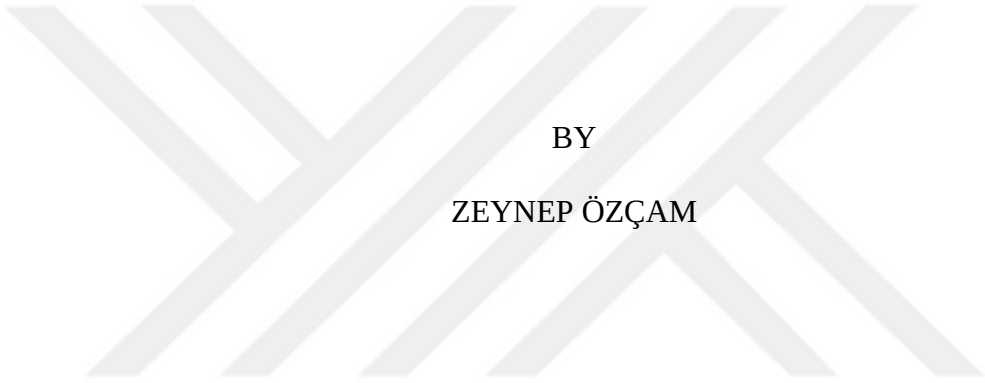


URBAN FOOD SYSTEM TRANSITION VIA CIRCULAR ECONOMY:
THE CASE OF KARŞIYAKA, İZMİR

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY



BY
ZEYNEP ÖZÇAM

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
IN
CITY AND REGIONAL PLANNING

MARCH 2024

Approval of the thesis:

**URBAN FOOD SYSTEM TRANSITION VIA CIRCULAR ECONOMY:
THE CASE OF KARŞIYAKA, İZMİR**

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ABSTRACT

URBAN FOOD SYSTEM TRANSITION VIA CIRCULAR ECONOMY: THE CASE OF KARŞIYAKA, İZMİR

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March 2024, 325 pages

The post-industrial society faces “multiple crises” arising from the effects of human systems on the environment. Cities, as the places of consumption, are places where the multiple crises converge and deeply manifest themselves. One of the alarming systems is the *food system*, with the unsustainable production and consumption patterns pushing environmental and social limits, leading to social inequality as well as ecosystem destruction. This requires a rethinking on the linear organization of the food system that basically locked within traditional technologies, lifestyles, supply chains, as well as organizational, regulatory, institutional, and political structures. Reimagining the linear organization of the food system is crucial, necessitating a shift towards building *Urban Food Systems* where food production and consumption are linked to local or regional supply systems. Integrating Circular Models into this approach offers a path to build more sustainable, resource-efficient and socially just and equitable food systems. The Circular Food System approach, based on the concept of the Circular Economy (CE), is a promising approach to develop food system to be redesigned in a sustainable and regenerative way with three major principles: producing food regeneratively and locally; designing waste out of the system; keeping materials in use. Promoting responsible consumption practices is

also essential for accelerating this transition, requiring novel models to promote sustainability and circularity within food systems, ensuring food safety, social justice, and ecological harmony.

The detailed exploration on the case of Karşıyaka, İzmir, shed light on the key urban food practices providing alternatives that can support circular and sustainable transition of the food system within urban level. In this framework, the study aims to examine the key urban food practices within Karşıyaka, a dynamic sub-centre of İzmir, Turkey, including various dimensions of the food system with diverse range of food-related activities and practices. However, despite the ambitious studies on food sustainability in Karşıyaka, the initiatives remain fragmentary, lacking widespread adoption as well as a holistic implementation of sustainable, and circular food system. Consequently, this underscores the need to explore key urban food practices, to assess their potential in terms of circularity and to examine possible drivers for new models as well as the barriers that prevent their proliferation. Essentially, based on qualitative and exploratory research methodology with a case study on Karşıyaka, this research aims to examine the key practices and highlights the role of new models in advancing or hindering the transition to a circular food system in a local context. Through this, the thesis is intended to provide a more holistic view of the food system, and to help identify ways to promote sustainable and circular practices. Ultimately, it aims to contribute to circular food systems, urban food systems and food planning literature.

Keywords: Urban Food Systems, Food System Transition, Circularity, Circular Food Systems, Karşıyaka-İzmir

ÖZ

KENTSEL GIDA SİSTEMİNİN DÖNGÜSEL EKONOMİYLE DÖNÜŞÜMÜ: İZMİR, KARŞIYAKA ÖRNEĞİ

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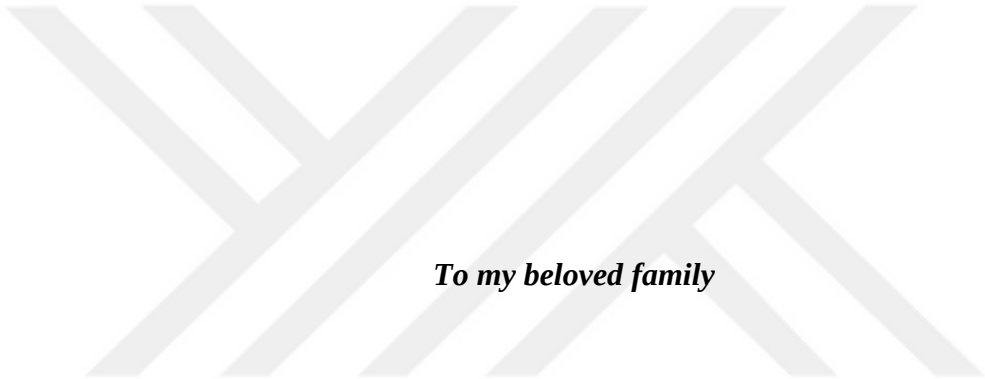
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Post-endüstriyel toplum, insan sistemlerinin çevre üzerindeki etkilerinden kaynaklanan “çoklu krizlerle” karşı karşıyadır. Tüketim mekânları olarak kentler ise, çoklu krizlerin birleştiği ve derinlemesine kendini gösterdiği mekanlardır. Gıda sistemleri ise, sürdürülebilir olmayan üretim ve tüketim kalıplarının çevresel ve sosyal sınırları zorlayarak sosyal eşitsizliğe ve ekosistem tahribatına yol açtığı endişe verici sistemlerden biri olarak kendini göstermektedir. Bu durum, geleneksel teknolojiler, yaşam tarzları, tedarik zincirlerinin yanı sıra organizasyonel, düzenleyici, kurumsal ve politik yapılarla şekillenen gıda sisteminin doğrusal organizasyonunun yeniden düşünülmesini gerektirir. Gıda sisteminin doğrusal organizasyonunu yeniden tasarlamak önem arz ederken, gıda üretim ve tüketiminin yerel veya bölgesel tedarik sistemlerine bağlandığı ‘*Kentsel Gıda Sistemleri*’nin inşasına doğru bir değişim ise kaçınılmaz kabul edilmektedir. *Döngüsel Modellerin* bu yaklaşıma entegre edilmesi, daha sürdürülebilir, kaynak açısından verimli, sosyal açıdan adil ve hakkaniyetli gıda sistemleri inşa etmenin bir yolunu sunmaktadır. Döngüsel Ekonomi (CE) kavramına dayanan *Döngüsel Gıda Sistemleri* yaklaşımı, sürdürülebilir ve onarıcı gıda sistemlerinin geliştirilmesini hedeflemekte ve üç ana prensibe dayanmaktadır: onarıcı gıda üretimi; materyallerin döngüler içinde

kullanımda tutulması; atıkların sistemden ayrıştırılması. Sorumlu tüketim uygulamalarının teşviki ise bu geçişi hızlandırmak için hayati önem taşımaktadır. Tüm bunlar, gıda sistemlerinde sürdürülebilirliği ve döngüsellığı teşvik edecek, gıda güvenliğini, sosyal adaleti ve ekolojik uyumu sağlayacak yeni modellerin inşasını gerektirmektedir.

İzmir Karşıyaka örneğine ilişkin ayrıntılı inceleme, gıda sisteminin kentsel düzeyde döngüsel ve sürdürülebilir geçişini destekleyebilecek alternatifler sunan kilit kentsel gıda uygulamalarına ışık tutmaktadır. Bu çerçevede çalışma, İzmir'in dinamik bir alt merkezi olan Karşıyaka'da, gıdayla ilgili çeşitli faaliyet ve uygulamalarla gıda sisteminin çeşitli boyutlarını içeren temel kentsel gıda uygulamalarını incelemeyi amaçlamaktadır. Ancak Karşıyaka'da gıda sürdürülebilirliği konusunda iddialı çalışmalara rağmen girişimler parçacıl kalmakta, yaygınlaşmamakta ve sürdürülebilir ve döngüsel gıda sisteminin bütünsel bir şekilde uygulanmasını zorlaştırmaktadır. Sonuç olarak bu durum, mevcuttaki kilit kentsel gıda uygulamaları keşfetme, döngüsellik açısından potansiyellerini değerlendirme ve yeni modeller için olası itici güçlerin yanı sıra bunların çoğalmasını engelleyen engelleri inceleme ihtiyacının altını çizmektedir. Karşıyaka'da bir vaka çalışması içeren nitel ve keşfedici araştırma metodolojisine dayanan bu araştırma, temel uygulamaları incelemeyi ve yerel bağlamda döngüsel gıda sistemine geçişi ilerletme veya engellemede yeni modellerin rolünü vurgulamayı amaçlamaktadır. Bu sayede tezin gıda sistemine daha bütünsel bir bakış sunması ve sürdürülebilir ve döngüsel uygulamaları teşvik etmenin yollarını belirlemeye yardımcı olması amaçlanmaktadır. Sonuç olarak tez bu çalışma ışığında döngüsel gıda sistemlerine, kentsel gıda sistemlerine ve gıda planlama literatürüne katkıda bulunmayı amaçlamaktadır.

Anahtar Kelimeler: *Kentsel Gıda Sistemleri, Gıda Sistemleri Dönüşümü, Döngüsellik, Döngüsel Gıda Sistemleri, Karşıyaka-İzmir*



To my beloved family

ACKNOWLEDGMENTS

First of all, I wish to express my deepest gratitude to my supervisor Prof. Dr. M. Melih PINARCIOĞLU for his guidance, advice, encouragements and insight throughout the research. His professional guidance always encouraged me to develop new perspectives in my field.

I would like to thank my committee members Prof. Dr. Anlı ATAÖV and Prof. Dr. Koray VELİBEYOĞLU for their guidance throughout the process, which contributed greatly to the development and finalization of the thesis. I would also like to thank to my honourable jury members Prof. Dr. Emine YETİŞKUL ŞENBİL and Assoc. Prof. Dr. Murad TİRYAKİOĞLU for their valuable comments and contributions. Besides all, I would like to thank Assoc. Prof. Dr. Emel KARAKAYA AYALP and her valuable team. Their contribution to this thesis is indispensable.

I owe my gratitude to my wonderful friends Meltem ÇETİNEL, Sezgi MAMAKLI and İklim TOPALOĞLU SARI. They supported me whenever I needed their support. But I owe special thanks to my dear friend Meltem ÇETİNEL, who has always been my best friend, my best companion, and my best housemate ever, especially in my METU and Ankara days. I will always remember those days with a smile and longing. For the best partner in PhD journey, I owe special thanks to Sıla ÖZKAVAF, for always being by my side, sharing my concerns and supporting me during the thesis journey. I am so lucky to meet you and have such a great friend and a colleague like you in my life. To my warm-hearted friends in London, Gülcan ORAK and Koza ÜNAL, I would like to thank you for your presence, support and encouragements from far away. I will always miss the days we spent together in London, where I spent the best days of my PhD journey. Thank you for being with me.

I owe special thanks to my love, to my life partner Sadık ÖZTÜRK. He always encouraged me to do my best. I am so lucky to find him and to have him in my life

journey. I also would like to thank my Pianetta Family, Sadık ÖZTÜRK, Mert ÇAMKIRAN, and Çağrı KÜTÜKÇÜ. I want to thank them all for making my days beautiful and joyful at all times.

Finally, I would like to express my deepest thanks and gratitude to my beloved family; starting with my sister Selcan ÖZÇAM and my parents Ayfer ÖZÇAM and Ali Gürbüz ÖZÇAM. They mean everything to me. Without their presence in my life, I cannot be the person who I am now, and wouldn't be able to complete this rough PhD journey. They have always been supportive in my life, including my studies and my experiences. I feel so lucky and very special for being a part of this family. And finally, I would like send my love and my gratitude to my lovely grandmother Yurdanur SADAKÇI. I feel her presence and support at all times, even she is not physically with me. I want to dedicate this thesis in the name of her.

I want to thank my grandmother, my family, my life partner and my friends again for everything I have in my life. As the years pass, I understand better how important the presence of each of you is. Thank you all for being with me.

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LIST OF ABBREVIATIONS

ABBREVIATIONS

CE: Circular Economy

CFS: Circular Food System

CRFS: City-Region Food System

EC: European Commission

EMF: Ellen MacArthur Foundation

EU: European Union

FAO: Food and Agriculture Organization of the United Nations

FLW: Food Loss and Waste

IDA: İzmir Development Agency

IMM: İzmir Metropolitan Municipality

KM: Karşıyaka Municipality

LFS: Local Food Systems

MAF: Ministry of Agriculture and Forestry

MUFPP: The Milan Urban Food Policy Pact

OECD: The Organisation for Economic Co-operation and Development

RUAF: Global Partnership on Sustainable Urban Agriculture and Food Systems

SDGs: Sustainable Development Goals

SFSCs: Short Food Supply Chains

UFP: Urban Food Planning

UFS: Urban Food System

UN: United Nations

UNEP: United Nations Environment Programme

WEF: World Economic Forum

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

The post-industrial society (as defined by Daniel Bell in 1973) is now facing alarming global problems arising from the effects of human activities on the environment. Cities, as the places of consumption, where these problems are most severe (Newman, 2006; UNEP, 2018), are faced with environmental and social crises along with the economic crises today. It is accepted by many that cities can only achieve social and economic resilience through producing sustainable, regenerative and nature-friendly systems. This requires a rethinking on the linear organization of the economic and social relations that basically locked within traditional technologies, lifestyles, supply chains, as well as organizational, regulatory, institutional, and political structures (Markard et al., 2012). The possibility of change comes with the development of innovative actions aimed at transforming linear systems of production as well as consumption.

One of the alarming systems of the post-industrial society is the food system (Springmann et al., 2018; Vermeulen et al., 2012). The environmental and socio-economic problems faced by the linear food system are clear and have become more evident with the pandemic and crises (Giudice et al., 2020), which makes the fragile and unsustainable production and supply structure of the system more visible. Undoubtedly, the way of production and consumption brought by the dominant industrial agri-food system pushes environmental and social limits, causing social inequality as well as ecosystem destruction. This linear system, built on production-distribution-consumption-waste axes and long supply chains, increases resource

exploitation and pollution, jeopardizes clean and safe food production, with little done to the waste and residues generated throughout the supply chain (Fassio & Tecco, 2019). All these make the food system the major contributor to climate change and ecosystem degradation (Fassio & Tecco, 2019; Springmann et al., 2018). While the structural problems of the linear food system cause destruction in rural and natural ecosystems, they also cause socio-economic vulnerabilities that manifest themselves majorly in cities. Problems such as malnutrition, hunger and poverty are increasing due to unbalanced conditions for food access and distribution as a result of long food supply chains. Increasing food inflation triggered by environmental and economic crises also makes access to healthy food difficult for all segments of society. In addition, existing linear configuration of the existing food system produces a consumption-oriented structure that transforms consumers into passive actors who are disconnected from the complex mechanisms of the food system (Atasoy, 2013).

While cities grapple with the structural problems of the linear food system, many studies emphasize the need for sustainable reconfiguration of the food systems as Urban Food Systems where food production and consumption are linked to local or regional supply systems (Olsson, 2018; Vieira et al., 2018). Although the food system is considered as an urban system, the food question was mostly excluded from urban planning practice and research (Pothukuchi & Kaufman, 1999) until very recently. However, it is known that the current food system has complex relations with all other urban support systems that have an important place in the functioning of cities (Blakey et al., 1977; Wiskerke, 2015). These are largely physical systems such as energy, water, land use, transportation, but also socio-economic systems such as human rights, public health, social justice, and welfare distribution. The current food system, which has strong relations with all these systems, produces ecological and socio-economic crises in relation to the ongoing climate crisis, rapid urbanization and neoliberalisation dynamics. These crises trigger and deepen the problems of poverty, malnutrition, and food injustice, as well as excessive resource consumption and ecological degradation (Holt-Giménez, 2010; Sonnino, 2016).

Thus, the food system should be seen as an urban system with all aspects of producing and delivering food to people, considering the impacts on societies as well as on the environment. All these necessitate a holistic planning approach to the food system as a multi-space, multi-actor and multi-stage system with complex relations.

Approaches on urban food systems and urban food planning demand an urgent change of the current agri-food system and seek to draw attention to wider issues beyond food production (Morgan & Sonnino, 2010; Vermeulen et al., 2012; Vieira et al., 2018). The unsustainable structure of the food system calls for a redesign towards sustainable urban food system through planning. This requires the dominant industrial agri-food system designed for mass-production, efficiency and affordability (Prost et al., 2018), is replaced by regenerative one, enhancing healthy ecosystems and supporting decentralised, local food systems where shorter food supply is possible and all social groups have access to clean food (Philpott et al., 2020; Prost et al., 2018; Vieira et al., 2018).

In order to transform all the impasses and the unsustainable structure of the current agri-food system, alternative searches have emerged in different parts of the world, shaped by social movements along with the various approaches in the literature. These alternative searches include local and innovative movements from organized grassroots (Prost et al., 2018), partial actions of local governments within their own authority and responsibility (Bottiglieri et al., 2016; Carey, 2013; Mah & Thang, 2013; Reynolds, 2009), and the policy, strategy and action studies of supranational institutions and organizations that are associated with the necessity of transforming the food system (e.g. FAO, 2009, 2018, 2019; MUFPP, 2020).

One of these policy actions emerge as Circular Economy phenomenon very recently. The circular food system approach, based on the concept of the Circular Economy (CE), is a promising approach to develop food system to be redesigned in a sustainable and regenerative way (Fassio & Tecco, 2019; Jurgilevich et al., 2016). While this approach offers a comprehensive perspective to the problems of the food system, on the other hand, it provides the holistic and systemic approach that

planning needs. Circular approach builds on ‘systems thinking’ with interrelated applications to the entire system, from production to consumption (EMF, 2019) allowing a more holistic understanding of the food system. These applications are to support value creation through innovative methods of resource use, regenerative production, and responsible consumption especially by revalorisation of the concept of "waste", a problem created by the linear economy of the dominant industrial system (EMF, 2019). Here, the targeted value creation is not only economic but also social, ecological, and even cultural. This circular approach enables innovative ways on waste reduction, revalorisation and resource consumption system-wide, while promising a comprehensive, systemic approach to support social change in food production, food supply, retail and consumption (Fassio & Tecco, 2019; Jurgilevich et al., 2016; Liaros, 2021)

There is another issue to be emphasized here is that the food system literature and the circular economy literature generally adopt a production-biased approach to the food system (Mylan et al., 2016; Spaargaren et al., 2012). This approach mostly focuses on the structural problems of the industrial agricultural production with deficiencies it creates, placing the necessary transformation of food production practices in the foreground (Poore & Nemecek, 2019; Spaargaren et al., 2012). These prevailing views consider the production practices, which are the initial stage of the food system, as a part of the systemic practices, and therefore adopt an understanding of system transformation starting from production. Following this, it is seen that major actions and practices aimed at organizing production intensify in the dominant practices and the political actions that follow them. However, in recent years, alternative discussions have highlighted the need for a shift of the focus in food system transition approaches from primary producers, farmers and traders, to one much more oriented towards end users, retailers and consumers (Lang & Heasman 2004, cited in Ooesterveer & Spaargaren, 2012), as these have a great importance on the (re)constructing the complex social practice of consuming food. In this sense, it is especially important to focus on the **consumption junction**, around which the food provision practices and related infrastructures between consumption and production

practices are concentrated (Ooesterveer & Spaargaren, 2012). It is argued that the innovative actions and practices at this junction, as it combines upstream (consumption and food preferences) with downstream dynamics (production and food supply) and effects transition in both directions (Ooesterveer, 2012), will accelerate transition through the organization of consumption especially in urban systems where consumption practices are concentrated.

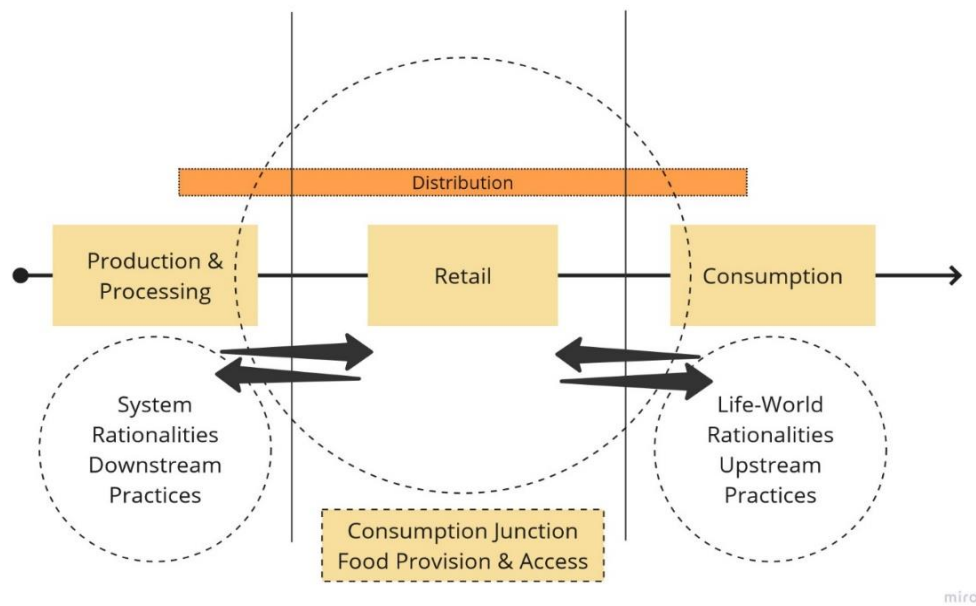


Figure 1: Consumption Junction Practices at Food Chain
(Source: Produced by the author, with reference to Ooesterveer, 2012)

Although the food system has been highlighted as a potential site for the fruitful implementation of the principles of 'circularity', much of the work engages again with food production, with less attention paid to processes involved in food consumption (Jurgilevich et al., 2016; Liaros, 2021; Mylan et al., 2016). While much of the studies on circular economy for food focuses on food production, there is need to pay more attention to the processes involved in food consumption and the practices that directly connect production-consumption, particularly at consumption

junction. There are small size of studies where the consumption is the major focus, but these works mainly focuses on the individual and domestic consumption, rather than the consumption junction focusing on existing infrastructures, organizational structures, and concentrated practices at retail and consumption (Borrello et al., 2017; Canto et al., 2021). These studies are based on the notion that transition to circular economy necessitates a change in the linear structure of the supply chain, starting with consumer behaviour, and changes in consumption patterns are seen as drivers of transformation. However, the change in consumption patterns should not only be explained via individual consumption practices, but also through organized practices targeting consumption such as food supply structures and retail (Mylan et al., 2016). The transformative effects of these organized practices on the supply chain should be revealed especially in terms of circularity.

Beyond these approaches, this thesis explores the key practices at consumption and retail practices, which are forced to be shaped by alternative preferences that can support circular and sustainable transition of the food system within urban level. In this context, the study examines the food system of Karşıyaka, a sub-centre of Izmir, Turkey. Karşıyaka is a dynamic urban section of metropolitan area of Izmir, including various dimensions of the food system with diverse range of food-related activities and practices. Karşıyaka offers an urban section where consumption practices are concentrated, suggesting that the study will examine the role of consumption junction practices in shaping the food system at a local level. In this framework, study aims to document key innovative actions and assess their potential in terms of circularity, specifically within consumption-biased supply chains dominated by urban dynamics. Following, the thesis proposes a reverse chain method, which aims to investigate the impact of consumption practices on the entire supply chain in terms of circularity. Through this, the thesis is intended to provide a more holistic view of the food system, and to help identify ways to promote sustainable and circular practices at every stage of the supply chain, starting from the consumption side of the chain. In this context, it aims to contribute to circular food systems, urban food systems and food planning literature.

1.2 Structure of the Thesis

1.2.1 Aim

As discussed above, it is widely accepted that the unsustainable food system needs sustainable restructuring through building regenerative and nature-friendly systems both in food production and consumption patterns. At this point, cities have become the focus of the climate and food crisis, and the strategic action against them. The fact that 80 percent of the food grown in rural areas is consumed in cities, that the production processes of food cause rural and natural ecosystem degradation and socio-economic vulnerabilities, and that one third of the produced food has been lost while being transported to cities within linear supply systems, makes cities the focal point of strategic action.

However, until very recently, strategies for the sustainable transition of agri-food systems were mostly limited to reorganizing agricultural production, without a holistic understanding of the system and its interrelations. This is because food is closely associated with agricultural production which is seen majorly as rural issue. It has been ignored that food is closely related not only to production but also to processing, distribution and consumption mechanisms within a highly interrelated system. As a result, the issue of food was not handled within a comprehensive urban strategy. On the other hand, although cities are closely associated with consumption practices, the organization of food consumption is mostly underestimated within urban strategies. However today, it is generally accepted that food systems should be considered as integrated urban systems with multi-layered, multi-actor and multi-space character in which production and consumption practices are strongly interrelated, also effect and transform each other within the whole (Wiskerke, 2015).

To further support this comprehensive approach, the concept of circularity, which is fed from systems approach, appreciates relationality rather than linearity, should be incorporated. However, despite the increasing interest on the concept of circular

economy, there are a few studies on the concept in the context of circular urban food systems (Esposito et al., 2020). More research is needed to understand how circular model, fed from circular economy approach, will shape urban food systems and create new models introducing new processes and actions that promote more sustainable production and consumption patterns in urban contexts. At this point, particular attention should be directed towards circular practices that propose novel models of consumption patterns (Mylan et al., 2016), especially in urban areas where urbanization dynamics are quite dominant and consumption practices are intense. Such research is beneficial to incorporate elements of circularity throughout the food system starting from consumption and to develop new models that support sustainability and circularity in urban food systems.

This thesis assumes that consumption practices are major triggers for the transition to local and circular food systems, given the transformative effect they create on the system as a whole and on the production-consumption duality (Spaargaren et al., 2012). In this framework, the thesis aims to propose an organizational model for an urban food system that prioritizes consumption practices to trigger and support circularity. Related to this goal, this study aims to document key urban food practices at a particular urban area and to reveal their transformative effect on local food systems along with their potential to generate circularity. In this process, it examines consumption practices by bringing them to the fore. By developing a consumption-biased model focusing on consumption junction instead of focusing solely on reorganizing agricultural production, this thesis seeks to contribute to the field of urban food planning and food system transition.

In accordance with the purpose of developing a circular model for urban food systems, this thesis focuses on the district of Karşıyaka in İzmir, Turkey as a case study. İzmir is the third largest city in Turkey and has a relatively strong rural-urban relationship, with agricultural production still present in its urban periphery. The city aims to strengthen this connection with urban strategies and plans. Karşıyaka, as a dynamic sub-centre of İzmir, is an urban section where the rural-urban transition is rather blurred, and the relations are mostly dominated by urban dynamics. In terms

of food system, the district provides an urban section that encompasses various aspects of the food system. As being a region with intense urban practices, Karşıyaka has a multi-layered and multi-actor food system with a concentration of consumption practices. It hosts many different consumption practices from alternative to mainstream ones, and also hosts practices that can be considered as innovative in terms of organizing consumption. Moreover, Karşıyaka has already witnessed various studies on urban food planning and has the potential to become a dynamic urban region where new methods are practiced within the urban food system. In this respect, Karşıyaka presents an ideal opportunity to explore key practices and analyse their potential to generate circularity within urban food systems at a local scale. Therefore, focusing on Karşıyaka and the consumption practices it hosts, this thesis aims to reveal the transformative effects of consumption junction practices on the local food system and the problems and potentials they create in terms of circularity in urban food systems. Based on the research on the case of Karşıyaka, the ultimate goal of the thesis is to develop a model proposal for enhancing sustainable and circular urban food system for Karşıyaka district, to be integrated into municipal food strategies.

1.2.2 Major Arguments

The thesis puts forward and discusses three basic arguments in relation to the aim and background of the study. These arguments can be listed as follows:

- This thesis primarily advocates that *food systems should be considered within a holistic understanding* where the food system is composed of both rural and urban systems. In this context, urban planning and practice should especially consider food systems as Urban/Regional Food systems where food production and consumption are linked to local or regional supply systems. Following this, this thesis argues that *the concept of circularity should be integrated into the UFS conceptualization in order to support its holistic understanding, and to strengthen the broken*

relationship between the parts of the food system, particularly between food production (rural-based) and consumption (urban-based). This is because the circular approach handles food systems through systems thinking and aims to establish stronger relationships between parts.

- *Second, this thesis advocates the need to focus on the consumption mechanisms as the major driver of change towards more sustainable and circular reorganization of food systems, especially when focusing on urban areas.* Strategies on food mostly focus on sustainable re-organization of agricultural production, and the necessary transformation in food systems is described through changing production practices, the initial stage of the food system. However, in urban areas which are defined as the centres of consumption practices, consumption mechanisms, consumer organizations and the actor groups with novel practices can be the primary transformers as these have a great importance on the (re)constructing the complex social practice of consuming food. For this reason, *this thesis considers the consumption mechanisms aiming at re-organization of consumption as the major focus in terms of generating circular transitions.*
- *Finally, the thesis advocates the need to examine local food practices in detail within their own socio-spatial context, in order to reveal the urban projection of circular practices more clearly.* Considering that the concept of circularity is blurred, and that its parameters are unclear, applications in urban scale needs detailed analysis and a clear understanding. Here, each and every practice should be understood and analysed in its own context, as *the phenomenon is highly context-dependent.* It is important to reveal novel urban food practices on-site with analysis on how the practices emerged, through which actors and structures, and which circularity elements they have activated. The contribution of each of these urban practices into the theory is valuable

and should be strengthened to clarify the blurriness of the concept of circularity, especially for its urban projection.

1.2.3 Research Questions

In line with the aims and major arguments of the study, the research questions along with the sub-questions are formulated as follows:

What are the characteristics and local dynamics of food system in Karşıyaka and the major problems and potentials associated with it?

- What are the major characteristics of the local food system? (food ecosystem, existing structures and mechanisms, major actors)
- What kind of problems and potentials the local food system incorporates in terms of circularity?

What are the key innovative practices (associated with consumption) that can trigger the circular transition of the local food system in Karşıyaka, an urban-section with intense consumption practices?

- What are the circular elements that these practices set in motion? (products, applications, infrastructures, human and non-human actors, relationships, etc.)
- What properties, barriers, and drivers that different consumption-related urban food actors face in terms of integration of circular food system?

1.2.4 Research Design and Methodology

This thesis primarily deals with unveiling the importance of the concept of Urban Food Systems and Circular Food Systems for the construction of sustainable food systems within urban food planning. However, since *Circular Food Systems* (CFS) is a new concept, where the parameters are blurred, and the urban projection is not clear, uncovering urban food practices with on-site analysis becomes important for

both theory and practice. Therefore, this thesis primarily concerns with presenting the CFS approach and its parameters more strongly and try to strengthen this with practical urban applications. As the CFS applications in urban scale is highly context-dependent, the phenomenon requires qualitative and exploratory research, where each practice should be understood and analysed in its own context.

In this context, this thesis is concerned with exploring innovative practices throughout the food supply chain, focusing on the consumption junction at Karşıyaka, a dynamic urban section of Izmir. For this purpose, the thesis will explore innovative practices and actions taken by various actors concentrated at consumption junction, and examine the elements and materials used by these actors to materialize their actions. It will also reveal the circularity elements of these practices.

In doing this, thesis aims to implement extensive research in two phases. The first phase of the research aims at uncovering Circular Food Systems with its major principles. Second phase consist of empirical research, which is to reveal the urban practices at a local scale with a focus on consumption practices, based on a case study of Karşıyaka. Case study firstly includes a descriptive analysis on local food system dynamics and later includes an analysis on potential circularity elements in practice, performed by the novel practices within local actions. This analysis will be conducted through the circularity parameters defined by the first phase of the research. Thus, the research is based on exploratory action research, engaging mainly qualitative methods for data collection and analysis. Therefore, the study is designed as exploratory action research, based on qualitative case study design, in which the research will try to analyse specific case in its own socio-spatial context.

Following, the thesis focuses on a particular case, the case of Karşıyaka, Izmir, through which it will explore key food practices at local level and reveal their potential in terms of transitioning to a circular food system. The case-study design consists of 3 major steps to analyse current state and the circularity elements. These three stages are formulated as follows;

- First; analysis of the current state of the local food system of Karşıyaka,

- Second; exploration of key novel practices addressing consumption junction at Karşıyaka,
- Third; uncovering the circularity potentials of the key food practices related to reorganization of consumption at Karşıyaka.

As a result of all these, the thesis will be completed by developing a model proposal for CFS integration into food systems, nourished by the practical information coming from the case study of Karşıyaka local food system.

1.3 Content of the Thesis

This thesis comprises eight chapters, each contributing to a comprehensive understanding of the subject of the thesis.

The current chapter gives introductory remarks, providing the background of the study, briefly outlining the research design with the major arguments, aim and research questions. Chapter Two delves into the research methodology, offering a detailed exposition of the methodologies employed in the study.

Chapter Three explains theoretical and conceptual underpinnings, contemporary discussions over Urban Food Systems and Urban Food Planning. Following, in Chapter Four, theoretical underpinnings of the concept of circular economy and circularity are presented where the fundamental principles, tools, and parameters essential for analysis within the framework of circularity are introduced.

Transitioning from the theoretical background, Chapter Five provides insights into the current dynamics of Turkey's agri-food system, with a specific focus on İzmir, the metropolitan city to which Karşıyaka belongs. After an upper-scale introduction to the agri-food system dynamics with historical background, Chapter Six and Seven introduces the case study on Karşıyaka in greater depth. Chapter Six delves into key urban food practices, tracing their background and conducting an analysis of the circularity elements embedded within these practices. Meanwhile, Chapter Seven

gives a special focus on the barriers and drivers encountered throughout the process, to build a CFS model for Karşıyaka.

Collectively, the chapters contribute to a detailed understanding of the subject matter, offering insights into theoretical frameworks, empirical analyses, and practical implications within the realm of UFS and circularity.



CHAPTER 2

URBAN FOOD SYSTEMS AND THE NEED FOR URBAN FOOD PLANNING

The increasing concentration of the global population and essential services in urban areas drives the centralisation of food systems. Within these concentrated urban hubs, there is a significant consolidation of services related to food production, distribution and consumption as noted by Grewal & Grewal (2012). However, the current practices in food production, long supply chains and market-driven distribution and access mechanisms within the dominant food system raise concerns about the long-term sustainability of the food systems and its related infrastructures. These concerns are compounded by the growing apprehensions regarding climate change and food crises, and its impact on food insecurity (Matacena, 2016). Consequently, cities where food systems are centralized have emerged as focal points for addressing pressing issues within the realm of growing food crisis.

Urban areas have become the central areas for food system services, with consumption mechanisms standing out as a prominent component. Today, the cities have evolved into primary consumption centres, where the food flows into and consumed in. However, cities are heavily dependent on external sources and regions for their food supply, which brings the operation of long food supply chains with high waste flows (Grewal & Grewal, 2012). The challenges of rapid urbanization and the rapidly growing problem of food access have compelled cities to find solutions within their own borders. This seems to be possible mostly through the sustainable reorganization of consumption mechanisms and their interconnected relationship with production, distribution and waste mechanisms.

To address such problems there are growing calls for Urban Food Systems (UFSs) and City-Region Food Systems (CRFSs) to be conceptualised at a more localised level, where food production, distribution, and consumption activities are more closely integrated with the local urban environment and regional networks (Liaros, 2021; Matacena, 2016; Philpott et al., 2020). This urban and regional approach has been conceptualized as “City-Region Food Systems” through leading international structures such as FAO and RUAF (FAO, 2018a; FAO & RUAF, 2023). Through this, the food problem has been placed in a holistic framework to be handled in the light of certain categories such as governance, production, consumption, waste and distribution on an urban or regional scale.

Despite the increasing importance of UFS and CRFS approach, food systems have remained excluded from planning practice and research (Morgan, 2013; Pothukuchi & Kaufman, 2000) until very recently. According to Pothukuchi and Kaufman (2000), food systems were less visible than other systems such as housing, transportation, water or energy. But today, the structural problems of the food system, that is turned out as “food crises”, makes food system an indispensable part of urban areas and the planning agenda. For these reasons, the necessity of developing a holistic planning approach to the food system is an important issue that is widely discussed today, in order to produce food systems that are fair, equal in access, nutritious and do not cause destruction for the ecosystem in cities on the brink of crisis.

This chapter discusses the necessary transformation of food systems and reconstructs the discussion through the urban and regional food systems approach. In this context, firstly, the necessity for transition towards sustainable food systems will be discussed by referring to the new approaches on the global agenda. Over the discussion of the necessity of localization arising from these approaches, the need for food systems to be conceptualized as urban and regional food systems will be conveyed with its theoretical background and approaches in the world. Urban food planning and practices will also be discussed with reference to this approach. At this point, the chapter aims to discuss the importance of consumption mechanisms due to their

potential to transform urban food systems, especially in urban areas where the consumption practices are dominant.

2.1 Towards Sustainable Food Systems: Debates and New Approaches

Following the food price surge – a rapid increase in the 2000s especially at wheat prices, world economy has been experiencing higher rates of food prices. This was a gradual result of the restructuring of the agri-food regimes under the effects of globalisation dynamics, that took effect after the 2000s. As a result of the new structuring, multidimensional vulnerabilities of the food system are becoming visible, such as agricultural production pushing planetary limits, lengthy and wasteful food chains, increasing food inflation, and deepening unequal access and nutrition. Especially as these problems deepen with increasing urbanization dynamics, they push cities and urban administrations to take urgent action.

On the one hand, the food price surge along with high food inflation, some social segments of societies, especially with the ones already suffering from food access, started to be threatened by malnutrition and hunger. Food insecurity has begun to increase as a significant portion of the world's population becomes food insecure and unable to afford healthy and nutrient-rich foods that directly affect their healthy living, physical and cognitive development, and therefore their well-being. On the other hand, the dominant industrial food system and its modes of production began to destroy natural systems on which agriculture depends, progressively creating barriers to healthy food production. Growing population and increasing demand for food also started to trigger intensive food production, further increasing the pressure of agricultural activities on natural systems. Besides, there is the increasing effects of climate change, which certainly affects production systems (through water scarcity, damaged ecosystems, land degradation, and such) as well as increase food insecurity. The ethical part of these discussions is to emphasise that always the poorer communities are thought to be mostly affected (Morgan & Sonnino, 2010).

All these discussions pointed to *“the new food equation”* (Morgan & Sonnino, 2010), referring to the recent challenges that communities face related to food and growing concerns about the security and sustainability of the agri-food system. Along with this, the following concepts have emerged that aim to draw attention to the main problems in the food system:

Food Safety aims to ensure that food is sufficiently safe and does not pose a health problem (FAO, 2023). Relatedly, it is a field that deals with distribution, storage and processing of food to prevent foodborne illnesses and infections, and ensure that our food contains enough nutrients for a healthy diet. This includes a set of routines to be followed to avoid serious health problems. It is not only limited to the food consumed, but also covers the safety of the chain until the consumer (Fung et al., 2018). Food safety, nutrition and food security are closely linked, as food safety is also based on access to enough safe and nutritious food (FAO, 2023).

Food security discourses become more significance in the light of food price increases and climate change fears, which affects the direct access to clean, safe and affordable food by all segments. The concept of food security is defined as “the continuous access of all humanity to sufficient, reliable and nutritious foods in order to lead a healthy and productive life” (FAO, 2009). Food security also refers to safe food, meaning producing and delivering food in a way that does not impair human health, by emphasising “the absence or acceptable level of substances in foods that could harm the health of consumers” (FAO, 2023). The goal is to keep the food chain safe and clean at all stages from agricultural production to consumption. It highlights issues such as healthy and accessible food for all and the production of affordable and safe food enough for the growing world population.

Food justice concept is based on the idea that food is one of the basic universal human rights, and access to food and nutrition is fundamental and indispensable. Every person should have access to healthy and safe food with sufficient quality and quantity, meeting their needs when necessary, in accordance with their beliefs and culture (FAO, 2018b). Subsequently, this concept was intertwined with the “Right to Food”, which is defined as the right to consume the food necessary to sustain life,

and this right was included as the “Right to Access to Adequate Food” in the Universal Declaration of Human Rights. The most basic connotation of this concept is *equality* and *justice* in access to food, and it is basically based on the necessity of establishing just and sustainable food systems (Holt-Giménez, 2010)

Food citizenship & democracy explores the idea that people are participants in the whole food system, not just consumers at the end of the food chain. Relatedly, food democracy is a concept that advocates the active and equal participation of every citizen in the shaping of food systems, regardless of their social and economic differences (Prost et al., 2018). On this basis, the concept demands set of rights associated with the concept of citizenship, such as the right of access to clean and cheap food, transparency in all processes, and the right to accurate information. These two concepts emphasize that the citizen is not only a consumer, but also an important food actor shaping the system with the rights mentioned.

Food sovereignty concept was first asserted by the international farmer organization ‘La Vía Campesina’ at the 1996 World Food Summit as "people's right to have healthy and culturally appropriate food produced by ecological and sustainable methods, and the right to define their own agri-food systems" (La Via Campesina, 2023). It puts those who produce, distribute and consume food, not the demand of markets or companies, at the centre of food systems and policies (Holt-Giménez, 2010). It also advocates the interests of future generations, fostered by the idea of sustainability. This concept is centred around ecologically and socially sustainable food production and supply, via local and decentralized food systems that reduce environmental burdens and promote better access to food.

Among these, concepts such as food security and food justice have progressive stances, while food sovereignty and food citizenship have a critical standing based on the critique of corporate regime. Different concepts try to draw attention to different gaps of the conventional food system, so that they have different targets and focus areas (Gliessman, 2014; Holt-Giménez, 2010; Prost et al., 2018). While progressive ones focus more on localizing production and improving access to nutritious and healthy food, radical concepts direct their energy at changing regime

structures and creating politically enabling conditions for more equitable and sustainable food systems (Holt-Giménez, 2010).

Some approaches have grounded on food security framing, that has two main focus areas: (1) increasing access to adequate food for people who suffering from hunger and malnutrition and (2) increasing availability mainly through increases in yield and cropping intensity, to feed an estimated population of nine billion by 2050 (FAO, 2009). Here, innovation is seen vital for achieving better food security outcomes. Agricultural innovation systems (AIS), natural resource management, and resource efficiency (RE) frameworks fall under this framing. AIS targets more competitive food supply chains through innovation that increases agricultural activity (Foran et al., 2014; Pigford et al., 2018). NRM targets sustainable utilization of major natural resources via improved and sustained crop production (Foran et al., 2014). RE targets decreased resource use per end product via innovative production techniques used in different parts of the value chain (Horton et al., 2016). In general, all target agricultural production, staying far from approaching the food system holistically.

Other approaches converge to the food sovereignty framing that has one focus area: enabling conditions for more equitable and just food systems while striving for environmental regeneration. The social–ecological systems (SES) and agroecology frameworks mostly falls under this concept. SES has roots in ecosystem management and ecology, including theories of resilience and vulnerability (Hodbod & Eakin, 2015). It targets improving the human and non-human components of the ‘system’, increase the adaptive capacity and ensure social wellbeing, while decreasing ecosystem vulnerability (Foran et al., 2014). Agroecology focuses on improving long-term sustainability of farm level practices through a critical understanding of biological interactions (Gliessman, 2014). Agroecology appreciates sets of agronomic and natural resource management practices, such as permaculture, organic farming, sustainable intensification, as well as alternative and regenerative agricultural production techniques. Each approach includes practices that focus on certain stages of the agri-food system. These approaches point to a more systematic and holistic food system approach.

