    - How do you view the overall functioning of the RFS?

- Identifying key stakeholders (formal/informal):
    - What is the expertise that you provide?
    - What is your mission?
    - What aspects/dimension are you involved with in the RFS?
        - What are the main strategies that you apply to go from discussion to action?
        - What is your perception of your authority in the creation of the RFS?
        - Do you have any influence over the establishment of the RFS?
    - Are there any groups missing that you feel need to be included?
    - How visible is the RFS to residents?

- Identifying knowledge on spatial justice:
    - What type of food provisioning does the RFS advocate for?
        - For example, urban agriculture or food hubs
    - How do you foresee the RFS affecting the spatial configuration of the city in the future?
    - Are there certain areas in the city that don't have access to fresh food?
        - Do you think the regional food strategy addresses this?
    - Are there any obstacles making it difficult to establish more just access to fresh food?

Are there any questions that you have for me?