Table 1: Approaches on Agri-Food System Transitions (Source: Compiled by the author from literature review)

Discourses	Reformist / Progressive: Food Security			Radical: Food Sovereignty		Both
Approaches	Agricultural Innovations Systems	Natural Resource Management (NRM)	Resource Efficiency	Social-Ecological Systems	Agroecology	Circular System Approach - CE
Origins	Innovation systems thinking & Industrial Agriculture	Environmental Management	Industrial Ecology	Ecology & resilience thinking	Ecology & Agronomy	Industrial Ecology
Main Focus	System innovations, technology	Natural resource conservation (water, soil, land etc), enhance biodiversity and natural biological processes	Resource security & resource conservation	Ecosystem management and adaptation (“ecosystem” as socio-economic and biophysical forces interact)	Ecological sustainability of farm level practices	Reduce resource consumption and waste generation
Food Supply / Production	Innovative techniques in production that increase yields	Conservation agriculture, Sustainable intensification, NRM technologies	Conservation agriculture, Sustainable intensification	Community agriculture, ecological techniques	Alternative + traditional + practical production techniques	Regenerative production, incl. alternative techniques and conservation agriculture
Method	Innovation niches & networks and Innovation platforms (IPs), capacity development	Sustainable intensification, pest management, water management, soil management, etc.	Life cycle assessment, end of life management, supply chain efficiency	Livelihood innovation niches, local food systems	Organic agriculture, integrated farming, regenerative agriculture etc.	Adoption of closed loop systems & life cycle assessment, supply chain management
Target	Competitive food supply chains, through technical, institutional and policy innovations	Sustainable utilization of major natural resources, improved and sustained crop production.	Decrease resource use (natural resources, land, nutrients or energy) per end product	Increase adaptive capacity, decrease ecosystem vulnerability, and ensure social wellbeing	Preserve the renewal capacity of the ecosystem services.	Designing waste out of the system, keeping materials in use
Mainstream Indicator	Innovation metrics, proportion of farmers experimenting new practices	Maximum sustainable yield (MSY) and optimum utilization of a resource	Resource productivity (GDP / Material Cons.), added product value/ the value of stressed resources, footprints of end product	Demographic and economic indicators, hunger metrics, well-being indicators	The improvement of soil and plant quality, reductions in chemicals	Intensity of regenerative production techniques, decreased level of waste, the percentage of good/ service that is returned after its end-of-life.
Synergistic approaches	Innovation Systems + Socio-Technical Systems	Agricultural Innovation Systems + Resource Efficiency	Circular Economy + Natural Resource Management	Agroecology	Social-Ecological Systems	Resource efficiency + Agroecology



Two of these approaches, starting from the idea of a necessary transformation in agri-food systems, adopt the “systems approach” (Clayton & Radcliffe, 2018). These are socio-ecological systems and circular systems approaches. These two approaches aim to regenerate and strengthen ecosystems, while at the same time adopting a food sovereignty framework based on providing conditions for more equitable and safe food systems. Both approaches value agronomic and natural resource management practices such as agroecology, permaculture, organic agriculture, as well as alternative and regenerative agricultural production techniques. Moreover, both are based on a holistic perspective as they include practices that focus on production and consumption. Focusing on the city-rural periphery relationship, both suggest construction of clean and regenerative food production through rural management and propose local food system by establishing the relationship of local clean production with urban activities and services. In this framework, both approaches primarily propose a set of strategies, actions and tools for the production of clean and healthy food and its delivery to the consumer through shorter supply chains (EMF, 2019; Gliessman, 2014; Hodbod & Eakin, 2015; Liaros, 2021)

Among these, the circular approach, fed from the Circular Economy (CE) phenomenon, adopts the systems approach with applications to the whole system from production to consumption, including other stages like processing and retail. As a rising phenomenon, CE aims to create economic and social value in balance with natural ecosystems (Jurgilevich et al., 2016), through changing existing production and consumption model based on take-make-dispose. Circularity concept expands the circular economy approach in terms of social and environmental contexts, addressing it as a multidimensional system composed of many internal cycles that are also social and/or environmental, rather than solely economic (Liaros, 2021). Powered by this logic, the circular model firstly aims at producing food regeneratively and locally, where food is produced in ways that improve natural ecosystems. Second is delivering food to all through localised and decentralised food systems where carbon footprint is reduced. Finally, the third is consuming clean and safe food through retail and service mechanisms powered by the local systems (EMF, 2019). In the centre of all this, there is the mechanism in which the food waste is

reduced or brought to different cycles and fed the stated purposes. In this way, the model contributes to regenerative production and resource conservation, while at the same time providing local solutions for food access and equal distribution. The difference from the socio-ecological systems approach is that circular model is fed not only from radical approaches, but also progressive approaches. In this manner, the application tools for circular model are spread over a wider context to include innovative methods and agronomic practices.

Table 2: Arguments, approaches and tools related to food system discourses
(Source: Compiled by the author from literature review)

Discourses		Main Argument	Approaches	Tools		
Food Security – Progressive Stance	>					
				Innovation Platforms		
				Supply Chain Management		
			Agricultural Innovation Systems	Life Cycle Assessment (LCA)		
Focuses on innovation to ensure sufficient food supply, to increase food access and availability.		Agricultural systems worldwide must become more productive and less wasteful.	Natural Resource Management	Waste Management		
			Resource Efficiency	Reduce by Design		
Food sovereignty Radical Stance	>					
				Regenerative Agriculture		
Focuses on alternatives, enabling conditions for more equitable and ecologically regenerative food systems		Agricultural practices should be more respectful to the environment and its ecological specificities.	Agroecology	Organic Farming		
			Social-Ecological Systems	Local Food Systems		
				Short Supply Chains		
					Circular System	Holistic approach to the entire food system

Most of these approaches, including circular model, ask for an immediate change of the agri-food system and try to draw attention to wider issues beyond food production (Vermeulen et al., 2012). The food system should be reconsidered as a food and nutrition issue, which is handled through a systems approach encompassing

all processes of food production and all range of actors involved in it. Therefore, a food system should be seen as a holistic system with all aspects of producing and delivering food to people, by taking into account its impacts on societies as well as environment (Vieira et al., 2018).

At the hearth of these discussions, cities stand out for ecological, social, economic and so political reasons. The majority of the world's population is known to be 'urban', showing that large urban concentrations shape economic, social and political advancements. Now, on the verge of climate crises, urban should find more sustainable ways of co-evolving with nature (McCormick et al., 2013; Morgan & Sonnino, 2010), while sustaining these advancements. In this sense, especially for food, the necessity of re-establishing the relations between the city and the hinterland and the need for a holistic understanding on these complex relationships arises. Circular food systems approach can certainly help to rebuild these complex relations in a more regenerative way. At this point, as the most important facilitators of urban development, the stance of local governments are pivotal in dealing with these complex relations and the new governance approaches adopted by local governments appear as triggers for the transformation into a circular, sustainable, and nature-based systems.

2.2 Urban Food Systems: Reconceptualization of the Food System at a Local Level

Although food was far from being addressed as an urban problem until recently, it is generally accepted that food should now be addressed as an urban issue with its highly interrelated environmental, social and economic components (Morgan, 2013; Morgan & Sonnino, 2010; MUFPP, 2020; Olsson, 2018; Wiskerke, 2015). Today, the unsustainable food system pushes environmental limits, by implicitly contributing to climate change and ecosystem degradation (Springmann et al., 2018). It also pushes social limits by triggering malnutrition, hunger and poverty due to the unbalanced conditions for food access (Holt-Giménez, 2010). While it is known that

these environmental and social crises caused by the food system have inevitable effects on the urban population, it is also accepted that urban practices based on growth-based urbanisation cause these problems. These urban practices, which are highly related to consumption culture promoted by capitalist order, continue to increase the structural problems of the system. It is inevitable that the global food system must be transformed to ensure food and nutritional security and reverse degradation by restoring ecosystems. It is clear that the transformation could be achieved via transformation of urban food systems shaped by highly interrelated production and consumption mechanisms solved at local or regional level.

2.2.1 Food as an Urban System

The discussions on food as an urban system date back to the 1970s. In a study on Knoxville about exploring food-related local planning issues, Blakey et. al., (1977) emphasized the necessity of considering food as an urban support system. Here, urban support systems refer to certain facilities and services which provide essential support for the functioning of urban areas (Blakey et al., 1977). These facilities and services include water, energy, food, waste, and accompanying transportation activities. Of these, all but food, have traditionally been considered within the scope of the urban planning. However, according to Blakey et. al. (1977) food is a necessary support system to be considered within urban planning for the healthy functioning of urban areas, like any other urban support system.

As we approach today, the necessity of considering food as an urban system is widely recognized (Ilieva, 2017a; Kennedy et al., 2012; Vieira et al., 2018). The main reason for this is the relationship of food systems with other urban systems and the health of ecosystems on which human systems base their existence. Sustainable and resilient urban food systems are increasingly important as cities continue to grow and bring challenges related to population density, climate change, resource extractions and ecosystem degradation. In this manner, developing efficient and inclusive food systems is crucial for ensuring food security, reducing environmental

impact, and promoting the well-being of urban communities (Olsson, 2018; Vieira et al., 2018). For these, re-establishing the relationship between rural production areas and urban consumption areas, redesigning short supply chains on a regional or local scale, re-joining consumption practices in clean and regenerative production and providing of equal access to clean and nutritious food came to the fore (Marsden et al., 1999; Moragues et al., 2013; Vieira et al., 2018). For all these reasons, local and regional food system plans and policies are increasing as part of national and municipal efforts towards sustainable development (Ilieva, 2017a; Pothukuchi & Kaufman, 1999; Rossi & Brunori, 2015)

With a growing interest on Urban Food Systems and Urban Food Planning, it is now widely recognized that the multifunctional character of the food system has profound implications on a variety of urban systems like land use, water, energy, and waste as well as on major urban issues including public health, social justice and economic development (Morgan, 2013). The reasons to take food as an urban system like the others are discussed in depth below with reference to three main reasons.

First of all, although it has been reduced to a simple commodity in the prevailing capitalist order, food is a basic need and a basic human right that is critically important to human health and well-being. Thus, it is intrinsically important to human existence and functioning, rather than merely instrumentally important (Morgan, 2013). It is therefore very critical as an urban system, as it nurtures and determines the well-being of a healthy urban population (Sonnino, 2016). At this point, access to this public good and related services comes to the fore as a fundamental issue. In terms of providing access to this basic right, issues such as food production, food availability, food quality and efficiency of food distribution gain importance as issues that need to be regulated (Holt-Giménez, 2010; Sonnino, 2016). This demonstrates the necessity for urban planning to understand the nature of food and the entire food system as well as critical problems related to it and to regulate the services related to food system including food supply and distribution for the healthy functioning as an urban system.

Second, the food and its complex system has considerable effects on a variety of other urban systems and so planning issues (Pothukuchi & Kaufman, 1999, 2000). These are energy, water, waste, land use, transportation, services and any other urban system that can affect public health and well-being. From production to distribution and up to consumption, the food issue relates to all other support systems (Blakey et al., 1977). The production process is closely related to the protection, regulation and management of rural lands, with an attention to water and energy uses as vital resources. The distribution process on the next, is related to urban logistics and mobility systems. Again, consumption is related to land use decisions and allocation of services and necessary retail channels. On the other hand, the entire process, from production to consumption, involves the use of key resources such as water, energy and especially rural and urban land (Vieira et al., 2018). As will be discussed in detail, food production and supply are affected by the health of these resources. All these indicate the necessity of recognizing the multidimensionality of the food issue, and the urgency of regulating it as an urban system together with all other major issues like rural production, water management, waste reduction and ecosystem rehabilitation.

The third issue goes along with the major discussion on climate crisis, very urgent problem centred on urban areas with growing urban populations. It is mainly approved that barriers to growth is now ecological more than economic (Morgan, 2013), since the urban systems, including food system pushes environmental and social limits. Mostly demand-side effects, such as continuing population growth, increasing income levels and consumption are driving global food demand, leading to expanding agricultural and following food chain activities (Poore & Nemecek, 2019; Vermeulen et al., 2012). Yet the expanding food system, especially industrial agricultural production triggers land use change, bio-diversity loss, resource exploitation, depletion of freshwater resources, and pollution of water and soil ecosystems through fertilizer uses (Springmann et al., 2018). With all this, food system becomes one of the major contributors of climate change, being responsible for 26% of global anthropogenic greenhouse gas (GHG) emissions (Poore & Nemecek, 2019). Especially agricultural production stage is the dominant one,

representing almost %81 of total food system emissions, including indirect emissions associated with land-cover changes (Poore & Nemecek, 2019; Vermeulen et al., 2012). Moreover, along the chain an important part of food is wasted because of many reasons (Fassio & Tecco, 2019; Springmann et al., 2018). More pollution and greenhouse gases are created as a result of this wastage, contributing via embedded emissions throughout the entire system (Vermeulen et al., 2012). While these trigger the climate crisis, it also increases food system's own vulnerability in the face of crises, as it is very nature sensitive sector. Polluted water and soil, or bio-diversity loss increase emissions, while increasing climate imbalances trigger water shortages and droughts, or excessive precipitation, jeopardizing food production and supply and following processes. So today, climate change, and its underlying food related complications constitutes one of the greatest challenges of urbanized world, with the concerns on how to feed growing urban populations without further disrupting ecosystems and natural resources (Moragues et al., 2013; Vieira et al., 2018). After the constraints in global and national resources brought about by population growth and the climate crisis, there has been a growing interest in problems related to nutrition as well as food supply and distribution (Sonnino, 2016). All of this reveals the necessity of considering food as an important urban system with a complex system of production, supply, distribution and consumption, and understanding the stresses this conventional food system creates on both urban populations and ecosystem services.

Examining urban food systems in the face of climate change and related global challenges inevitably leads to the need for major and rapid system transformations. However, like the food system itself, transformation is multi-dimensional (Karakaya Ayalp et al., 2022; Morgan & Sonnino, 2010). Sustainability of a food system cannot be reduced to a simple carbon metric, based on lowering emissions, because it has economic as well as social and environmental dimensions (Morgan, 2009). Therefore, transformation should be considered with all dimensions to achieve more sustainable food systems aligned with the societal goals like public health, ecological integrity, social justice (Morgan, 2013; Morgan & Sonnino, 2010). These all call for a sustainable food system through planning where dominant industrial agriculture

paradigm is debated with regenerative agri-food systems enhancing healthy ecosystems and supporting decentralised, local food systems where shorter food supply is possible and all social groups have access to clean food.

All of these are proof that food is an urban issue which makes it a central issue for planning. Despite its low visibility, the urban food system nonetheless contributes significantly to community health and welfare (Pothukuchi & Kaufman, 2000), as food basically supports the health of urban populations. In addition, when the whole system of food production and supply is considered, it is highly relevant not only to human health but also to the health of ecosystems. Considering its relationship with all other urban issues, the food is on the agenda of planning and planning includes not only the provision of the services related to food, but also the visionary solution of the problems related to these services and related support systems.

2.2.2 Urban Food Systems as a Subject of Planning

Although, the food issue has been recognized as a matter of planning in recent years and is accepted as a rising phenomenon (Morgan, 2013), food and the food system were hitherto considered as a stranger to the planning discipline (Pothukuchi & Kaufman, 2000). There are several main reasons for this, where food issue is evaluated via four different perspectives in planning (Pothukuchi & Kaufman, 1999, 2000):

1. From the eyes of planning, there is no problem in the food system

Planning agencies generally accept the food system as unproblematic from their point of view; few see serious problems associated with access, availability or affordability of safe food. This approach is also blind to the environmental and social problems caused by food production and following processes. Accordingly, even without planning control, food was always "there", unproblematic and available when needed. The food system is working somehow and does not need planning intervention.

2. Food is not a matter of planning research and practice

The food system is an area outside the scope of planning, remaining within the scope of social services. Even if there is a problem within the system, the food and food system is not a matter of planning as a zoning and land use practice, so it cannot be solved by planning practices and tools. The food system indirectly affects the built environment and physical development, the primary area on which planning agencies work, so that remains outside the area of planning.

3. The food system is driven by the private market, so that it is a market issue

The planning discipline specializes in providing public goods such as air and water, and services such as public transport, physical and social infrastructure, which the private sector does not want to invest in. In this sense, planning has remained in the background in matters managed by the private sector and its free market. This planning perspective claiming that the food system is managed by the private sector, sees its role as limited in this regard. According to this view, cities cannot control what is produced and distributed, it is up to the market on which planning has no regulation.

4. Food is not an urban issue; it's a rural issue, falls under rural policies

This approach perceives food issues within the realm of rural policy centred on agriculture, farms, and food production. Being based on urban-rural distinction, this approach does not consider the food issue as a part of the planning discipline, seeing it as far from being an urban issue. Since the production areas are located outside of cities, food issues and problems are not perceived as urban problems as in the same magnitude as are housing, or transportation. This approach reduces the food issue to a simple rural production and does not recognize other parts of the food chain – for example, food processing, wholesale, retail, consumption and waste disposal. This approach is not only far from seeing the food issue as a set of systems, but also far from understanding the problems created by this system as a whole.

Certainly, there are problems with the above mentioned perspectives from planning, as all of them give an incomplete picture of the food system (Pothukuchi & Kaufman,

2000). Today it is obviously known that there are serious associated problems with the industrial food system, which are firstly environmental and social. It is obvious that planning should take a stance against all these, because the problems of the food system concern the planning discipline from many aspects.

First, the conventional food system aggressively disrupts ecosystem services, causing bio-diversity loss, degradation and even depletion of resources. Most importantly, the dominant industrial production patterns impair soil and water health via pesticide and chemical fertiliser uses (Morgan & Sonnino, 2010; Springmann et al., 2018; Vermeulen et al., 2012). If the same production patterns are followed, water pollution and scarcity is one of the problems, which will also be encountered with the triggering of the climate crisis. Another important issue that follows water pollution and scarcity is the shortages of good quality arable land (Morgan, 2009). Both the existing conventional production based on the use of chemical products and the rapidly growing urbanization dynamics are the most important obstacles in front of high-quality arable lands due to the deterioration of soil quality. These are vital issues that will affect the future of agricultural production and, more importantly, the production of quality, nutritious food to safely feed the growing population. It is a fact that planning cannot remain indifferent to these problems that will certainly affect health of natural systems, and so sustainable future of communities and their public health.

Second, it is known that communities do not have a direct to nutritious, culturally appropriate food through conventional channels at all times (Pothukuchi & Kaufman, 2000). Added to this are safer foods as chemical-free food products. This endangers the health of the societies, as conventional channels prevent societies from accessing nutrient-rich, clean, and safe food. Besides, food prices are gradually increasing, due to the pressures on long supply chains caused by economic crises or the recent COVID-19 Pandemic (Giudice et al., 2020; Keyder et al., 2020). These situations have deepened some of the problems related to agricultural production and food supply, and increased the inaccessibility for vulnerable groups to clean, safe and nutritious food commodities (Keyder et al., 2020). These are a proof of long food

supply chains become highly vulnerable in case of shocks and shows that the private market alone is insufficient to solve these problems. Again, all this demonstrates the need for planning to produce necessary tools to regulate food production and supply, as well as to ensure access to food for different urban communities.

Third, and the last, the question of food is more a matter of nutrition, well-being and wellness of communities, in strong relations with above mentioned issues, than of just producing and distributing products. Therefore, reducing the food issue to a simple rural production and defining it as a rural phenomenon ignores the necessity of considering it as a set of systems. In addition, this approach reinforces the rural-urban divide and triggers the way of thinking these two regions disconnected from each other. However, it is now widely accepted that the urban-rural relationship is interconnected with much stronger relationships and both rural and urban cannot be thought of in isolation (Viljoen & Wiskerke, 2016). Likewise the food issue, as an urban system, has strong relationships with rural through agricultural production at urban peripheries, but also has unbreakable relationships with urban activities and uses related to processing, distribution, retail, and consumption. Therefore, it is clear that the food issue needs a holistic perspective that includes all rural and urban elements from production to consumption, through designing policies and tools that reconcile sustainable and regenerative production patterns with sustainable urban consumption and related distribution and retail channels (Vieira et al., 2018).

Conventional food system as a whole has problematic nature especially from social and environmental standpoints. These are concrete problems that should be addressed by the planning discipline, which should consider community and ecosystem health, beyond zoning and land use practices. In fact, food is very much planning issue, affecting the local economy, the environment, public health, and quality of neighbourhoods (Pothukuchi & Kaufman, 1999).

All these call for more comprehensively addressed urban food system, to be achieved through institutional arrangements as well as urban food planning strategies and programmes with more specific actions and tools that can address different aspects of food problem (Viljoen & Wiskerke, 2016). This process must be fuelled by the

reconceptualization of food systems in the context of *sustainability* and *the new food equation*, which conveys the problems of dominant industrialized agri-food systems and the alternatives created (Morgan & Sonnino, 2010). All this requires an integration and engagement with actual sustainability debates and framings on food systems.

2.2.3 New Food Governance and Emerging Local Actions

After cities became the centre of ecological problems and thus the food debate, the necessity of constructing economically efficient, socially fair, and ecologically sound urban food systems has arisen. The role of local governments, organizations, and initiatives in the field of food in designing a sustainable system is gaining more and more importance. International agreements and initiatives such as the UN Sustainable Development Goals (SDGs), HABITAT III, EU Green Deal, EU Farm-to-Fork Strategy, Glasgow Food and Climate Declaration frequently emphasize the role of cities and local governments in the sustainable transformation of the urban systems, including the urban food systems (EU, 2020; GFCD, 2021; UN, 2017)

As the sustainable re-construction of the food system is multi-dimensional, multi-actor and complex process, requiring significant changes in production and consumption patterns, it is accepted as one of the most important challenges of the twenty-first century (Viljoen & Wiskerke, 2016). This challenge requires a greater political commitment to urban food planning and a bolder vision for the city, co-produced with all urban food actors. In this context, a new trend has emerged: ***the new food governance***, which considers the role of local governments as well as civil society to be very important to shape the future of urban food systems (Rossi & Brunori, 2015; Viljoen & Wiskerke, 2016). In this manner, the necessity of a governance system in which the local government has a key role and is connected to the local organizations and associations in a network structure is emphasised by major global institutions (e.g., Habitat III, EU Farm to Fork Strategy), and also

demonstrated with different examples from the world (Bottiglieri et al., 2016; Mah & Thang, 2013; Matacena, 2016).

The emergence of multiple interactions between many urban food actors brings the necessity of “governance”, a participatory approach involving all range of actors to shape the food system. Following the food crisis, there is an increasing number of alternative networks and actors interested in different organization of the food system and practices in recent years pioneered by the global north, followed by the global south (Ilieva, 2016; Matacena, 2016). These all call for a rebalanced governance that can truly accommodate all emerging needs and visions shaped around food. New food governance allows different segments of society to find expression of their interests in the decision-making processes by balancing the dominant role of the food industry and retail sector companies that determine the rules of the system and shape the behavioural patterns in production and consumption (Carey, 2013; Rossi & Brunori, 2015).

At this point, the interaction between the local state and civil society becomes the centre of the governance issue (Carey, 2013). Local food strategies based on new food practices pioneered by the civil society and diversified food-based groups are an important driver of system transformation (Ilieva, 2016; Viljoen & Wiskerke, 2016). Initiating these local food strategies, local government comes to the fore as an important food actor, as they are the primary facilitator of transformation of food systems into localised, healthy and sustainable one (Mansfield & Mendes, 2013)

The efforts towards municipal food strategies started primarily in the global north and made local government and municipalities an important food policy actor (Ilieva, 2016; Mansfield & Mendes, 2013). These efforts are spreading from the global north to different parts of the world under the framework of urban food strategies. Examples of these started to be seen in America and Canada before 2015, spread to Europe after 2015 and to the global south after 2020. One of the important facilitators of this spread is the Milan Urban Food Policy Pact (MUFPP), which was initiated by the Mayor of Milan, as an urban actor to act towards food problems at city level. The Pact was launched in October 2015 with over 100 signatory cities from all over

the world (MUFPP, 2020) and become the first international protocol for city leaders to commit to developing sustainable food systems. The pact has a Framework for Action listing 37 recommended actions, clustered in 6 categories addressing healthy and accessible food to all, biodiversity protection, food waste reduction and a like. Recent developments like these reinforce the role of cities and local governments as key players in transformation, creating space for local solutions and decentralized cooperation.

In the light of these, new institutions and new agencies were born. The discussion of transformative food policies is often associated with the formation of food policy councils, food alliances, food commissions at local level. These agencies are mostly common especially at global northern context where local states aimed at developing comprehensive food policies at urban level (Carey, 2013; Mah & Thang, 2013; Reynolds, 2009; Sonnino, 2016) These agencies, together with local governments, are the precursors of urban food planning.

Food planning seems to be an important and legitimate part of the planning agenda in developed and developing countries alike, as the local governments and responsible cities have been forced to treat food policy more seriously because of the new food equation (Morgan, Sonnino, 2010), and following new food governance (Rossi & Brunori, 2015). More and more local governments began to recognize that food as an urban system was part of planning and began to develop actions towards the food system.

2.2.4 The Emergence of Urban Food Planning

As a result of the structural problems of the agri-food systems, the world has been faced with 3 food crises in the last 15 years, and the regions most affected by these crises are the cities that host more than half of the world's population. While inequalities in access to food and ecosystem destruction deepened with these crises, the necessity of solving the reflections of food-based problems in cities reached the threshold. The necessity of "Urban Food Planning" become evident with the

reflections of structural problems of agri-food systems in cities. This becomes more evident when the HABITAT III meeting held in Quito in 2016 pointed out to cities and the roles of city administrations to solve major problems resulted by the globalized food system (UN, 2017). Besides, the supranational institutions such as the European Union, FAO and ICLEI have developed programmes named From Farm to Fork, Green New Deal, Circular Economy to address such problems to be solved at urban level (EU, 2020; ICLEI, 2023). At this point, it is clear that the planning approach must produce an inclusive, holistic and localized approach, as well as trigger the transformation with sustainable, regenerative and nature-friendly solutions throughout the food system.

Applications on food, albeit incrementally, started to gain importance towards the 2000s, paving the way for the discussion of the foreignness of planning to the food issue. It is seen that since the 2000s, many studies have been carried out in many different cities in the world to find solutions to the structural problems of food systems. Applications under urban food planning remained more fragmented in the first years of their emergence and evolved into a holistic understanding over time. For this reason, examples of food planning in the world are handled under two different approaches: piecemeal approaches and holistic approaches. The piecemeal approaches can be classified as the approach dominated by the fragmentary and singular practices in the field of food, especially seen in the first practices handled in cities. When looking at the holistic approach, it is seen that the agri-food issue is approached with systems approach on an urban or regional scale. Examples of this are integrated with the Urban Food Systems (UFSs) and City-Region Food Systems (CRFSs) approach that has been put forward in recent years (Karakaya Ayalp, et al., 2023).

Looking at the first examples of food planning, the piecemeal practices seem to be appeared in the 1990s in the Global North (e.g., Canada and the USA), in the form of "community food planning" practices at the neighbourhood scale. These practices under the community food planning, the implementation of spatial actions or projects such as community gardens, community markets, producer markets, urban

agriculture are seen in which local governments were involved in response to the demands of civil initiatives. These approaches and practices remain mostly in the application dimension and are mostly incremental and piecemeal based on single and individual actions, thus do not seem to serve a holistic planning approach that spreads throughout the city. These piecemeal approaches refer to actions that are developed without being based on an upper-scale urban food strategy or programme (Karakaya Ayalp, et al., 2023)

A decade later, in the light of the new food equation, the necessity to discuss the implications of food planning for theory, policy and practice has emerged (Ilieva, 2017b; Viljoen & Wiskerke, 2016). Following this, the Association of European Schools of Planning (AESOP) establish a new thematic group; the Sustainable Food Planning Group, to discuss these implications together with academics, policymakers and practitioners, and the inaugural conference of the Group was held under Aesop Conference in October 2009, at Wageningen University. Starting with this, ways of achieving sustainable urban food systems have begun to be discussed (Viljoen & Wiskerke, 2016). Then, the Milan Urban Food Policy Pact signed in 2015 brought the issue of governance to the fore in food planning. With this, participatory approaches come to fore as part of food planning. Along with the sustainability transitions discussions developing in the upcoming years, the importance of sustainable urban food systems and the importance of niche and grassroots innovations for the transition began to be discussed (Olsson, 2018). With these evolvments, in the Sustainable Food Planning Thematic Group annual conference, discussions on food planning expand to include themes such as sustainability, rural-urban connections, governance, localization, social innovations and the like (AESOP, 2015).

Following these, the holistic approach based on urban food systems and city-region food systems started to gain importance especially after 2015, with the strategy documents and urban level studies emerged in Europe (e.g., Bottiglieri et al., 2016; Mah & Thang, 2013; Reynolds, 2009). The holistic approach also supported by the studies of supranational institutions such as FAO and RUAF. With these studies, the

necessity of considering food systems as urban systems has gained importance, and Urban Food Systems approach, which enables the construction of decentralized and local food systems shaped by the close integration of food production, distribution, and consumption in the urban context, has come to the fore. Following this, FAO and RUAF in collaboration with MUFPP have provided general frameworks for city-region food systems (Carey & Cook, 2021; FAO, 2018a, 2019a). According to these, the Urban Food System should be understood as the entire network of activities, processes and infrastructures related to the production, distribution, and consumption of food in an urban area and should encompass all stages of the food supply chain from production to consumption. In this manner, the frameworks provide guidance for urban food systems approach to be handled in the light of certain categories on an urban or regional scale. These are:

Local Production, to be integrated with clean, chemical-free, agroecological and regenerative food production, within or in close proximity to urban areas. Here the linkage with rural periphery become also important, in order to provide local production and short food supply mechanisms.

Processing and Distribution, through short supply chains where food is distributed safely and with minimum emissions.

Retail and Consumption, with a variety of retail and consumption mechanisms, composed of supermarkets, grocery stores, farmers' markets, and food cooperatives, which are to provide consumers with access to a diverse range of safe, local and clean food products.

Food Waste, as an essential part of urban food systems and circularity. It involves strategies to reduce food waste at all stages of the supply chain, as well as implementing recycling, composting, and revalorisation for unavoidable food waste.

Food Governance, to provide comprehensive urban strategies to ensure that all urban residents have access to affordable, safe and nutritious food, regardless of their income level or location within the city.

This holistic framework helps local governments to provide comprehensive analysis of the specified categories and relates them to the city's long-term strategies and plans, such as rural area and land use planning, planning and zoning decisions.

2.3 Holistic Urban Food Planning Approach and Its Applications

Presently, it is widely accepted that the urban food system needs to be looked at more comprehensively in planning (Viljoen & Wiskerke, 2016). The planning discipline, which should consider community and ecosystem health beyond zoning and land use practices, should produce comprehensive tools to respond to the concrete problems created by the conventional food system. These tools should answer issues such as regenerating ecosystem services while producing healthy and local food, shortening supply chains to increase accessibility to nutrient-rich, clean, and safe food, accelerating sustainable urban consumption, increasing well-being and wellness of communities, rebuilding rural-urban linkages and tackling with climate change and food crisis (Ilieva, 2017b; Vieira et al., 2018; Viljoen & Wiskerke, 2016). This is enabled by the holistic approaches on urban food systems and city-region food systems, which deal with food systems through the interrelationship of many components at the urban and regional scale.

These holistic approaches require comprehensive analyses of the socio-spatial contexts, and as a result, it aims to achieve a multi-actor, multi-spatial and multi-structured food system. In this context, five major issues become fundamental for planning to respond this holistic food system understanding:

- ***Re-establishing food institutions and building local food strategies***

First thing to achieve holistic urban food planning has gone through different institutional arrangements, particularly through the assistance of the local planning agency (Pothukuchi & Kaufman, 1999). These agencies can take different forms such as food commission, food council and so on, as in different examples in the world (ibid.). This institutional re-arrangement is followed by urban food planning

strategies and programs with more specific actions and tools to address different aspects of the food problem. Such institutionalization should respond to the needs of a multi-actor system on the one hand and increase the inclusiveness of strategies and programs on the other.

- ***Rebuilding urban-rural linkages and enhancing ecological integrity***

There is a need for food planning to break the gap between rural (as production space) and urban (as consumption space) and to define both spaces as parts of a whole with intertwined interrelationships. Following this, it has become the priority of planning to reduce the urban-nature or city-rural contrast, which is increasing in the rapid urbanization trend, and to minimize this conflict by constructing the relations between the two phenomena on the basis of connectivity and circularity. Also, the enhancement of ecological integrity and ecosystem health has become of vital importance, with the acceptance of the fact that urban systems should work without disrupting ecological unity.

- ***Enhancing agricultural land preservation and accelerating regenerative food production especially at urban periphery***

Following the food crisis and arising new food equation, there is a call for decentralization in urban food systems (Liaros, 2021; Philpott et al., 2020). Cities have begun to turn their face to the fertile rural hinterlands to ensure the local food supply, as agricultural production at rural periphery is important potential for providing local food to urban communities. In this context, the conservation of agricultural lands at peri-urban areas and the regeneration of degraded agricultural ecosystems with restorative methods are issues that should be prioritized by planning. Prioritization of agro-ecological practices at production would strengthen the regenerative practices and increase cleaner and safer food production. Also, by linking consumption in urban areas with regenerative local production in the immediate rural vicinity, local agricultural production will be strengthened, local decentralized food systems will be built, and healthy food supply will be enhanced.

- ***Creating decentralised, local food systems with shorter supply chain opportunities***

Under this, issues such as integrating food issues into local economic development activities and increase local development by supporting local rural production, promoting clean methods in production, supporting local production with local food chains, retail and urban services come to the fore.

- ***Providing food accessibility by re-zoning of diversified retail services and changing consumption patterns***

This includes providing retail services to increase access to different product groups, especially local and clean food products through increasing local markets, municipality-initiated food markets and alike. Another important point is diversifying retail channels, especially for low-income neighbourhoods to increase their access opportunities to nutrient-rich and affordable food products.

2.3.1 Applications and Tools for Sustainable Urban Food Planning

Drawing from the considerations regarding urban food planning, five prominent areas for practical application come to the forefront. These areas serve as key pillars for shaping the future of urban food systems. The first pillar is building effective governance mechanisms, ensuring that UFSs are regulated by well-structured policies and regulations. Second is supporting sustainable food production through agricultural land conservation, promoting sustainable land use practices. Third is enhancing ecological integrity by fostering connectivity and circularity within food systems, effectively bridging the urban-rural divide and promoting more harmonious relationship with the environment. Fourth is supporting decentralisation and localisation through building local supply chains. Lastly the fifth is improving food accessibility and steering the transition of consumption patterns towards locally sourced, safer, healthier and regenerative food options. These five application areas

form the basics of comprehensive urban food planning, working towards more sustainable, resilient and fair urban food systems.

Within this context, a contribution has been made to consolidate food planning practices by bringing together theoretical approaches and practical strategies for food planning. The practices and applications within the scope of food planning have been presented in the table below, categorised according to the aforementioned application areas. This categorisation helps providing a comprehensive and structured overview of urban food planning practices.

Table 3: Planning applications for urban food planning
(Source: Compiled by the author from literature review)

Tools/Actions	Dimensions	
	Rural	Urban
<i>Governance</i>		
Urban Food Strategy and Action Plan	•	•
Food Waste Prevention Plan	•	•
Municipal Food Procurement		•
Incentive Mechanisms on Regenerative Production	•	•
Food Planning Agency • Food Council • Food Commission • Food Charter		•
Food Related Policies • Agricultural Policies • Community Health Policies • Education Policies	•	•
<i>Ecological Integrity</i>		
Environmental Policies & Actions • Water Policies • Renewable Energy Policies • Waste Reduction Policies	•	•
Preservation of water resources	•	•

Table 3 (cont.)

Local Production		
Preservation of agricultural hinterlands	•	
Agro-ecological practices • Organic Farming • Good Farming • Regenerative agriculture • Permaculture etc.	•	
Urban agriculture • Urban Farms / Community Gardens • Urban Food Forest / Food Gardens • Vertical Farming / Roof Gardening		•
Seed Library	•	•
Cooperatives & Food Communities • Producer/Consumer/Prosumer Cooperatives • Community-Supported Agriculture	•	•
Localised Food Services		
Food Living Labs	•	•
Food Hubs	•	•
Product Development – Municipal		
Farmers Inventory: City-Region Small-Scale Farmers – With Regenerative Practices	•	
Local Food Supply Chains • Farmers Market / Eco-Bazaars • Local Stores • Community Markets		•
Producer Hall		•
Food Outlets		•
Responsible Consumption		
Social Food services • Food Assistance/Programmes • Food Packages • Food Card	•	•
Food Banks		•
Food Festivals		•
New Buying Options • Online channels • Consumer cooperatives • Municipal community markets		•

2.3.2 Reverse Thinking: Consumption as a driver of change

Following the major problems the agricultural production possesses, academic literature and current practices and on the agri-food systems generally adopts a production-biased approach (Spaargaren et al., 2012), focusing on major problems related to intensive industrial agricultural production (Springmann et al., 2018; Vermeulen et al., 2012). Urban food systems approach, likewise attaches importance to the transformation of food production practices and mechanisms that follows production. The main argument here emphasizes the need to transform primarily production mechanisms, and practices related to these, for the sustainable transformation of agri-food systems. This perspective considers production as a set of practices that dominating overarching structure; therefore, it sees production as the starting point of the food system and accepts that broader systemic practices are built on it (Spaargaren et al., 2012). The main reason for this is that the intensive agriculture and monoculture methods adopted by industrial agri-food systems form the basis of the structural problems of the overall system. Therefore, the possible transformation of agri-food systems is mostly described through the transformation of food production mechanisms based on industrial production. In this context concepts such as natural resource management, sustainable agriculture, resource efficiency in agriculture have been put forward to keep agri-food production within environmental limits (Springmann et al., 2018). Besides to these, agroecological approaches, which has attracted attention in recent years, also considers agricultural production as the starting point of the transformation, even if it does not conceptualize production practices separated from the whole system (Francis et al., 2003).

However, in recent years, alternative discussions have highlighted the need for a shift of the focus in food system transition approaches from primary producers, farmers and traders, to one much more oriented towards end users, retailers and consumers (Lang & Heasman 2004, cited in Ooesterveer & Spaargaren, 2012). This signals a consumerist turn in the transition of the food systems; in order to bring power to the consumption side of the chain instead of solely focusing on production side and

following stages. This is because the importance of consumption mechanisms has been understood as having a great influence on the (re)constructing the complex social practice of consuming food (Ooesterveer & Spaargaren, 2012).

In this sense, it is especially important to focus on the **consumption junction**, around which the food provision practices and related infrastructures between consumption and production practices are concentrated (Ooesterveer & Spaargaren, 2012). It is argued that the innovative actions and practices at this junction, as it combines upstream (consumption and food preferences) with downstream dynamics (production and food supply) and effects transition in both directions (Ooesterveer, 2012). This type of understanding paves the way for a more relational perception of food system where consumption and the mechanisms surrounding it, is interrelatedly combined to food production and distribution mechanisms. This paves the way for perceiving the food system as a food network (ibid.) that includes many activities and relationships, rather than an understanding that constructs the food system linearly through a supply chain. Undoubtedly, such a conceptualization supports approaches with a system understanding. This also provides a structurationalist perspective (Giddens, 1990, 1991) that lead to consider individual consumer practices in close conjunction with the social and economic structures through which goods and services are provisioned (Ooesterveer & Spaargaren, 2012).

Consumption junction involves activities of diverse range of actors starting from consumers and expands to include food supply mechanisms including retail supermarkets, small-sized suppliers, public markets and alike. Food retailers, suppliers and consumers are in multiple ways involved in re-constructing the complex social practice of consuming food. At this point, consumers gain importance with their consumption preferences and habits, which are to trigger a reciprocal transformation. Retailers take up a position in connecting changes in upstream with downstream dynamics and vice versa. They translate the consumer demand for sustainable food into changes at the supply side and creates a configuration of food products and related services that fit consumer concerns and their demands coming from lifestyles. Retail mechanisms are therefore essential field

to understand the connections between supplying sustainable food with consumer demands (Ooesterveer, 2012; Ooesterveer & Spaargaren, 2012).

In the globalization and modernization period of the food system – soon after WWII, intermediary retail structures have been a very strong structuring power of consumption practices as an infrastructure between consumption and production (Grin, 2012). They have shaped consumption practices through supermarkets and connected them to global food supply chains. Today, demand-side effects shaped by the changing lifestyles and accompanying consumption practices have the same potential to trigger the transformation into more local and shorter chains. However, studies focusing on the transformation of the food system should not be limited to looking for changing technologies or infrastructures in retail. Nor should it be limited to considering the general attitudes of consumers towards sustainable food products (Ooesterveer, 2012). As part of the social practice of consuming food, it should consider the consumption junction practices as a combination of all, revealing the transformative effects of activities at this intersection.

Based on all these, food systems and the necessary transformation of the system should be reconsidered in a way that focuses on the consumption junction. This conceptualization is also important in terms of urban planning and implementation, as it will accelerate the transition, especially in urban systems where consumption practices are concentrated. Since cities are places of intense consumption, transitions can be organized at the urban level by changing relevant consumption practices. For urban studies, this is possible by understanding consumption patterns and the consumption junction practices shaped by, with their strong relationship to the overarching structure of the food system and its problems.

Here, it is necessary to understand the role of local governments as agents of change at the local level (Carey, 2013; Pothukuchi & Kaufman, 1999) and consumers as agents of change in food consumption practices (Ooesterveer & Spaargaren, 2012), as well as supply actors at the consumption junction (Ooesterveer, 2012). Here, it is very important to establish participatory and interactive governance mechanisms between local governments and consumers with other food actors. For this reason, it

is important to identify new consumer-oriented institutional arrangements that enable consumer and consumption-related stakeholder participation for local governments (Ooesterveer & Spaargaren, 2012) . This can be supported by collective means operating through NGOs or political institutions through which individual practices are institutionalized and organized and disseminated (Spaargaren & Mol, 2008). This structuring will also greatly support UFS's multi-actor, multi-scale and multi-space understanding, making it possible for urban agents to start transition.



CHAPTER 3

CIRCULAR ECONOMY & FOOD: THE CIRCULAR FOOD SYSTEM

Current food system, much like other sector-based system, operates via linear production and consumption patterns, where the resources are intensively used or extracted, the goods are distributed via global and long supply chains, and finally consumed and discarded without concerning high amounts of waste generated. This is particularly seen in the food sector, where valuable natural resources are heavily utilized in the production and distribution of food products, yet minimal effort is made to recover valuable extracts from high level of residues generated along the supply chain (Fassio & Tecco, 2019; Hamam et al., 2021). Within the dominant agri-food system based on intensive agriculture, soil degradation increases due to chemical inputs, resources are on the verge of depletion from overuse and emissions reach at highest levels. Furthermore, considerable part of the food is wasted along linear long supply chains while a significant part of the world's population has no access to safe and nutritious food (Fischer, 2018; Horton et al., 2016; Springmann et al., 2018). It is clear that this prevailing system of production and consumption is unsustainable. Hence, there is a pressing need to reorganize the production and consumption patterns of the linear industrial agri-food system to avoid further strain the environmental and social limits that have been already exceeded so far.

Growing population and growing demand for food, coupled with inefficient resource use, environmental impacts, high rates of food wasted at all stages of the food system and unbalanced food distribution, necessitate a transition towards more sustainable practices (Jurgilevich et al., 2016; Vieira et al., 2018). Approaches on this transition have been comprehensively presented in the previous chapter. These approaches bring urban areas in the middle of the discussion emphasising the necessity of reconstructing food systems at urban and regional scales. This reconstruction

involves establishing new consumption mechanisms directly linked to cleaner and regenerative production through shorter supply chains (Morgan & Sonnino, 2010; Philpott et al., 2020). This restructuring challenges existing production and consumption patterns and enables the integration of new and innovative mechanisms to further support the transition. With the approaches such as UFSs and CRFSs, initially drawn from supranational frameworks and practical implications of local governments, the discussion of the necessity of holistic consideration of food systems in systemic integrity has also gained momentum (Moragues et al., 2013; Olsson, 2018).

At this point, the Circular Economy and the Circular Food Systems approach fueled by CE concept, have been put forward as another approach that can support this systemic and holistic perspective (ICLEI, 2023; Jurgilevich et al., 2016; Liaros, 2021). The integration of the circular approach into food systems will reinforce the UFSs approach (Stuiver & O'hara, 2021), while on the other hand, it will help to deepen, broaden and strengthen coverage of vital issues such as increasing regenerative production, reducing resource use and preventing degradation, minimizing waste generation and increasing material recovery and waste revalorization.

The circular economy (CE) is a rising phenomenon, proposing new production and consumption mechanisms that can accelerate change of the linear culture of production and consumption and restructuring of the existing system based on take-make-dispose model (Murray et al., 2017; Stahel, 2016). The circular model, when applied to the food system, aims to promote regenerative production and resource conservation, minimise food waste generation throughout the system (EMF, 2019), while at the same time providing local solutions for food access and equal distribution (Liaros, 2021; Petit-Boix & Leipold, 2018). In this manner, circular model supports three primary issues regarding the food system. Firstly, it aims at foster producing food regeneratively and locally, in ways that production methods can improve natural ecosystems. Secondly, it focuses on the efficient delivery of food to all through localised and decentralised food systems, thereby reducing carbon

footprint. Finally, it aims to ensure consumption of clean and safe food by promoting novel consumption mechanisms including retail and services, powered by the local food systems. At the heart of this approach lies a critical mechanism focused on reducing food waste. Therefore, the circular model aims to re-establish the relations between the parts in a whole (e.g., production and consumption, or consumption and distribution), allowing for dynamic interactions and mutual influence. By doing so, it aims to eliminate the problems arisen between the disconnected parts (e.g., waste, emission, pollution, etc.), closing the cycles as nature already does, and finding the balance between ecological, social and economic dimensions through creating a new production and consumption culture (Fassio & Tecco, 2019).

In this section, the concept of circular economy will be explained, with a focus on its theoretical background and fundamental approaches. Subsequently, in line with the criticisms made on the circular economy approach, this section will provide a discussion on the concept of "circularity", in reference to its major parameters and application elements. At this point, the concept of circularity and the discussion of circular food systems will be presented in line with the integration of the concept into food systems. In this manner, the major principles of circular food systems and the circularity elements it should provide to the UFSs will be discussed in detail.

3.1 Circular Economy Phenomenon

The circular economy (CE) is a rising phenomenon that emerges from the debate about sustainability and the finite nature of natural resources feeding human systems. As the name suggests, CE is mostly based on the transformation of linear systems of production and consumption, where natural resources are extracted, used and discarded at the end. It follows the idea that continuous growth of human systems, such as economy, human populations, urban areas and so on, will finally deplete resources (Meadows et al., 2004). As the systems grow in size, the rate of consumption of natural resources exceeds the regenerative capacity of the ecosystem. As a result, the concept argues that the restorative processes in which natural resources are regenerated and renewed should be internalized by the human

systems (Kovacic et al., 2020). For this, it is necessary to integrate the circularity found in natural ecosystems into human systems and in this context, it is open to all nature-based production and consumption methods.

Having its roots on ecological economics, circular economy approach aims to redefine growth with lower consumption of finite resources and promoting the adoption of a closed-loop production patterns within an economic system (Ghisellini et al., 2016). The key principles underpinning the CE can be traced back as far as the 1800s (Brennan et al., 2015). The antecedents can be attributed to seminal thinkers in ecological economics (Boulding, 1966; Pearce & Turner, 1990, cited in Brennan et al., 2015) and industrial ecology (Ayres & Kneese, 1969; Frosch & Gallopoulos, 1976, cited in Brennan et al., 2015). Central to these schools of thoughts are seeking to mirror dominant economic practices with the closed loop systems found in natural ecosystems whereby resource and energy use is reduced or avoided. It entails decoupling economic activity from the consumption of finite resources and designing waste out of the system by transforming waste outputs into inputs for new processes (EMF, 2017).

There are two emerging trends in the intellectual landscape that set the ground for the circular economy to appear: systems thinking and social metabolism (Kovacic et al., 2020). Systems thinking and general systems theory was developed by Von Bertalanffy in the early 1930s, in opposition to the Cartesian approach of breaking down a problem in many separate and independent elements. Here, the idea of system invokes interconnectedness and focuses on organisation as a higher-level system, composed of parts that interact with each other (Clayton & Radcliffe, 2018). Systems thinking has been taken up by a variety of disciplines such as biology, ecology, complexity sciences and as well as the branch of economics, mostly associated with ecological economics. Systems thinking has influenced the understanding of the systems (e.g., economy) with parts working in interaction with each other, which cannot be separated. The second influence of CE comes from social metabolism. The idea of metabolism is used to describe an organisation (e.g., urban) “not as a set of independent inputs and outputs, but as a unified larger

‘organism’” (Murray et al., 2017), which depends on an embedding ecosystem for its inputs and which discharges waste into this ecosystem. Applied to a society, the idea of metabolism studies the material and energy throughput that is needed for a society to reproduce itself. The metabolism metaphor has been broadly applied to social metabolism in ecological economics, to urban metabolism and industrial metabolism in industrial ecology. The focus on inputs and outputs mobilises both the idea of resource extraction and waste generation where the circular economy becomes a relevant concept with this framework (Kovacic et al., 2020).

CE phenomenon also very much associated with sustainability concept (Brennan et al., 2015). Yet CE tries to set some specific goals than of sustainability. The circular economy tries to close the loop between the resources (as inputs) and products (as outputs), which means the consumed products can be revalorised as inputs rather than becoming a waste. In line with this, it aims to reduce the need for inputs by decoupling production activity from resource exploitation, and to re-insert outputs into the production cycles as inputs. Therefore, it sets goals including achieving closed-loop patterns, eliminating resource input, extending life cycle of the goods and services and decreasing the level of waste (Geissdoerfer et al., 2017; Ghisellini et al., 2016). It follows “systems thinking” and aims to rebuild the relations between different parts within a whole system with methods such as recycling, reuse and revalorisation. It also contains several issues such as production without waste, resilience through diversity, use of renewable energy sources, and cascading flows of materials (Jurgilevich et al., 2016).

While defining the “system”, the circular economy addresses production systems shaped around value/supply chains, composed of many interrelated activities and actors around it. CE tries to decrease resource use and eliminate the concept of waste in the system it describes. Hence it aims to achieve circularity of materials in circular supply chains (De Angelis et al., 2018) through which waste outputs transforms into inputs for production of goods and services (EMF, 2017). Here, materials are intended to be managed within technical and/or biological cycles according to the scheme developed by Ellen MacArthur Foundation (EMF, 2017). In the scheme,

‘technical nutrients’ (e.g., metals or plastics) are suitable for reusing, refurbishing, remanufacturing and recycling for a consecutive number of cycles of production, while ‘biological nutrients’ (e.g. biodegradable materials) are suitable to serve a restorative purpose where they return to nature to build natural capital either directly, or at their end of use across different circular supply chains (De Angelis et al., 2018). In this context, food waste and residues are handled under biological cycles, as they are majorly composed of biodegradable materials.

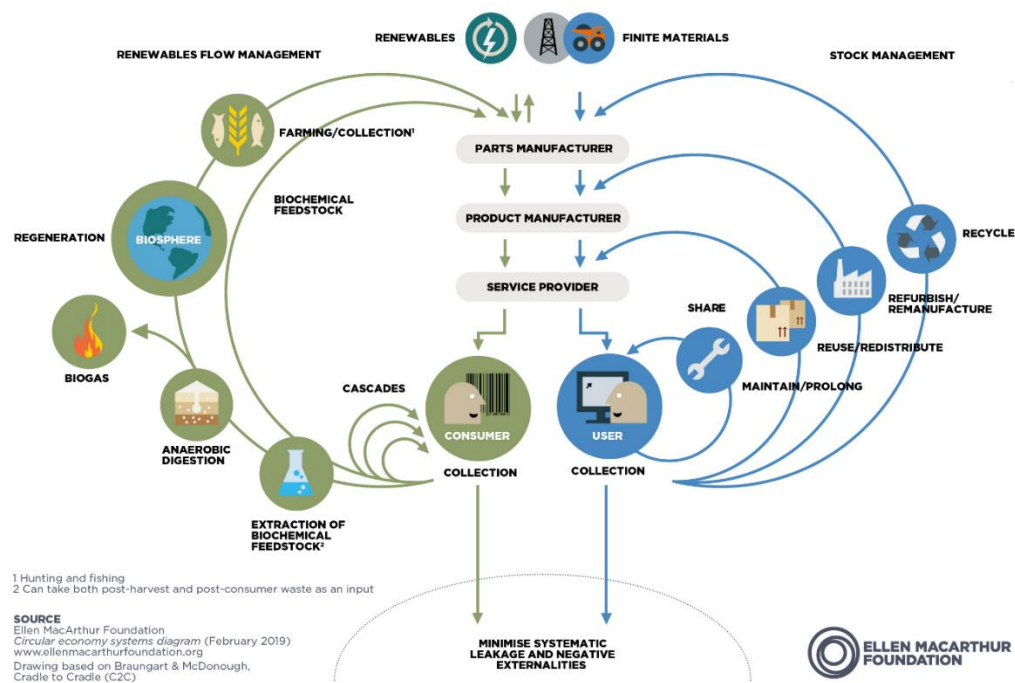


Figure 2: Circular Economy diagram showing value circles of biological and technical nutrients (Source: EMF, 2019)

Circular supply chains, differentiated from traditional and sustainable supply chains (Figure 3), is composed of supply chain management strategies for closing the loops by closing, slowing, or narrowing the loops. Here, circular supply chains are supported by the *inner circle uses* or *cascaded uses*, both which help to extend the period of time during which materials are kept in use. *The inner circle use* suggests

creating opportunities for value creation from circulating materials ***within the same supply chain***, while ***the cascaded use*** suggests a value creation from circulating materials ***across different supply chains*** (De Angelis et al., 2018). Besides, according to (De Angelis et al., 2018), these processes should be supported by the ***Circular business models (CBM)***, a term used to describe business models incorporating elements that slow, narrow, and close resource loops and achieve value creation from secondary resources.

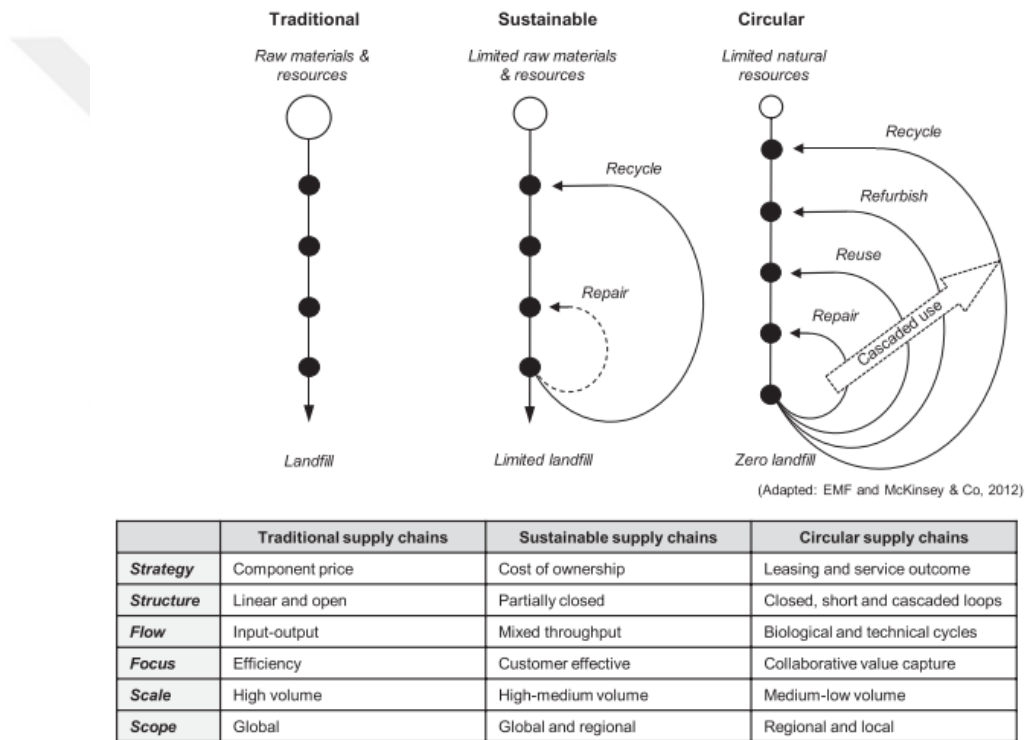


Figure 3: Traditional, sustainable and circular supply chain comparison
(Source: De Angelis et al., 2018)

The model receives increasing attention, particularly from policy makers, supranational institutions, and the private sector as a way to response to the inefficient management of the resources in the traditional linear model and to address resource efficiency through decoupling resource use by utilizing circular supply

chains. All these strategies are thought to reduce costs of production as well as decrease environmental burdens (EMF, 2017). Followingly, CE started to attract attention and has become a widely popular concept, promoted by practitioners within business, such as business consultancies (McKinsey Centre for Business and Environment, 2016), business associations (e.g. World Business Council for Sustainable Development, 2017) and business foundations (Ellen MacArthur Foundation, 2015). It is also increasingly embraced by policy makers internationally and nationally, for instance the World Economic Forum (e.g., WEF, 2018) and EU policy and action plans (EC, 2015, 2020), as well as by municipal and city policies (e.g. City of Amsterdam, London and other leading cities; Circle Economy, 2015; ICLEI, 2023; LWARB, 2017)

Overall, the principles of CE include adoption of cleaner production patterns, technological innovations, and the use of renewable technologies and materials (Ghisellini et al., 2016). Its motivation is to achieve resource efficiency through extension of life cycle of the products, as well as reintroduction of materials from unavoidable waste flows. Besides to this, waste minimisation at source is another major focus, with special focus on urban and industrial waste, through the strategies related to recycling, repair, reuse and remanufacture (Blomsma & Brennan, 2017a)

3.2 Critical Perspectives on CE: Towards Circularity

3.2.1 Major Criticisms Over the Concept of Circular Economy

Although the circular economy is a new phenomenon introduces novel concepts and approaches, it is criticized in terms of many aspects (Korhonen, Honkasalo, et al., 2018; Kovacic et al., 2020; Schulz et al., 2019). Main criticisms predominantly include topics such as the lack of a clear definition of the concept, the fact that being an ideal model that is far from practice, and its overemphasis on economic aspects with an exclusion of other important considerations. These major criticisms will be discussed in detail hereafter.

The first criticism comes from the challenge of constructing a clear definition of the circular economy, both in theory and practice, as it has many definitions (Kirchherr et al., 2017). As a starting definition, the circular economy is an alternative to the linear economy by creating circularity in which materials are circulated to generate different values. Here, circularity involves recycling, increasing product durability, creating repair and restore cultures, sharing economies, and many more ideas. However, this general definition refers to a blurred picture: many of the concepts and ideas that compose the circular economy to be best understood as an assembly of many different ideas and initiatives (Korhonen, Honkasalo, et al., 2018). This brought the problem of the complexity of what is to be governed and uncertainty about what tools to use to implement it (Kovacic et al., 2020).

The second criticism goes along with the idea that achieving fully circular economy is impossible in both practice and theoretical terms where the circularity is an idealised model (Korhonen, Nuur, et al., 2018; Kovacic et al., 2020). Normally, human-made systems are generally entropic, which means that the throughput of energy and materials can only go in linear direction. For example, energy cannot be recycled once fuels are burnt, food cannot be recycled once it is eaten. This goes along with the question of recyclability of different inputs. While materials such as plastics, metals, paper and textiles can be recycled, however, this does not apply to energy and food flows, which are degraded through use. Besides, recyclability can only come with different degrees, because materials such as plastics, paper and textiles lose quality when recycled and cannot be recycled repeatedly to be put back in use with the same purpose. Moreover, in a completely globalized economic system with high import and export rates of inputs and resources, it seems very difficult to achieve material circulation. All of this entails extending the idea of circularity to transforming materials for different purposes rather than reproducing them for the same purpose of use. Also, instead of dominant economic approaches (e.g. based on growth, globalization, competition, etc.), circularity requires a rethinking on rescaling, downsizing and decentralization in relations (Korhonen, Honkasalo, et al., 2018).

The third and the most important criticism is that the phenomenon focuses majorly on economic aspects (Kirchherr et al., 2017; Korhonen, Honkasalo, et al., 2018; Schulz et al., 2019) and fails to engage other aspects of transition. Also building on practice theory, many have argued that the framing of the circular economy is too narrow and tends to overlook on social aspects of the envisioned transition (Murray et al., 2017; Sauvé, Bernard, & Sloan, 2016). The circular economy sees the biggest problem in front of sustainability as the linear economic system itself, so that focuses on the re-design of it. However, the concept becomes narrowly focused on the economy, with a lack of reflection on the political, socio-cultural, and ecological dimensions that a transition to circularity would entail (Korhonen, Honkasalo, et al., 2018). At this point, it is often stuck between production-oriented objectivist approaches based on innovation and technology under technocratic management (Kovacic et al., 2020; Schulz et al., 2019). At one point, CE is aimed to draw attention to the practices that try to organize consumption by directing attention to the practices of sharing, reuse and collaboration. However, these remain limited and appear as secondary applications due to the emphasis on economic practices, such as achieving closed-loop patterns, eliminating resource input, extending life cycle of the goods and services (Ghisellini et al., 2016). The critical point here is that the approach should be expanded to include environmental, ecological, and social problems, without losing the emphasis on the problematic points of the economic system.

3.2.2 An Emerging Concept: The Concept of Circularity

Following the criticism of the CE phenomenon, several studies have chosen to use the term of “circularity” in order to move away from a single economic focus (ICLEI, 2023; Liaros, 2021; Murray et al., 2017; Prendeville et al., 2018). This conceptualization seeks to construct the circularity in human-made systems, integrating natural cycles into human systems through various components, namely ecological, social and subsequently economic. This perspective emphasizes circularity aligned with the natural and ecological cycles. The circularity approach,

on which the CE phenomenon is also nurtured, aims to improve existing human practices through enhancing value creation without disrupting these natural cycles. This value creation should serve not only for economic, but also for social, ecological or even cultural enhancement. The concept of “circularity” encourages the disclosure of new discussions and the exploration of new dimensions, rather than remaining confined on the economical discourses centred on economic value creation. Despite the ‘blurriness’ of the CE, the concept of circularity allows for open interpretation and even free, creative associations between a range of economic, social and environmental aspects (Murray et al., 2017). These aspects by which the circularity will be described are detailed below.

The economic aspects of circularity places strong emphasis on connecting circular activities with economic prosperity, guided by the principle of resource sensitivity. Resource sensitivity entails the responsible use of resources without harming natural cycles, and being restorative where these cycles are disrupted. In this manner, circular activities should align with this principle and follow the approaches and tools associated with closed loop systems, resource management, decoupling, waste reduction and revalorisation. The primary objective here is to achieve economic prosperity with minimal disruption on natural cycles. This is accomplished by employing resource sensitive and circular approaches that not only promote economic growth but also harmonize with ecological sustainability. In essence, it's about finding a balance where economic success and environmental stewardship go hand in hand, acknowledging that resource sensitivity and circularity are key components in achieving this equilibrium.

The ecological dimension of circularity emphasized the need for circular activities to support and foster socio-ecological relations that are essentially regenerative and redistributive. According to Murray et al. (2017), an important feature of the circularity is that it is supposed to be restorative, where the practices reduce waste and pollution, but also repairs and regenerates previous damage on ecosystems. In this manner, circular practices not only aim to minimize waste and pollution but also actively engage in protecting and sustaining ecological continuity of the ecosystem

services. Circular activities should seek to go beyond mere sustainability by actively contributing to the restoration and enhancement of ecosystems, recognizing that a harmonious coexistence with the environment is fundamental for the well-being of both society and the planet.

The social dimension of circularity places strong emphasis on aligning circular activities with the vision of fair and equitable society. This perspective calls for new alliances built between circularity and sharing economy, which invokes principles of collaborative consumption and seeks democratisation of the market. In practical terms, the circular practices should encourage shared ownership via collaborative consumption and decentralized decision-making within human systems. Circularity also places importance on maintenance of the health and well-being of populations, along with ensuring their cultural needs. It acknowledges that societal well-being extends beyond economic factors and encompasses physical and mental health, access to services, and cultural fulfilment. The overarching aim within this social context is to foster social equity that enable each and every person in a community has access to the same opportunities and outcomes of a community system. Therefore, circular practices should promote inclusivity via novel sharing systems that encourage circular culture built by all, promoting a sense of collective responsibility and shared benefits.

Today, the concept of circularity has started to be discussed in a way that touches on all these dimensions. Additionally, the concept is addressed in a way that puts cities at the centre, as circularity and cities represent a dynamic intersection where sustainability and resource management become closely related to inevitably growing urban development and urban life. Therefore, circular principles applied in urban contexts revolve around three dimensions of circularity, where minimizing waste, promoting resource efficiency, and promoting a regenerative and equitable urban ecosystem are at the forefront. In general, circularity in cities is a holistic approach that aims to transform urban areas into more sustainable, resilient and livable environments by rethinking the way resources are used, consumed and

managed. It addresses pressing urban challenges while striving for a more harmonious coexistence with the environment.

In this context, studies that conceptualize circularity and cities together and aim to create application frameworks for cities have gained momentum (EMF, 2019; ICLEI, 2023). The most important of these is the Circular Cities Action Framework put forward by ICLEI in collaboration with other major think tanks such as EMF and Circle Economy, which provides five complementary strategies for city practitioners and local governments. These strategies include closing the loop, redesigning the system, harmonizing with nature, ensuring longer use and doing better with less. Through this holistic framework, cities can seek to improve resource access, lower emissions, protect and enhance biodiversity, and reduce social inequities in line with the Sustainable Development Goals.

3.3 Circular Economy and Food

Around the world, there is a growing interest in the concept of circular economy in response to the recognition of the current unsustainable production and consumption patterns, marked by growing environmental and social problems. In the realm of the food system, there is a parallel urgency for system transformation, in response to the highly interrelated problems such as overuse of resources, pollution, subsequent biodiversity degradation, waste generation and unequal food access shaped by long and global supply chains (Hamam et al., 2021; Muscio & Sisto, 2020; Stuiver & O'hara, 2021). The circular economy attracts attention in this context, as it seeks to address various pressing problems within the food system. CE emerges as an approach that majorly aims at ensuring resource efficiency and promoting clean production practices. Within this context, CE aims at regenerating food production especially through nutrient recovery via biological cycles, minimizing waste generation by focusing on value creation from waste residues within the food system and keep valuable materials in use by establishing closed loops connections between different stages of the food system. In essence, the circular economy offers a holistic

approach to address the multifaceted challenges within the food system while promoting sustainability and responsible resource management.

The Ellen MacArthur Foundation (EMF), as the major think tank on circular economy, opened the path for a reframing on the concept of circular economy for food with the publication of “Cities and Circular Economy for Food” (EMF, 2019). According to this reframing, CE for food targets more efficient use of bio-materials within cycles, through inner or cascaded uses in a closed-loop system, with minimal unnecessary losses. With these methods, it aims to find solutions to the problems of overuse of resources, waste generation, pollution and degradation caused by chemical-based intensive agricultural production. Circular economy regarding the food system implies reducing the amount of waste generated in the food system and achieving nutrient recycling by circular economy strategies like recycle, reuse or revalorise food waste (Blomsma & Brennan, 2017b; Jurgilevich et al., 2016). Cities are defined as the main application area of these circular economy methods and applications.

According to (Esposito et al., 2020), due to the complexity of the food system, it is almost utopian to define a circular economy model for the whole. In addition, CE is a blurred and contested concept with many definitions and strategy variations, which makes its application in practice difficult and complicated. But still, leading institution of circular economy for food discussion - Ellen MacArthur Foundation (2019) has put forward 3 major principles for transforming the food system, starting from production (EMF, 2019)

- producing food regeneratively and locally
- avoiding food loss and waste within system
- keeping materials in circular use

Based on this, CE firstly aims at producing food regeneratively and locally where appropriate, where food is produced in ways that improve natural ecosystems (EMF, 2019). Local sourcing is key in supporting this. Secondly, CE aims to achieve the best use of surplus edible food and unavoidable food waste by redistribution to

different stages or transformation into other revenue streams (Jurgilevich et al., 2016, EMF, 2019). Through these methods, CE aims to redesign the system in a way that it reduces or minimise waste generation (EMF, 2019). In this whole process, the model is fed by methods and approaches like circular agriculture, bio-economy, waste management, as well as resource efficiency practices such as resource management, life cycle management and recycling (Blomsma & Brennan, 2017b).

Today, CE and food are considered as two important policy areas that complement each other, where the strategies of CE support solving the challenges of the conventional food system (Fassio & Minotti, 2019). It is already acknowledged that the CE strategies can help to evolve institutions over the food system, increase the ability to understand its parts, see the fundamental interconnections needed to challenge the future, to be creative and courageous about the redesign of the system. Following, CE for food is also aligned with the FAO Framework for the Urban Food Agenda, which calls for more integrated food system planning and inclusive food governance, shorter food supply chains, innovative and sustainable food business models and supply chain optimization for food loss reduction. However, what is meant by circular economy and circularity within food systems needs to be better established and conceptualized, in order to support the implementation of the concept in food policy, food governance and urban practice.

Upon critical examination, it becomes clear that the circular economy approach predominantly focuses on the economic processes of the food system, from the production to consumption of food. Even though it touches upon regenerative production, its consideration of broader social and environmental issues exist within the whole system remains somehow distant. CE also slightly addresses other major environmental problems generated within the human systems, aside from waste generation and resource depletion within economic systems. Furthermore, it remains at a distance from the social problems arising from the practices throughout the entire system, such as malnutrition, hunger, and accessibility to healthy and clean food. For these reasons, there is a need to redefine circular economy approach with a more comprehensive circularity model. This expanded perspective might offer solutions

that encompass various aspects of the food system, bringing the gap between economic, social and environmental considerations. Such a redefined approach holds the potential to address the multifaceted challenges within the food system more effectively and holistically.

3.4 Circular Food System & Its Components

3.4.1 Three Principles of Circular Food Systems

The most important emphasis of the circular model is to create a sustainable system as a whole (Brennan et al., 2015). As one of the environment-sensitive urban support system, agri-food system should ensure the continuity of all cycles, especially natural cycles, without deterioration. Moreover, sustainable redesign of the system should address social problems. Designing waste out of the system is an essential part of this, by building the system on generating new values instead of waste. On this basis, the aim is to create economic and social value out of waste in balance with natural ecosystems (Jurgilevich et al., 2016). In this context, the circular model has been expanded to encompass three basic principles of CE, in order to relate to all aspects of the food system namely economic, social and environmental.

Producing food regeneratively and locally

The first principle of a CFS is to produce food regeneratively, which basically means to improve ecosystem services that the food production depends on. The primary goal here is to repair the already- damaged ecosystem services on which the food system depends, and to ensure that food production is healthy and sustainable at all times. Today, it is known for certain that the current patterns of food production based on intensive agriculture deeply impair soil and water health via pesticide and chemical fertiliser uses (Springmann et al., 2018; Vermeulen et al., 2012). This results in soil and water pollution and decrease of good quality arable land (Morgan, 2009), due to the deterioration of soil quality. This certainly affects the future of food

production in terms of production of quality, nutritious food to safely feed the growing population. With the intensive farming methods used in current industrial agri-food system, the health of natural systems and the health of growing urban populations are on the brink of crises (Karakaya Ayalp et al., 2022). Following, the primary concern of the circularity approach is to focus on reversing this crisis in an immediate turn.

In order to determine the principles of the concept of circularity and their associated application tools, it is firstly necessary to reveal the most important determinants of regenerative food production. Here, the most important determinant of regenerative food production is the production technique used. For circularity, it is essential that these production techniques are shaped by **agroecological food production techniques** that do not harm the soil and biodiversity, even further improve these assets, as opposed to intensive agriculture (Francis et al., 2003; Gliessman, 2014). The abandonment of intensive farming methods based on monoculture and chemical use will reverse the trend of soil and bio-diversity degradation. Restoring soil quality and replacing the lost in quality arable land is very important for the future of food systems, and this is only possible with agroecological and regenerative methods (Gliessman, 2014). Therefore, it is fundamental in terms of circularity that the food production should be redesigned with agroecological and regenerative methods (EMF, 2019) and that other stages of the food system should be connected to the production mechanisms in which these agroecological techniques are dominant. For the CFS, in terms of regenerative production, three major issues come to the forefront: **sustainable resource use**, **soil improvement** and **nutrient cycling**. First of all, regenerative food production requires supporting efficient and sustainable use of resources (Jurgilevich et al., 2016). These resources include soil, land, water and biodiversity that are often referred to as ‘natural capital’. As conventional agri-food system based on intensive agriculture has been depleting these natural resources, CE model firstly appreciates the fact that the natural capital should be regenerated. Adopting the use of resources in cycles helps to regenerate natural ecosystems, prevent pollution, improve water and soil mineral cycle and support biodiversity at

local ecosystems. This also helps soil improvement and biodiversity protection. What is also important here is the critical issue of water and energy requirements for food production. CE model also appreciates the responsible utilization of water resources in cycles, where the water is harvested and subsequently employed for irrigation purposes. Additionally, crucial focus lies in achieving energy neutrality, where the materials are repurposed for energy generation, thereby reducing the dependence on fossil fuels and decrease GHG emissions. This can be further supported through the adoption of various renewable energy usages (Fassio & Tecco, 2019).

For the soil improvement, CE model also proposes organic materials extracted from solid waste or wastewater to be recovered as ingredients for improving soil health for the next cycle of food production (Liaros, 2021). Soil improvement is also possible with nutrient recovery. The most known technique for soil improvement via nutrient cycling is **composting**, which is rich in nutrients and minerals. Composting is a major strategy and implementation tool for CFSs, as it is the most common and the ideal way for improving soil fertility (Fassio & Tecco, 2019). This technique is commonly integrated within agroecological production techniques and is the promising way for regenerative food production.

Furthermore, for a CFS striving for minimal waste, the **localisation** is essential. Rather than large-scale monocultural systems, managed and regulated at a state level, Liaros (2021) identify the need for a much more decentralised network of diverse, polyculture farms managed at a local level. This would be a viable circular food future, reducing waste and energy losses due to long supply chains. This also allows food waste to easily be recovered and recycled, which also goes hand in hand with the second and third principle of CE; avoiding FLWs and keeping materials in use, here to regenerate natural ecosystems.

Designing Waste Out of System

In its basic notion, the concept of circularity fundamentally aims at elimination of waste generation within a system. Looking at the pioneering approaches and basic principles that form the basis of CE, it is known by many that the concept majorly appreciates and follows the “waste-to-resource” approach. In fact, the concept of circularity is so intertwined with the issue of waste that, in some cases, it is simply reduced to mere waste problem and its management. However, it is essential to recognize that circularity is a much broader concept than simple waste management and its tools and application areas cover a wider range of policy areas, highlighting its capacity to address various aspects of sustainability and resource management. Primarily, circularity primarily aims to prevent waste at its origin. If prevention is unattainable, it subsequently focusses on reducing or minimizing waste through various techniques, aiming to utilize waste within cycles, just as observed in natural ecosystems (EMF, 2017).

In conventional food system, the production of biodegradable waste is pervasive. This waste primarily comprises FLWSs, collectively accounting for a significant portion of the overall food production. In addition, biodegradable waste generated throughout the system includes residues and inedible parts. In contrast, in CFS, FLWs are accepted as avoidable, through right strategies targeting waste prevention and minimisation. However, some bio-degradable components such as residues and inedible parts, are unavoidable for a food system, especially at harvest and processing stages. For the CFS, first thing is to prevent unnecessary FLWs in different stages, resulted mainly by long chains and technological shortcomings (Blakeney, 2019; FAO, 2018b). Second is to find innovative ways to revalorise unavoidable wastes through using them in cycles, supporting the third principle of CE model.

The most effective strategy for designing waste out of the system is to ***shorten the supply chain*** through localized food systems (Liaros, 2021). This localized and short supply chains have strong potential for waste reduction. An example for this is to

combine local and seasonal foods in short-supply chains which decrease storage and transportation and increase direct connection between producer and consumer. This is proved to provide better demand-supply balance, which contributes to direct access to food and prevent food loss and waste occurs at each stage in the long supply chain (Fassio & Tecco, 2019). At this point, it is important to establish supply and consumption mechanisms that directly connect consumer to producer, where the consumer can reach local, clean and safe food directly without causing any loss along the distribution channels.

Another strategy to prevent food loss and waste is to provide **different value streams** and **consumption channels** along the food chain. The major strategy for this is to provide new ways for reusing surplus edible food for human consumption¹ via **redistribution platforms** and **food banks**. This also increases access to affordable and safe food for low-income people. Here, incentives are needed to encourage producers and retailers to redistribute unwanted/unclaimed food (Jurgilevich et al., 2016). In addition, **retail mechanisms** initiated by the local administrations, such as local food centres, producer halls or food outlets, emerge as alternative solutions at this point for revalorization of unclaimed food.

Besides to all these, another strategy is to redirect unwanted/unclaimed food to inner or **cascaded uses** for revalorisation as by-products, minerals/nutrients, or energy (Fassio & Tecco, 2019). These processes are part of cycles within agri-food system, including practices like composting or bio-fertilizer production. They are also integrated broader bioeconomy cycles that produce goods and materials suitable for different sectors such as bio-packaging or retrofitting solutions. This aligns with the third principle of the model for food system; keeping materials in use.

¹ This includes food disposed because of quality standards, (e.g., sizes, colors and shapes of vegetables, fruits) and food labelling (e.g., “best before” and “consume by” dates).

Keeping materials in use

For circular model in food system, keeping materials in use is the last but the main principle (EMF, 2019). This goes in line with the central approach of circularity, which reflects the closed-loop systems found in natural ecosystems, where waste is repurposed to fulfil resource use unless it is prevented. The aim here is that; in cases when bio-waste is unavoidable, the circular economy utilizes food materials first as food products, then as reused/recycled materials to be revalorised as compost or any other forms and finally, as energy. For the material revalorisation, not only food loss and waste but also the residues from crop production are important in terms of circularity. Here, ***inner circle*** or ***cascaded use of materials*** come to the forefront once again, to valorise surplus food and residues in line with other principles.

Starting with inner circle use opportunities in terms of biodegradable material recovery and revalorisation, it is important to emphasise that these opportunities placed within the agri-food chain itself (closing internal cycles within the chain) (De Angelis et al., 2018). In this sense, the food waste and residues as bio-waste is not disposed, instead it is revalorised as agricultural input, such as animal feed, or as organic soil improvers and fertilizers (e.g., compost or bio-fertilisers) to be used in agricultural production (Fassio & Tecco, 2019). Also, these residues can be converted into biogas or biodiesel as an energy source, another input to be used in agricultural production. Besides to agricultural production, surplus inedible food can be revalorized in processing phase, to be converted in food by-products (ibid.). Lastly, the food wastes can be valorised in social innovation platforms in urban contexts, such as urban food banks that collect and redistribute edible food wastes. This also helps to the fight against hunger and malnutrition.

The cascaded uses for surplus food and residue streams are more complex, where these streams are used for external applications in different production chains (closing external cycles) (De Angelis et al., 2018). The most known revalorisation option is biomass, as one type of renewable energy. Besides the use of biomass for energy production, biodegradable materials are increasingly used by cascaded uses

in bio-industries (Fassio & Tecco, 2019); for example, the chemical industry (e.g., bio-plastics), bio-materials (e.g., bio-char), construction materials (e.g., bio-composite, retrofitting/insulation materials), energy and mobility (e.g., bio-fuels). Other than bio-industries, FLW and residue streams can also feed other industries by upcycling, such as textile industry (e.g., textile fiber from industrial bio-waste), paper industry (e.g., apple peel and cores become paper) and packaging industry (e.g., bio-packaging) (Fassio & Tecco, 2019). Another and recently emerging area of utilization for bio-degradable materials extracted from bio-waste streams is renovative applications for urban infrastructures, under the concept of nature-based solutions (NBS) benefitting ecosystem services (Stefanakis et al., 2021).

3.4.2 New Principle Added: Promoting New Modes of Responsible Consumption

The food system has been highlighted as a potential site for the implementation of the principles of 'circularity'. However, there are limited number of studies giving attention to processes involved in food consumption (Jurgilevich et al., 2016; Mylan et al., 2016), even though the relationship between sustainability and responsible production and consumption is widely acknowledged (SDG12 - (UN, 2022)). While much of the studies focuses on food production, there is need to pay more attention to the processes involved in food consumption where the dominant consumption culture is challenged. Moreover, the practices that directly connect production-consumption with innovative consumption junction mechanisms is equally important to achieve regenerative, resource efficient and waste-free circular food systems.

With population growth and accompanying rising urbanization trend, demand for basic goods and services increases considerably and it is known that current and projected material consumption rates are simply not sustainable. Among these, food demand is specifically predicted to increase by 70% by 2050, which will likely have implications on structural problems such as intensive food production, overuse of resources and degradation of ecosystem services with high carbon emissions, as well

as food loss and waste generation (UN, 2023). In order to minimize all these pressures, it seems necessary to change the consumption culture within such a growth dynamic. For this reason, the necessity of transforming consumption patterns with more responsible consumption practices is a topic of discussion today, where consumers have a significant impact on promoting sustainable ways of food production and provision by purchasing and consuming certain food products (Canto et al., 2021).

In this context, the relationship between consumption and circularity in food systems is also very clear. While much attention is given to production practices and supply chain management, consumption practices are equally critical in achieving circularity. Consumption plays a vital role for transition, as it can directly affect the whole system by creating a demand-side effect on the supply chains towards more clean, chemical-free and local food products (Mylan et al., 2016).

It is essential to discuss the importance of instilling a more responsible consumption culture for a circular food system, since increasing responsible consumption triggers demand-based transformations within food chains. In this way, consumers and supply mechanisms focusing on consumption can contribute to reducing waste (Borrello et al., 2017), extending product life cycles (Canto et al., 2021) and moving towards more sustainable and circular solutions (Hamam et al., 2021). Following the demand-side effects triggered by alternative consumption, supply and retail forms in existing infrastructures and organizational structures seen in the consumption junction, resource efficiency methods, regenerative production and other forms of clean and waste-free production will be accelerated.

Through responsible purchasing decisions, consumers can influence production and supply mechanisms to produce and deliver more sustainable and circular products (Borrello et al., 2017; Canto et al., 2021). However, the change in consumption patterns should not only be explained via individual consumption practices, but also through organized practices targeting consumption such as food supply and retail (Mylan et al., 2016). For this, the transformative effects of the organized food supply and retail practices should be revealed, majorly accumulated around consumption

junction. In this manner, consumption junction practices come to the forefront in terms of organizing supply structure as well as consumption, as the transformation is possible not only with consumer demand, but also with the establishment of supply mechanisms supporting and accelerating consumer demands (Ooesterveer & Spaargaren, 2012).

With evolving consumption patterns, the consumption of certain products will increase. As the demand for locally sourced and cleaner products increases, food supply chains will shorten, and production mechanisms will accelerate a change towards cleaner production. The diversification of access channels by alternative retail units, in response to changing consumption trends, will gradually increase consumer access to these products. It's worth noting here is that alternative forms of food supply beyond private market-led retail mechanisms, such as food communities, consumer cooperatives, municipal supply mechanisms play a significant role in triggering the transition. In fact, the consumers actively participating in food communities have become **prosumers** by having the chance to involve in and closely monitor the production processes. The consumer cooperatives on the other side, encourage local consumption through increasing access to local products produced by producer cooperatives. All these have the capacity to instil a new responsible consumption culture by changing consumers into powerful actors that will trigger a much stronger system transformation rather than staying as just end-users or consumers (Schulz et al., 2019).

With the rise of alternative mechanisms supporting diverse supply channels, the construction and enhancement of food systems aligned with circularity principles become increasingly possible. This transition become possible majorly in two ways. First, such mechanisms facilitate the establishment of local and short food supply chains, resulting in reduced food wastage and improved access to local, safe and nutritious food sources (Liaros, 2021). These alternative supply channels promote a better connection between urban food consumption and local and regenerative agricultural production. This is of vital importance, as all kinds of local, agro-ecological and eco-friendly food production is intrinsically circular, due to their

natural and waste-free mode of production. Second, the expansion of shorter supply chains particularly when built on urban or city-region scale will contribute to the reduction of food waste at its source. Additionally, the increasing trend towards the consumption of sustainable products further support the trend towards circular food products (Canto et al., 2021). These food products are characterised by minimal resource inputs (such as water or energy), reliance on local resources (including local seeds and locally sourced renewable energies) and adherence to practices that support both internal (composting, animal feed, etc.) and external (bio-products, bio-packaging, etc.) cycles. The restructuring of a circular system on an urban or city-region scale requires the reorganization of the consumption mechanisms and establishment of robust the relationship with the products produced using the methods supporting circularity. This approach is vital for building truly circular and sustainable urban food systems.

As defined earlier, the shift in consumption patterns should not be solely attributed to individual consumption practices. To facilitate a more effective transition to circular food systems, the importance of organized practices on food supply and retail targeting consumption is also clear (Mylan et al., 2016). In this context, the actors involved in organized practices regarding food provision should diversify to include a variety of organizations as such:

1. Municipal Services – incentivizing the sustainable and circular food product choices; creating new supply channels; triggering regenerative local food production
2. Retail Sector – creating new supply channels; promoting local sourcing (from close periphery or city-region); triggering regenerative local food production
3. Civic Organization – re-organizing food demand and influencing supply channels; accelerating actor interaction; building new consumption culture
4. Individual Consumers – changing patterns of consumption; creating new demand towards local and clean food products

3.4.3 Circular Food System and Its Parameters

Building on all the discussion above, Circular Food Systems (CFS) ultimately target more efficient use of materials within cycles, through inner or cascaded uses of the biodegradable materials in a closed-loop system (De Angelis et al., 2018). Circular food system implies reducing the amount of waste generated in the food system, reuse of food, utilization of by-products and food waste, and achieving nutrient recycling (Jurgilevich et al., 2016). Since the food chain includes the circulation of bio-materials, the circular supply chain for the food system is built up of biological cycles and the strategies to promote circularity of the materials differs from other supply chains (EMF, 2019).

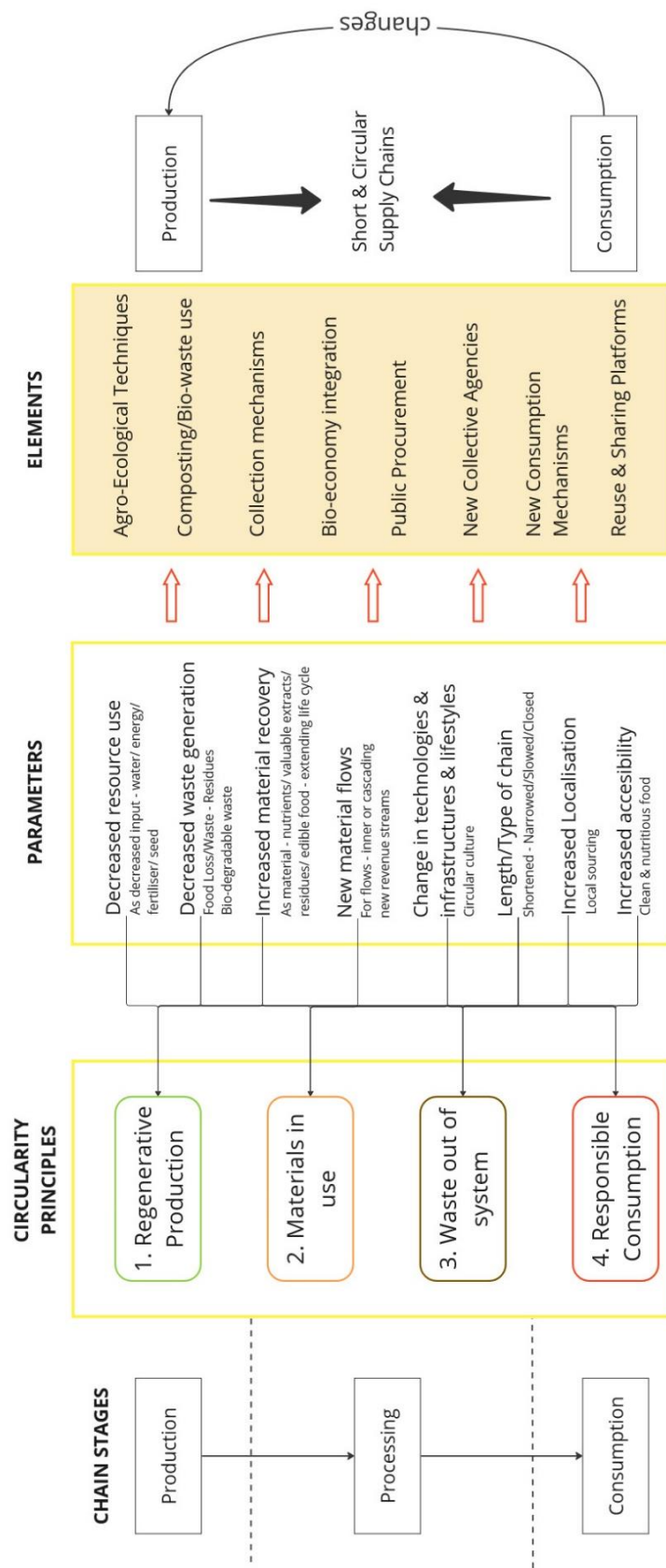
The Circular Food System (CFS), encompassing all these above-mentioned principles and implications, is intentionally structured around Circular Supply Chains (De Angelis et al., 2018), characterized by circular interconnections between stages, unlike traditional and sustainable supply chains. The circular model for the food system primarily aims to achieve circularity of bio-materials in a circular supply chain where waste outputs transform into inputs for new processes, materials, components and products in cycles. Therefore, it aims to achieve best use of the FLWs and biodegradable residues in cycles by turning them into resources to feed another production or natural cycle, so that create economic, social and environmental value out of waste (EMF, 2019). Such a reorganization involves the construction of a system in which all biodegradable waste within the chain is collected and transferred to various value chains, either internal or external, with innovative methods. This necessitates a reconstruction of stronger relationships between different stages in the food chain. The diagram below illustrates the circular supply chain configuration for establishing a comprehensive CFSs based on its three major principles. (See figure 4). As seen in the diagram, in CFSs, the loops supported by inner or cascaded uses of bio-materials are designed to transform unavoidable food waste into resources for new revenue streams, such as agricultural inputs, materials for food processing, bio-based products in bio-industries, by-products in different manufacturing industries (e.g. textiles, packaging, construction etc.) and

certainly energy (Fassio & Tecco, 2019; Jurgilevich et al., 2016). Additionally, they are designed to achieve the best use of surplus edible food, by redistribution to possible local platforms, i.e., food banks and food sharing platforms, and so achieve reuse of consumable food, which helps to fight against the uneven access conditions and to relate to social dimension of the transition.

The circular food system (as diagrammed below in Figure 4) involves the implementation of practices supporting circularity within urban contexts, where various actors can act and mobilize together or individually at different stages of the food system. These applications include new practices introducing new processes and actions that promote more sustainable production and consumption patterns. Some of these novel practices can directly or indirectly support circularity. Therefore, in order to discuss how these practices support circularity and what kind of alternatives they create on mainstream applications, revealing the relevant parameters and elements becomes important both for theory and practice. In this context, revealing the parameters related to circularity and connecting existing urban practices with them is important in terms of proposing a new alternative urban model.

Following, this thesis has revealed the circularity parameters having grounded on the theoretical and practice background, in order to examine current urban practices carried out by different actors in the food chain and to identify the contributions, challenges and potentials of these practices in terms of circular model. In this context, eight parameters that define circularity have been introduced, and defined in the diagram below (See; Figure 5). These parameters are intrinsically linked to the critical aspects of circularity, such as regenerative food production, shorter supply chains, resource use, new value chains and bio-economy integration. Each of these parameters is individually associated with the realization of the basic principles of the approach.

Building upon these parameters, circularity elements, that can also serve as practical tools, have been introduced. These circularity elements encompass elements related to localization, shortening supply chains, regenerative applications, and food waste revalorisation practices. These elements establish a relationship with the principles in a way similar to the parameters. It is also essential to reveal which elements have a closer relationship with specific principles and which dimension they support. In this context, following the definition of the parameters and elements, the relationship between the elements and the principles as well as the dimensions they enhance, are discussed in the following table (See; Table 4).



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Figure 5: Diagram showing main principles, related parameters and circularity elements within food chain (Source: Produced by the author, 2023).

Table 4: Circular Economy Principles and related circularity elements

Principles	Dimensions		
	Ecological continuity	Social Equity	Economic Prosperity
1st P: <i>Producing Food Regeneratively and Locally</i>			
Resource Sensitive (water/soil) Production Techniques	•		•
Agroecological Production Techniques	•	•	•
Recovery of organic materials & nutrients Composting / Bio-Fertilisers	•		•
Water-Food-Energy Nexus Utilization of water /energy in cycles	•		•
Local & Decentralized Food Production	•	•	•
2nd P: <i>Avoiding Food Loss & Waste</i>			
Short Supply Chain Mechanisms Connecting consumer with producer	•	•	•
Collection mechanisms Collection & Sorting	•	•	•
Redistribution platforms Utilization of FLWs		•	•
3rd P: <i>Keeping Materials in Use</i>			
Collection & Distribution Mechanisms Material banks	•		•
Inner circle use mechanisms Composting, Bio-fertiliser and such	•	•	•
Cascaded use mechanisms Bio-economy connection		•	•
4th P: <i>Accelerating Responsible Consumption</i>			
New Consumption Mechanisms Alternative Retail / Food Access		•	•
Organized Consumer Associations Consumer Groups/Cooperatives		•	•
Reuse & Sharing Platforms	•	•	•

3.5 Circular Food System and Urban Food Planning

A key area of commonality between the food system and circular economy frameworks is that both consider all aspects of the value chain, from resource extraction to waste management. Circular food systems prioritize regenerative production, favour reuse and sharing practices, reduce resource inputs and pollution and ensure resource recovery for future uses. As such, they close resource loops and pursue cross-sectoral synergies (e.g. with water and energy systems) that contribute to the resilience of a territory (EMF, 2019; ICLEI, 2023)

In terms of planning, Circular model can support planning approaches with a holistic understanding on urban food systems, moving away from approaches that reinforce urban-rural distinction. It also contributes to planning agenda by **supporting sustainable food systems**, by **contributing to public health** and by **providing different ways of food access**.

With the principles it generates, the circular food systems become compatible with the urban and regional food systems approach, as the principles supports local regenerative ecosystems, where water and energy use as well as pollution is minimised, bio-materials are kept in use, while increase accession on clean and healthy food with shorter chains. This could be built by supporting local communities at urban periphery and their living in balance with their rural ecosystem, and later supporting their clean production by providing linkages with urban consumption. Creating a producer inventory and ensuring that urban services receive services from producers on this inventory strengthens the system in both ways.

Table 5: Urban Planning and benefits by Circular Food Systems

Planning Ambitions	Circular Economy Benefits
Sustainable food systems	• increased regenerative food production, • decreased resource use, • decreased GHG emissions, • decreased soil and water pollution.
Public health	• decreased pollution, • increased soil improvement, • better waste management, • better access to clean food.
Food access	• local food systems (LFS) • short supply chains (SSC) • retail services on secondary food (e.g. food banks, food platforms) • other community-based retail services



CHAPTER 4

METHODOLOGY

While cities grapple with the structural problems of the linear food system, the need for sustainable reconfiguration of the food systems as Urban Food Systems, where food production and consumption are linked to local or regional supply systems, has become more evident (Olsson, 2018; Vieira et al., 2018). As the importance of understanding and conceptualizing food systems as Urban or Regional Food Systems has become widespread in terms of sustainable restructuring of food systems, the issue of circularity is also gaining great importance. Following this, this thesis argues that the concept of circularity should be integrated into the UFS in order to support holistic understanding, and to strengthen the broken relationship between the parts of the food system, particularly between food production and consumption.

In this context, this thesis primarily deals with the concept of Urban Food Systems and tries to put forward the proposals of the concept for the construction of sustainable food systems through urban food planning. It then tries to strengthen this approach by extending it with the parameters of the concept of circularity to arrive at the *Circular Food System* conceptualization. However, since *Circular Food Systems* are a new concept, it has not been discussed in the literature deeply, and its parameters are not clear. Therefore, the necessity of presenting these parameters more strongly and strengthening them with practical applications emerges.

Urban applications gain importance at this point, as food systems are now seen as urban systems in both UFS and CFS conceptualizations. However, just as the concept of circularity is blurred and unclear, so is its urban projection. At this point, it is necessary to reveal the urban projection of circular practices more clearly, which is possible with the analysis of existing local food practices with the circularity elements they generated. Since cities continue to exist as consumption places, the concept of circularity should be particularly strongly associated with urban food

consumption practices while focusing on cities. In particular, highlighting key practices in the consumption phase and establishing their relationship with circularity are important in terms of understanding and triggering the circular transition in local food systems.

Considering the CFS applications in urban scale, it is seen that the phenomenon is highly context-dependent, which means that each practice should be understood and analysed in its own context. In this manner, it is important for both theory and practice to reveal urban food practices on-site with analysis on how the practices emerged, by which actors they were brought to life, by which key events they were supported, and which circularity elements they have activated. In this respect, the phenomenon requires qualitative and exploratory research (Creswell, 2013).

Related to this, this study aims to reveal existing local food practices that propose novel models of consumption and has a potential to generate circular transition within urban food systems, through empirical research with an exploratory case study. In line with this, the thesis focuses on the district of Karşıyaka in İzmir, Turkey as a case study. Karşıyaka, as a dynamic sub-centre of İzmir, is an urban section with a multi-layered and multi-actor food system where the consumption practices are highly concentrated. In present, Karşıyaka has already witnessed various studies on urban food planning and has the potential to become a dynamic urban region where new methods are practiced within the urban food system. In this respect, Karşıyaka presents an ideal opportunity to explore key practices with the potential of generating circularity within urban food systems at a local scale. The ultimate goal of the thesis is to develop a model with clear parameters and tools for building circular urban food system, with findings from the novel practices seen at the case of Karşıyaka.

This chapter explains the research design with a detailed explanation of the phases of the study. Later, the research methods used under the case study design will be explained in detail.

4.1 Research Design

This thesis has qualitative and exploratory research design on the case of Karşıyaka, Izmir. According to Gray (2014), “qualitative research is highly contextual, being collected in a natural ‘real life’ setting” and “exploratory studies seek to explore what is happening and to ask questions about it, which are particularly useful when not enough is known about a phenomenon”. Therefore, this thesis uses qualitative exploratory research to identify key practices at the selected case of Karşıyaka with key factors underlying them, as the subject and related practices needs a deeper understanding and exploration (Creswell, 2013).

In doing this, thesis aims to implement extensive research in two phases, including the determination of parameters for analysis and in-depth analysis and interpretation (Creswell, 2013). The first phase of the research aims at uncovering CFSs with its major principles. The aim here is to draw the framework for CFSs and to identify its basic tools for implementation and parameters for analysis. Building on UFS approach, the thesis also benefits from the principles and tools brought by the UFS approach. At this point, the framework of the holistic circular approach is based on the combination of the foundations of the two approaches, namely CFSs and UFSs. The parameters were tried to be designed in a way that would generate circularity. Second phase consist of empirical research, which is to reveal the urban practices at a local scale with a focus on consumption practices, based on a case study of Karşıyaka. This phase firstly includes a descriptive analysis on local food system dynamics including physical, spatial as well as social features. These includes existing patterns of consumption, major consumption mechanisms and supply chain features with their spatial organisation, local food polies and programmes with local innovative food practices and various urban food actors active within the food related practices. Later, this phase aims at revealing potential circularity elements in practice, performed by the novel practices within local actions, by analysing them through the circularity parameters defined by the first phase of the research (See; Figure 6).

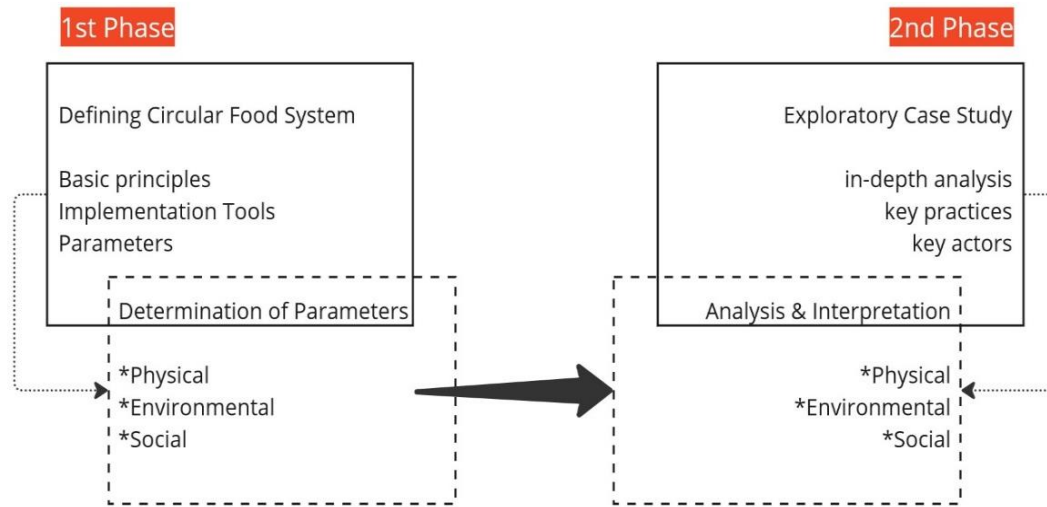


Figure 6: Phases of the research
(Source: Produced by the author)

4.1.1 First Phase of the Study: Building the Theory

This stage includes a preliminary reading and literature review to draw the framework for CFSs and to identify its basic tools for implementation and parameters for analysis. First, a preliminary reading on food system and urban food planning literature has been done, to have a theoretical understanding on the food system discussions, the approaches, and the paradigms on the topic. The purpose here is to identify mainstream approaches and following practices in the world related to urban food systems and urban food planning. Here, the UFS approach, its basic arguments and new approaches and its relationship with urban food planning are presented. From this point of view, the tools introduced by the UFS approach will be revealed, and a basis for food systems planning will be laid.

In this context, this thesis primarily deals with the concept of UFS and tries to put forward the proposals of the concept for the construction of sustainable food systems through urban food planning. It then tries to strengthen this approach by extending it with the principles of the concept of circularity to arrive at the *Circular Food*

System conceptualization. Therefore, the study covers both academic and grey literature related to circular economy, circularity and circular food systems. The outcome of this stage is to reveal planning and implementation tools that support reorganization of food consumption generating circularity within urban food systems, and to establish the relationship of the proposed model with approaches on CRFS, UFSs and Urban Food Planning.

For the first phase of the study, the primary and secondary resources such as articles, books, reports of leading institutions and theses on Urban Food Systems, City-Region Food Systems, Urban Food Planning, Circular Economy, and Circular Economy for Food Systems has been collected and scanned. To further support sustainable urban transformation and food system interrelation, major policy documents have also been collected and scanned (See; Table 6). Relatedly, to further support the CFSs conceptualization, grey literature including reports, publications on frameworks and indexes from leading international institutions, non-governmental organisations, think tanks and global networks were also collected and scanned (See; Table 6). This is because the *Circular Food Systems* is a new concept, and its theoretical discussion has not yet deepened in the literature and its framework is generally drawn by policy documents. By examining these frameworks, key issues, major principles, tools and parameters related to circular food systems have been developed.

Table 6: Grey Literature on Food Systems, Circular Economy and Circular Economy for Food scanned for the first phase of the study

Report	Topic in Relation	Institution	Year
<i>Global Agenda and Declarations on Food Systems</i>			
World Urban Forum WUF7 - Medellin	Sustainable Urban Transformation	WUF	2014
Habitat III - The New Urban Agenda	Sustainable Urban Transformation	FAO	2016
The Milan Urban Food Policy Pact	Urban Food Policy	MUFPP	2015
FAO Framework for the Urban Food Agenda	Sustainable Urban Food Systems	FAO	2019
Good Food Cities Declaration	Healthy Diet	C40 Cities	2019
The Glasgow Food and Climate Declaration	Sustainable Food Systems	UNFCCC COP26	2021
<i>Action Frameworks on Food Systems – Urban Food System</i>			
The Milan Urban Food Policy Pact – Framework for Action	Urban Food Policy	MUFPP	2020
The Milan Urban Food Policy Pact Monitoring Framework	Urban Food Policy	FAO	2019
The Milan Urban Food Policy Pact Monitoring Framework – <i>A practical handbook for implementation</i>	Urban Food Policy	FAO RUAF	2021
A Vision for City Region Food Systems: Building Sustainable and Resilient City Regions	City-Region Food Systems	FAO RUAF	2015
City Region Food System Indicator Framework	City-Region Food Systems	RUAF	2017
City Region Food System Toolkit - <i>Tools/Examples</i>	City-Region Food Systems	FAO RUAF	2018
Building Sustainable and Resilient City-Region Food Systems	City-Region Food Systems	FAO RUAF	2023
“Food into Cities” Collection	Sustainable Urban Planning & Food	FAO	2000

Table 6 (Cont.)

<i>Agenda & Frameworks on Circular Economy</i>			
Circular Economy Action Plan	Circular Economy	EC	2015
Cities in the Circular Economy: An Initial Exploration	Cities & Circular Economy	EMF	2017
Circular Cities Declaration	Circular Cities	ICLEI	2020
Circular City Actions Framework	Circular Cities	ICLEI	2021
Municipality-led circular economy case studies	Cities & Circular Economy	C40 Cities	2018
Circular Cities - A practical approach to develop a city roadmap focusing on utilities	Cities & Circular Economy	EIT Climate-KIC	2019
<i>Action Frameworks on Circularity – Circular Economy for Food</i>			
Cities and Circular Economy for Food	Circular Food Systems	EMF	2019
Cities and Circular Economy for Food – City Analysis Instructions	Circular Food Systems	EMF	2019
City Practitioners Handbook: Circular Food Systems	Circular Food Systems	ICLEI	

As outcome of the first phase of the study, basic principles for Circular Food Systems have been put forward and extended where deemed necessary. Out of the principles, basic parameters were developed. These parameters have been used for the second phase, where an in-depth analysis is conducted on the case study of Karşıyaka. These principles and related parameters are given in the literature and theoretical background chapters in detail.

4.1.2 Second Phase of the Study: Exploratory Case Study

This thesis is concerned with exploring key urban practices that aims to trigger sustainable reconfiguration of the urban food system within a local context. While doing this, the thesis focuses on a specific case with various food practices at an

urban scale. Following, the thesis focuses on the consumption junction at Karşıyaka, a dynamic urban section of Izmir. The purpose here is to explore key practices and actions taken by various key actors concentrated at consumption junction. Here, it will reveal the circularity elements of these practices, by analysing them in terms of circularity parameters inferred through the first phase of the study. Later, it examines the elements and materials used by the urban actors to materialize their actions as well as the barriers and drivers they encounter while performing their actions. Thus, the research is based on exploratory action research, engaging mostly qualitative methods for data collection and analysis (Creswell, 2013). Since the consumption junction is considered as the impact point, this research is formulated on a reverse model that tracks the urban food supply chain in Karşıyaka from the end point of the food chain that is consumption.

Compared to studies that examine supply chains from a linear perspective from production to consumption, this study aims to bring a new perspective to the analysis of urban food chains by putting consumption practices into focus. This model suggests starting from the end of the food supply chain (i.e., the point of consumption) and track backward to examine how key consumption practices could influence downstream activities of the chain. It aims to explore the key practices at the consumption junction and the circularity elements catalysed by these practices. The purpose of this is to understand if there is a change in consumption practices which can lead to a more sustainable and circular food systems, and how and why these changes occur, by which actors they are catalysed and what kind of barriers and drivers they incorporate. The thesis aims to identify key actions that include elements to increase the sustainability and circularity of the food system, as well as key actors that support and enable these actions.

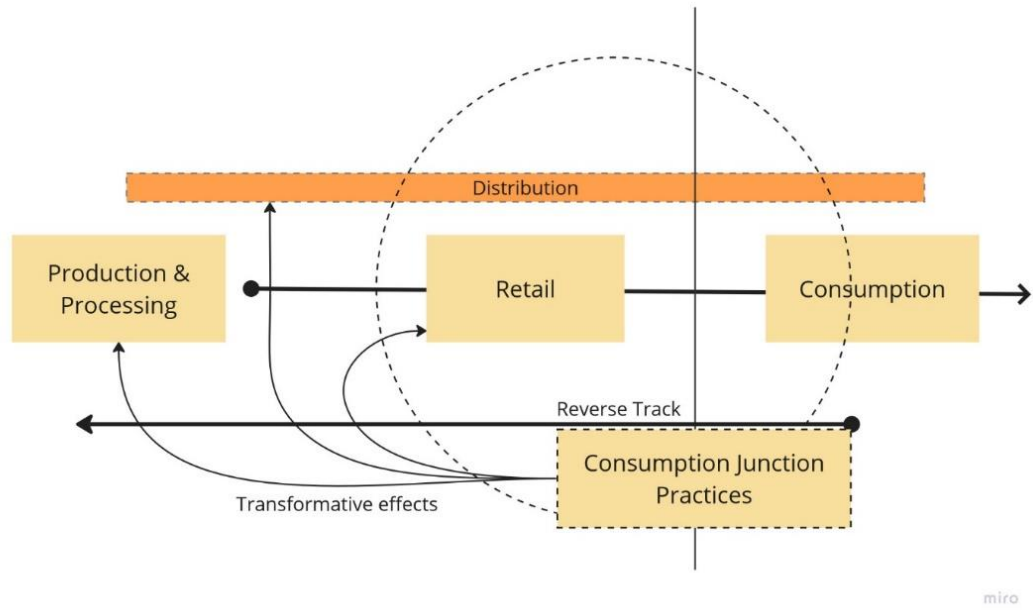


Figure 7: Reverse Track Model to examine supply chains
(Source: Produced by the author)

The thesis focuses on a particular case where consumption practices are intense. At this point, the urban food system of Karşıyaka, is the focus of the study with its local food system dynamics, local innovative practices of various local stakeholders and potential circularity elements in practice. The thesis focuses on a particular case, through which it will explore key food practices at local level and reveal their potential in terms of transitioning to a circular food system. Here, identifying the key actors enabling key practices is a part of the analysis, which will help understanding the drivers that these actors use or the barriers they encounter in the ongoing transition process. In this manner, the study design will be case-study design in which the research will try to analyse specific case in its own socio-spatial context. The case-study design consists of 3 major steps to analyse current state and the circularity elements (See; Figure 8). These three stages are formulated as follows;

- Firstly, to analyse the current state of the local food system of Karşıyaka by focusing on consumption practices,
- Secondly, to explore the key novel practices focusing on consumption junction and its reorganization at Karşıyaka,
- Lastly, to reveal the circularity potentials of these practices by analysing them with circularity parameters.

The first step includes descriptive analysis of the current state of the local food system while other stages focus on an in-depth understanding and analysis on the key practices seen at the consumption junction at Karşıyaka. Especially within the in-depth analysis, the subjects of research are the key novel practices, their background, the downstream practices and key stages they have affected and force to change, key actors behind them and their mobilization within the process, the driving forces behind the key actors use and the barriers they encounter.

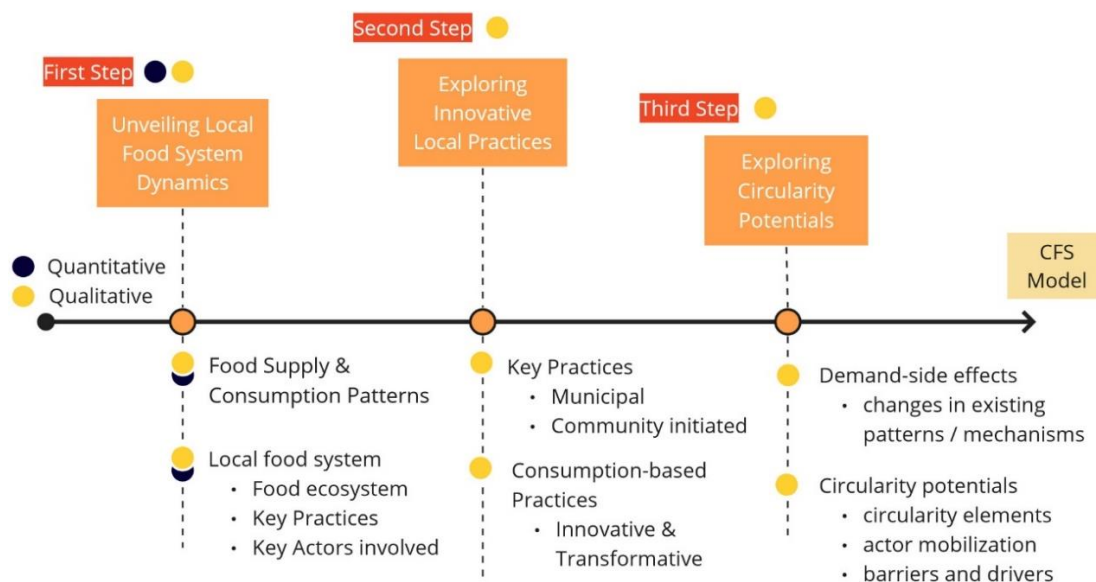


Figure 8: The tree stages of the case study
(Source: Produced by the author).

For all these, the methodology of the research will be based on qualitative research, inquiring majorly qualitative techniques for data collection and analysis. Only for the first step of the case study, quantitative and spatial data have also been collected to support the descriptive analysis of the local food system dynamics. The research methods used in the study will be further elaborated in the next section.

4.2 Research Methods

This thesis uses exploratory qualitative case study research and adopts Walcott's (1994) approach on qualitative data gathering and analysis. The empirical research is based on an in-depth qualitative study, which includes investigation of key urban food practices in Karşıyaka, Izmir with intensive research. In this context, Walcott's 3-stage approach was used to transform the qualitative information collected through qualitative case study research:

- Description – data presentation with little interpretation.
- Analysis – transformation of qualitative data into key factors and relationships, building upon description.
- Interpretation – a meaningful explanation associated with analysis (Wolcott, 1994).

Specifically, the study conducted in Karşıyaka adopted this approach as follows:

- A descriptive data presentation on the dynamics of the local food system of Karşıyaka regarding the first phase of the case study. Quantitative and spatial data supported with qualitative data will be presented.
- A qualitative analysis was conducted on the key urban food practices to reveal the key factors, and their relationship with the circularity, as well as to reveal key actors with barriers and drivers they encounter, presented in the second and third stages of the case study.
- The findings were interpreted in a meaningful way, by establishing the relationship of the findings with theory through measurements of circularity

parameters and circularity principles, again presented in the second and third stages of the case study.

The data collection methods used for the research are qualitative data gathering and collection methods defined by Walcott (1994). These are document review and scanning, observation, and interviewing. This section presents these data collection methods in detail. Later, the analysis and interpretation phases are presented with the key factors underlined within the case study of Karşıyaka.

4.2.1 Data Gathering & Collection

The qualitative methods are the major data gathering methods for the case study, which will try to inquire local and practical data on local food system, especially on the consumption junction practices in Karşıyaka. Particularly for the first stage of the case study, quantitative and spatial data have also been collected to support the data collection and descriptive analysis of the local food system. For the other stages, namely second and third stages of the case study, qualitative methods are the primary method of data collection and analysis.

Data gathering for the research includes collecting all related data on local food ecosystem with respect to local food supply chain, food production and consumption patterns, food access channels on food supply system, dominant consumption practices and major consumption units at present. It also includes data collection on the key food practices at local level and the key actors involved. These data includes both quantitative and qualitative data both of which have been firstly obtained from preliminary data collection on secondary resources. Here, the institutional reports, publications and related documents on food-related projects or activities have been collected and scanned. This majorly helps to build descriptive analysis on the existing patterns of the local food system within Karşıyaka district with its physical, spatial and social features. As the research tries to build the relationship of existing food practices with circularity potential in the later stages of the study, qualitative

data have been obtained through qualitative data gathering methods. Related to all these, data gathering methods are explained in detail:

1. Quantitative data gathering includes inquiring numerical and spatial data on local food system of Karşıyaka from databases (e.g. TurkStat, Derbis, Databases of local institutions) and open data sources (e.g. Yersis, Karşıyaka Kent Rehberi). In this framework, current state of local food system regarding the existing physical, spatial, and social features with respect to food supply and consumption practices, consumption mechanisms with food consumption units, food supply chain features, institutions and stakeholders have been determined.

2. Qualitative data gathering have been used as the primary data collection method. For this, the research follows the three methods of Wolcott (1994) on qualitative data gathering and collection, which are to be explained in detail respectively.

- **Document review and scanning:** This method includes a preliminary data collection via document review and scanning on food system dynamics at two major scale; the metropolitan city of Izmir and its metropolitan sub-centre, Karşıyaka. For this, preliminary data from secondary resources such as reports and policy documents at regional and local level will be collected and analysed. For this, reports and documents from relevant institutions and local government agencies (i.e. Izmir Provincial Directorates of related ministries, Izmir Metropolitan Municipality and Karşıyaka Municipality) have been collected and scanned. This primarily gives an understanding on the upper-scale practices that could potentially impact Karşıyaka and its local food system, as an important part of metropolitan area of Izmir, Turkey.

At local level focusing on Karşıyaka, preliminary data collection and analysis also includes data collection from relevant institutions and stakeholders, including the collection of strategy documents and

institutional data (e.g. Karşıyaka Food Strategy Document), as well as data from academic studies and research projects related to the Karşıyaka's local food system. A descriptive analysis will follow the data collection, to understand and reveal the current state of the local food system and its major local characteristics, which will be detailed and expanded later in the case study.

Table 7: Documents reviewed and scanned on Izmir and Karşıyaka

#	Report	Institution	Year
<i>Reports / Policy Documents – İzmir Scale</i>			
1	İzmir Strategy for Living in Harmony with Nature	IMM	
2	İzmir Green City Action Plan	IMM	
3	Sustainable Energy Action Plan (2016-2020)	IMM	2015
4	Sustainable Energy and Climate Action Plan (2020-2030)	IMM	2019
5	İzmir Green Infrastructure Strategy	IMM	
6	Agricultural Development and Settlement Strategy for İzmir City	IMM	
7	İzmir Integrated Solid Waste Management Plan	IMM	2018
8	IMM Strategic Plan (2020-2024)	IMM	2019
9	IDA İzmir Regional Plan (2014-2023)	IDA	2013
<i>Reports / Policy Documents – Karşıyaka Scale</i>			
10	Sustainable Energy and Climate Action Plan 2021	KM	2021
11	SECAP Progression Report 2021-2022	KM	2022
12	Sustainability Situation Analysis Report	KM	2022
13	Karşıyaka Urban Food Strategy Document	KM	2023
14	Green Karşıyaka Master Plan Strategy	KM	Nd.

- **Observation:** This method includes the participant observation method to be used to observe ongoing events related to local food system and consumption activities in Karşıyaka. In this context, the most important process to be observed is the process of producing Food Strategy Document of Karşıyaka with participatory procedures. With this method, information about the studies on the local food system will be collected by participating as an active participant in all workshops and seminars that have been held within the scope of Karşıyaka Food Strategy Document. Within this process, emphasised topics, produced strategies and recommended actions to be implemented will be observed, documented and analysed to understand food planning approach of Karşıyaka and the major stakeholders participated.

This method will also be used at other ongoing events addressing local food system, and related practices. These include events such as workshops on balcony gardening composting, waste-free kitchen, seminars and trainings on sustainability, food chain innovations and such (See; Appendix C). Again, emphasised topics, outcomes, participator profile will be observed, documented and analysed.

In addition to all, observation method has also been used in several food consumption places (e.g. district bazaars, supermarkets, other retail activities and so on – See; Appendix B). This is majorly to understand the dominant consumption patterns in Karşıyaka, consumer profile, activities and practices that shape consumption practices in the region. The practices and activities that could be related to circularity will also be observed, documented and analysed during the observations.

- **Interviewing:** This includes semi-structured interviews with urban food actors playing active role at consumption junction as the primary way of data collection, to deeply understand the urban food practices at local level

in their own socio-spatial context. Here, interviews will be used to explore and reveal the major activities and innovative practices addressing consumption junction as well as exploring circularity elements within these practices. These elements will be evaluated in terms of their relevance to issues such as localization, short supply chains, regenerative applications, and food waste revalorisation practices. In this sense, qualitative data gathering will be used through in-depth interviews with several consumption-related food actors (e.g. retail sector, wholesalers, consumer related NGOs, cooperatives and associations, consumers, etc.) and local government components such as municipal departments, municipal subsidiaries and municipal retail and consumption services related to food and agriculture (See; Appendix A).

The interviews are designed as semi-structured interviews with open-ended questions which allows to conduct qualitative analysis. An interview guide with list of major topics to be covered is prepared (See; Appendices). The interviewees are grouped according to the role of food actors actively participating within the local food system and presented as follows;

- ❖ Institutions and organizations that direct food policies:
Izmir Metropolitan Municipality, Karşıyaka Municipality as local government and its components and such.
- ❖ Municipality-initiated organisations related with consumption:
Municipality subsidiaries on food and services, municipal retail services “Kent Market”, Food Centre, Culinary Centre and such
- ❖ Related NGOs and local associations within local food system:
Food and agriculture NGOs or associations, alternative food communities and such.

❖ Food actors at retail phase:

Retail services such as supermarkets, local retail markets, local groceries and shops, and also district bazaars, producer bazaars, eco-bazaars.

❖ Urban consumers

Consumer associations and cooperatives

Until now, 52 in-depth interviews have been done with various stakeholders. Out of the total, 3 interviews are done with Metropolitan Municipality, 4 with Metropolitan Municipality Subsidiaries responsible with food or agricultural services, 6 with Local Municipality of Karşıyaka, with several departments related to food, agriculture and services, 2 with Local Municipal Subsidiaries and 1 with Provincial Directorate. In total, 16 out of 52 interviews are done with local public institutions. Other than this, 7 interviews with local NGOs working on food and, agriculture as well as food consumption, 5 interviews with consumer initiatives related to alternative food consumption have been done. Lastly, to be able to reach out information related to food supply and retail, 5 within local bazaars and 3 within supermarket chains, 8 interviews in total are done with the local food retailers and sellers in the food supply and retail units.

Table 8: Number of interviews conducted by type of institution and actor

# Int.	Type of Institution / Organisation	Type of Actor	Type of Interview
4	Metropolitan Mun.	Representatives	In-Depth / Semi-Structured
4	M. Mun. Subsidiary	Representatives	In-Depth / Semi-Structured
6	Local Municipality	Representatives	In-Depth / Semi-Structured
2	L. Mun. Subsidiary	Representatives	In-Depth / Semi-Structured
1	P. Directorate	Representatives	In-Depth / Semi-Structured
2	Universities/Experts	Experts	In-Depth / Semi-Structured
7	Local NGOs	Experts	In-Depth / Semi-Structured
4	Food Communities	Prosumers	In-Depth / Semi-Structured
1	Local Consumer Units/ Cooperatives	Consumers	In-Depth / Semi-Structured
3	Retail Units	Retailers/Intermediaries	In-Depth / Semi-Structured
3	Local Bazaars	Sellers/Stallholders	In-Depth / Semi-Structured
3	Farmers Bazaars	Producers	In-Depth / Semi-Structured
6	Local Retail Units	Consumers	In-Depth / Semi-Structured
3	Local Bazaars	Consumers	In-Depth / Semi-Structured
3	Farmers Bazaars	Consumers	In-Depth / Semi-Structured
Total			52 In-Depth Interviews

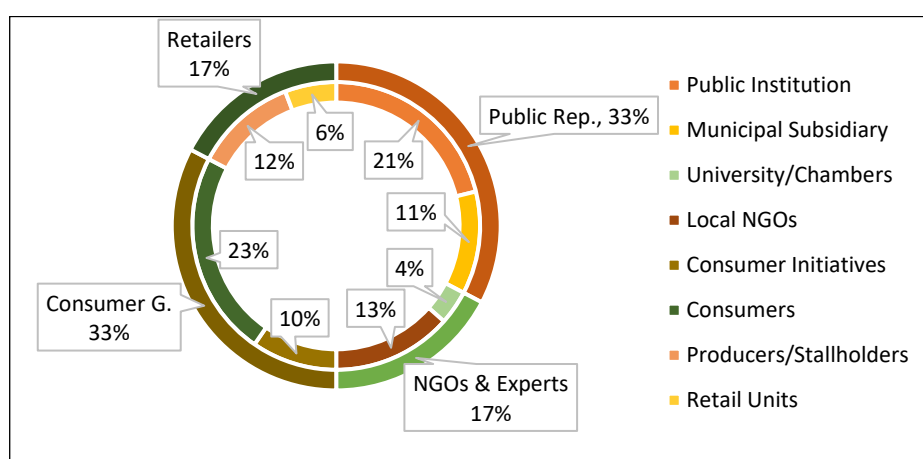


Figure 9: Pie chart showing the distribution of interviews by institution and actor type.

With the help of above-mentioned data gathering methods, required data for analysis on the local food system within Karşıyaka district with its physical, spatial and social features have been collected. For the analysis of food ecosystem in Karşıyaka, qualitative as well as quantitative and spatial data has been collected. For revealing the key food practices, and their relationship with circularity, qualitative data has been gathered. The data used for each analysis theme is summarized in the table below.

Table 9: Data collected and used for the case study

Required Data	Type of Data	Primary Data Source	Secondary Sources
<i>Food Supply Chain Features</i>			
Food Flows	Spatial & Quantitative	Open data sources: YERSIS	Food Strategy Report
	Qualitative	On-site Observation	-
Supply chain structure; length & intermediary mechanisms	Qualitative	On-site Obs. Interviews	Food Strategy Report
Food Loss and Waste	Qualitative	On-site Obs. Interviews	-
<i>Consumption Mechanisms</i>			
Food Supply Units & Retail Mechanisms / Consumption Units	Spatial & Quantitative	Open data sources: Google Map Karşıyaka Urban Guide	Food Strategy Report - Bayetav Project

Table 9 (cont.)

Consumption patterns	Qualitative	On-site Obs. Interviews	-
Alternative / New Forms	Qualitative	On-site Obs. Interviews	-
Accessibility/Affordability	Spatial	Document Review	Food Strategy Report
	Qualitative	On-site Obs.	-
Local Food Practices			
Key Practices	Qualitative	Document review Interviews	Documents from Municipality Bayetav Project Report
Organizational Structure	Qualitative	Document review Interviews	-
Institutional Structure	Qualitative	Document review Interviews	-
Circularity Elements	Qualitative	Document review On-site Obs. Interviews	-
Stakeholders			
Civic Organisation	Quantitative	Open data source: DERBIS	Food Strategy Report
Key Actors	Qualitative	Participant Obs. Interviews	Food Strategy Report
Actor interaction	Qualitative	Participant Obs. Interviews	-

4.2.2 Analysis & Interpretation

Building upon detailed descriptions, a systematic analysis will be done to be able to reveal key factors behind the practices and interpret their interconnected relationships with circularity principles. Under this analysis part, spatial maps were produced to understand and uncover the essential factors behind the local food ecosystem. Key practices and the primary actors have been examined in detail, exposing the relationship and motivations. This in-depth examination allowed uncovering the key factors and issues that dominate these novel practices, shedding light on the areas they influence and the changes they trigger. In the analyses carried out in this context, lifestyles, demand-side effects, technologies used for resource use and waste management, supply chains, end-products with their availability and accessibility within food system, as well as changes in organizational, regulatory, institutional, and political structures are examined.

These key factors are detailed as follows:

- ❖ Key food practices:
 - Historical patterns with reference to the reason, date, and main practitioner
 - Key actors and groups and their interactions, mobilization/motivation
 - Circularity elements in motion
- ❖ Changes in consumption trends & effects on downstream practices
 - Demand-side effects on the food system transition
 - Existing and novel models of consumption mechanisms
 - Organisational/institutional structure behind novel models
 - Changes they trigger within food system.

In interpretation, the findings interpreted meaningfully after measuring the circularity parameters for each practice, to establishing their relationship with theory, and with circularity principles. In doing this, the aim is to build relationships between key local food practices and circularity elements. Through interpretation, it is aimed

to discuss how these practices trigger circular and sustainable transition of the food system. It is also aimed to reveal the driving forces used and the barriers faced by the main actors in terms of desired transition.

4.3 Limitations of the Study

Several limitations were encountered during the data collection phase, particularly in conducting field studies and in-depth interviews with various stakeholders in the food sector. The data collection process was constrained by the several factors, including the ability to reach all intended interviewees, the circumstances where the interview request went unanswered, and situations where some interviewees had limited understanding and knowledge about the subject matter or were reluctant to share information. These challenges have made the comprehensive data gathering difficult and necessitated alternatives ways to address gaps in information.

The primary limitation was achieving full representation of various food actors. Among the interviews, predominant focus was on municipality and its related departments, as the municipality is the primary actor to implement food practices in the field. Non-governmental organizations and civil associations were underrepresented due to their limited presence in food practices. Therefore, the number of interviews with civil associations comprised small percent of all interviews (8 out of 52, representing %15 of total interviews). This is also related to the fact that, efforts to engage relevant associations were hampered by difficulties in communication, scheduling appointments and obtaining responses for interviews. This is exemplified by the communication difficulties with related civil associations such as İzmir Ege Üretim ve Tüketim Kooperatifi, Zeytinçe Ekolojik Yaşamı Destekleme Derneği, İzyaşam Derneği, all left the interview attempts via phone or e-mail unanswered.

Similarly, the representation of the private sector remained low. Among the private actors, traditional retail units were not included in interviews conducted, due to their limited involvement in food-related practices and processes. This is also related to

the knowledge gap of the representatives of the traditional units. On the other side, accessing key representatives within chain structures (e.g. national supermarket chains, discount chains and such) posed challenges, resulting in a shortage of interviews with these private mechanisms. While local supermarket chains were accessible, it was not possible to reach national supermarkets and discount chains to conduct interviews. Data collection was further impeded by factors such as lack of information and interviewees' limited competence and expertise on the field. This is exemplified by difficulties in obtaining comprehensive information from the Kent Market representative despite repeated attempts. In these cases, compensatory measures included seeking information from alternative sources such as websites, secondary resources such as published reports and literature.



CHAPTER 5

AN UPPER-SCALE EXAMINATION: AGRI-FOOD SYSTEM IN İZMİR, TURKEY

Agriculture and agri-food sector stand as a pivotal sector in Turkey, due to the suitable environment with fertile lands across the country and advantageous setting for agricultural production. However, despite all this efficiency and abundance, the agri-food sector in Turkey faces great difficulties. Despite emphasizing competitiveness, income elevation, and resource sustainability for agri-food system in the recent Development Plans of the country, the future of agricultural production and food consumption seems highly vulnerable in its existing patterns. This requires a better understanding of the historical processes that create these conditions within the food sector. The uncertainties that come with climate change, Covid 19 pandemic and political conflicts seen in recent years along with the implemented policies within historical process, increase the fragility of the food sector in Turkey. These have increased concerns revolving around sustainability, the socio-economic consequences of agricultural practices, and the strains imposed by globalized, linear and lengthy food chains.

The Climate Crisis and the upcoming Food Crisis have begun to strain the food system in the world as well as in Turkey. In a highly globalized system, local pursuits shaped by “*new governance*” approaches have come to the fore in recent years, in order to create local and immediate solutions to urgent problems. In this context, approaches that open the door to local priorities and include local actors in decision-making processes, have become prominent rather than relying only on national agri-food policies. Local food strategies pioneered by the local governments have become the centre of this new governance practices, where the local municipalities are the

primary facilitator of transformation of food systems into localised, healthy, and sustainable systems (Mansfield & Mendes, 2013). In this case, local governments remain in a leading position in taking precautions against these crises. Therefore, local measures taken against the food crisis in Turkey are also increasing, and Izmir is one of the cities that stand out in Turkey with its implementations under its local agri-food policies.

This section aims to address the following issues: history of agri-food sector in Turkey, existing dynamics within the country with respect to major agri-food policies and changing regime patterns with influence on local policies. Then, as one of the important examples in Turkey, İzmir and its local agri-food policies will be discussed in detail with the policies and implementations. Going down to Izmir metropolitan scale, urban policies and their effects on food policies, local agri-food policies, current and planned practices, main agri-food actors and alternative organizations, and their effects on the construction of the local agri-food system will be discussed in depth.

5.1 The General Features of Agri-Food System in Turkey

Agriculture and agri-food sector stand as a pivotal sector in Turkey, due to the diverse land structures and climatic characteristics across the country, providing suitable environment and advantageous setting for agricultural production with a wide range of products and diverse production patterns. The presence of fertile lands around the country contributes to the agri-food sector's potential and favourability for diverse agri-food actors. However, despite all this efficiency and abundance, the agri-food sector in Turkey faces great difficulties. While the reason for this is attributed to many sectoral problems (Koç et al., 2007), it is also defined as the structural transformations within and its consequences over the agri-food sector in Turkey (Eşiyok, 2017; Keyder & Yenal, 2011). These transformations include a series of socio-political, socio-economic, and therefore socio-spatial transformation

that can be associated with regime changes in the world and in Turkey within the historical processes (Aydin, 2010; Keyder & Yenal, 2011).

Related to the fertility and abundance of agricultural potential, Turkey's agri-food sector emerges as one of the fundamental sectors in terms of employment and national income within the country. Half of the country consists of agricultural lands and nearly a quarter of Turkey's population employs in agriculture. This represents 25% of the workforce and contributing 8% to the country's economic activity (TurkStat, 2022). The food produced in many regions of Turkey constitute an important part of the country's domestic food consumption. However, especially in the last quarter, the agri-food sector has highly become export-oriented, especially with the globalization and neoliberalisation trends (Aydin, 2010; Değirmenci, 2017; Eşiyok, 2017). Today, Turkey is among the top agricultural producers in the world, with a prominent position as the world's 7th largest agricultural producer. Notably, Turkey emerges as a major producer of various food product, with an extending position in terms of becoming a leading producer and exporter of food products ranging from cereals, roots and tubers and an array of fruits and vegetables² (ITA, 2021; OECD, 2021). Relatedly, 3% of world's vegetable production belongs to Turkey, strengthening its global position as an important country in terms of agricultural production (Tatlıdil et al., 2013). Despite all its potential, Turkey's agricultural production and agri-food ecosystem face with several challenges, including issues of low productivity and inefficiency in agricultural production mainly attributed to fragmented nature of farms, primarily characterized (Değirmenci, 2017; Eşiyok, 2017; Keyder & Yenal, 2011) by small-scale and family-

² These products include agricultural products such as wheat, sugar beets and an array of fruits and vegetables, such as tomatoes, apricots, cherries, figs, olives/olive oil, hazelnuts, and tea (ITA, 2021; OECD, 2021).

owned enterprises³, and lack of necessary institutional infrastructure such as producer organisation or unions (Koç et al., 2007; OECD, 2021).

The success in foreign market supported by globalisation efforts, increased Turkey's struggle within the domestic market with many problems, such as shrinking of the domestic market, high competition environment for local producers, formation of multi-intermediary systems, dominance of imported inputs in the market, uneven conditions for smallholders triggering their low integration to the market conditions (Aydin, 2010; Eşiyok, 2017; Keyder & Yenil, 2011). Being export-oriented is important in terms of economic efficiency, however Turkey is going backwards in terms of self-sufficiency in food production because of the above-mentioned problems (Eşiyok, 2017).

Two reasons are prominent behind these problems. First is the neoliberal restructuring especially seen over the last half century and its consequences on the socio-economic as well as socio-spatial restructuring around the cities and their rural peripheries. Following this restructuring, a process of de-ruralisation and de-peasantisation has been seen in the countryside of Turkish cities, bringing about rapid disengagement from agricultural production (Keyder & Yenil, 2011). Second is the problematic nature of conventional agri-food system based on intensive agriculture and linear production and consumption patterns shaped around long supply chains. This is another consequence of the neoliberal structuring, which brought an uneven agricultural restructuring with high concentration in some fertile regions and shrinkage of production practices in other regions (Keyder & Yenil, 2011). This has widened disparities by creating socio-spatial inequalities, as well as increasing major ecological problems in concentrated regions. These all together have triggered the vulnerability of the system, increasing problems based on climate

³ Two-thirds of the farms in Turkey are less than 5 hectares in size, composing predominantly small-scale and family-owned enterprises, with operations heavily reliant on natural conditions (OECD, 2021),

change and land degradation as well as inequalities and vulnerabilities of the disadvantaged segments within the country.

Today, the agri-food sector faces a multitude of challenges, including the decreasing availability and shrinkage of agricultural lands, decrease in agricultural productivity due to climate change (Özkavaf Şenalp, 2023), inadequate irrigation system, adaptation problems to new techniques and technologies, insufficient education among farmers, and existence of too many intermediaries between the producer and the consumer (Koç et al., 2007), all leading to decrease in productivity and increased losses and the costs throughout the supply chain. All these supply-side problems ultimately impacting prices and creating disparities in food supply and accessibility at the consumption level. All these processes are discussed in detail below, along with their consequences and effects on the overall structure of the food system in Turkey.

5.1.1 Historical patterns of agri-food sector in Turkey

Having a critical look at the historical changes in Turkish agriculture and interconnected food sector reveals a gradual shift from the goal of self-sufficiency within agricultural policies in Turkey, leading to the sector to be neglected over time. Until the 1980s, with the help of mixed policies shaped by state support, self-sufficiency was achieved to a certain extent, yet the 1980s marked a rapid transformation period shaped by neoliberal restructuring. Within this period, state supports over production were limited and the agricultural sector started to be integrated into international markets (Aydin, 2010; Değirmenci, 2017; Eşiyok, 2017).

Prior to the 1980s, Turkish agricultural sector was state-centred, strongly supported by the national government for domestic production and national capital. Small-scale farmers were supported by the state, also state-owned enterprises appear to play a key role in food supply, distribution, and retail. During this period, agricultural production landscape was characterized by small-scale producers and family-run

enterprises, benefiting state support and guidance until the breaking point in the 1980s. While Turkey was one of the few countries capable of self-sufficiency in food provision with the agricultural support policies between 1923-1980, the goal of “self-sufficiency” has begun to change with the decreasing supports for agriculture and the negative influence of price fluctuations in the world (Değirmenci, 2017; Eşiyok, 2017).

The restructuring process seen after the 1980s, together with the liberalization movement, brought about an agri-food regime dominated by the market economy. During this period, state supports on agricultural production was drawn back and the supports over certain agricultural products were limited (Değirmenci, 2017). The agricultural sector was integrated into international markets, following the adaption of export-oriented growth policies. Notably, this period witnessed a deliberate reduction in the state’s involvement in the economy, limiting support on purchases of domestic agricultural products, eliminating subsidies except for fertilizer, energy and transportation, and increasing foreign trade liberalization (Aydin, 2010; Eşiyok, 2017). With the reduction of the state intervention, liberalization initiatives and privatization efforts, significant changes have occurred within the agri-food sector in Turkey.

Following the liberalization wave seen in 1980s, the 2000s witnessed an era marked by globalization trends. Within this period, efforts were undertaken to synchronize agricultural policies with EU Acquis, which necessitated significant agricultural reforms based on liberalisation and competitiveness. Following this, Agriculture Strategy Document (2006-2010) and Strategic Plan (2010-2014) were prepared, in which agricultural production and supply security, food safety, plant and animal health, rural development, and institutional capacity were determined as strategic areas. Along with these, Eighth and Ninth Development Plan (2001-2013) also relates strategies to establish an organized and highly competitive agricultural structure by ensuring food security and safety (Eşiyok, 2017). As outlined by Değirmenci (2017), agriculture has entered a process of restructuring away from traditional patterns quite rapidly since the beginning of this period (2000s), where

the agricultural sector started to move away from traditional and small-scale production to become dependent on globalized market dynamics. Embracing foreign capital investments along with a series of liberalization and privatization measures, barriers to capital began to be removed within the scope of neoliberalism policies and globalization movements (Eşiyok, 2017). Consequently, Turkey's food production mechanisms have become interlinked with global food supply chains, including the integration of global seed and fertilizer markets. These shifts made small-scale producers lost their control over the production process, increasingly become disconnected from the local agricultural production (Keyder & Yenal, 2011). Following these changes, Turkish agriculture started to evolve into a structure increasingly foreign-dependent on external sources and tied to national or global chains (Eşiyok, 2017).

These changing economic and political regimes within the country brought about a socio-spatial restructuring, deepening disparities among smallholders and globalized chains (Keyder & Yenal, 2011). Especially after 1980s, together with the effects of globalization and neoliberalisation wave bringing liberalisation and privatization efforts, the state policy started to strengthen the domination of the market within the sector and triggered transformation of the Turkish agricultural production mechanisms to become interlinked with global markets. Followingly, price and demand fluctuations came along with this integration left small producers vulnerable to market forces and raising the level of risk and insecurity (Eşiyok, 2017; Keyder & Yenal, 2011). This situation triggered a rapid de-ruralisation of the population in most regions of the country, as farmers and smallholders could not compete within the market forces and started to migrate to the cities. Consequently, especially after 1985, the population in the rural settlements began to shrink in absolute terms. This de-ruralisation and accompaniment de-pesantisation brought about a break from agricultural production (Keyder & Yenal, 2011). On the other hand, rural disengagement has accelerated further with processes such as excessive urbanization, rapid land-use change in rural areas, and climate change related risks and cost experienced strongly in recent years (Özkavaf Şenalp, 2023). While this

situation, on the one hand, caused the food production processes to shrink, on the other hand, it triggered the migration from rural to urban areas and brought about the formation of vulnerable groups in cities, where the poverty and malnutrition started to grow.

On the other hand, the fertile rural areas and agricultural basins of the southern and western provinces, and the commercial opportunities brought by proximity to large cities, have led to a relatively faster developing agri-food sector in these metropolitan regions. Metropolitan cities such as Antalya and Izmir, which dominate the agricultural production of vegetables and fruits for local and foreign markets, host medium and large-scale enterprises producing with intensive agriculture practices within fertile basins (Keyder & Yenal, 2011). While this structuring brings about ecological problems, on the other hand, it keeps small producers out of the system or makes them dependent on methods such as contract farming, thus feeding inequalities. This makes the sector enforced to grapple with ecological concerns, marked by various environmental issues attributable to poor agro-ecological conditions faced in recent years, also triggered by changing climate conditions (Özkavaf Şenalp, 2023) The intensive agriculture is far from restorative methods and has brought with it serious problems such as chemical pollution, excessive irrigation, degradation of biodiversity, and decrease in fertility and efficiency in production, all of which will trigger today's climate and food crisis.

In present, the main goal that the country has adopted in its agricultural policies for the last 10 years is to increase competitiveness, increase income levels and increase productivity by ensuring the sustainable use of natural resources. Concepts such as food safety, food security, and efficiency still maintain their importance. However, despite emphasizing competitiveness, income elevation, and resource sustainability, recent agricultural policies confront many challenges. Discussions revolving around sustainability, the impact of climate change on agriculture, the socio-economic consequences of agricultural practices, and the strains imposed by globalized food chains have gained momentum. The structural problems become widely evident and lead to excessive food crisis within the country. The emergence of these structural

issues within the agri-food sector is attributed to the imbalances on the demand-side, such as population growth, increasing income disparities and inequalities in access to food, as well as shortcomings on the supply-side, such as the effects of the climate crisis and related productivity challenges, increasing input prices, and other structural problems.

Unforeseen events, such as the COVID-19 pandemic or political crises, also deepened the disruptions within supply chains and international trade, impacting the agricultural input price index and significantly inflating prices (Keyder et al., 2020). These tensions especially had an increased impact on prices over inputs, the majority of which are imported in Turkey. For example, the Russia-Ukraine tension also increased the prices of fertilizer, which has the highest share among agricultural inputs. All these supply-side disruptions caused an upward movement in prices. Currently, Turkey confronts a severe food crisis marked by high food inflation, intensifying vulnerabilities during ongoing crisis. These imbalances have resulted in inaccessibility to nutritious food products, deepening poverties and leading to nutrition-related problems.

In the face of all these, despite the global localization discussions, efforts to address these issues within Turkey remain notably scarce, despite the increasing interest in localization discussions worldwide, prioritizing and implementing local solutions to address various issues, including food security, supply chain resilience, and sustainability. These discussions emphasize the importance of localized approaches promoting self-sufficiency, reducing dependency on global supply chains, and fostering resilience against global disruptions, especially in times of crises. However, despite these increasing discussions advocating for more localized strategies, Turkey appears to have limited or insufficient initiatives addressing the identified problems within its own borders. There's a lack of substantial efforts or actions taken at the national level, and there are incremental practices at local level to implement strategies that directly address the challenges faced in the agricultural and food sectors. More comprehensive strategies are needed to address these challenges

including ensuring food accessibility, mitigating the impact of disruptions on supply chains, or enhancing agricultural resilience.

5.1.2 Liberalisation of the Agri-Food Chains and Retail in Turkey

The turning point experienced in the 1980s started a liberalization movement within the agri-food sector, as a part of broad economic reforms in all economic aspects. The reforms in the agri-food sector involved reducing state control, subsidies, and direct support to farmers while promoting more market-oriented policies (Aydin, 2010; Değirmenci, 2017). This process brought opening the sector up to market dynamics, allowing for competition, private sector involvement and integration into global markets through foreign investment. Along with these reforms and restructuring, not only the production relations and mechanisms but also the supply and retail mechanisms and consumption patterns have been transformed (Tokatli & Boyaci, 1998). Followingly food chains have begun to expand gradually, breaking away from local and traditional supply mechanisms and transforming into organized retail mechanisms connected to national and global chains (Atasoy, 2013; Koç et al., 2007; Tokatli & Boyaci, 1998)

Within this period, interventions such as reducing state intervention, integration into global markets, privatization and liberalization, removal of subsidies and price controls and encouraging foreign investment have accelerated the liberalization of food chains and the retail mechanisms (Atasoy, 2013). Parallel to the neoliberal restructuring of the economy driven by pressures from the international financial institutions such as the IMF, the World Bank as well as EU, the Structural Adjustment Policies was introduced containing various structural reforms and measures aimed at reducing public spending and liberalizing food markets (Atasoy, 2013; Yenal & Yenal 1993, cited in Keyder & Yenal, 2011). With all these, the direct intervention of the state in food supply and retail was reduced, allowing market forces to play a more important role in determining prices, production and trade relations. This has paved the way for the rapid spread of chain structures such as large-scale retail mechanisms known as supermarkets (Atasoy, 2013). Moreover, the

integration of agricultural products into the global market was accelerated; exports and international trade and access to international markets has been supported; market-oriented pricing mechanisms have been implemented; and the globalization of the sector has been accelerated by attracting foreign investors to the agri-food sector (Koç et al., 2012).

The economic evolutions within the sector on the one hand, and the rapidly increasing population in cities with high urbanisation dynamics seen after 1960s and therefore increasing demand for food, have been the reasons behind the acceleration of the establishment of more systematic food retail mechanisms. Especially before 1990s when the transformation in retail started to be seen, small-scale, capital-weak, independent and single-location, and family-owned retailers dominated the food retail (Tokatli & Boyaci, 1998), along with neighbourhood bazaars maintaining the importance in daily food shopping (Koç et al., 2007). When it comes to 1990s, Turkish retail sector has witnessed the emergence of large-scale retailing and introduced a trend towards ownership of multiple retail units.

The retail chains accelerated after 1990s as in the form of supermarkets, were first introduced as state interventions in the 1950s, aiming at the provision of food and necessities to the public at the most affordable prices and quality under municipal control in cities. In this context, there were both national and international enterprises operating as municipal retail organisations in Turkey⁴. Along with the effects of

⁴ The first forms of retail chains were small retailer unities as in form of shopping groups or small shop chains, to ensure coordination in the conduct of business and advertising. This has resulted in decreases in both purchasing and selling expenses, which was reflected in food prices. Shopping cooperatives of this nature first appeared in Switzerland, then in France, the United States and Germany, and later grew and became widespread. The first examples of these structures in Turkey are Migros in Istanbul, Gima in Ankara and Tansaş in Izmir. These were municipal mechanisms that started as shopping cooperatives and local subsidiaries in order to create a solution against high food inflation and offer more affordable products to the consumer. These have grown and transformed with the support of domestic and foreign capital investments seen in market liberalisation movements in Turkey.

-The first national retail chain of Turkey is Gima (Gıda ve İhtiyaç Maddeleri - Food and Necessaries), founded in Ankara in 1950s. Gima had grown and increased in number of stores by the help of national investor in 1990s and later acquired by global retail chain in 2000s.

liberalization movement seen the 1990s, chain stores started to increase in number with the help of private investments and with the globalization movement that came in the 2000s, they were connected to global chains through privatization, global purchasing and/or incorporation into global companies (Atasoy, 2013).

In present, the Turkish food retail sector is relatively fragmented and split evenly between traditional small grocery stores and modern retail chains (ITA, 2021). In retail, there are global or national supermarkets, local super-markets, small-sized, family-run local markets, local groceries, open-air markets and bazaars all over the country, and their products are mostly provided from the national or global networks, coming to wholesale markets. As of 2011, traditional food retailers (mainly open-air bazaars, and also small-sized local groceries) form 71% of the food retail in Turkey and 29% of the retailers are organized retailers (Salihoglu et al., 2018). However, this figure for organized retailers (supermarkets and etc.) is higher in larger cities (Koç et al., 2007), and continues to grow recently, especially with increases seen in at-home food consumption due to COVID-19 restrictions. Still, traditional food retailers such as local markets and groceries, open-air markets and bazaars can provide shorter chains especially for fruits and vegetables commodity group in Turkey; where the products can reach directly from the producer to the retail stage or directly to the consumer (Koç et al., 2007), even though these are small in number.

-Another important chain is Migros, which is still operating in the food retail sector in Turkey. Migros is firstly entered in the retail market in İstanbul, Turkey as a form of small retail units. Again, Migros was purchased by one of Turkey's biggest investors in 1975, and thus it started grow in number of stores in Turkish cities. Migros was acquired by another national investor in 2015. It is currently one of the largest retail mechanisms serving in Turkey's domestic market.

-Another prominent mechanism is Tansaş, which was established in partnership with the municipality in İzmir. Tansaş was founded in the 1970s under the name of Tansa under the umbrella of "Regulator Sales Directorate". The number of stores increased in the 1980s. In line with the idea of incorporation that emerged with this development, İzmir Metropolitan Municipality established a company called Tansaş and its shares were offered to the public in 1990. Towards the 2000s, an important investor group in Turkey purchased its shares. Later, Tansaş partially joined Migros in 2005, and then completely joined Migros in 2016.

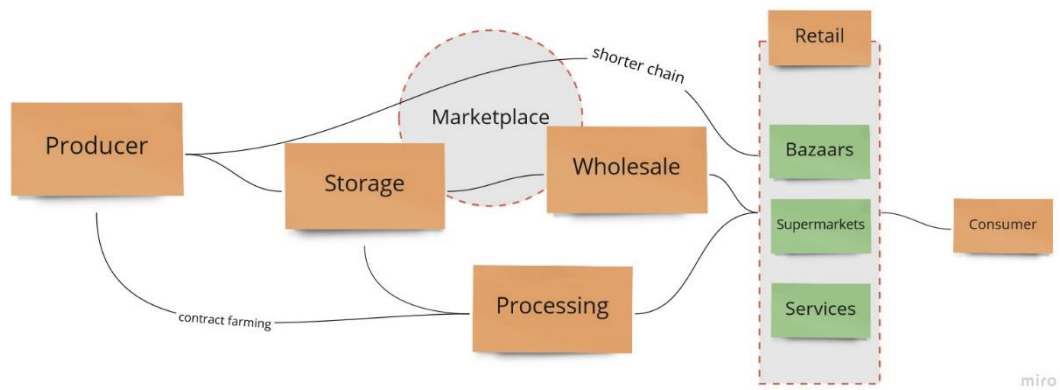


Figure 10: An exemplary food supply chain in Turkey
(Source: Produced by the author)

As mentioned above, the current landscape of retailing in Turkey structured around the coexistence of supermarkets and traditional local bazaars. Although supermarkets dominate consumption practices today, local bazaars still maintain their importance. Both mechanisms, unlike the general opinions related to the local bazaars, are connected to lengthy supply chains formed at national or global level. They are also connected to the chains and structures where conventional techniques are often used in food production.

However, there is a growing concern among consumers regarding access to natural, healthy, and locally sourced food in recent years. In response to this, alternative retail mechanisms are emerging. These generally appear as municipality-supported local food retail mechanisms, which started to take place in food retail sector in Turkish cities. These alternatives aim to provide access to natural and locally produced food items with more affordable prices, meeting the evolving preferences of consumers. Examples of which can be observed in Izmir and Karşıyaka cases, which will be investigated in detail in the following sections.

5.2 A Local Alternative to Agri-Food System - The Case of İzmir

Under the effects of highly globalised and market-driven food system and commercialized food supply chains, İzmir has an agri-food ecosystem prominently featuring conventional agricultural practices closely linked to expansive, market-oriented, long supply chains connected to domestic and foreign food markets. This ecosystem predominantly revolves around intensive agriculture practices, particularly seen in major agricultural regions located in the fertile agricultural basins surrounding the rural periphery of İzmir. This agri-food ecosystem, which is structured very linearly from conventional production to fragmented consumption, jeopardizes local and small-scale production by increasing the dominance of large-scale mechanisms on the one hand, and creates food chains that foster a broken relationship between producers and consumers on the other. At the same time, intensive farming methods adopted in fertile basins disregard crucial environmental factors such as climate, temperature, soil and water structure, and rely on limited crop diversity and unsuitable species, heavily increasing the dependency on external and chemical-based inputs. Consequently, these practices trigger excessive water consumption and chemical usage, threatening the production of healthy and clean products, and contributing to excessive pollution and ecological degradation in the surrounding basins (IMM, 2015, 2016). These imbalances pose a significant risk to both food quality and safety as well as sustainability of socio-ecological and socio-economic features of rural periphery of İzmir, increasing multi-dimensional vulnerability in times of crisis.

In an agri-food ecosystem dominated by conventional structuring that contribute to ecological degradation and disconnection between food actors, the City of İzmir is pioneering a shift towards localisation to highlight its agricultural potential. As being 3rd largest city in Turkey with a population of 4,462,056 people in 2022 (TurkStat 2020), has a relatively strong rural-urban relationship. İzmir has targets to maintain and support local agricultural production in its rural periphery and aims to strengthen this production pattern and rural connection with urban strategies and plans (IDA, 2015; IMM, 2020, 2021b, 2021a). Despite the challenges of neoliberal restructuring

within the last half century, Izmir is committed to a new local paradigm with a basin-based agricultural model aiming at supporting İzmir's agricultural potential to build a self-sufficient and ecologically sound agri-food system⁵. This is to support local and national economy, diverging from the prevalent foreign-dependent agricultural model in Turkey. This approach is crucial for building a growing local agricultural economy, supporting local producers with their increased welfare while eliminating the effects of ecological problems in the face of climate and food crises. In this context, it aims to fight against ecological problems, especially drought, and at the same time to fight against poverty, which is closely related to rural disconnection (IZTAM, 2023). The ultimate goal of this basin-based agricultural model is to realize rural development, protect diverse local resources and transform Izmir agri-food system into a localised and healthy food system.

Furthermore, İzmir embraces ecosystem management and green connectivity, water management, energy management, recovery of materials, and most importantly rural development and agricultural production within other municipal strategies (IMM, 2020, 2021b, 2021a). This is also further supported by the key regional and urban planning strategies (IDA, 2015), where circular economy concept has also been integrated with its principles in different urban planning domains.

To understand the rationale behind supporting an alternative, basin-based agricultural model in Izmir and assess its transformative impacts on local food system, a closer examination of the agricultural and food related practices in Izmir becomes important. This requires an analysis of the current state of agricultural production in Izmir, the dynamics of food flows and supply chains, the factors shaping urban food consumption, along with the ecological and socio-economic challenges arising in relation with these processes. At the same time, an exploration of local policies and strategies to transform current processes will be discussed

⁵ See; <https://iztam.com/izmir-tarimi-stratejisi> and <https://www.baskabirtarim.com/>

together with their impact not only on İzmir's agriculture-food ecosystem but also on Karşıyaka's food ecosystem in the following sections.

5.2.1 Agricultural Profile of İzmir

Since İzmir is a metropolitan city with approximately 4.5 million inhabitants, it contains several sub-urban and rural regions where production or consumption practices are dominant. The urban centre hosts a hyper-urbanized texture concentrated around the gulf of İzmir, where the urban usages and consumption practices are dominant. Surrounding this core, the rural periphery with many rural districts is located, forming intense or dispersed agricultural production landscapes. Although it is a metropolis subject to rapid urbanization, it is a city that has significant agricultural land on its periphery and hosts important rural areas where the rural population and agricultural activities continue to exist.

Within this rural periphery, İzmir hosts diverse agricultural practices, making it a fruitful region in terms of agricultural landscape (IDA, 2014; IMM, 2015, 2016). On the one side, İzmir hosts conventional agricultural practices based on large-scale and industry-oriented agricultural production in specific regions (IMM, 2015, 2016). Yet, İzmir also maintains small-scale, marginal agricultural practices (IDA, 2014), as well as practices based on new alternative approaches such as organic farming, good farming, permaculture, natural and regenerative farming and alike. With all these features, agriculture shows itself as an important sector for the city of İzmir.

In support of these, general indicators and data on economic performance also reveal the importance of agri-food sector for İzmir. As Turkey's 3rd largest city, İzmir is one of the cities that contribute most to the economic size of Turkey, with prominent existence of textile, manufacturing, as well as food industry, along with trade, services, and agricultural activities. Ranking 3rd in Turkey's animal and plant production, İzmir plays an important role in the national agricultural economy, with the help of export capacity of the existing food industry. In addition to these, İzmir

is also considered as the centre of organic agriculture and alternative agri-food practices (Izmir Chamber of Commerce, 2020).

The share of agricultural sector in İzmir's economy is relatively low compared to other sectors in terms of both gross value added and employment. But still, the employment levels are generally high above the Turkish average of 3%. Besides, thanks to agricultural efforts, the agricultural economy of the city has grown 2.5 times faster than the national average in the last ten years (Izmir Chamber of Commerce, 2020). Therefore, city has remained one of the prominent agricultural cities in Turkey. According to the 2022 data, the agricultural sector contributed 4.4 % to the GVA in İzmir. The share of the provincial agriculture sector in the Aegean Region's agricultural GVA is 22.3%, and its share in Turkey's agricultural GVA is 4.3 %. On the other side, according to 2022 data, agriculture corresponds to 7,5 % to the total employment of the province (TurkStat, 2020b). All these figures emphasize the importance of the agriculture-food sector for Izmir.

Table 10: GVA by sectors in İzmir and Turkey (TurkStat, 2020b).

Year	Region	Agriculture (1000 TL)	Industry (1000 TL)	Services (1000 TL)	Total (1000 TL)
2022	Turkey	972301593	8016651035	7766734934	15011775978
2022	Izmir	42249991	663149269	459829338	972237714
	Shares within İzmir	4.4 %	48.3 %	47.3 %	100 %
	Share of İzmir in Turkey	4.3 %	8.2 %	6 %	6.5 %

Table 11: Employment by sector in İzmir (TurkStat, 2020b).

Year	Region	Agriculture (# of people)	Industry (# of people)	Services (# of people)	Total Employment
2022	İzmir	127.000	562.000	1.042.000	1.731.000
	Turkey	4.866.000	8.509.000	17.378.000	30.753.000
	Shares within İzmir	7.5 %	32,5 %	60 %	100 %
	Shares in Turkey	3 %	6.5 %	6 %	6 %

Spatial data also reveals the importance of agricultural production for İzmir. According to 2017 data, the agricultural area for crop production is approximately 344 thousand hectares in İzmir, which corresponds to 28,5% of the total land of the province (IPDAF, 2020). These agricultural lands are dispersed around the periphery of İzmir; and as expected, they are not evenly distributed geographically across the province. According to the findings of the study of Yetişkul et al., (2022), the agricultural production is concentrated in the Peninsula, Küçük Menderes and Gediz sub-regions. This concentration was determined through the high concentration of agricultural employment in these regions. Reports prepared specifically for production regions also reveal the concentrated structure of agricultural production in these regions and emphasize the importance of basins in this concentration (IMM, 2015, 2016). In this context, especially Küçük Menderes and Gediz river basins stand out as very important basins forming important agricultural regions for the agricultural production in İzmir.

These productive regions have different production sizes and different production techniques, majorly depending on the geographical character of the regions. On the one hand, intensive agricultural production is concentrated on the fertile lands and plains in the agricultural regions, such as the Küçük Menderes and Gediz River Basins (IMM, 2015, 2016). On the other hand, marginal agricultural practices are concentrated in geographically more rugged rural areas, predominantly on the Peninsula (IDA, 2014). Consequently, the agricultural production landscape based on conventional production practices is predominantly centred around the agricultural regions with larger agricultural lands in İzmir, majorly concentrated around the Küçük Menderes and Gediz River Basins (See Figure 12 and Table 12 below).

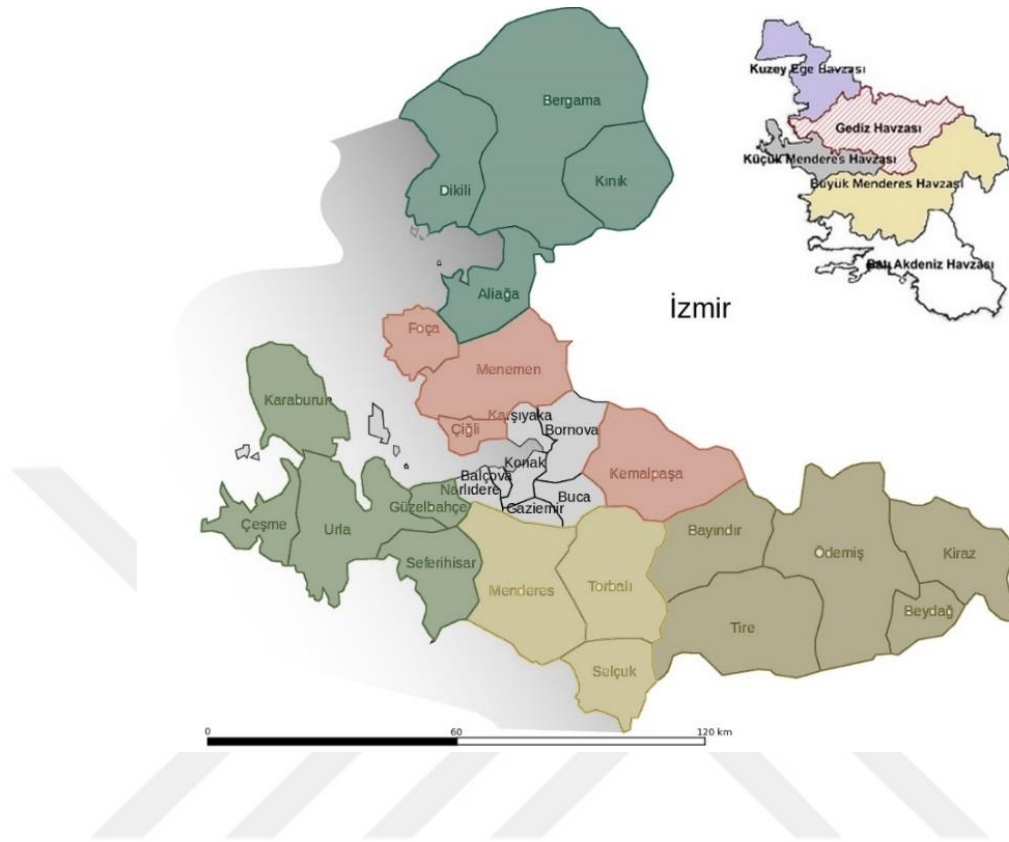


Figure 11: The peripheral regions of İzmir, where agricultural districts are located
(Source: Produced by the Author)

Based on the availability of agricultural land, so that the size of the agricultural production, major productive rural districts come to the forefront. Ödemiş, Bayındır, Tire, Torbalı, Menderes from Küçük Menderes Basin, with Kemalpaşa and Menemen from Gediz Basin come to the forefront in terms of dense and high level of agricultural production. Aliaga and Dikili are also important districts in these terms. These districts are significant in terms of availability of agricultural lands (See; Table 12 below), production size, characterised by large-scale, industry-oriented agricultural activities (IMM, 2015, 2016).

Table 12: The central and peripheral districts of İzmir and agricultural lands (%) (IPDAF, 2020)

Regions	K. Menderes Basin		K. Menderes Basin		K. Menderes Basin		Kuzey Ege Basin		Gediz Basin	
	Western Periphery		Southern Periphery		Eastern Periphery		Northern Periphery		North-Eastern Periphery	
Districts	Çeşme	7.3	Menderes	30.8	Bayındır	56.6	Aliağa	44.3	Foça	23.5
	Güzelbahçe	13.2	Selçuk	43.2	Beydağ	28.8	Bergama	24.5	Menemen	33.5
	Karaburun	7.9	Torbalı	53.8	Kiraz	32.2	Dikili	23.7	Kemalpaşa	34.6
	Seferihisar	22.7			Ödemiş	33.1	Kınık	20.4		
	Urla	12.2			Tire	30.7				
Share in İzmir (%)		7		17		30		25		18

In contrast to large-scale production, İzmir hosts marginal production regions where small-scale practices prevail. These practices mainly concentrated in the western periphery (IDA, 2014), also in other rural districts around İzmir such as Bergama, Kinik, Foca. Due to the geographical features of these regions and districts, the availability and average size of agricultural lands are notably low compared to the other districts located in basins. Consequently, the agricultural land size is below the average in these regions, resulting in small-scale production with a low level of production size. These regions often adopt alternative agricultural techniques focusing on specific products unique to the geographical conditions. An example for this is the western periphery, also known as “Peninsula”, where olive groves and vineyards are intense in the distribution of agricultural lands, significantly shaping the spatial character of this region (IDA, 2014).

In 2017, 4,248.846 tons of production was made on 344 thousand hectares agricultural land dispersed around the periphery in İzmir. This figure increased to 4,488.598 tons in 2019 (TurkStat, 2020c). Approximately 72% of this amount (3,226.794 tons) account for food production, while the remainder corresponds to non-food production such as animal feed and ornamental plants production (MAF, 2019). Within food production, vegetables have the highest share with 57% of the total production while fruits correspond to 23% and field crops including cereals,

root vegetables and dried legumes correspond to 20%. Greenhouse cultivation also contributes primarily to fresh vegetable production, representing 4% of agricultural production in İzmir (TurkStat, 2020c).

As can be understood from the above, fruits and vegetables hold significant positions within the agricultural production in İzmir. In the province, tomato, cucumber, spinach, green beans and cauliflower from vegetables; olives, grapes, satsuma tangerine, peach, cherries, and figs from fruits are the ones with the highest production. Potato, corn, and wheat from field crops are contributing to this. The greenhouse products such cucumber, tomato and lettuce also support this production (TurkStat, 2020c). Among these, olives and grapes are particularly important for their value-added by-products and stands out as pivotal products for agricultural production in İzmir. In addition, while products such as tomatoes and potatoes are at the top in terms of agricultural production, regional products such as figs, cherries and tangerines are also important for local production in İzmir (TurkStat, 2020c).

Besides all the conventional production, good farming and organic agriculture practices have gained importance in recent years and started to increase in İzmir. In present, İzmir is regarded as the centre of organic agriculture due to its incentives and promotional and dissemination activities for organic products such as organic products fair. Related to this clustering studies in the organic food sector continue and are supported (IDA, 2015). Likewise, good farming practices are also on the rise in İzmir.

The İzmir's share of organic agricultural production in Turkey corresponds to 4.7%, this share corresponds to 4% for good farming practices. Within the Aegean region, İzmir's contribution to good farming practices is 22% (MAF, 2020). Considering the share of production with organic and good farming practices in the total production in İzmir, this share is 3 % for organic production and 10 % for good farming practices (MAF, 2020), corresponding to 13 % in total. In İzmir province, 3226 organic product growers produce 95953 tons of organic products in approximately 25 thousand hectares of land. Likewise, 1171 good farming practitioners produce 315

thousand tons of products in approximately 10 thousand hectares of land. The most grown organic products are olives, figs, corn and grapes (MAF, 2020), while this information is not available for good farming practices.

Table 13: Regenerative production in İzmir (MAF, 2020)

	2019			
Production Type	# of Producer	Production Area (ha)	Production (ton)	Rate
Organic (Transition)	999	15158	34669	
Organic	2227	10189	61284	
Total Organic	3226	25346	95953	3%
Good Farming	1171	9868	315023.5	10%
Total (Total Organic + Good Farming)	4397	35214	410976.5	13%
İzmir– Total Production		344000	3226794	

The most pressing issue for the agriculture in Turkey comes from import-based relationships dominated by market economy and the absence of product planning based on climate, soil and geographical conditions of major agricultural regions located on river basins (IZTAM, 2023). A similar agricultural practice is also seen in İzmir, especially in the concentrated regions within agricultural basins (Interview No. 2; 34). This has led to significant negative consequences. Initially, conventional agriculture relies on cultivating specific crops imposed and favoured by the global markets, often unsuitable for the local productive regions. This necessitates the importation of external inputs like conventional seed and seedlings, along with their crop-specific fertilizers and pesticides. This conventional structuring creates dependencies on global chains and market forces, rendering the agricultural production entirely reliant on external sources. Secondly, producing regionally and locally incompatible crops becomes increasingly challenging due to the adverse

climate conditions, triggered by the major climate crises. Cultivating conventional seeds demands abundant irrigation or heavy fertiliser and pesticide usage, leading to excessive resource consumption as well as chemical pollution. These practices not only decrease the ability to achieve efficient production despite the significant agricultural potential but also triggers substantial ecological degradation, leaving the agricultural production vulnerable to severe ecological as well as social problems.

As the most visible example of these problems, Izmir Metropolitan Municipality points to the Küçük Menderes Basin and the significant problems of the conventional practices poses for the region (Interview No 2; 34). Within the basin with generally an arid climate, dominant practices are predominantly engaged in cultivation of foreign crop products that require extensive irrigation and chemical usage. This cultivation approach requires abundant irrigation, especially in the summer months, resulting in accelerated depletion of natural water resources much faster than regular rates. This is majorly due to the choice of products that are far from product planning and are not suitable for the region. Studies also reveal and support the significant decline in groundwater resources in the basin have significantly, coupled with significant chemical pollution (IMM, 2015, 2016). Given the municipality's priority on reducing the risks caused by the climate crisis, studies aimed at transforming such practices are of vital importance for Izmir.

5.2.2 Consumption Mechanisms and Food Flows in Izmir

In order to understand the entire food system, it is important to reveal food flows from production to consumption and the relationship with consumption junction mechanisms where this flow meets consumption. The most basic mechanisms that shape food flows are the food retail mechanisms, which have undergone major transformations in Turkey during the economic restructuring processes seen in the last 50 years. After the 80s, under the influence of global economic restructuring, there have been dramatic changes in the retail sector in Turkey, and among all areas of retail the food retailing stands out as the sector with most radical changes have

occurred (Kompil, 2004). The food retail sector has transformed from small-scale, independent, and single-location retailers with stronger relationships with production, to market-oriented large-scale retailers, which brought major changes in terms of scale, organization, and geography of food retailing and food flows (Lang, 2006; Tokatli & Boyaci, 1998). Especially in the major cities in Turkey, both international and domestic retail chains started the transform the urban retail and the relationships behind. An increase in the number of supermarkets, hypermarkets, large and chain stores has been observed, along with the growing wholesale and logistics sector in relation to food (Kompil, 2004). Relatedly, while important transformations are taking place in the retail structure of Izmir, these processes have brought about a very strong and rapid food flow creating long supply chain with extensive food miles (Lang, 2006).

Such a restructuring requires that the products supplied from the productive areas pass through many different stages and flow to the consumption mechanisms within the city. The high consumption levels in the city, determined by the demand-side factors such as urbanisation level, population size, demographic characteristics and alike, brought a large organization in the background along with the diversification of retail mechanisms. The production pattern outlined in the previous agricultural profile section is important at this point, since a significant part of the food produced within the productive landscapes and rural areas flows into both foreign and domestic food markets via long supply chains. The food channelled for domestic consumption through consumption junction mechanisms embodying large-scale chain structures and small-scale mechanisms with different organizational background. Whether by large-scale or small-scale organisations, food flows through many stages as well as great miles from production to consumption, forming extensive supply chains with many intermediaries and largely severing the relationship between the food actors, especially between producers and consumers.

To understand the present-day food flows, it is necessary to delve into the historical evolution of retail mechanisms that play an important role in shaping these flows. Up to mid-1990s the retail structure of İzmir mainly consisted of traditional, small-

scale retailers which established stronger connections with local production and food supply. The first forms of modern retail were introduced in the city as small-scale markets under the municipal regulation, to provide affordable food products and other necessities to the public. The first example of this was Tansaş, founded in 1973 with the name of "Tanzim Sales" (Tansa) as a semi-public corporation of İzmir Municipality. The first store was opened in Alsancak, in the city center of İzmir, and the products of the Agricultural Sales Associations, as well as affordable products for basic needs such as meat and coal were offered to the consumers. The aim was to offer products procured from producer associations to consumers at affordable prices. Tansaş, which progressed with municipal control and regulation until the 1980s, first became a corporation and accelerated its expansion. After its shares were offered to the public in the 1990s, it was purchased by an important investor group within domestic capital. In these years, Tansaş incorporated structures such as Macrocenter in its body. In the 2000s, it merged with Migros, and later, as a result of the decision to bring the Migros and Tansaş brands under one roof, the Tansaş market chain was terminated in 2016.

Following Tansaş, the mid-1990s have introduced some other retail developments due to changes in demand-side factors such as increasing population, incomes and consumer profile; and changes in supply side factors such as increasing attraction of the sector for large-scale corporations. Kipa in the south and Migros were added into the retail market and become the first large-scale developments in the mid-1990s. The initial large-scale developments have mainly taken place on the edges of the city in the form of large food retail stores (Kompil, 2004). In this case, while the food supplied had a more local projection before the 80s and was more self-sufficient, it become gradually linked to national and global market conditions with longer supply channels at national and international scales.

In İzmir's present retail ecosystem, the food retail is quite fragmented and characterized by a blend of modern and traditional forms, much similar to the national level. While modern retail chains including global and national as well as local supermarkets are dominant, traditional food retailing also continues to exist in

the form of open-air neighbourhood bazaars, small-scale local groceries and commercial units in neighbourhood centres. As an example, total of 184 neighbourhood markets are held on different days in 30 districts of Izmir, varying in number and size⁶. These markets are especially important in terms of daily fresh fruit and vegetable consumption. While the bazaars continue to maintain their importance in consumption along with the small-scale free-standing markets at neighbourhood centres, the recent developments have varied from supermarkets, hypermarkets, large-scale chain stores. Either large or small scale, these mechanisms interconnect food chains across national and global scales, establishing a food supply network that connects Izmir to other production regions.

Consequently, İzmir encompasses food from various parts of the country, other than the local food products produced within the borders of Izmir. The expanding chain structures, both nationally and globally, contribute to this, arisen also from the challenge for local production to meet the highly diverse demand-based factors of a metropolitan city like İzmir.

The YERSIS⁷ portal stands as a valuable resource for monitoring the food flows, revealing the origins and pathways of food entering Izmir. By using this mapping platform, the origins of food consumed in İzmir can be traced, pointing to their production regions. According to this, food products destined to Izmir originates predominantly from close productive regions within Aegean region such as Manisa and Aydın, as well as from Balıkesir. In the interviews held within the scope of Karşıyaka, in addition to these regions, the Mediterranean Region was also mentioned as an important service purchasing point, especially for fresh fruits and vegetables (Interview No. 7; 8; 13). An important point of convergence for the food inflow to İzmir is Izmir Buca Fruit and Vegetable Wholesale Market, standing as a key node for food products to be centred before being distributed. Here, food items

⁶ See; <https://www.izmir.bel.tr/tr/AcrdIcerik/3206/29>

⁷ YERSIS; Urban and Rural Settlement Systems in Turkey, from: <https://yersis.gov.tr/web#>

are collected and distributed to various channels through intermediaries or directly by retailers. For many local supermarkets, traditional units and bazaar vendors, this market is the main source of food they offer to consumers. This situation is also supported in the interviews held within the scope of Karşıyaka (Interview No. 8; 13; 43). This market operates under the regulatory body of Fruit and Vegetable Market Branch Directorate within the Agricultural Services Department of İzmir Metropolitan Municipality; therefore, it is of great importance in terms of food-related studies in İzmir.

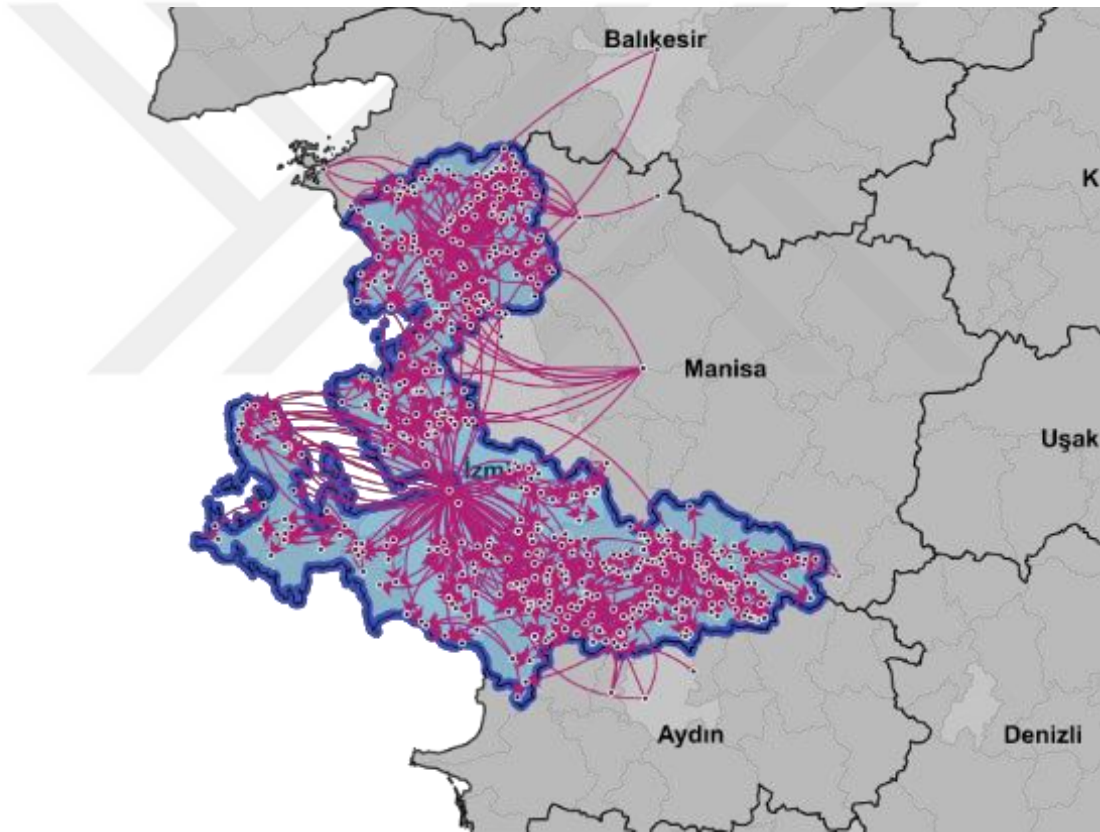


Figure 12: Map showing the places where products and services are purchased for food products including fruits and vegetables for İzmir
(Source: Produced by the author with the data from YERSIS)

In addition to all these, alternative retail mechanisms have been implemented in Izmir in recent years. One of them, People's Grocer, is very similar to the first form of Tansaş. Their main motivation is to provide affordable and diverse products to the public. Another important point here is to integrate the products of local producers into the market and bring them together with the consumers. Here, it works not only for accessibility but also as a mechanism to support the producer. Another example of this is producer markets. The metropolitan municipality aims to make domestic and cleanly produced foods available to consumers by establishing markets in many parts of the city where only producers and producer cooperatives can take part.

In addition to all these, there are also examples of food communities, alternative consumer structures and food consumption cooperatives in Izmir. These associations are an important indicator that Izmir has a high concentration of conscious, concerned and ethical consumers whose consumption preferences are shaped by motivations such as environmental, health and clean consumption.

5.2.3 Agri-Food Policies & Programmes within Metropolitan Izmir

The pressing ecological, social and economic challenges inherent agricultural production, compounded by the problems created by long and linear supply chains from production to consumption, have necessitated the production of food-related studies under the imperatives of local governments. Likewise in Izmir, similar concerns started to arise related to the local agri-food systems, along with the concerns over the ecological and social problems in the times of crises affecting the future of urban areas. Studies started to accelerate to improve local conditions for the agri-food system, especially taking into consideration the agricultural production and ecological degradation it possesses. Today, Izmir emerged with an agri-food model based on agricultural reform, countering the impacts of neoliberal restructuring in Turkey and the consequential socio-spatial effects on rural regions. The main purpose revolves around preserving the productive rural landscapes, improving and supporting local production, combating ecological problems and preventing rural and urban poverty.

The initial approaches on agri-food systems actually gained momentum with the inclusion of rural areas within the responsibility area of Izmir Metropolitan Municipality. In Turkey, the borders of metropolitan municipalities were expanded with Law No. 6360 enacted in 2012, expanding the responsibility of metropolitan municipalities to cover the management of rural areas. Consequently, a new governance and local policymaking has become a necessity for metropolitan municipalities with expanded boundaries and responsibility areas, to deal with problems related to agricultural production and rural areas.

Thereupon, local rural development moves were initiated by Izmir Metropolitan Municipality, among which was the local approach called the “*Izmir Model*”. With this model, embracing agricultural development with "local dynamics" and with "local actors", the municipality has given priority to the agricultural sector and aims to increase production and efficiency in agriculture. This is followed by the aims to increase the income level of producers, to foster their organization through producer unions and cooperatives and to prevent rural-urban migration while improving integration. In this context, the organization of rural producers through cooperatives has been brought to the fore. The basis behind this is the potential brought by Izmir's long-lasting cooperative experience (Tekeli, 2017).

In this context, the initial implementation of the model brought the establishment of the Department of Agricultural Services in 2007. This department is meant to increase cooperation with agricultural cooperatives and local actors, also to provide financial and technical support to agricultural producers. In the following period, the Municipality has cooperated with cooperatives through contracted production model to support local producers⁸. The aim of this model is to strengthen rural producers,

⁸ Izmir Metropolitan Municipality has cooperated with Tire Milk Cooperative, Bayındır Flower Producers and Agricultural Development Cooperative, Urla Bademler Village Agricultural Development Cooperative and such cooperatives. The most important practice in this context was the contracted production made with Tire Milk Cooperative in 2007 based on milk procurement for the School Milk Project. The Municipality also made cooperation with other cooperatives for the

ensure healthy production and offer products to consumers at the most affordable prices through cooperatives (Tekeli, 2017)

Following the local elections, a shift in local government ushered a new era, bringing the new approaches and consultancy concept that influenced and embraced local policy making in terms of agri-food policies (Interview No. 28). The fundamental principles like enhancing local rural development and supporting local producers remained the same, while a new model have been put forward named as “*Another Agriculture is Possible*”. Within the scope of local policies that have been reshaped with a different management and consultancy model, more ecological initiatives have been introduced and the agricultural model has been expanded.

In present, Izmir is embracing a basin-based agricultural development strategy, seeking to reduce the environmental problems and impacts on agricultural river basins, establish a more resilient system against both climate and food crisis, as well as minimize social inequalities. This approach aims to build a system that highlights the importance of local product pattern and local production within fertile basins and to support local development through promotion and encouragement of the involvement of local producer organizations. Adopting a design science approach, the strategy encourages the cultivation of agricultural products that are suitable to local climatic conditions, temperatures, soil compositions, water structures, and rainfall patterns. The ultimate objective of the basin-based agricultural model is to create value-added products, promote rural development, conserve water resources, as well as its dissemination in both national and international levels (IZTAM, 2023).

procurement of products such as flowers, saplings, milk, yoghurt and cheese as well as olive oil with contracted production model. During the same period, it also carried out projects such as supporting low-income consumers through social services, based on procurement of more affordable food products through contracted purchases, and their distribution to the citizens in need.

Furthermore, the urgency posed by ecological crises has propelled the rapid generation of policies addressing urban sustainability and development. In response, Izmir has emerged as a pioneering municipality in Turkey, actively generating comprehensive reports and policies centred on urban sustainability. This proactive stance has led to the creation of numerous policy documents and reports, significantly influencing the development of rural development and agri-food policies within the region. Consequently, a detailed examination of all policy documents produced in Izmir and their perspectives on food systems has been conducted in the subsequent section.

Major Local Policies and Relationships with Food System

The pressing issues related to climate crisis, increased carbon emissions from urban centres and urban use, rising ecological and social challenges, and the effects of pandemics such as Covid 19 compel cities to develop local plans and strategies for mitigation and adaptation. Like many cities in the world, Izmir struggles with multifaceted risks and ecological problems. Relatedly, Izmir grapples with the consequences of natural disasters and extreme climatic conditions, which have increased in frequency and severity in recent years. With a current population of approximately 4.5 million inhabitants, Izmir is expected to host 6.2 million people by 2030 (IMM, 2021b). All these circumstances require a comprehensive reorganization and restructuring, in terms of sustainable and resilient urban development.

In this context, Izmir Metropolitan Municipality is actively steering urban development through a wide array of action plans aimed at acceleration of the sustainable transformation of the city. Towards this goal, Izmir is firstly committed to the reduction of greenhouse gases within the provincial borders by becoming a party to the Covenant of Mayors in 2015, which is a prominent global city network on climate initiatives under European Union. Following this commitment, Izmir Metropolitan Municipality initially prepared first "Sustainable Energy Action Plan"

2016, the "Izmir Green Infrastructure Strategy" in 2017 and second "Sustainable Energy and Climate Action Plan" in 2020. Following these the "Green City Action Plan" was prepared in 2021 within the scope of climate adaptation. Supporting these initiatives Municipality released its Strategic Plan for the five-year period between 2020-2024, to align with the UN Sustainable Development Goals, linking them with Izmir's priorities. The fifth of the seven strategic goals of Strategic Plan, titled "nature", aims to build a city culture and urban development in harmony with nature.

Within the scope of this strategic goal, Izmir has put forward its "*Living in Harmony with Nature Strategy*" in 2021 (IMM, 2021b). With rapid urbanization trend seen since the 1960s in Izmir, the urban-nature contrast has increased to the highest levels. Izmir's strategy for transition aims to break down these contradictions by connecting the relationship between the city and its ecological layers by rebuilding this relationship based on circularity principles. Izmir, as a city with broken ecological relationships and on the verge of urban crises, develops its basic strategy to combat climate crisis as to regenerate its relationships with nature. This is aimed by redeveloping and strengthening urban and rural relationships via rebuilding physical, economic and cultural connection between urban, ecological, and rural layers. This integrated perspective covers the circular redesign of the economic and cultural relations between the city and the rural periphery. In line with this, there are three goals; first is to be a city resistant to natural disasters; second is to increase welfare and ensure fair sharing and third is to protect biodiversity (IMM, 2021b).

Under this vision, the strategy presents four basic steps of Izmir's "nature and climate action": ensuring the penetration of nature into the city, ensuring the harmony of people's penetration into the rural area with nature, promoting the circular economy and integrating urban and rural cultures (IMM, 2021b). This vision includes many strategies and actions, from protecting biological diversity to increasing the integration of green infrastructures within the urban area and ensuring rural development by protecting rural landscapes and enhancing local production. The table below analyses all these strategies to examine what they propose for the city, as well as their relationship with agriculture-food systems.

Table 14: Major strategy documents of İzmir with their content, emphasis, and agri-food strategy (Source: Produced by the author based on the reports)

Report	Content	Emphasis	Agri-Food Strategy
<i>Strategy Reports/Action Plans</i>			
İzmir Strategy for Living in Harmony with Nature (2021-2030)	- Harmony of urban and ecological layers - Rebuilding the urban-rural relationship - Circularity	*Rural-urban landscape relationship *Nature-Culture association *Ecosystem and Biodiversity *Ecological continuity *Resilience to disasters	Circular Economy Basin-based planning Bio-region Production Circularity
İzmir Green City Action Plan (2021)	- Identification of immediate environmental challenges - Creating a green future vision	*Low Carbon Emission *Green Continuity *Biodiversity *Waste and Water Cycle	Sustainable Agriculture Bio-Economy Circular Economy Food Waste & Composting Production Circularity
Sustainable Energy Action Plan (2016-2020)	- 20% emission reduction by 2020	*Reduction in energy use *Greenhouse gas emission reduction	Bio-Mass Applications Bio-Waste (Energy)
Sustainable Energy and Climate Action Plan (2020-2030)	- Collection and analysis of climate change mitigation and adaptation data - 40% emission reduction by 2030	*Reduction and Adaptation *Greenhouse gas emission reduction	Low Carbon Agriculture Techniques Smart Agriculture Applications Production
İzmir Green Infrastructure Strategy (2017)	- Strengthening green infrastructure with new generation parks and recreation areas and sustainable transportation infrastructure	*Rehabilitation of urban green and blue areas *Green Continuity *Waste and Water Cycle	Strong urban-rural relationship Ecological Continuity
Agricultural Development and Settlement Strategy for İzmir City (2017)	- To produce an environmentally friendly and sustainable agricultural development strategy	*Rural-urban landscape relationship *Low Carbon Emission *Biodiversity *Resource efficiency *Water management	Localisation Cooperatives + Producer associations Organic and Good farming Clean food production Production Localisation

Table 14 (cont.)

İzmir Integrated Solid Waste Management Plan (2018)	Developing sustainable waste management at city level	*Waste management *Waste classification/sorting	Bio-Waste: Biomass - Energy Compost Bio-Waste – (Energy)
Strategic and Spatial Plans			
IMM Strategic Plan (2020-2024)	- To determine basic management and development strategies in line with the Sustainable Development Goals - Strengthening the natural, physical and social wealth of the city - To strengthen the life in harmony with nature	*Sustainable management of urban services *Natural resource efficiency *Sustainability of energy resources *Building sustainable environments *Sustainable urban development	Strengthening agricultural production Good farming / Organic Farming Strengthened Producer-Consumer relationship Compatibility in agriculture (forecast and early warning) Bio- waste valorisation Production + Consumption Food Security
IMM 1/25.000 İzmir Environmental Master Plan	- Strengthening the natural, physical and social wealth of the city	*Sustainable management of urban services *Natural resource efficiency	Strengthening agricultural production Rural development and planning: Strengthening the social and technical infrastructure in rural settlements Production
IDA İzmir Regional Plan (2014-2023)	- To produce knowledge, design and innovation - Being the attraction centre of the Mediterranean w/ * Strong Economy * High Quality of Life * Strong Society	*Sustainable Production *Entrepreneurship ecosystem *Sustainable Environment *Quality Urban Life *Accessibility *Social Cohesion *Good governance	Strengthening agricultural production Rural development and planning Strengthening the social and technical infrastructure in rural settlements Production

All these strategy documents are an indication that İzmir has produced a determined discourse and policy against the climate crisis. It is possible to say that rural development is emphasized in almost all documents, with reference to strengthening agricultural production, sustainable and ecological production as well as localisation. While all of these are very positive in terms of building healthy, sustainable, and circular food system, they are generally limited within the scope of rural policies. It is observed that, these policies majorly focusing on agricultural production, being short to cover a holistic strategy for the entire food system. In relation to this, some inferences about the agri-food policies and strategies of the City of İzmir are as follows:

- The agri-food strategies in İzmir lack holistic urban food planning, primarily focusing on organizing and supporting agricultural production without considering other crucial elements like storage, distribution, consumption, retail, and food access.
- Strategies related to bio-waste and organic material predominantly focus on energy production (biomass) and composting, while bio-economy and bio-region aspects lack specific tools and actions to realize them.
- Circular strategies, especially regarding consumption phases, are limited, and there's inadequate organization concerning urban food consumption and bio-material flow.
- The primary strategy for consumption organization revolves around establishing alternative retail mechanisms such as producer markets (eco-bazaars) and "Halkın Bakkalı," bypassing the gaps in addressing broader aspects of the urban food system in relation to organized consumption.

The Agricultural Vision of İzmir: Another Agriculture is Possible!

Despite the current challenges in conventional agri-food system, including rural decline, along with the resource depletion and heightened pollution, İzmir is committed to a new local paradigm under the strategy of “*Another Agriculture is*

Possible” strategy (IZTAM, 2023). This approach comes with the broader strategy of “*Living in Harmony with Nature*” (IMM, 2021b), emphasising the importance of building a circular culture in İzmir. The focus of this strategy is on supporting localized economy that takes into account the climatic conditions, water and soil structure and other geographical conditions in food production allowing the choice of convenient agricultural techniques and products for Izmir (Interview No. 2; 3; 4). This aims to steer İzmir’s agricultural potential to build a self-sufficient sector supporting local and national economy, diverging from the prevalent foreign-dependent agricultural model in Turkey (IZTAM, 2023). This approach is crucial for building a growing local agricultural economy, supporting local producers and their welfare while eliminating the effects of ecological problems in the face climate and food crises. The ultimate goal is to realize rural development and protect critical resources with a basin-based agricultural model.

Izmir’s agricultural model represents a basin-based agriculture model, differing from the agricultural policies implemented in Turkey with two main differences. First is combating drought by giving priority to the cultivation of agricultural products that can be grown with low level of irrigation require or only by rainwater, thus combating drought. Second is fighting poverty by supporting local producers through sale and marketing supports, which in turn increase the added value of the products produced by farmers and increase their earnings. Following these fundamental objectives, this basin-based agricultural model has principles such as: resource efficient and low-carbon agricultural production; cultivation of compatible products with the microclimate of the region; land processing through methods specific to the region; cultivation without intensive interventions that reduce biodiversity in production; and cultivation without external agricultural inputs that cause excessive resource use and high caron emissions (IZTAM, 2023). Under this model, İzmir Metropolitan Municipality and İzmir Agricultural Development Centre (IZTAM) is responsible for supporting the production of strategic products specific to the region, supporting local producers with agricultural supports such as logistics, processing and branding as well as purchasing guarantee, expanding sales and marketing networks nationally and internationally, developing sustainable

agricultural production methods through R&D investments, and supporting the local production through increasing side economies such as agro-tourism in the rural periphery of İzmir. Through this model, it is aimed to lead the producers to cultivate through nature-friendly and sustainable agricultural methods as well as animal husbandry techniques, in order to achieve sustainable agricultural production supported by circular culture ((IMM, 2021b; IZTAM, 2023).

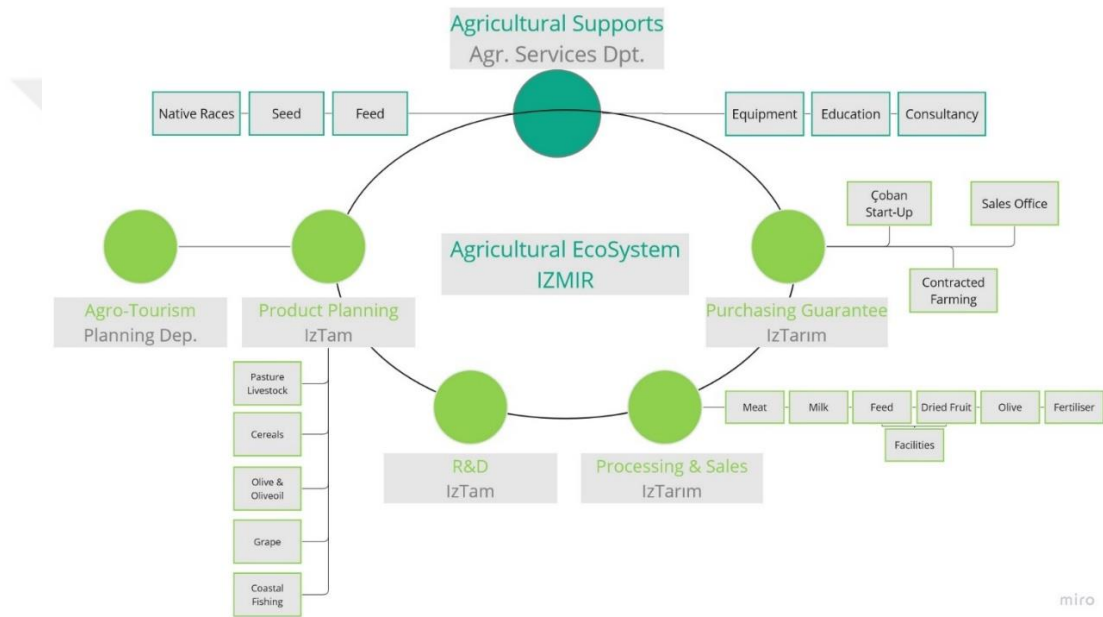


Figure 13: Agricultural Model of İzmir with major tools and support systems
(Source: Produced by the Author by the information gathered from Interview No. 34)

Under this vision, İzmir Metropolitan Municipality is implementing many applications with the support the Agricultural Services Department as well as its subsidiaries and centres such as IZTARIM and IZTAM. The main applications are the foundation of this Agricultural Research Centre (IZTAM), as well as Mera İzmir Project, Çoban Start-Up, Agricultural School, İzmirli Brand and alternative retail

such as Halkın Bakkalı and Producer Markets. Each of these is briefly described in this section.

Agricultural Research Centre was founded in 2021, under the body of Izmir Metropolitan Municipality, to carry out major activities and projects advocating basin-based agriculture and its practices. Its major activities include supporting local and sustainable production, primarily protecting, and developing local seeds and animal breeds and supporting cultivation of compatible products (Interview No. 2; 3; 4). The centre is also responsible for providing packaging, branding, sales, marketing supports for local products and local producers (Interview No. 2). IZTAM gives free consultancy services for the cooperative member producers based on major principles of the Agricultural Model. These includes consultancy on combating drought and increasing resource efficient (especially water efficient) production and using local seeds and animal breeds in production. Their consultancy and support include directing production activities through basin-based product planning (IZTAM, 2023).

Mera İzmir (Pasture İzmir) Project started in 2022 as an initiative of IZTAM, as the first pasture livestock support project in Turkey, aiming at combating drought and decreasing rural poverty under livestock farming (Interview No. 2; 3; 4). Another important aim of the project is to increase the production of safe and healthy food. For these purposes, it aimed to supports shepherds and small producer cooperatives on livestock, through purchasing guarantee over dairy products and feed support with seeds that can be grown locally and resource efficiently. Under this purposes, Turkey's First Shepherd Map was produced by visiting villages in Izmir and determining pasture livestock farming activities. In 702 villages out of 1,293, pasture livestock farming activities was determined. After the face-to-face interviews held with a total of 4,658 shepherds, a shepherd map was produced to be able to support their activities (IZTAM, 2023). Through this project, it is aimed to support shepherds in their local husbandry activities through public purchasing above market conditions. Within the scope of this support, purchasing support was given to the producers whose production was carried out with certain feeds and certain

techniques. This aims to increase use of animal feed requiring lower rates of irrigation, to ensure that the producers can provide healthy food. Kiraz, Tire, Bayındır and Torbalı districts were added to the purchasing supports given in Bergama, Kınık, Menemen, Foça, Seferihisar, Güzelbahçe and Karaburun in 2022 (IZTAM, 2023).

Çoban (Shepherd) Start-Up Project aims to support re-peasantisation of experienced but young producers who had previously engaged in small livestock farming but abandoned animal husbandry due to economic difficulties. With the "start-up" support created within the scope of the Mera İzmir project young producers are supported with local breed animals and construction materials to build a pen. Producers who benefit from these supports are also given a purchase guarantee. In this way, it is aimed to bring young shepherds back into production. The project is initiated to encourage entrepreneurial young people so that to combat poverty as well as to support local production and protect the rural culture (IZTAM, 2023).

Agricultural Vocational School is an initiative of IZTARIM, under its mission of increasing agricultural education and awareness. This initiative is planned to be opened in Urla Bademler village in 2024, to provide free training in the fields of agriculture, food technologies, animal breeding and health. It is planned to be implemented with an approach similar to the philosophy of "Second Century Village Institutes". By establishing Agricultural School, it is aimed to increase qualified intermediate staff in agriculture and to provide to be a solution to the problems of family agriculture (Interview No. 5).

The İzmirli Brand emerged primarily to increase branding activities of local products produced within the borders of İzmir. It is branding activity with the support of the municipality in order to popularize local products produced by local producers or provided by local cooperatives. Through extending marketing, it aims to provide profit to the local producers. The aim is to disseminate healthy foods with high nutritional value and produced via sustainable production methods and offer them to the market through this brand (IZTAM, 2023). Here, the municipality works like an

umbrella institution and a cooperative that supports small producers, by increasing their marketing potential (Interview No. 5).

Halkın Bakkalı – Halkın Kasabı (Municipal Retail Markets) are municipal retail units operated by İzmir Metropolitan Municipality, in order to deliver healthy, economical and reliable food to the public. It started to serve as Halkın Bakkalı (Grocery Store), where cooperative products are provided to the public. Halkın Bakkalı firstly initiated as municipal store with a price policy suitable for affordable consumption. These stores are dispersed especially around the urban districts in İzmir, reaching the number of 11 units. Later, Halkın Bakkalı included sections of Halkın Kasabı (Butcher), to present the meat prepared at İztarım A.Ş.'s Ödemiş Meat Integrated Facility, providing purchasing from small producers in rural areas (Interview No. 5; IZTAM, 2023). This gained success in supplying healthy, reliable, high quality and economical meat products to the citizens throughout İzmir, while at the same time increasing purchases from local producers and producer unions and cooperatives.

Farmer Markets and Eco-bazaars are local bazaars as direct producer markets established under the control of İzmir Metropolitan Municipality. Farmers markets initially started in urban neighborhoods within Konak, Buca, Bornova and Eco-bazaars, also known as organic bazaars, initially started in Karşıyaka and later in Balçova⁹. These bazaars are aimed at providing at delivering the products of local producers to consumers without intermediaries. In this way, it aims to ensure that producers make economic benefits and become stronger. The aim of these bazaars also included the consumer to have access to natural and fresh food produced firsthand, without intermediaries. Producer sales stall support is provided by the municipality in producer markets, and priority is given to cooperatives, cooperative producers and local producers in these markets, while in eco-bazaars, organic certified products are offered for sale.

⁹ <https://www.izmir.bel.tr/tr/pagos-uretici-pazari>

5.3 Overview and Discussion

As can be clearly seen from the process of liberalization of food chains historically, consumption mechanisms redefine and shape the entire food system, by effecting both downstream and upstream practices and the relationships in between them. Retail mechanisms that developed and transformed with the liberalization of the food system have redefined all production-distribution-consumption relations by producing strong chain structures. Supply chains, to which these mechanisms are deeply connected, today establish strong relationships with conventional and intensive agricultural practices. Supermarkets, which are the most concrete examples of this, have reproduced both production and consumption relations by producing long supply chains extending from conventional production to urban consumption, and have played a role in establishing today's dominant production and consumption culture.

Alternative mechanisms, on the other hand, build novel relationships with changing consumption practices, which also trigger alternative agricultural practices with local and sustainable forms of production. While these alternatives include different retail forms such as farmers markets, eco-bazaars, municipal supermarkets in municipal regulation, they also include grassroot formations such as consumer cooperatives, food communities and sharing groups. Each of these forms involves production-consumption relations that differ from the dominant market-oriented relations. The common feature of each of them is that they redefine the producer-consumer relationship that has been broken within the dominant food system and reproduce it in a way that establishes stronger relationships.

When looking at the way the agri-food system is handled by the local government in İzmir, it can be seen that the production issue is much more prominent. The aim of this approach is to seek solutions to the basic problems caused by agricultural practices. This production focus results in very small touches and interventions in the consumption organization. However, in a metropolitan city like İzmir, consumption practices have great importance in terms of redesigning of the food

system, requiring strong interventions to reorganize production consumption relationship. This not only organizes consumption and triggers a new consumption culture, but also pushes problematic production processes to change.

Strong steps are being taken towards the organization of production in Izmir. Among these, there are approaches that will trigger a positive transformation, especially in animal husbandry, such as Mera İzmir and Çoban Start-up initiatives. In this context, the producer inventory, and the support mechanisms linked to, are very valuable practices. On the other hand, studies on consumption are also on the agenda, albeit in a fragmented manner. However, these studies need to be expanded with studies aimed at linking them to agro-ecological agricultural production. Just like in the Mera İzmir project, there is a need to reveal an agro-ecological and alternative agricultural production pattern with an agro-ecological production inventory and strengthen its connection with consumption mechanisms. At this point, the organization of consumption also gains great importance. In order to create a more circular consumption culture, the necessary tools must be identified and implemented, and in this context, new localized retail mechanisms must be designed and the relationship of these mechanisms with agro-ecological production must be strengthened. The strong civil society organization that Izmir has should be seen as a great potential in the re-organization of all these processes. For example, it is essential to ensure the inclusion of producer and consumer cooperatives in Izmir and food communities, which are grassroots formations. The food communities in İzmir, supporting regenerative food production and clean food consumption. There are nine active communities in the province, including both producer and consumer-initiated communities, as well as product markets supported by regenerative productions (*Gıda Toplulukları*, 2020).

On the other hand, the development of practices in Izmir offers promising prospects for the local food system in Karşıyaka. Karşıyaka, which is an integral part of the urban core of Izmir, inevitably mirrors the agricultural and food processes of metropolitan city. It is directly or indirectly affected by all the applications originated from Izmir, including interventions addressing the urban centre and

surroundings rural areas. This ‘influence is particularly pronounced in three key domains.

Firstly, rapid urbanization dynamics of post-1980s has transformed Karşıyaka into an excessively urbanized settlement, deeply reliant on growing metropolitan İzmir in many aspects. This reliance extends to the food chains; agricultural production and food supply limited within the borders of Karşıyaka, are predominantly sourced from İzmir. Consequently, Karşıyaka remains closely intertwined with the İzmir's rural productive regions and food production within them. Any policy, initiative, or practice in this context directly impact the food supply and consumption within Karşıyaka.

Secondly, as an integral part of the metropolitan urban core and a highly urbanized urban-section, Karşıyaka hosts various food consumption services that are appeal to the broader population of İzmir. Consequently, any initiative or practice targeting food consumption in İzmir directly encompass Karşıyaka. An example of is Halkın Bakkalı, the other is Eco-Bazaars, both initially introduced in Karşıyaka, signalling the potential for city-wide impact.

Lastly, İzmir stands out as a metropolitan centre with numerous stakeholders and a strong civil society structure, of which reflection is visible in Karşıyaka. The district also hosts a multi-actor network, spanning from civil organisations to conscious consumers. The existence of such a diverse structure, whether within Karşıyaka or wider İzmir, holds the potential to activate transformative and novel food-related practices throughout the city, impacting local food system dynamics in Karşıyaka.



CHAPTER 6

THE CASE OF KARŞIYAKA: EXISTING PATTERNS OF THE LOCAL FOOD SYSTEM

In today's context, which is dominated by climate crises and related food crises, the debates on the need to reconstruct urban food systems at the local level have gained momentum (Liaros, 2021; Philpott et al., 2020). Within this context, there is an increasing recognition of the significance of reconstructing food systems at city-region or urban levels. This reconstructing aims at shortening the long food supply chains that underpin the food systems, as well as to change the existing modes of food production, which are the basis of structural problems. On the other hand, there is a growing recognition that consumption patterns play a central role in triggering climate and food crises, thus urban areas, where consumption practices are concentrated, have started to be considered as an important strategic area in terms of sustainable re-organization of linear systems (Spaargaren et al., 2012; UN, 2022).

In this context, the aim of this study is to facilitate a sustainable reorganization of the entire food system, with a particular focus on monitoring changes in consumption practices. To achieve this, the study narrows its focus to a micro-urban area that encompasses different aspects of the food system, but where the food consumption practices hold a significant prominence. Through this specific focus, this research seeks to identify the key elements necessary to catalyse a shift towards a sustainable and circular food system, primarily influenced by consumption practices. Within this context, this study focuses on Karşıyaka district, a micro-urban section of Metropolitan City of İzmir, where food consumption practices are concentrated.

Karşıyaka is one of the metropolitan sub-centres of the city of İzmir, which is exposed to extreme urbanization dynamics in its recent history. With this feature, the district comes to the forefront primarily with its urban functions mostly associated with commercial activities addressing consumption practices. Conversely, while

rural practices still exist, they remained increasingly limited and even at risk of disappearing under the dynamics of rapid urbanisation.

The hyper-urbanization dynamics have been dominant in the district since the 1980s. Within the period after 80s, Karşıyaka turned into an over-urbanized settlement and a district dependent on the metropolitan city of İzmir. This is particularly evident in the context of agricultural production and food supply, which has severely limited public access to local, clean and ecologically produced food. Relatedly, the distance between the urban and the rural, and between food production and consumption has widened considerably. While the district is rich in terms of providing various food consumption services, it is reliant on external sources in terms of food supply and retail. Presently, the district hosts wide range of food consumption practices, encompassing diverse food supply, retail activities and services related to food consumption. The food for all retail and consumption activities is supplied from outside of Karşıyaka – both regionally and globally, and in this respect, Karşıyaka is an urban region where local self-reliance is low in terms of food supply (Karakaya Ayalp et al., 2023). Despite this, the consumption practices encompass alternatives to mass consumption forms and maintain an alternative market and food consumption culture in the public sphere. This can be attributed to the presence of a multi-actor structure in Karşıyaka, ranging from civil actors to conscious consumers.

In response to this, studies of different scales and scopes to strengthen the local food system in Karşıyaka are carried out by different urban actors. The most notable among these is the Karşıyaka Municipality as an important local actor. Some of the practices of Municipality includes presenting novel mechanisms to support local food production and consumption, establishing alternative retail mechanisms, disseminating urban agriculture practices and increasing awareness studies. In addition, a 'Food Strategy Document' has been produced, to define food strategies, targets and actions for the local food system in Karşıyaka, that will all enable the construction of actions aimed at reorganizing the production, supply and consumption processes. It is aimed to transform the local food system with the strategies to be produced within the framework of this document (Karakaya Ayalp

et al., 2023). Karşıyaka district, with all these urban practices and its multi-layered and multi-actor structure, has a great potential for examining the urban food system and constitutes a good example for analysing the potentials and problems in terms of integrating the circular model into the urban food system.

This chapter primarily examines the urbanization dynamics of Karşıyaka. Then, it reveals the current food consumption infrastructure that has developed in reference to urbanization dynamics, in order to understand the dominant food consumption patterns. The aim here is to explore the current status of the food supply mechanisms on which food consumption patterns depend on, and the food supply chains they are associated with. Later, it is aimed to determine the food-city region of Karşıyaka that shape and is shaped by the existing supply chains and food retail networks. It will also explore existing alternative practices and innovative actions introduced by current local food policies and food programs within the district, with reference to their potential for transformation. In this context, it is to reveal the problems and potentials of the existing food system in terms of localization and circularity.

6.1 Karşıyaka: Micro-Urban Section of Metropolitan İzmir

Karşıyaka, located in the northern part of İzmir province, is one of the important urban sub-centres of İzmir with an administrative boundary of approximately 51 km² (Karşıyaka Municipality, 2021). It is one of the central districts of İzmir metropolitan city, surrounded by other important districts such as Bayraklı in the east, Bornova in the northeast, Menemen in the north, Çiğli in the west. Karşıyaka is bordered by İzmir Bay in the south, with a long cross-section of coastal side of İzmir Bay.

Karşıyaka district, which has changed rapidly in the last half-century, was a relatively small countryside in the first decades of the republican era (Erdoğan, 2013; Yiğiter & Erdem, 2003). With the increasing industrialization seen after the 1980s, today's major cities of Turkey, namely Istanbul, Ankara and Izmir, started to grow based on industrial and trade activities, and their urbanized areas began to spread into the surrounding districts of the central area (Erdoğan, 2013). In İzmir

too, the urban area has started to grow to cover the districts around the İzmir bay, including the districts of Konak, Balçova, Bayraklı, Bornova, Buca, Gazimir, and Karşıyaka. Karşıyaka has an important place among these districts due to its proximity to the metropolitan centre of İzmir and has become a rapidly growing sub-centre with the urbanization dynamics of the province. Today, Karşıyaka is the 4th largest district of İzmir in terms of population and constitutes an important part of the metropolitan urban fabric (Karşıyaka Municipality, 2021).

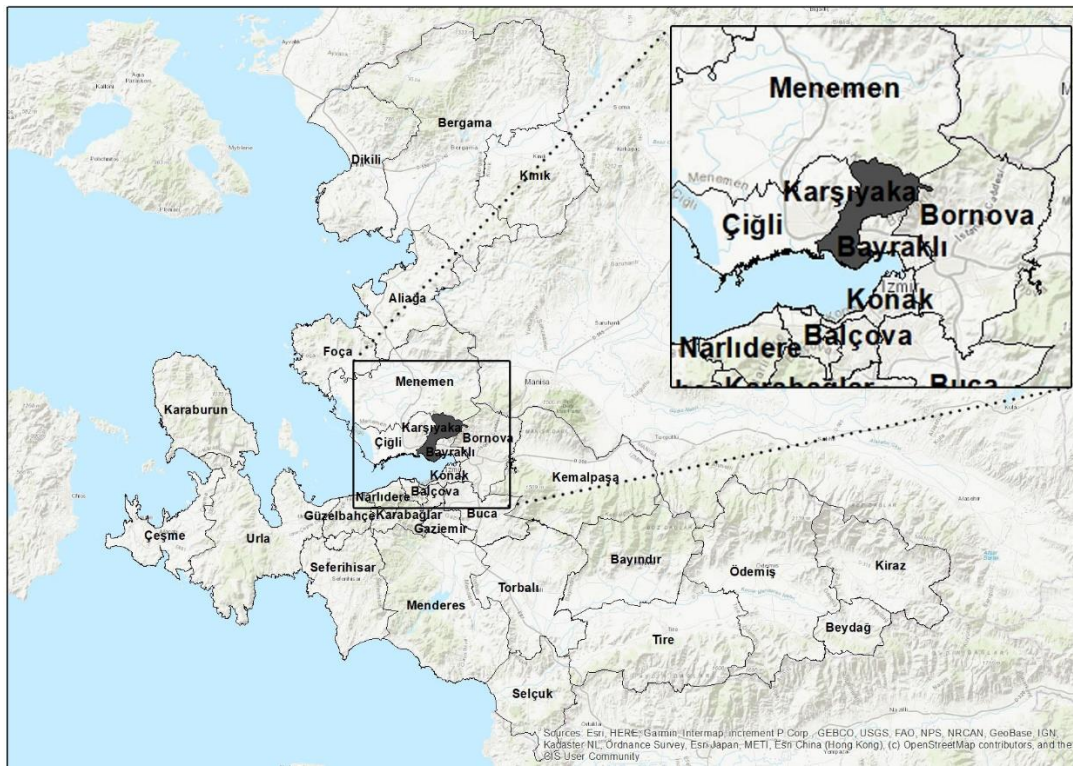


Figure 14: The Location of Karşıyaka in İzmir (Produced by the Author)

6.1.1 Urbanisation Dynamics of Karşıyaka

With the industrialization and following urbanization trend that started to be seen after the 1960s in Turkey, today's big cities of the country namely Istanbul, Ankara

and İzmir, started to grow based on industrial and commercial activities. The city centres of these cities began to spread, and they evolved into metropolitan centres to include the districts in close proximity. This urbanization trend has caused significant changes in Karşıyaka district, as one of the close districts to the İzmir central area around the Bay. With this trend, Karşıyaka started to grow rapidly and become an important sub-centre, as a part of the metropolitan city of İzmir (Erdoğan, 2013).

With rapidly growing urbanization trend in Karşıyaka, the Levantine houses with gardens, vegetable gardens, agricultural areas and forested areas around the hilly areas have been replaced by rapid urban development until 1980s. The 1980s has become an important breaking point for Karşıyaka, as was observed in all urban settlements in Turkey. Especially with the high urbanisation seen after 1980s, inner-city orchards and agricultural areas in Karşıyaka have been replaced by urban uses. In this process, a large part of the district was built under intense and unhealthy development pressures. Therefore, at this stage, the district has reached a point that requires it to deal with multifaceted problems (Kılıç, 2006; Zengin Çelik & Çilingir, 2017).

Since then, Karşıyaka is a district that has rapidly urbanized, integrated with the city of İzmir and has become one of the urban sub-centres of the province (Erdoğan, 2013). Today, district has become a dynamic urban region with complete urban character, which is a part of İzmir's urban fabric that uninterruptedly continues around the bay. It establishes complex urban relations with İzmir and other districts around it.

Especially after 1980s, Karşıyaka turned into an over-urbanized settlement and a district dependent on the metropolitan city of İzmir (Karakaya Ayalp, et al., 2023). Proximity greatly increased the interaction of Karşıyaka with other central regions of İzmir. At the same time, the development of transportation facilities strengthens this relationship with the metropolitan city centre. This increases the concentration of commercial activities and services especially in the central neighbourhoods of Karşıyaka (Karşıyaka Municipality, 2021). Following this, Karşıyaka, which is exposed to strong urbanization dynamics, continues to expand with its urban fabric

shaped by both residential and commercial areas towards the periphery, instead of preserving the rural character around it. Especially after the 2000s, with the opening of the highway passing through the north of Karşıyaka, the development of residential areas towards the northern periphery has accelerated (See Figure 14).



Figure 15: The changes in urban fabric from 2000 to the present
(Source: Produced by the author from Google Earth Pro)

Even though the district borders contain sections from rural periphery, with this highly dominated urban character, rural-urban cross-section of Karşıyaka blurs and disappears, and the relations become intertwined and complex. This has resulted in the rural activities to be decreased in a considerable level. Considering current state of the local food production practices, they are limited within the administrative boundaries of the district due to the predominance of urbanization dynamics. This is particularly evident in the context of Karşıyaka's ability to be self-sufficient in agricultural production and food supply, which has severely limited the public access to local and clean food. Moreover, the distance between the urban and the rural, and

between production and consumption has widened considerably (Karakaya Ayalp, et al., 2023)

According to the land uses defined by the 1/25.000 environmental regulatory plan, 40% of the land belongs to urban areas, while 0.02% belongs to rural settlements and 3.5% belongs to agricultural areas (Karşıyaka Municipality, 2021). The area of 3.5% described here corresponds to 446 hectares and it is known that half of this agricultural area is not in use, and only olive cultivation is dominant in the other half (Karşıyaka Municipality, 2021).

On the other hand, consumption and service units are concentrated in regions that are located under highly urbanized neighbourhoods, that also serves as sub-centres for İzmir. These are namely Bostanlı Çarşı and Karşıyaka Çarşı, the sub-centres shaped in close relation to Karşıyaka Waterfront – a very important urban green public space along the Bay.

6.1.2 Demographic Features of Karşıyaka

Karşıyaka is a district surrounded by Yamanlar Mountain and natural areas on the ridge, and with an increasingly congested urban texture towards the coast of İzmir Bay. As defined before it is the fourth biggest district of İzmir in terms of population. Karşıyaka, a dynamic sub-centre that establishes strong and complex relations with İzmir in many aspects, hosts an active population with a high population of young and middle-aged people, and a high population of elderly at the same time.

With high urbanization dynamics, it has become a district composed a total of 27 neighbourhoods with mostly urban character, where the rural character is mostly disappeared. There are only two (rural) neighbourhoods, which used to be village settlements but were transformed into neighbourhoods with the Metropolitan Law No. 6360 (2012) and gained neighbourhood status in 2015. These two neighbourhoods still maintain their rural character and contain a very small part of the population. While rural population rate was over 50% in the 1950s (Karakaya Ayalp, et al., 2023) the rural population figures decreased to 270 (0.1%) in the 2000s,

and it was recorded as 0 after the Law enacted in 2015 (TurkStat, 2020a). Karşıyaka is a densely populated district, where most of the population is concentrated in urbanized neighbourhoods narrowing in area and increasing in number towards the coastal part (See Figure 15)

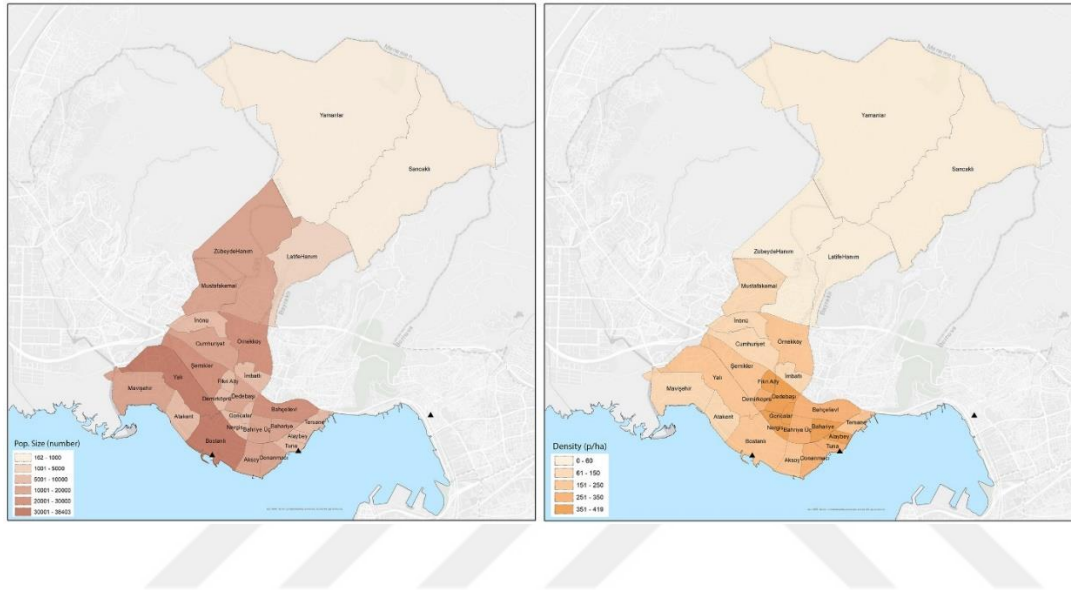


Figure 16: Neighbourhoods of Karşıyaka according to their population size (figure on the right) and population density (figure on the left) (Produced by the Author)

Today, the total population of Karşıyaka is 347023 people (TurkStat, 2020), and the population growth rate has been calculated as %1.2 (Karşıyaka Municipality, 2021). The urban population carried by urban neighbourhoods is 346700 people in total (TurkStat, 2020a). The largest neighbourhoods in terms of population are respectively Yalı, and Bostanlı with 37587, 31187 people and Şemikler follow them with 28956 people. Considering the population density, it is high in the neighbourhoods surrounding the centre of Karşıyaka such as Nergis, Goncalar and alike. When we look at the rural front, the population is very low at a considerable level. The sum of the two rural neighbourhoods is only 323 people (ibid.) and their population density is below 60 p/ha.

The population of the neighbourhoods and their changes in the last 10 years are given in the table below (See; Table 10). The neighbourhoods that have grown the most in the last 10 years are respectively İnönü, Şemikler and Yalı neighbourhoods. Dedebaşı and Demirköprü neighbourhoods also stand out among the one that have grown rapidly in recent years. Almost all of these have a growth rate of more than 40%. About the shrinking neighbourhoods, although the shrinkage rates are quite low compared to the growth rates, the first three of these neighbourhoods are respectively Aksoy, Donanmacı and Bahriye Üçok neighbourhoods. The shrinkage rates in these neighbourhoods are between 10% and 12%. For the rural neighbourhoods, the trend seems to be increasing in the last 10 years, but with a low rate (See Table 11).

Table 15: Neighbourhood populations in Karşıyaka and change in the last 10 years

	Neighbourhoods	2010 Pop.	2015 Pop.	2021 Pop.	Change in 10 years
Urban	Aksoy	12989	12319	11436	-12%
	Alaybey	7423	7566	7156	-4%
	Atakent	7589	7305	6921	-9%
	Bahariye	13263	13005	12287	-7%
	Bahçelievler	27465	27224	25955	-5%
	Bahriye Üçok	14138	13549	12537	-11%
	Bostanlı	34735	33078	31187	-10%
	Cumhuriyet	14333	13842	13665	-5%
	Dedebaşı	14508	1765	20272	40%
	Demirköprü	4680	5677	6754	44%
	Donanmacı	11702	11663	10180	-13%
	Fikri Altay	5267	6753	8126	54%
	Goncalar	9371	9259	9229	-2%
	İmbatlı	5562	5478	7265	31%
	İnönü	4868	7089	8261	70%
	Latife Hanım*	NA	1929	2242	16%
	Mavişehir	13770	13644	14129	3%
	Mustafa Kemal	7709	9318	10584	37%
	Nergiz	8966	8817	8042	-10%
	Örnekköy	17358	20124	23938	38%
	Şemikler	19221	23494	28956	51%
	Tersane	7244	7168	6573	-9%
	Tuna	6225	6036	5750	-8%
	Yalı	25264	34467	37588	49%
	Zübeyde Hanım	16140	16502	17667	9%
	Urban Total	309790	317071	346700	12%
Rural	Sancaklı	148	172	177	20%
	Yamanlar	123	122	146	19%
	Rural Total	271	294	323	19%
2021	Karşıyaka District	310061	317365	347023	12%

*Since Latife Hanım became a neighborhood after 2010, there is no population record for 2010. The change rate is calculated for 5 years between 2015 and 2021.

6.1.3 Socio-Economic Features of Karşıyaka

Karşıyaka is a city preferred by urban residents with its commercial sub-centres and residential areas close to these centres. Rapidly increasing residential areas with high-rise apartment blocks, large housing complexes extending towards the

periphery are indicators of this. On the other hand, the district centre has a very congested urban fabric, and has regions with high density. From this point of view, although it is known as one of the high-income regions of Izmir, the existence of a multi-layered socio-economic structure also manifests itself spatially.

According to the indicators on which SECAP is based, the socio-economic income level in Karşıyaka is composed of 64% upper and 36% lower income levels (Karşıyaka Municipality, 2021). It is also possible to read the socio-economic structure from the urban fabric. The existence of relatively high-income housing complexes and apartment blocks, especially located in the peripheral and coastal regions, can be shown as an indication that the urban residents of Karşıyaka are mostly composed of high-income groups. Main examples of this urban fabric can be seen especially in Mavişehir and Yalı neighbourhoods. In addition, Mustafa Kemal neighbourhood, which has been rapidly urbanized in recent years especially after the highway construction, is filled with large housing complexes. It can also be estimated that these regions are generally home to upper-middle and high income groups.

As a matter of fact, the income level map produced for the Food Strategy Document, based on the most current neighbourhood-based housing prices, also reveals this income distribution difference (Karakaya Ayalp et al., 2023b). As a result of this study, especially the residential areas confronting the coastline and the northern region with gated communities developed after the 2000s, are home to the high-income residents, while densely built urban areas in the district centre are seen to host relatively low-income residents. Other neighbourhoods differ between these two income groups, hosting mostly middle-income residents (See; Figure 17).

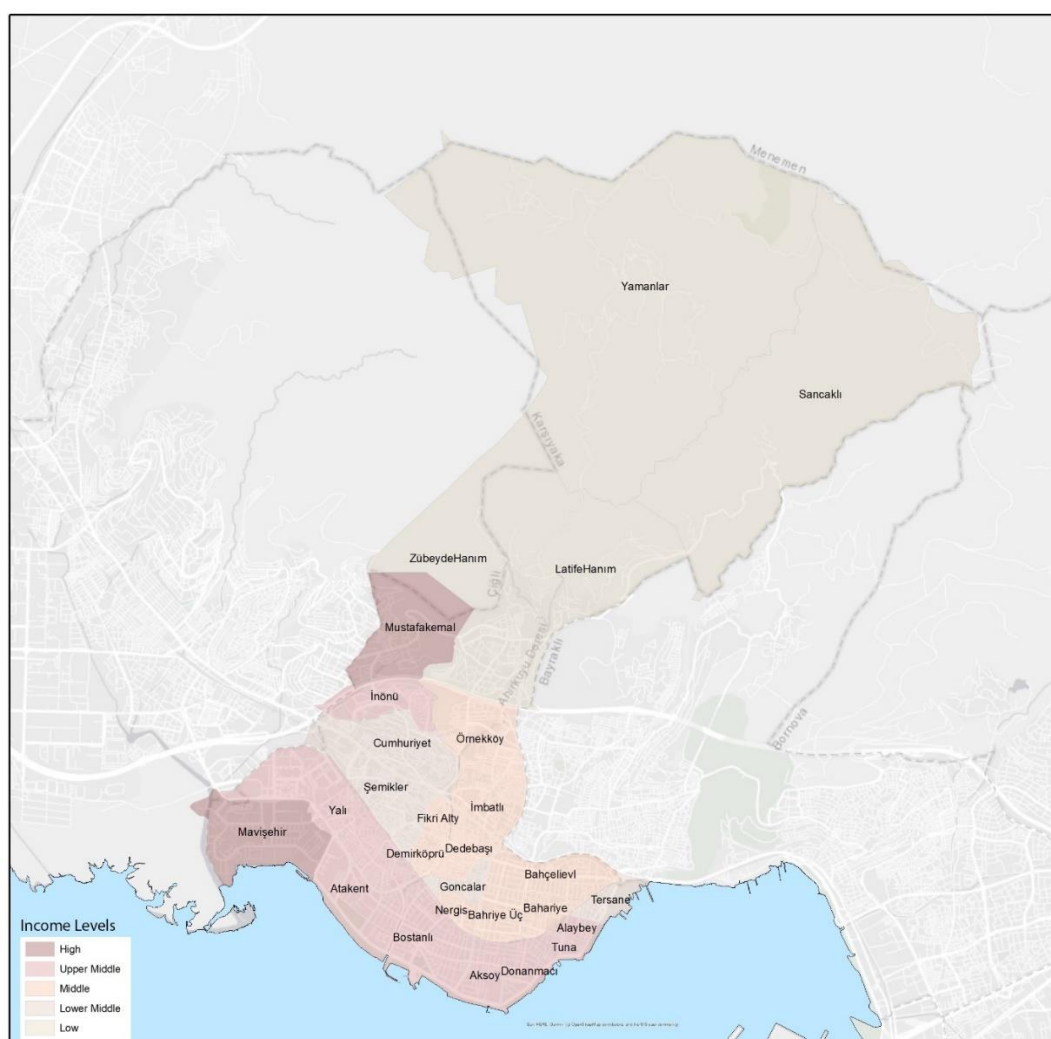


Figure 17: Map showing income distribution between neighbourhoods of Karşıyaka
(Source: Karşıyaka Food Strategy Document - Karakaya Ayalp et al., 2023b)

6.2 Local Food System Dynamics in Karşıyaka

Karşıyaka is a district with predominantly urban character, which has interrelatedly influenced the food system in term of its physical, spatial, and social features. While agricultural activities persist within the borders of Karşıyaka, these activities are limited to the rural neighbourhoods located in the north (Yamanlar and Sancaklı rural neighbourhoods). Consequently, food production within the district is notably insufficient to adequately support an urban area as densely urbanized as Karşıyaka. This shortage of local food production poses a significant challenge, preventing Karşıyaka from achieving self-sufficiency in food production and instead linking it to regional, national, and even global supply chains for its food provisioning. On the other hand, the high urbanisation dynamics leads to the urban functions to become more dominant within the district, bringing the consumption practices to the foreground across the region without any linkage to production processes. These consumption mechanisms become highly dependent on external sources for food provisioning, in order to feed growing population of urbanized Karşıyaka. Relatedly, the reliance on external sources for food supply leads to a predominance of consumption mechanisms with long supply chains within the food ecosystem of the district. As a result, Karşıyaka remains closely interconnected with broader regional, national, and even global networks for sourcing its food, ultimately hindering the development of a self-sustaining and locally resilient food system.

Given these complex dynamics, it becomes very important to comprehensively examine the local food system in Karşıyaka. This examination helps to a comprehensive analysis of the structure of the local food system, allowing a better understanding on the prevailing problems and their underlying factors, and suggest possible solutions. For this purpose, it is essential to unveil the food ecosystem, encompassing both dominant and alternative food mechanisms and the supply chains of which these mechanisms are connected. Following, it is essential to describe food city-region, taking its form via local supply chains within the close region. Moreover, it is also important to reveal the various food actors active within these supply chains and broader food system.

In this vein, this section will dive into an analysis of the local food ecosystem, unveiling local food mechanisms shaping food access, the supply chains at different scales and lastly the city-region of food consumed in Karşıyaka district. This analysis will help understanding on the unique dynamics at play. For this purpose, the dominant food-related mechanisms, their distribution and/or agglomeration within the city will be pursued, and the supply chains to which these mechanisms are connected to will be revealed. From this point of view, the relationship between the food consumption mechanisms and the production and distribution mechanisms will be explored. Thus, the city-region of the food consumed in Karşıyaka will be revealed based on the existing local or regional relationships. Later, the examination will include a comprehensive analysis and description of the actors directly or indirectly involved in this system, recognizing their significance as important components of the local food ecosystem. By addressing these critical components, it is aimed to build a comprehensive perspective on the local food system in Karşıyaka and identify potential areas for improvement, sustainability, and circularity.

6.2.1 Food System Mechanisms & Supply Chains in Karşıyaka

Since Karşıyaka is a completely urbanized region, it is seen that most of the mechanisms that form the local food system are concentrated at the consumption junction, organized around urban food consumption. In a local food system that contains such dense consumption mechanisms, deeper analysis of these mechanisms is required to understand the dynamics of the system and the conditions for access for food. This analysis includes both the examination of prevalent mechanisms for food access and consumption as well as the examination of new and innovative formations that form alternatives to the dominant mechanisms. For this, it is important to understand the nature and elements of food consumption.

Food consumption practices refer to the various ways in which individuals obtain, prepare and consume food. These practices are influenced by a combination of cultural, social, economic and environmental factors. Practices associated with food consumption are closely related to issues such as food choices, dietary patterns, and

consumption preferences as well as household consumption, food services and food supply channels. Understanding the mechanisms and infrastructures closely associated with food consumption is therefore the first step towards improving these services and triggering their sustainable transformation. It is important to note that food consumption practices and related infrastructures vary and are constantly evolving, influenced by changing socio-economic conditions, spatial configurations, cultural norms, technological developments, and environmental concerns. Understanding these relationships is critical to support healthy, sustainable, circular, and inclusive urban and regional food systems.

Especially in urban centres where commercial activities are concentrated, two mechanisms regarding food consumption reveal themselves. The first is the retail mechanisms that make food shopping and household food consumption possible. These units are supermarkets, small-scale commercial units (grocers, greengrocers, butchers, etc.) and neighbourhood bazaars or open markets that still hold an important place for domestic consumption in the cities of Turkey. The second is the food services, which are concentrated in the city centres and serve in the urban areas where commercial activities are concentrated. Examples of this are restaurants, cafes, fast-food units, as well as public service kiosks and municipal restaurants and cafes in recreation areas. In recent years, web-based platforms have been added to the food consumption services along with developing communication technologies. While these platforms both accelerate the access to food services, they also include online shopping activities in daily domestic consumption. Those mechanisms altogether form an ecosystem of food consumption services and form a basis regarding the consumption culture while being shaped in a mutual relationship with factors such as consumption preferences, dietary patterns, and household consumption.

Looking at Karşıyaka, it is seen that all these mechanisms are widely present in food consumption. In addition to the existence of supermarkets that dominate household shopping, it is seen that neighbourhood bazaars are still used intensively (Observation Notes 2; 3; 4). On the other hand, in Karşıyaka, as a very active region

with its urban functions serving the whole city of Izmir, food services are heavily existed in food consumption. Moreover, it has been observed that web-based platforms, which are likely to be accelerated by the pandemic, are also a part of food consumption in recent years (Karakaya Ayalp et al., 2023). In addition to all these, novel consumption mechanisms have emerged as alternatives to the dominant practices, in the face of increasing food inflation and decreasing access to clean and safe food in recent years. While some of these alternatives emerge under the leadership of civil society, some emerge as initiatives by primary local actors such as municipalities. Understanding these alternatives and analysing the new relationships they produce is very important for the healthy transformation of food systems.

Within this context, the initial focus is on the distinctive features of the local food system. The analysis begins with an exploration on identification of the characteristics, locations and accumulations of the various food consumption mechanisms within Karşıyaka. Analysis carried out within this framework includes identifying all mechanisms, both prevalent or alternatives ones, that urban consumers rely on their food access. Such mechanisms involve wide array of consumption units, including supermarkets, neighbourhood bazaars, traditional commercial units, food services, and such. Along with the identification of local concentrations on consumption mechanisms, the analysis also aims to evaluate the spatial disparities related to food access. Moreover, the supply chains with respect to their length, intermediate stages, geographical distances as well as waste and loss points, will also be uncovered.

At the same time, this section attempts to explore and present alternative supply mechanisms that differ from the mainstream ones. These alternatives primarily comprise initiatives from civil society such as NGOs and cooperatives, to challenge the predominant mechanisms. Additionally, alternative retail mechanisms initiated by municipal efforts such as retail markets, farmers market and eco-bazaars are considered. By describing all these mechanisms present at consumption junction,

this section will discuss the problems and potentials in terms of the transformation of food systems in detail.

6.2.1.1 Prevalent Consumption Mechanisms

In this section, a comprehensive examination will be conducted on prevailing food consumption units within Karşıyaka, with respect to their relationship with food consumption practices, local or regional supply chains, and food loss and waste streams. These units involve neighbourhood bazaars, which continue to have a significant place in food supply in Karşıyaka, traditional commercial units, which still have a role in household shopping, and supermarkets, which dominates consumption practices in the district as in all other urban areas. Among these three, supermarkets are the most preferred units for food consumption, however this consumption pattern shifts to the neighbourhood bazaars in daily fresh food shopping. Consequently, these two consumption units, namely supermarkets and neighbourhood bazaars, stand out as the mainstream food supply mechanisms operating at consumption junction in Karşıyaka. The locations of the mainstream consumption units are given together in the figure below (See Figure 17). Following, these mechanisms will be individually evaluated and presented.

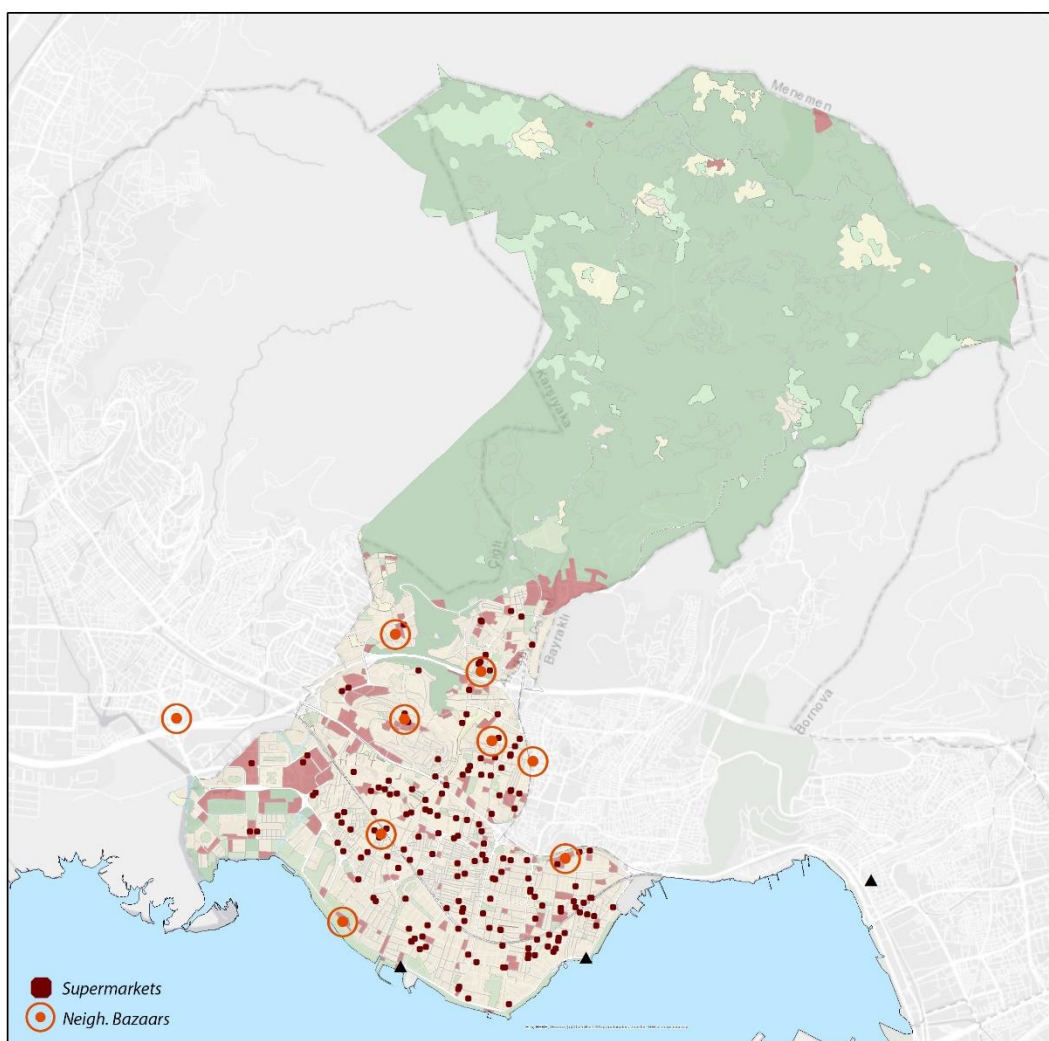


Figure 18: Units of food consumption and their spatial distribution in Karşıyaka
(Source: Produced by the author with data gathered from secondary sources¹⁰)

Upon the analysis of the spatial distribution map, disparities in access levels to different food retail units across various neighbourhoods become evident, highlighting spatial inequality in food access. Examination of the distribution of food units reveals distinct disparities in access levels among neighbourhoods. The

¹⁰ Karşıyaka Food Strategy Document, Karşıyaka Kent Rehberi, Google Maps and Open Street Map

relatively low-income neighbourhoods such as İnönü and Cumhuriyet, alongside high-income neighbourhoods such as Mustafa Kemal and Mavişehir emerge as neighbourhoods with low access to supermarket units. Particularly, Mustafa Kemal and Mavişehir neighbourhoods, where gated communities and luxury residential complexes are located, emerge as residential zones without mixed urban uses, thereby precluding the location of commercial units such as supermarkets. The deprivation here is directly linked to land use and development decisions. Moreover, western parts of Şemikler and Yalı neighbourhoods, both of which have a similar development pattern, exhibit low level of supermarket access. Addition to these, neighbourhoods characterized by high urban density, including Dedebaşı, Goncalar, Nergis, Alaybey, Bahriye Üçok, Aksoy, Donanmacı, and Tuna neighbourhoods, are the ones devoid of neighbourhood bazaars within walking distances despite the accessibility via public transportation. The eastern part of Bostanlı neighbourhood can also be added to this. While this region lacks neighbourhood bazaars, it displays sufficient density concerning other food retail units. Apart from all this, the devoid areas in terms of all units are the Semikler and Yamanlar rural neighbourhoods and the newly urbanized Latife Hanim neighbourhood in the northern part of Karşıyaka. These neighbourhoods stand out as scarce areas in terms of accessibility to essential food units and retail mechanisms.

In addition, accessibility analysis to food units were conducted on a neighbourhood basis within the food deserts synthesis, which is one of the basic analyses carried out within the scope of the Karşıyaka urban food strategy document. This synthesis, in which inequalities are revealed more strongly, also confirm the above mentioned deficiencies and unequal conditions in terms of food access among neighbourhoods.

Neighbourhood Bazaars

One of the mainstream food consumption mechanisms are neighbourhood bazaars, that are also known as open street-markets. These local bazaars, which local governments can easily establish, still have an important place among consumption

habits in Turkey (Koç et al., 2007). They have a significant share in urban consumption, as they are more affordable than other retail units and sometimes more accessible as they are located within neighbourhood centres in close walking distances. Interviews with consumers shopping from neighbourhood bazaars also supported the opinion that bazaars are cheaper than widespread supermarkets (Interview No. 11, 12, 15). Bazaars are also preferred consumption mechanism for daily access to fresh food (O. 1; 2; 3; 4). They are also seen as culturally accepted and pleasant forms of shopping (Karakaya Ayalp et al., 2023).

The neighbourhood bazaars set up in seven neighbourhoods within Karşıyaka. Some of them are neighbourhood-scale small bazaars and some of them are district level bazaars serve for more than one neighbourhood or to the district as a whole (See Table 11). These are especially Bostanlı Pazarı and Çok Katlı Pazaryeri. Although Şemikler bazaar set up in Yalı neighbourhood is not as big as the aforementioned bazaars, it is a bazaar that can serve for district-scale because it is crowded in terms of number of stalls, and it has relatively easy access by public transportation (O. 3). Moreover, there are two other bazaars set up by the close districts, which are considered as the ones that can also serve for household consumption due to their proximity to the residential areas in Karşıyaka. These are Bayraklı Yeni Girne Pazaryeri and Cigli Ataşehir Pazaryeri, which has a district level impact potential.

Although these bazaars generally supply food from outside of Karşıyaka and depend on regional and national food chains (See; supply chain figures), they are the most important mechanisms that can link food consumption to locally produced and clean products. As a matter of fact, especially in district scale bazaars, there are suppliers supplying food directly from the producer in proximity and there are limited number of stalls directly owned by the farmers and food producers (See; Table 11). In fact, some of these producers sell products produced by natural methods (Interview No. 9, 10, 14).

Table 16: Local markets with their spatial details (Source: compiled with data from field observations)

District	Bazaars	Neighbourhood	Day	Scale	Farmer Stalls
Karşıyaka	Bostanlı Pazarı	Atakent	Wednesday	District	Limited
	Cumhuriyet Kapalı Pazaryeri	Cumhuriyet	Sunday	Neigh.	No data
	Çok Katlı Pazaryeri	Bahçelievler	Thurs. – Sunday	District	Limited
	M. Kemal Mah. Pazaryeri	Mustafa Kemal	Friday	Neigh.	None
	Örnekköy Pazaryeri	Örnekköy	Sunday	Neigh.	No data
	Şemikler Pazaryeri	Yalı	Thurs. – Friday	District	A few
	Zübeyde Hnm Pazaryeri	Zübeyde Hanım	Saturday	Neigh.	A few
Bayraklı	Yeni Girne Pazaryeri	Yeni Girne	Friday – Sunday	District	No data
Çiğli	Ataşchir Pazaryeri	İstasyonaltı	Saturday	District	No data



Figure 19: Photos from Bazaars – Bahçelievler Çok Katlı Pazaryeri (Source: Personal Archive)



Figure 20: Photos from Bazaars – Zübeyde Hanım Pazaryeri
(Source: Personal Archive)

Since the neighbourhood bazaars hold an important place in daily food consumption, they are also of great importance in terms of food access and distribution. In this context, it is important to investigate the supply chains to which these bazaars are connected. Again, these connections and supply chain structures are not independent of the urbanization dynamics of Karşıyaka. As Karşıyaka is a densely urbanized sub-region without any direct linkage to agricultural production mechanisms, the food supply and distribution is dependent on upper-scale metropolitan region and related external retail mechanisms. This triggers the stretching of supply chains away in terms of food supply. In this context, supply chains are expected to be longer on a regional, national or even global scale. This situation is no different in neighbourhood bazaars and their food supply. On the one hand, it is thought that local bazaars allow for more local chains because they are set up at neighbourhood scale and the producers or intermediaries in direct contact with the production mechanisms. However, on the other hand, contrary to popular belief, neighbourhood bazaars are one of the mechanisms connected to regional and national supply chains where food travels long distances and over many intermediaries. It has been observed that the number of stalls set up directly by the producers in the bazaars is quite limited among the marketers who open stalls as a part of this intermediary system (See; Table 11 above). Local, regional or national chains built through this multi-intermediary system or directly through the producer presented in detail in the following.

Neighbourhood bazaars that appear as a preferred retail and consumption units in an urban section like Karşıyaka, they host 2 different supply chain models¹¹. First model is an example of shorter chain in which the food reaches the stalls directly through the producers or the agents that have direct contact with the producer (e.g., stallholder, family member, neighbour, or an intermediary). In this chain, it is easier to reach the producer and the amount of waste, product loss, distribution cost and associated emissions produced along the chain is much less.

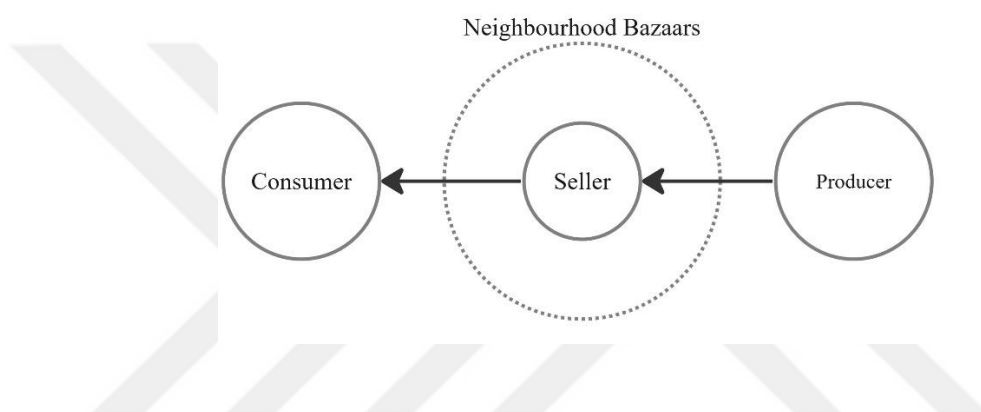


Figure 21: Shorter supply chain model seen in neighbourhood bazaars in Karşıyaka

The overall trend for supply chains in neighbourhood bazaars reflects the secondary chain model, where the primary model was seen quite rarely. This secondary model is an example of longer chains where food is mostly transported to the bazaars through intermediaries. The food produced in this chain goes through many stages until it reaches the consumer. The most important stage here is the wholesale market¹², where all the food products are gathered, offered for sale and sold to the intermediaries or stallholders by wholesale. The products bought by wholesale from

¹¹ These models have been derived from the field observations and in-depth interviews conducted within the neighbourhood bazaars in Karşıyaka.

¹² Wholesale markets are known as “hal” in Turkish.

wholesale market are delivered to the bazaars through intermediaries or directly through the stallholders to meet the consumers. The problem here is that the source of food products is multiple and is connected to mostly regional and national but also global chains. The availability of products directly through producers is very limited. In this process, chains become quite long, multi-actor and multi-intermediary, while the distance between producer and consumer is widening and the problems such as food loss, waste and related emission reach at highest level.

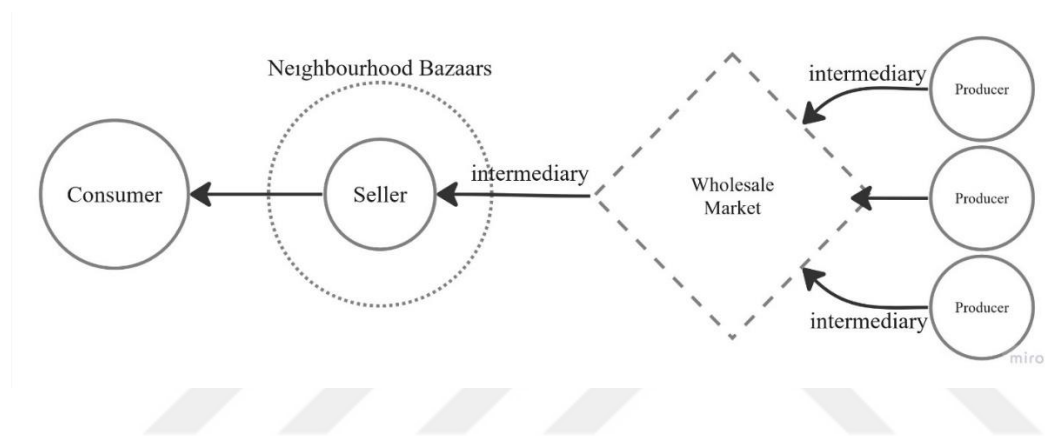


Figure 22: Supply chain model commonly seen in the neighbourhood bazaars in Karşıyaka

When looking at the waste processes within the supply chains of fresh daily products, it becomes evident that FLWs are seen at multiple stages. One of the stages is the wholesale market stage, which serves as a central hub for the collection and redistribution of various fresh food products, especially fruits and vegetables. At this stage, significant quantities are known to be lost or wasted (Interview No. 22). Another critical point for waste generation within the supply chains is the local bazaars where the product meets the consumer. The bazaars are noteworthy in terms of food waste generation at retail stage (O. 1, 2, 3, 4; See Figure 23). This is a crucial problem that needs attention and intervention to reduce waste at local level. Moreover, the FLWs are not limited to the bazaars or wholesale markets alone. The distribution process itself is another significant stage for FLW generation, which occurs due to the various factors such as transportation issues, handling practices,

inadequate storage facilities, as confirmed by the interviews with stallholders (Interview No. 8, 13).



Figure 23: Food wastes within the neighbourhood bazaars in Karşıyaka
(Source: Personal Archieve)

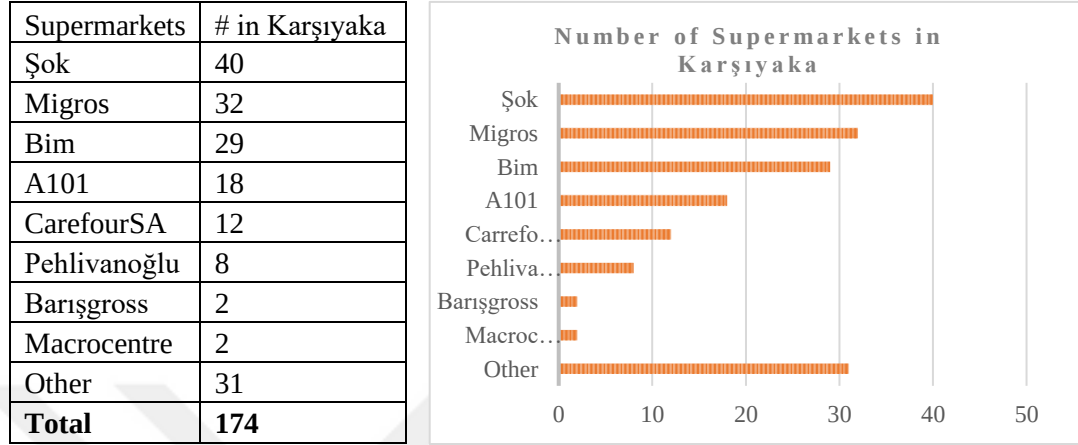
While FLWs is predictably less in the shorter supply chains, the amount grows much more when the chain goes longer. In this context, shortening the chains is important, especially for circularity. While shortening the chain also reduces transportation costs, it also reduces unnecessary emissions and resource usage (energy/water, etc.) that occur during the distribution process, which is one of the most important parameters of circularity. The easiest and fastest way to do this is to increase the number of stalls of the direct producer or the people in contact with the producer and to produce market strategies to encourage the proliferation of these stalls. Besides to this, the way to prevent and reduce this fresh food waste within the system is through more organized collection, redistribution and revalorisation mechanisms, serving as circularity elements for a circular food system.

Modern Retail Chains

While the consumption culture has been transforming since the 1980s, with the rapid increase of modern retail chains in cities and the disappearance of traditional commercial units due to the reasons such as urban rent and competitiveness; supermarkets have come to the fore in food distribution and consumption processes (Reardon, 2006). It is possible to say that supermarkets – as modern retail trade units, dominate consumption habits, especially in highly urbanized regions like Karşıyaka. These important retail mechanisms, which connect food supply to national and even global chains, are seen as units that prevent access to local food in food consumption. However, they actually have the potential to affect food consumption habits with their strong organizational structures (Grin, 2012; Ooesterveer, 2012). These retail services can influence food consumption through product placement, marketing strategies, and the availability of different food options. So that, they play a significant role in shaping consumer choices and promoting certain food products or brands (Ooesterveer, 2012). It is possible for these products to evolve into organic, nutritious and healthy products over time, as some examples have already begun to appear in Turkey (e.g. Macrocentre initiated by Migros Company). However, these trials still appeal to high income urban residents and therefore have difficulty in spreading to all urban residents with different income groups.

Supermarkets have an important place in daily shopping in Karşıyaka as in all other urban regions. Supermarkets are present in almost all neighbourhoods throughout the district. It has been determined that there are 18 different supermarket chains operating within the borders of Karşıyaka district, varying in different sizes from large-scale chains to local-scale ones (Karakaya Ayalp et al., 2023). Looking at the number and distribution of the supermarkets throughout the district, supermarket chains with the largest number of units consist of national or international supermarket chains operating throughout Turkey. The most seen supermarket units are Şok supermarkets, which is a national discount chain, with 40 units and it is followed by another chain and a national brand named Migros, with 32 units.

Table 17: The number of supermarkets according to the market chains
(Source: Karşıyaka Food Strategy Document – Karakaya Ayalp et al., 2023).



The distribution of supermarkets by neighbourhoods is given in the Table 13. Accordingly, the neighbourhoods with the highest number of supermarket units are Yalı, Örnekköy and Şemikler neighbourhoods, which are urban neighbourhoods with high population density. Neighbourhoods with the fewest units are Latife Hanım and Mustafa Kemal neighbourhoods, which have become urbanized in recent years due to the growing urbanization towards the peripheral neighbourhoods. There are no supermarkets in Yamanlar and Sancaklı that are rural neighbourhoods preserving their rural characteristics. These are convenient with the spatial distribution map and its analysis given in the beginning of this section.

Table 18: The distribution of supermarkets among the neighbourhoods
(Source: Karşıyaka Food Strategy Document – Karakaya Ayalp et al., 2023).

Neighbourh. / Supermarkts	Aksoy	Alaybey	Atakent	Bahariye	Bahçelievler	Bahriye Üçok	Bostanlı	Cumhuriyet	Dedebaşı	Demirköprü	Donanmacı	Fikri Altay	Goncalar	İmbatlı	İnönü	Latife Hanım	Mavişehir	Mustafa K.	Nergiz	Örnekköy	Sancaklı	Şemikler	Tersane	Tuna	Yalı	Yamanlar	Zübeyde H.	Total
Migros	2	2	-	1	2	2	4	2	1	1	1	-	1	1	-	-	1	-	1	2	-	2	1	1	4	-	-	32
CarrefourSa	1	-	1	-	1	-	1	-	-	1	1	-	-	-	2	-	-	-	-	-	-	-	-	-	3	-	1	12
Macrocentre	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	2
A101	1	-	-	-	3	-	-	-	2	-	2	-	-	1	-	-	-	1	-	3	-	1	1	2	-	-	1	18
Bim	1	1	-	3	1	-	2	1	3	-	-	1	2	2	-	1	-	-	-	-	-	4	-	1	4	-	2	29
Şok	2	1	-	4	2	1	2	1	4	2	-	3	-	-	1	-	-	-	2	3	-	3	1	2	4	-	2	40
Pehlivano.	-	-	-	1	1	-	1	-	1	-	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-	-	1	8
Gürmar																											7	
Other*	-	-	1	2	1	-	1	-	1	-	1	-	1	5	-	-	-	-	2	7	-	3	-	2	3	-	1	26
Total	7	5	2	11	11	4	11	4	12	4	5	4	5	10	3	1	2	1	5	15	-	14	3	8	19	-	8	174

Other supermarkets include Aysaş (1), Birmar (1), Başdaş (2), BarışGross (2) Halkmar (3), Kibaroglu (3), Kim (1), Kipa (1), Seç (5), File (1).

The rapid rise of supermarkets seen after 1980s, has created a novel form of relationships in terms of food supply systems, which is different from the traditional food supply systems. These modern mechanisms, based on central purchasing and distribution channels, enable the establishment of national and global network relationships in the food system (Reardon, 2006). This has changed the structure of food supply chains and brought them to national and global dimensions. Within such a network structure, supermarkets have spread rapidly in urban areas and again rapidly changed the daily food consumption pattern (Ooesterveer, 2012). Increasingly, supermarkets have gained an important place in shaping supply mechanisms as well as food access within urban areas.

Today, supermarkets, as modern retail units, hold the prevailing place in food supply and consumption in most urbanized areas, as well as in Karşıyaka. When the supply chains of these modern retail units are examined, it is known that each of them has its own supply mechanisms, processes, and relationships, centred around centralized procurement using distribution centres (Reardon, 2006). These centres are also called central purchasing warehouses. Supermarkets chains on a national or global scales adopts a product supply and distribution strategy by establishing purchasing centres in different subregions, where the food products are collected from contracted producers or suppliers. These centres also work as distribution centres, where the product distribution is made to retail units or stores from these central warehouses.

Most of the retail chains typically provide food products through central purchasing warehouses, often established at the regional or national level. Using this centralized system, modern retail chains have moved from local purchasing to central one. Accompanying this system is the expansion of the purchasing area from local sourcing towards national, regional and global networks, where the provision of national or global products that are processed and packaged within long food supply

chains¹³ is possible (WorldFood Istanbul, 2023). In some cases, the perishable products such as fresh food products can be sourced from local suppliers within close region. However generally, this central purchasing strategy triggers the stretching of supply chains away in terms of food supply. In this context, supply chains of supermarkets are longer on a national or global scales, as expected (Reardon, 2006).

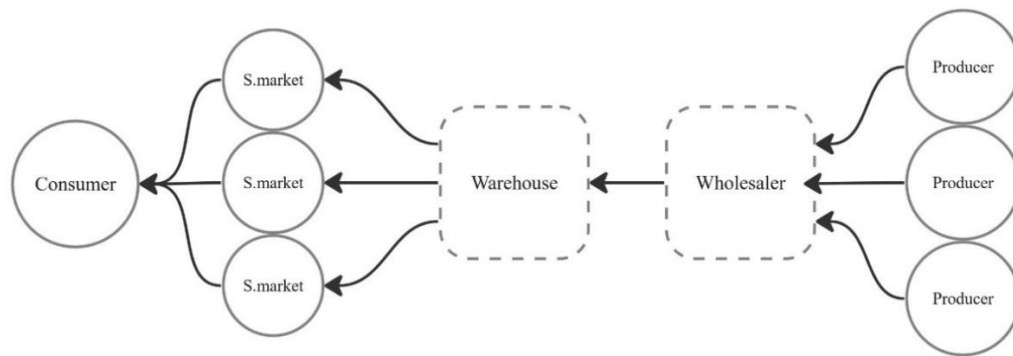


Figure 24: Supply chain scheme seen in supermarkets in general (derived from the websites of major supermarket chains)

Modern retail chains are known to contribute a relatively small share of waste in comparison with other stages in the food system (FAO, 2019b). However, this doesn't mean that the modern retail doesn't generate food waste. In fact, food waste levels are quite high especially when it comes to perishable products, such as fruits and vegetables, and dairy products. Moreover, disposal of expired food is also added to these waste levels. It is important here to prevent wastage of surplus edible food, which could be achieved through a more organized structure of the modern retail chains. Methods such as tracking technologies, smart shelves, demand prediction, smart ordering, dynamic pricing such as discount on soon-to-expire products can

¹³ Retrieved from: <https://worldfood-istanbul.com/tr/market-insights/ranking-turkeys-leading-supermarket-chain>

help reduce avoidable waste. Building partnerships to donate food to platforms such as food banks, charities, solidarity platforms can also enable the redistribution of surplus edible food. It is known that these practices are rare in Turkey, and none of the practices has been observed in Karşıyaka.

Traditional Commercial Units

These small-scale, neighbourhood-based traditional commercial units, whose numbers are now decreasing, include small-scale food supply units such as small markets, grocery stores, butchers, greengrocers, bakeries and alike. These units, which have an important place in daily shopping in terms of access to fresh products, have a small place in household food consumption when compared to supermarkets or neighbourhood bazaars. Especially after the spread of supermarkets, these units, which can be said to have decreased in number by succumbing to market competition, still exist in daily food shopping and consumption in Karşıyaka. These traditional units, just like the neighbourhood bazaars, are important supply mechanisms that can associate food consumption with locally produced, cleaner and fresh products.

The supply chain of commercial units is similar to the supply chain of neighbourhood bazaars. However, the supply chain varies depending on the type, size and product pattern of these units. For small-scale green grocers providing fresh food products, the chain is connected to the wholesale market, where the products are supplied through intermediaries reach the consumers via long supply chains. For other types of commercial units, such as bakeries or butchers, or mini neighbourhood markets, the chains vary depending on the product patterns. While some are connected to cold chains and cold storages instead of wholesale market, some are connected to large food warehouses where processed products are collected. But still, each of them has evolved into a chain structure that is mostly dependent on intermediary institutions or actors that transport goods from these warehouses, markets or wholesale structures until meeting the consumers.

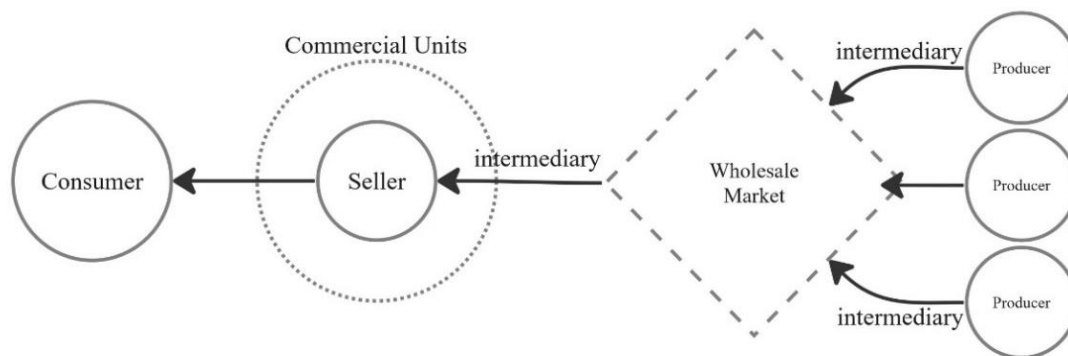


Figure 25: Supply chain model commonly seen in the small groceries in Karşıyaka

These traditional commercial units present a potential as important as neighbourhood bazaars in terms of localization of the food system, as they have long been important units at the food consumption junction. Since they function directly within neighbourhood scales, they can be a part of a mechanism that directly connect local food consumption with local food sourcing (Interview No. 38). Although they are generally excluded from studies related the food system, which the bazaars or modern retail chains mostly dominates, their contributions to the system should be deeply investigated. Moreover, it is obvious that they should be included and represented more within studies related to urban food system.

Food Services

Food services play a significant role in shaping food consumption practices. They encompass various businesses involved in preparing, serving, and delivering food to consumers. These services offer prepared food at a wide range of service areas such as dining restaurants, fast food chains, cafes, bufes and alike. Among these, restaurants and cafes are more prominent and they provide a wide range of food options to consumers, offering diverse menus and dining experiences. Hence, they influence food consumption habits by shaping choices, portion sizes, and preparation methods. Different types of restaurants, such as fast food chains, fine dining

restaurants, and casual eateries serve for varying consumption preferences and budgets. Food services have become increasingly widespread and especially fast-food restaurants and cafes has become a part of daily life especially in highly urbanised metropolitan cities.

Food services are important mechanisms in food consumption, where they have an important role at the consumption junction. For this reason, they should be discussed briefly, although they are not the main subject of the thesis. As the structure of food services is quite complex, they require detailed analysis. Food services include many different structures, from small-scale businesses to chain structures, from hotels to casual eateries, thus establishing relationships with many different food supply chains and producing different waste streams. Therefore, food services are an important research topic that needs to be addressed and researched in detail.

To briefly mention the food services in Karşıyaka, it is known that food services such as restaurants and cafes are quite common in the district. Along with the rapidly increasing population and urbanization dynamics due to reasons such as strong urban relations with the Izmir metropolitan area and hosting important commercial and residential areas serving the metropolis, it is seen that food services are rapidly becoming widespread in Karşıyaka. When looking at their clustering, they are generally concentrated in the activity areas along the coastline, in areas where transportation networks are dense, and in district centres such as Karşıyaka and Bostanlı Çarşı, which also serve as sub-centres for the Izmir metropolitan area. Among the food services in the district, there are many small-scale local gastro units as well as many fast-food chain restaurants.

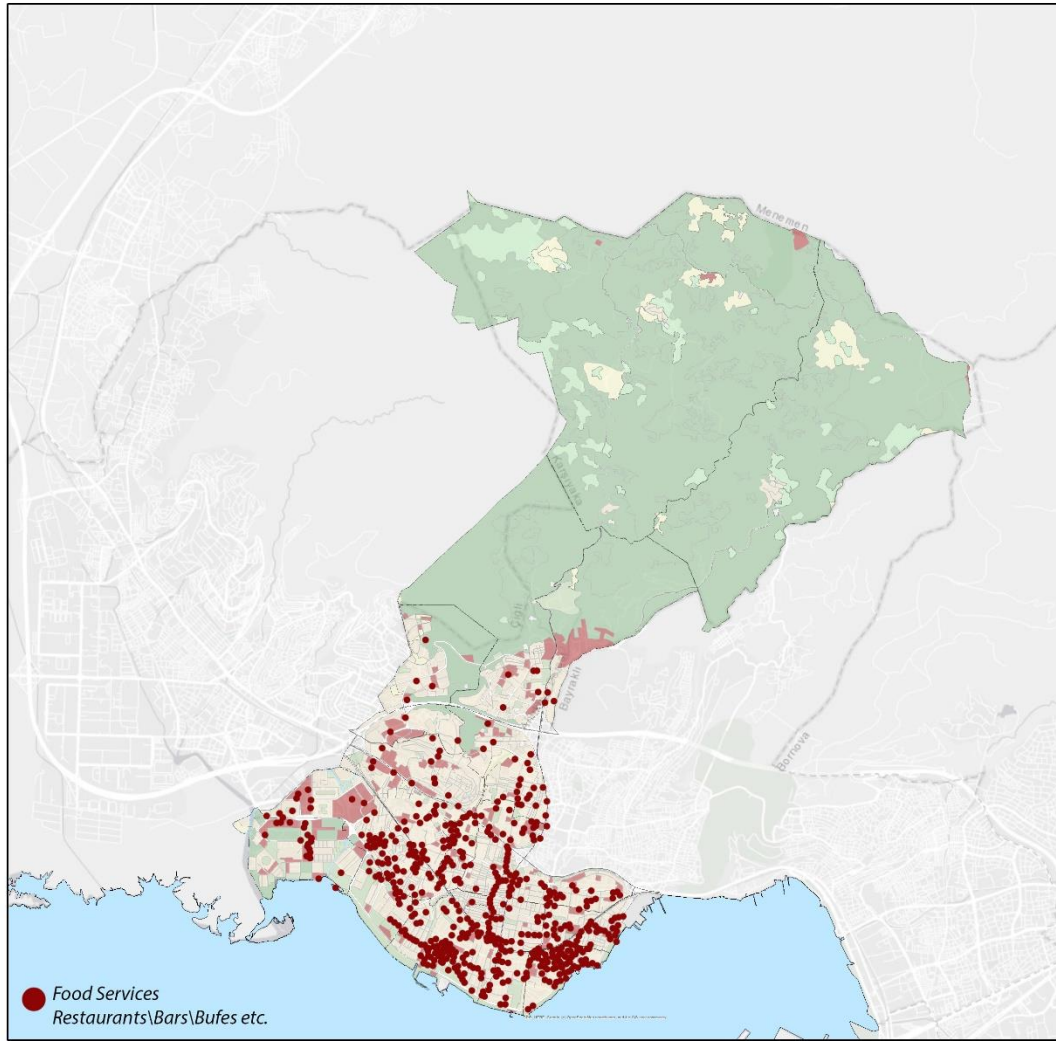


Figure 26: Spatial distribution of food service units and their clustered regions
(Source: reproduced by the author from Karşıyaka Food Strategy Document, Karakaya Ayalp et al., 2023)

Food services, whether local units or fast-food chains, establish relationships with complex supply chains. While local gastro units mostly provide their food from warehouses that supply ready-made food products, fast food chains rely on centralized distribution services, just like supermarkets. This centralization again entails the centralization of production and distribution processes, often with centralized facilities that prepare food components and distribute them to multiple locations. Both supply mechanisms show that food services are again dependent on

long supply chains and are moving away from local sourcing and spreading to national and even global chains.

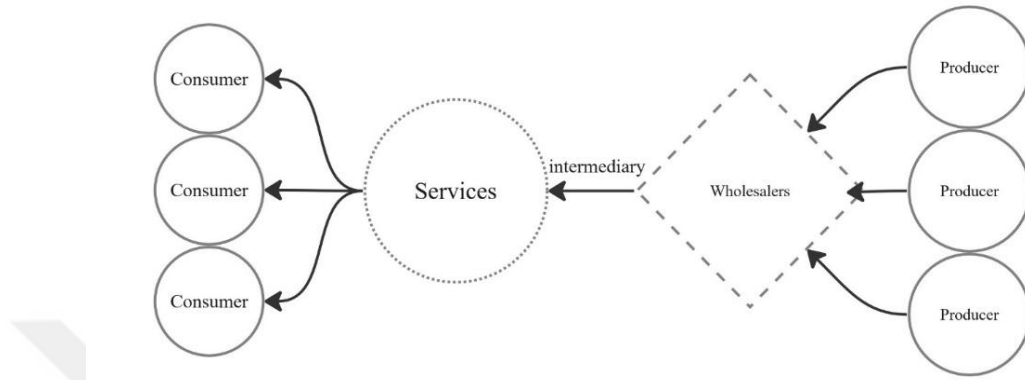


Figure 27: Supply chain scheme seen in small-scale food services and in fast-food chains

Food services are at the forefront in terms of food waste generation, where they are increasingly related to high amount food waste especially at consumption points. This issue is multifaceted, where the waste generated within food services is associated with the unavoidable food waste that occurs during the meal's production as well as leftovers and surplus edible food. There is also additional waste stemming from packaging materials like plastic, paper, glass and so on. Thus, the food waste problem in the food service sector presents a complex challenge, involving difficulties managing it effectively especially in densely urbanized regions where a variety of food services take place. Tackling this problem demands comprehensive reduction strategies which include separation, collection, and redistribution practices regarding food waste and surplus edible food. Despite the presence of a variety of food services within Karşıyaka, no effort has been observed and this issue has remained far from being addressed.

Municipal Food Service Areas

Another important food service units are the ones operated by municipalities. They are generally located within the public spaces and recreational areas, for the purpose of serving high quality but affordable food to the urban residents. The fact that these units are public service units under the control of the municipality and located in accessible points in public areas constitute a great potential for urban food systems in terms of providing local, and ecologically produced food by reorganizing their supply mechanisms.

Looking at the public food services within Karşıyaka district, it is seen that these services have been present in the neighbourhoods where the population is historically concentrated, and the newly developed northern neighbourhoods lack these services. Increasing them is important in terms of increasing the access within all neighbourhoods to the public food services.

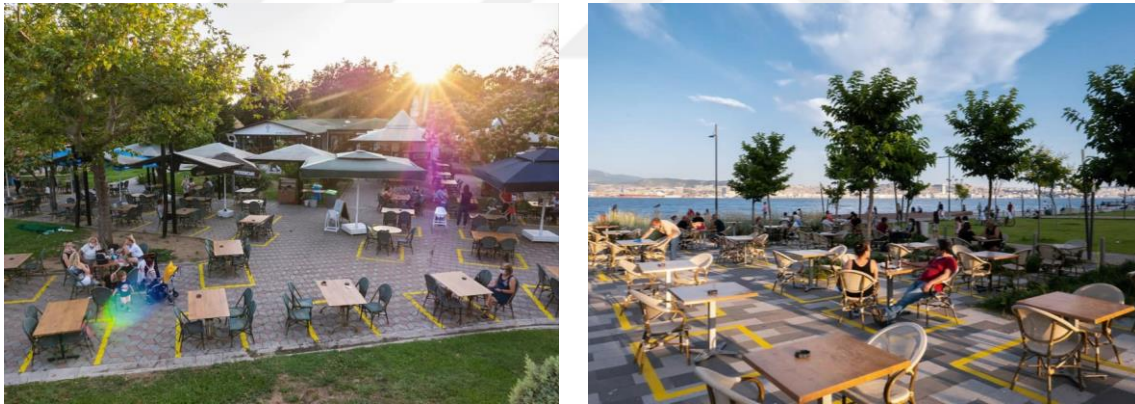


Figure 28: Municipal Food Services in Karşıyaka
(Source: Karşıyaka Municipality Archieve, 2023)

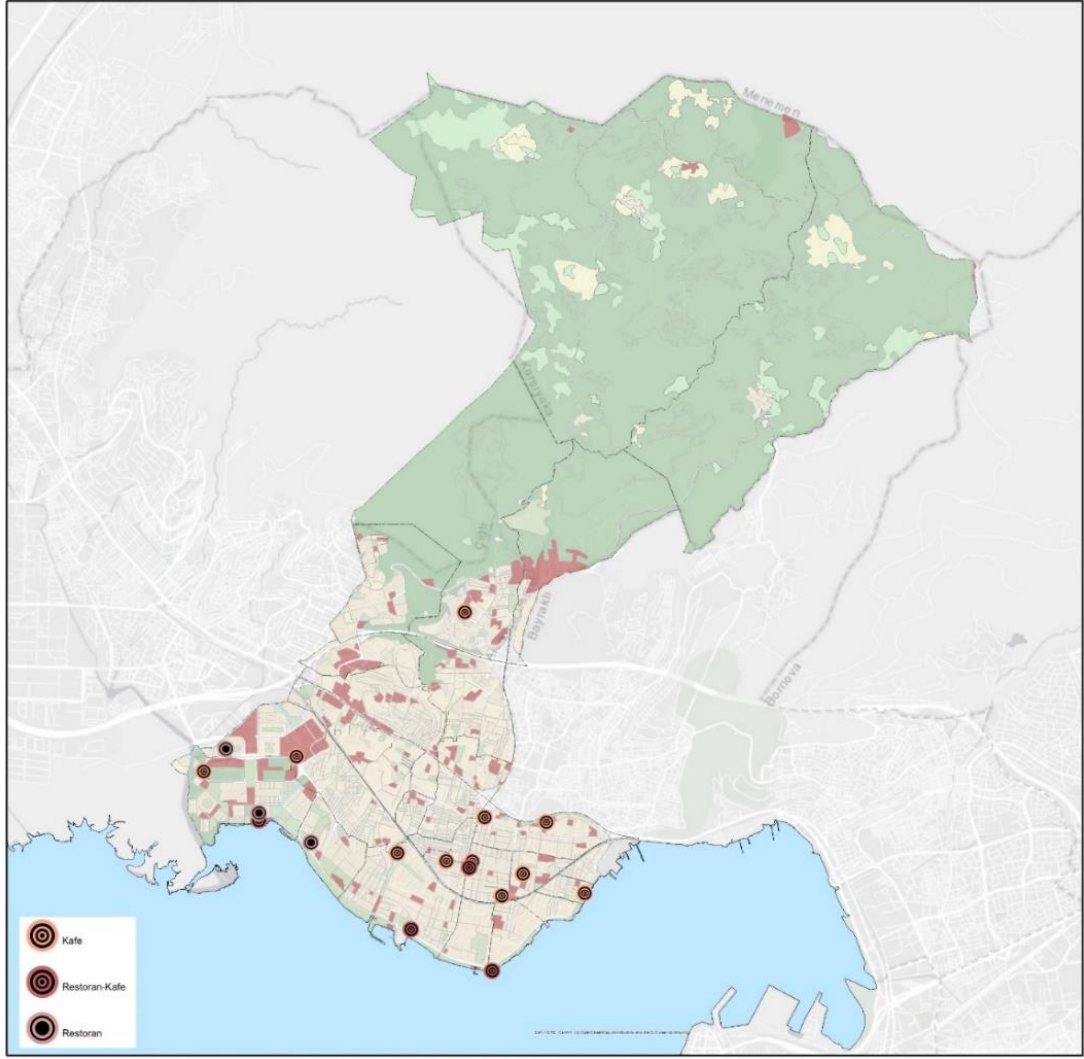


Figure 29: The location of municipal food service units
(Source: produced by the author from Karşıyaka City-Guide Platform, 2023)

It has been observed that the tendency towards municipal services in food services has increased due to these reasons such as increasing food prices, reliability, and affordability. Related to this, increasing the number and location of these services, offering more diverse services, and enhancing their accessibility is important in terms of social food consumption. Another important potential of these services is that they enable public food procurement from local cooperatives and local producers and suppliers, especially through municipal mechanisms. For this, these

services are very important mechanisms for supporting the supply and consumption of local foods.

6.2.1.2 Alternative Mechanisms of Consumption

Alternative forms of consumption are the consumption patterns that are supported by alternative food supply mechanisms. These alternative food supply mechanisms are the ones that directly connect producers to consumers without any intermediaries. Producer and consumer cooperatives and cooperative markets that enable cooperative products to reach consumers directly, as well as alternative local markets and producer markets where local, ecological and organic products are sold are examples of these. In addition, networks formed by ecology-oriented associations such as food communities can also be cited as one of these mechanisms.

There are small number of alternative forms of supply mechanisms in Karşıyaka, including alternative retail markets initiated by the local and metropolitan municipality as well as markets initiated by local and regional producer and consumer cooperatives. In addition to these, there are three bazaars set up at Bostanlı neighbourhood, one is permanent, one is initiated by Karşıyaka Municipality and the other one is set up by Izmir Metropolitan Municipality. At the same time, an alternative consumer-initiated food community take place in Karşıyaka, named as GETO.

Table 19: Consumer Cooperatives & Food Communities in/around Karşıyaka

Name	Type	Scale
Imbat Consumer Cooperative	Cooperative	Karşıyaka
GETO	Food Community – TDT	Karşıyaka
Izmir Ege Production and Consumption Cooperative	Cooperative	Izmir

Table 20: Alternative retail units in Karşıyaka

Alternative Markets	Number	Scale	Location
Imbat	-	Karşıyaka	Bahariye - Former Food Centre
Kent Market	4	Karşıyaka	Bostanlı Cumhuriyet Mustafa Kemal Örnekköy
Halkın Bakkalı	1	Izmir	Bahriye Üçok
AOÇ (Atatürk Food Forest)	1	National	Imbatlı
TKK (Turkey Agricultural Credit Cooperative)	4 1 – Outside	National	Demirköprü Nergis Şemikler Imbatlı Yeni Girne
Alternative Bazaars			
Farmers Market	1	Karşıyaka	Bostanlı
Organic Food Bazaar	1	Izmir	Bostanlı
Farmers Bazaar	1	Karşıyaka	Bostanlı - Permanent



Figure 30: Photos of alternatives in Karşıyaka – Bostanlı Farmers Bazaar (left) and Ecobazaar as organic food bazaar (Right)
(Source: Personal Archieve)

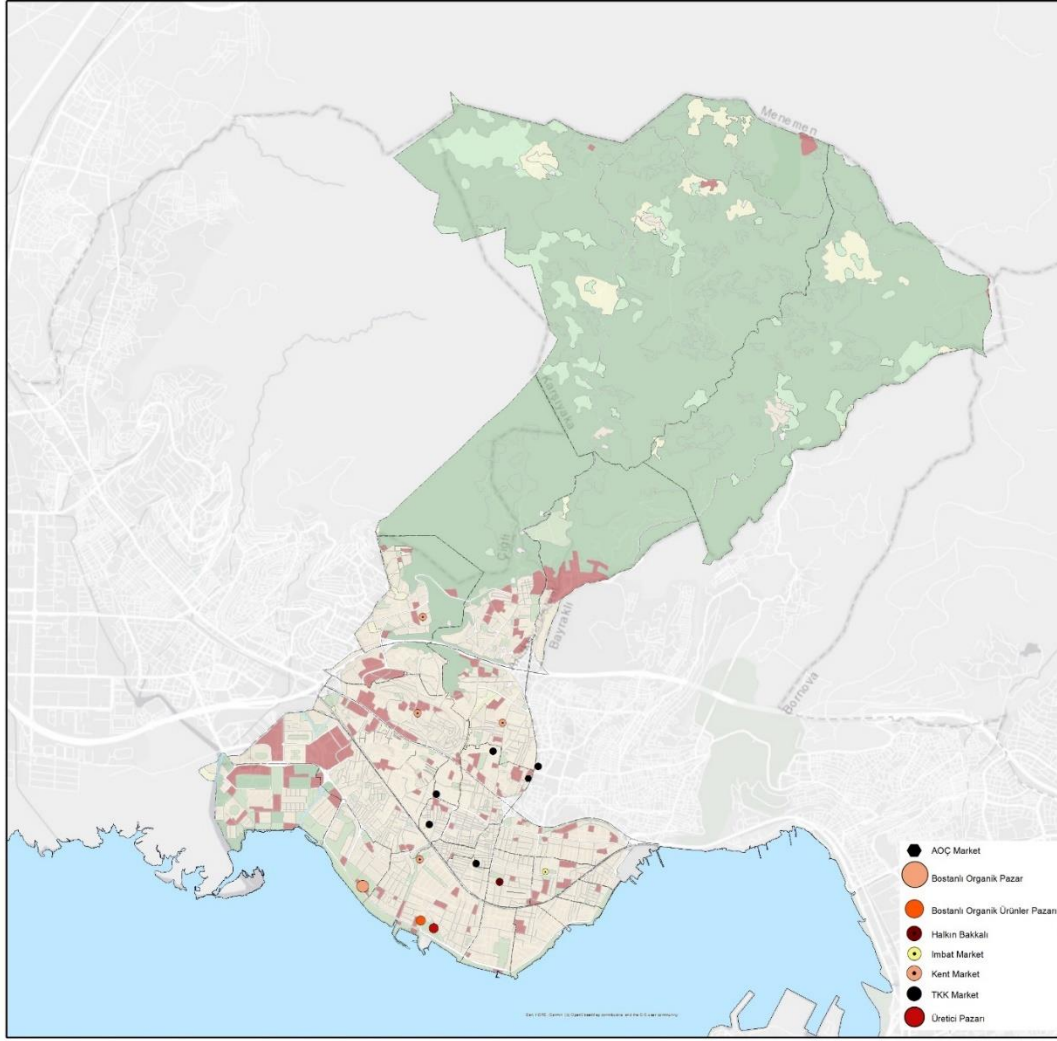


Figure 31: The location of alternative food retail units
(Source: produced by the author from Google Maps, 2023)

When the supply chain of the alternatives is examined, it is observed that both mechanisms deliver food products directly to the consumer, thereby eliminating intermediaries. In the case of consumer cooperatives, the intermediary presence is partially reduced to the cooperatives that procure products directly from producers and the retail points where these products are become available for sale. This model is an example of a shorter chain in which the food reaches the cooperative markets directly through the producer cooperatives. In here, the cooperatives are in cooperation. This is also an example of a chain in municipal retail mechanisms where

the municipality supports and marketize cooperative products. In food communities, more direct and symbiotic relationships are established between producers and consumers. Remarkably, consumers often turn into active participants in the production process, effectively becoming prosumers. This close collaboration mitigates various undesirable processes within production and consumption such as chemical use, plastic packaging use and waste generation, fostering a community-driven environment where negative externalities are substantially decreased.

In the cooperative markets model (Interview No. 29), food loss and waste are very low, while in the food community model it is completely eliminated. The producers within the food community model, who are already committed to ecological methods of production, has an ecological approach toward waste. They routinely repurpose all organic waste generated in their production processes, utilizing it for purposes such as animal feed, composting, and soil regeneration. In this inherently circular system, producers actively minimize waste by utilizing it in their production and consumers contribute to this by responsible purchasing decisions. Within this system, any residual waste is returned to producers for integration into subsequent production cycles (Interview No. 25, 27). This self-sustaining and circular organization exemplifies an environmentally conscious model where waste is not just minimized but is integrated into the production ecosystem to further enhance sustainability.

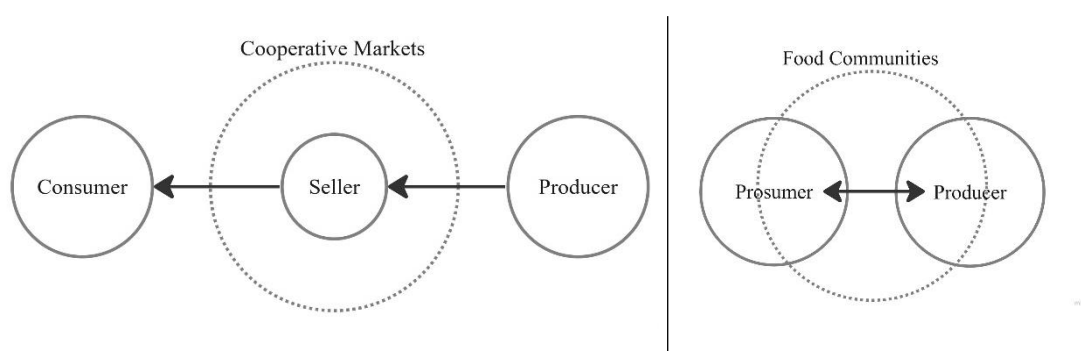


Figure 32: Short supply chain models seen in alternative forms of retail and consumption

6.2.2 Food City Region of Karşıyaka

After the discussions on the reorganization of the food system at urban or region scale, defining city-regions of food supply has gained importance in order to understand the production and supply features of the urban food systems. The aim here is to define the production regions where the food supply is connected, explore production methods in these regions and establish mechanisms that could connect food supply with local and ecological production. At the same time, shortening the distances in food supply is another important point. Within this context, the food city-region of Karşıyaka should be determined in order to discuss the local food system features and dynamics related to food production, supply and consumption.

There are different practices for determining this region, which are compiled in the City Region Food System Toolkit published by FAO (2018). One common criterion to define the city region boundaries is often the food flows, in other words the sources of the food consumed in the district. Also, administrative boundaries, population density, land use characteristics, production areas in close surrounding and physical features in and surrounding the urban area such as rivers, lakes, mountains, hills, forest are seen as important for defining the food city-region (FAO, 2018).

A comprehensive city-region was identified in detail based on the FAO methodology and criteria mentioned above, through the analyses carried out within the scope of the Urban Food Strategy Document for Karşıyaka. Considering this determined urban region, it is seen that Karşıyaka is a dependent urban section in terms of food production due to the limited agricultural land, limited agricultural activities and limited production capacity within its borders. In this sense, it can be assumed that a consumption-intensive region like Karşıyaka is dependent on the productive areas with agricultural production in its immediate vicinity in terms of food supply. Moreover, it has been revealed in this analysis that the food system in Karşıyaka is shaped by a multi-intermediary system within the whole (Karakaya Ayalp et al., 2023).

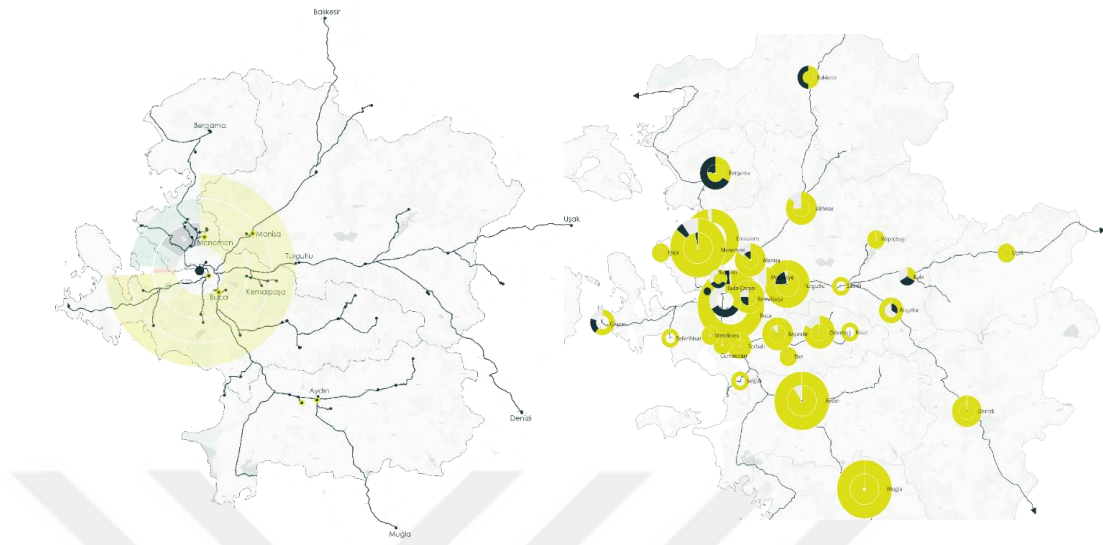


Figure 33: City Region Analyses made within the Karşıyaka Food Strategy Document
(Source: Karşıyaka Food Strategy Document – Karakaya Ayalp et al., 2023).

According to this analysis, the food city region of Karşıyaka is defined in three scales: narrow, wide and dispersed city-regions. Accordingly, the narrow city-region is defined to include the agricultural areas in close proximity such as Menemen, Bergama in the north and Odemis Bayindir in the south. Wide and dispersed city-region is defined to include the surrounding districts and agricultural regions such as Aydin, Manisa, Uşak, Balikesir and Mugla (Karakaya Ayalp et al., 2023).

As a contribution to this approach and analysis, again based on the FAO approach, this study also defines primary, secondary, and tertiary food city-regions for Karşıyaka, in the light of information from the field combined with geographical information. This is supported with the qualitative data coming from the field analysis. In the fieldwork, neighbourhood bazaars are taken as the starting point to understand the supply regions of fresh food products. Supply locations are determined through the interviews done with the producers and stallholders at the bazaars. In this context, for the food supply regions, the most emphasis was placed on Menemen, followed by Bergama, Foça and Bornova. Other agricultural

production regions in İzmir are also referred to as Torbalı, Kemalpaşa, Ödemiş, Bayındır and alike. Outside from the province borders, the most references are made to Manisa (Turgutlu) from outside the province. Aydın, Antalya, Uşak and Balıkesir are the other provinces that are referred to in terms of fresh food supply (Interview No. 7, 8, 13; O. Notes 1, 2, 3, 4). These are also relevant with the food flows seen in İzmir metropolitan area, which was detailed with YERSIS data given in the previous chapter (See Figure 12 in Chapter IV).

Following, it is estimated that at the primary level, Karşıyaka supplies food from the places in neighbouring districts where agricultural production continues. These are the districts in its immediate vicinity namely Menemen, Foça, Bergama, and alike. At the secondary level Karşıyaka is estimated to supply food from the agricultural regions such as Kemalpaşa, Torbalı, Bayındır, Tire and Ödemiş, that are important regions in terms of food production at a metropolitan scale of İzmir. Taking into account the criteria such as proximity, administrative boundaries, and geographical features in the FAO toolkit, information from observations and interviews was compiled and 3 different urban regions were defined for Karşıyaka:

The primary (core) region: Core region is determined based on the proximity criterion, to involve agricultural production areas in the close surrounding of the district. Also transport connections are taken as a criterion. Supporting this, the most mentioned regions and districts within this close environment were determined and the core region that included these regions was described. In the light of these, Karşıyaka Primary Food City Region has been determined to include close proximity food supply regions such as Menemen, Foça and Bornova.

The secondary region: This region is based on the İzmir city boundaries, and the rural production areas in the province. Also, the areas mentioned in close proximity to the province borders are included, because of the geographical proximity and the relatively stronger mobility relations. Based on this, the second region was determined to include İzmir and Manisa agricultural production regions, to include districts such as Bergama, Kemalpaşa, Torbalı, Menderes from İzmir and Turgutlu from Manisa.

The tertiary region: The largest region adopts the Gediz River Basin boundaries, and Aegean Region. Gediz River Basin covers the provinces of Manisa, İzmir, Uşak, Kütahya, Denizli, Balıkesir and Aydın within its entire borders. The 3rd region has been determined on the basis of the most mentioned regions among them. Therefore, tertiary food city region includes the production areas in the Aegean region and Gediz River Basin to include Manisa, Uşak, Aydın, Balıkesir, and also extends to the Mediterranean region including Muğla and Antalya.

Defining the city-region over different scales holds great importance in terms of establishing a local food system built on shorter supply chains. This is particularly important for enhancing access to local food, as city-region approach enables the strengthening of relationships between food consumption and production within the close region. In the context of improving local sourcing within Karşıyaka, it is essential to strengthen food supply from local producers active within the 1st and 2nd regions. By strengthening these connections, local food system will be built on shorter chains where the energy use is reduced, emissions are eliminated, and waste generation is prevented. These strengthened connections will minimize the carbon footprint associated with long-distance food transportation and reduce food waste by redesigning the supply chain. The urban food system for Karşıyaka can thus become more resilient, better equipped to support local producers with agro-ecological and regenerative production practices and provide consumers with access to a variety of cleaner, safer and locally sourced food products. The reconstruction of the urban food system connected to the defined city-region will help reduce environmental impact of food production as well as consumption.

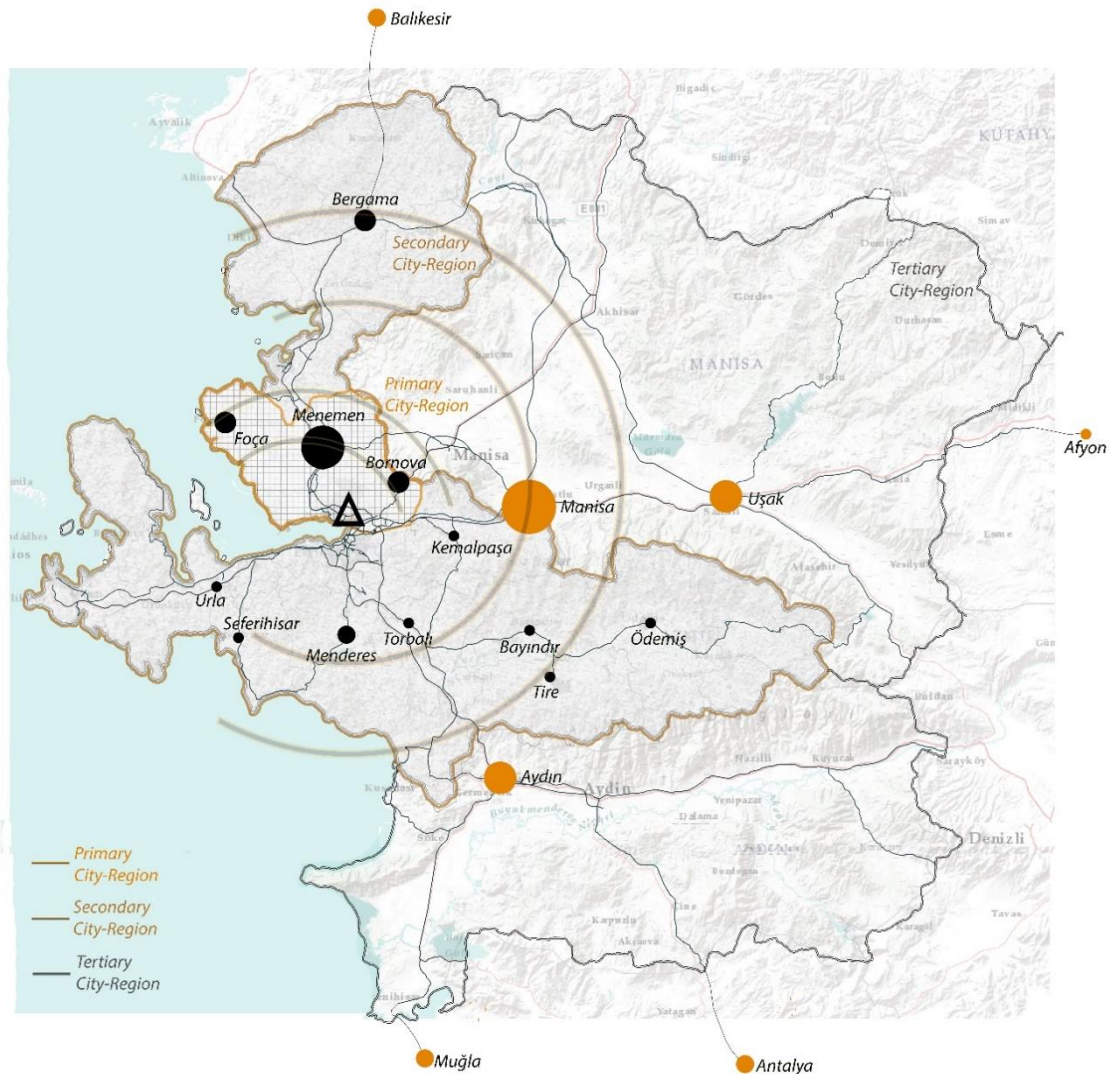


Figure 34: Diagram showing primary and secondary food city-regions in terms of food supply (Source: Produced by the Author, using data from field study)

6.2.3. Major Food System Actors and Civic Organisation

Most of the transition theorists have been emphasizing the key role of human actors and their practices fuelled by their enthusiasm in terms of triggering transition (Hölscher et al., 2018; Spaargaren et al., 2012). Considering the local food system transition, the active participation and collaboration of various stakeholders is important to facilitate a transition towards more sustainable and community-based

practices. In this perspective, the key actors include local administrations, civic initiatives such as NGOs and local cooperatives, whose concern is to address social issues. While the public authorities and civil society are seen as crucial to support sustainable practices, the role of private actors appears to have taken a backseat in creating societal transformation triggering transition to sustainability. Today it is appreciated that urban transitions require new strategic planning processes that integrate diverse sources of knowledge and perspectives, as well as mediating innovative solutions taken up by different actors within the system. Therefore, integrating all actors is crucial to achieve a powerful transition (Hauck et al., 2020; Hölscher et al., 2018).

Among the key actors, local administrations, especially local municipalities have been accepted as having a vital role in terms of transition (Castán Broto et al., 2022; Smedby & Quitzau, 2016; Wright et al., 2018). Civic initiatives on the other side, including various civic organizations and NGOs, are important facilitators to build a shared concern addressing social issues (Hölscher et al., 2018). Others also include actors such as private sector institutions, small and medium-sized enterprises, food suppliers, intermediary actors, and institution (Hauck et al., 2020) The food system forms, evolves, and transforms with the active participation of all these actors.

Izmir and Karşıyaka have a rich urban and social environment where local administrations are active leaders, and cooperatives and non-governmental organizations (NGOs) are actively involved in promoting positive change (as also stated within Karakaya Ayalp et al., 2023). These issues have increasingly included studies on climate change, the health of local ecosystems, ecological agriculture and local and safer food systems in recent years. The presence of numerous cooperatives and non-governmental organizations, especially in Izmir and in Karşıyaka, reflects a strong network of local actors committed to promoting positive change. These organizations have been mapped within Karşıyaka Food Strategy Document, showing that Izmir has a productive social landscape in terms of civic organization (Karakaya Ayalp et al., 2023). Together, these organizations have the potential to foster change through their collective efforts sparking a shift towards more

sustainable, locally focused food practices and improving the overall well-being of society.

In this section, first of all, the active civil society ecosystem of İzmir and Karşıyaka, which have a very high potential to trigger change, will be revealed, and then all the main actors in the food system will be explained with their actor position within the transition process.

Local Administrations

Local administrations, especially local municipalities have been accepted as having a vital role in terms of transition through implementing policies, regulations, and initiatives that support and promote community-based systems in access to all basic services (Castan Broto, et al 2022). Sustainable, clean, and safe food provision and their accessibility is an important field in this manner. Local administrations are instrumental in enabling urban environment for local and sustainable urban food systems to flourish, ensuring that community needs are met while safeguarding environmental and social well-being.

To start with local governments, which are instrumental in implementing sustainable practices that enable the formation of local and sustainable urban food systems, there are two important municipal organisations effectively active within the context of Karşıyaka. One of them is İzmir Metropolitan Municipality which is a leading local actor that constructs and manages sustainable transformation at metropolitan scale. Another very important local administration is, of course, Karşıyaka Municipality, which operates on the implementation of sustainable practices at local scale.

Starting with İzmir Metropolitan Municipality, whose activities are detailly mentioned in previous chapter, seems to be the leading actor within the metropolitan borders in terms of implementing diverse practices supporting sustainable transition of the metropolitan city. It continues its activities with internal departments and private subsidiaries where both sustainability studies are carried out and actions on the agri-food issue are designed as a part of this. Among the internal departments

Agricultural Services Directorate is the main department that carries out studies related to sustainable and ecological agricultural production, local rural development and strengthened linkage between local food production and consumption (Interview No. 31, 32, 34). Among the subsidiaries, İZDOĞA has come to the forefront in recent years, carrying out activities related to the protection and improvement of the environment, protection of land and natural resources in rural and urban areas, prevention of water, soil, and air pollution, and ensuring healthy urbanization (Interviews No. 2, 3, 4). İZTARIM, another subsidiary, continues its activities under the mission of building sustainable agriculture, ensuring healthy food, and increasing prosperity of producers within the borders of İzmir (Interview No. 5). All of these, in cooperation, take a leading role for the organization of studies related to the agricultural issues, rural development and local food system. As one of the important sub-centres of the İzmir, Karşıyaka district stays under the influence of these upper-scale ambitious sustainable transition studies.

Looking at Karşıyaka, it is observed that the local municipality is an important facilitator in environmental issues and sustainability, while the Agricultural Services Department plays an active role especially in the agri-food issues (Interview No. 6, 17, 19). As will be explained in detail in the later sections of this chapter, Karşıyaka Municipality carries out important studies on sustainable urban development and related issues. In this context, there are many units that provide support within the Municipality. These are the Sustainability Office, Climate Change and Zero Waste Department, Parks and Gardens Department, Urban Design Department, Agricultural Services Department and alike. At the same time, the Social Services Department plays an active role in terms of social issues such as delivery of basic services, solidarity, and welfare services. In addition to these, there is a subsidiary of Kent A. Ş., a mechanism affiliated by Karşıyaka Municipality, and this subsidiary undertakes important work in this regard.

Civil Society & Cooperatives

Civic organisations, including various local initiatives and NGOs, are important facilitators to build a shared concern addressing social issues, by supporting community-based practices and introducing novel and innovative forms of social organisation (Frantzeskaki et al., 2018; Hölscher et al., 2018). These practices and new forms of organisations also be related to the activities seeking food security, food access, and equitable distribution of food services. These organisations have a pivotal role to raise awareness, advocate for change, and create innovative solutions that improve the overall resilience and sustainability of local food systems. They have also a vital role in realisation and implementation of community-based practices within local ecosystems. Local cooperatives as another form of civic organisation, also contribute significantly to the development of a sustainable food systems by fostering collaboration among the food actors in the field. They often serve as essential intermediaries that strengthen the relationship between the local producers and urban consumers, emphasizing vital issues such as cooperation, equal participation, fair distribution, and clean and safe production as well as responsible consumption (Frantzeskaki et al., 2018).

In terms of civil organizations and cooperatives, Izmir is a very productive province. To start with the cooperatives operating at Izmir, it is known that there are many cooperatives throughout the province, especially concentrated in regions where agricultural activities continue. While Izmir aims at becoming an ambitious city enabling local development, it aims to support sustainable and local agricultural production as an important local development strategy (IMM, 2021b). Under this vision, supported by “Another Agricultural Possible” model, Izmir supports development through cooperatives, so that the public power supports establishments of cooperatives throughout the province. For this reason, there are many agricultural cooperatives in Izmir that support agricultural production and rural development. The majority of them are affiliated under the roof of İzmir Köy-Koop and there are more than 100 cooperatives gathered under the Izmir Union (Köy-Koop, 2022). The number of partners affiliated with these cooperatives also tends to increase. The

cooperatives within Köy-Koop are especially production-oriented cooperatives. However, in İzmir, there are also consumption-oriented cooperatives, even though they are small in number (See; Table 21). In this case, there are more than 100 cooperatives in İzmir dealing with agricultural production, rural development, food consumption and other food-related issues.

Looking at Karşıyaka, agricultural cooperatives are not common due to the low level of agricultural production in the region. However, there are 2 cooperatives in the district, and one of the, named İmbat Production and Consumption Cooperative carry out works on food issues such as supporting producers, putting agricultural products on the market, and providing direct access from producer to consumer. Second one is Karşıyaka Women Entrepreneurship, Production and Enterprise Cooperative, focusing on empowering women entrepreneurship and increasing women participation in production in every field. The İmbat Cooperative carries out direct studies to strengthen agricultural production, support agricultural producers and provide mechanisms on strengthening the linkage between the consumer and the local producer. Karşıyaka Women Cooperative carries out studies mostly related to women's entrepreneurship; agricultural production is not its direct target.

Table 21: Number of Cooperatives in İzmir and in Karşıyaka (Source: Köy-Koop, 2023)

Cooperatives	#	Examples	Aim – Target
National Level	1	Tarımsal kalkınma kooperatifi	Supporting farmers and agricultural production
City Level	100+	S.S İzmir Köy Kalkınma ve Diğer Tarımsal Amaçlı Kooperatif Birliği (Köy-Koop) SS. İzmir Doğal Ürünler Üretim ve Tüketim Kooperatifi S.S. İzmir Ege Üretim ve Tüketim Kooperatifi	Supporting farmers and agricultural production through cooperatives
Local Level	2	SS. İmbat Üretim ve Tüketim Kooperatifi SS. Karşıyakalı Kadın Girişimi Üretim ve İşletme Kooperatifi	Empowering producers, increasing connection between producers and consumers

Moreover, İzmir and Karşıyaka are very fruitful areas in terms of hosting NGOs in high numbers, which are the cornerstones of the transition process because of their potential to organize and mobilize local people as an important civil society organization. According to the civil society records, there are 5659 non-governmental organization records in İzmir working on many different subjects throughout the province level. Among those, 438 NGOs are located and operate in Karşıyaka (Civil Society, 2022). The number of organizations dealing with societal issues and urban problems corresponds to 47 non-governmental organisations within Karşıyaka. Some of these associations are working on urban food issues. These are detailed and exemplified according to their main activities and interests in the table below.

Table 22: Number of NGOs in Karşıyaka and their fields of activity (Source: Civil Society, 2022)

NGOS – Local Level	#	Examples
Environment, water, wildlife conservation	8	• Ecological Balance Association • Karşıyaka Environment Association
Societal values and problems	5	• Karşıyaka Social Solidarity and Sharing Association • Aegean Sustainable Life Association
Agri-Food	1	• National Agri-Food Association
Neighbourhood and urban issues	11	• Karşıyaka Quality Urban Life Association • Bostanlı Neighbourhood Beautification and Preservation Assoc.
Social solidarity	9	• Aid and Service Volunteers Association • Karşıyaka Family Support Education Association
Healthy living	3	• Bostanlı Healthy Living Association • Karşıyaka Healthy Community and Environment A.
Disadvantaged groups	6	• Karşıyaka Children Associations • Old Friend Association
Ideological thoughts	4	• Karşıyaka Atatürkist Thought Association • Karşıyaka Community Centres Association

Looking at Karşıyaka in detail, there are many active associations and NGOs operating on diverse societal issues. Yet, a small part of them is directly engaged in activities in the field of agriculture and food. In this manner, only one association named National Agri-Food Association is located in Karşıyaka. Apart from this, there are many associations of which field of activity is not food or agriculture but can engage in activities in the field of food and agriculture, since being based on related issues such as ecology, protection of natural life, healthy living and social solidarity. In this context, it has been observed that there are approximately 20 associations that can operate in relation to food systems and their sustainable reorganization. Certainly, this number is increasing together with the associations in Izmir city centre and its close surroundings.

Other Actors

The food system is a complex web of actors and processes that play a crucial role in how food is produced, distributed, and consumed. While public authorities and civil society organizations are often recognized for their importance in promoting sustainability and societal transformation in the food system, it is equally important to acknowledge the significance of other key actors such as large private enterprises, small-medium enterprises (SMEs), small -scale commercial actors, food service actors, intermediaries, and representatives from the logistics sector.

The private sector actors are important as other actors as they continuously seek and explore new potentials either for the existing models or for different possible models. Relatedly, they have the capacity to generate innovative practices and use novel toolkits. As they driven by the profit interest, they often invest in research and development to create new solutions to increase efficiency and reduce problems. This drive for innovation for finding sustainable solutions and improving the overall performance of the food system. Moreover, private enterprises can explore new organizational arrangements, where they can experiment with different ways of

sourcing, processing, distribution of food products. So that, they create new linkages and create new networks that can connect producers and consumers.

However, despite their importance, private actors sometimes may not always have strong incentives to address sustainability transition. Likewise, in Karşıyaka, they are not as actively engaged in societal transformation as the civil society organizations. This can be due to various factors, including lack of awareness, regulatory frameworks, or clear incentives for generating sustainable practices. In such cases, it becomes essential to encourage and involve private actors in the transformation process. Collaborative efforts are required to ensure that they actively participate in local food strategies and practices that promote sustainability, that are ongoing within Karşıyaka.

6.3 Key Food Practices within Karşıyaka and Their Circularity Potential

In the quest for sustainable and circular food system transition, understanding the transformative potential of key practices becomes important. This is because these practices introduce novel models bringing new processes and actions that promote more sustainable production and consumption patterns in urban contexts, particularly embracing circularity. At this point, particular attention should be directed towards the key practices at consumption junction, given their role as pivotal catalysts in the transition as well as their influence on the production-consumption relationship.

This thesis sought to explore and document innovative practices addressing food system in a local context, with a specific focus on the consumption junction at Karşıyaka. It aims to unveil the actions taken by the local actors and examine the materials and elements deployed to actualize their practices. Through this exploration, it is aimed at revealing the transformative effect of these key practices on local food systems and their potential to generate circularity.

When looking at the key food practices that have the possibility of fostering transformation in Karşıyaka, it is seen that they are implemented under the leadership of the local municipality. In this sense, the Municipality emerges as the change actor

that triggers the transformation, via creating policies and implementing particular initiatives that support and promote community-based systems. Within this framework, this section will firstly evaluate the local policies and their influence on the local food system and associated practices, alongside examining local food policies and programmes closely aligned with these policies. Under this, key municipal practices and initiatives will be presented with respect to production-oriented and consumption-oriented food practices. Subsequently, their potential to generate circularity will be explored.

6.3.1 Local Policies with Impact on Food System

Before examining key practices, it is important to look at policy documents, as policies have a preliminary impact on the implementation of new practices. As a local policy maker and decision maker, Karşıyaka Municipality develops policies specifically aimed at triggering sustainable urban and local development. These are policy outputs including studies on the Karşıyaka City Vision and the Sustainable Energy and Climate Change Action Plan, which reveals strategic areas and steps on the path towards transformation.

Karşıyaka Municipality, which carries out activities to make Karşıyaka a healthier, safer and more sustainable city, has carried out an imported study on building its '**City Vision**' (Karşıyaka Municipality, 2024). In order to plan the future of Karşıyaka more comprehensively and to increase efficiency and capacity in resource use, the '**City Vision Development Unit**', which will work under the Urban Design Directorate, has been founded in 2022¹⁴. The **City Vision** developed by this unit is one of the important policy outputs in Karşıyaka, affecting the studies and practices related to the sustainable urban transformation as well as sustainable transformation of the food system. Accordingly, Karşıyaka determined its city vision as '**Inclusive**,

¹⁴ <https://www.karsiyaka.bel.tr/karsiyaka-belediyesi-bir-birimi-daha-hayata-geciriyor>

Healthy, Ecological and Circular City’ and aimed to construct its future actions under these themes (Interview No. 17).

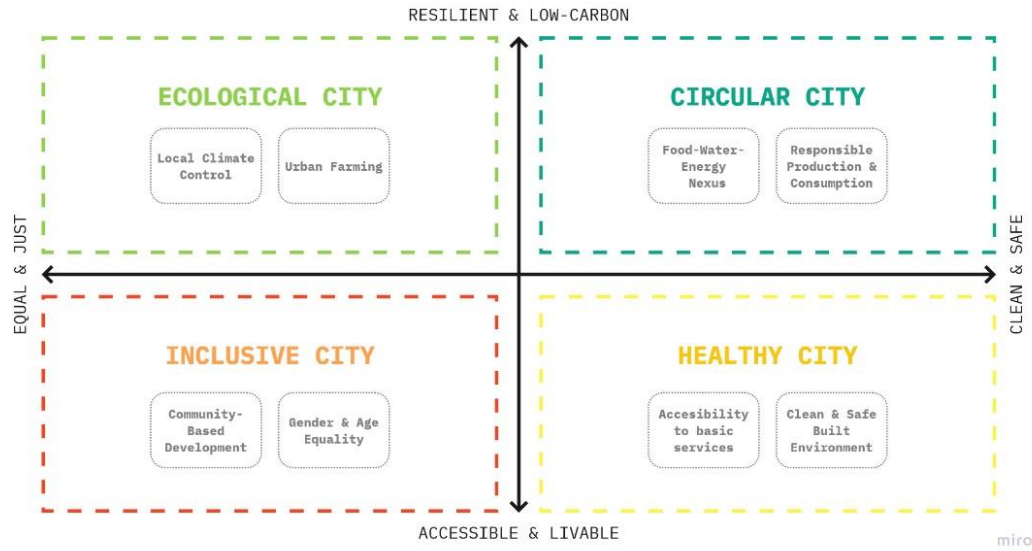


Figure 35: Scheme showing the main themes and related strategy areas of Karşıyaka city vision (Source: Produced by the author based on the interviews with City Vision Unit)

Under the vision of being ***‘Inclusive, Healthy, Ecological and Circular City’***, Karşıyaka Municipality group the action areas under the specified (Interview No. 17). Under being ***‘Inclusive’ city***, community-based development and age and gender equality are the main action areas. For the community-based development, activities related to awareness raising, education, skills development and entrepreneurship has been supported. For the gender and age equality, child, elderly, and gender-friendly applications will be promoted. Under being ***‘Healthy’ city***, increasing accessability to basic services and promoting clean and safe built environment are the main action areas. For the accessability, increasing access to basic services including food will be promoted and while doing that increasing walkability is the main tool for implementation. For the promotion of clean and safe built environment, sustainable re-design of the public spaces that can increase new experiences and inclusivity is the major implementation tool. Under being ***‘Ecological’ city***, promoting local

climate control and increasing urban farming practices are the major action areas. For the local climate control, increasing green energy building applications, retrofitting practices are the main implementation tools and for the urban farming, implementation of urban farms, orchards and roof gardens are the priorities. Lastly, under being '*Circular*' city, energy and waste management and promoting responsible production and consumption are the major action areas. For increasing energy and waste management, increasing renewable energy uses, waste collection mechanisms and waste recycling are the main implementation tools. For promoting responsible production and consumption, promoting low-carbon living, and increasing connection with local production are the main targets¹⁵. All these action areas and implementation tools under the specified vision, Karşıyaka Municipality aims at being resilient and low-carbon city while at the same time promoting clean and safe built environment, accessible and liveable urban environments, and equal and just initiatives where community can equally flourish.

Considering the food system transition, food-related issues relate with all the headings defined in the City Vision. In particular, key food practices converge with the circular city theme focusing on sustainable production and consumption, where local and shorter supply chains and waste management through collection and recycling are being promoted. The practices also converge with the ecological city theme emphasizing ecological lifestyles and urban agriculture, where agro-ecological practices are supported for Karşıyaka (Interview No. 17). In fact, Karşıyaka Food Strategy reveals food as the most important strategy element that holds together these 4 fundamental themes of the vision (Karakaya Ayalp et al., 2023).

¹⁵ The vision and specified action areas were conveyed to the citizens at the Launch Meeting of the Karşıyaka Municipality Urban Design Directorate City Vision Development Unit on 14 July 2022, but have not yet been presented as a report or policy document. All this information compiled from the Interview No. 17, which is done with the representative from City Vision Development Unit under the Urban Design Directorate.

The efforts of Karşıyaka to be a sustainable urban section are not limited to this vision, either. Karşıyaka Municipality is taking serious steps to achieve sustainable transition within the district. Karşıyaka Municipality, as an important local actor, started its mitigation and adaptation efforts against the climate crisis by creating a greenhouse gas inventory in 2009 and accelerated these efforts especially after signing the Covenant of Mayors in 2011. Karşıyaka Municipality is the first local government from Turkey to sign the Agreement and prepare **Sustainable Energy Action Plan**. The first SEAP, prepared in 2012, aims to reduce greenhouse gas emissions by 35% until 2020, and the second SEAP, prepared in 2018, aim at a reduction around 20% until again the same year (SEAP, 2012; 2018). The **SECAP (Sustainable Energy and Climate Action Plan)**, prepared in 2021, has updated its GHG reduction target to 40% by 2030 (Karşıyaka Municipality, 2021). As the third and final version of the action plans, SECAP defines strategy areas, from waste to energy, aimed at improving the current situation. It also addresses issues related to food system challenges such as green connectivity and biodiversity; public health; safe food, agriculture, and food industry; and the reuse of organic waste in the context of waste management (ibid.). In these action plans, the municipality of Karşıyaka has adopted the vision of being a nature friendly and resistant city to climate change, and even takes the social justice as its main target.

In order to manage these processes in an organized way, the Municipality has been institutionally restructuring and has established the **Sustainability Office** as well as **Climate Change Department** in 2022 to organize its efforts to become a sustainable city (Interview No. 18, 19). Climate Change Department is responsible for carrying out studies related to greenhouse gas emissions reduction, energy efficiency, renewable energy expansion, low-carbon transportation and urban mobility, resistant urban infrastructure, public health, and biodiversity protection. By evaluating the causes and consequences of climate change, the Department will implement actions published in the Sustainable Energy and Climate Action Plan (SECAP, 2021). On the other hand, the Sustainability Office was established to direct institutional sustainability and to coordinate related actions carried out in different units such as Parks and Gardens Directorate, Urban Design Directorate, Agricultural Services

Directorate and Climate Change and Zero Waste Directorate operating under the body of Karşıyaka Municipality. Following the establishment of the Sustainability Office, the Sustainability Status Report, which aims to gather all the work and activities carried out under one roof, was prepared, and presented to the public in April 2023 (P.O. 4). The report aims to relate current and future actions with 17 SGS and reveal the current situation in terms of sustainable urban transformation (Karşıyaka Municipality, 2023).

This entire process is an indication that Karşıyaka Municipality is undergoing a new restructuring, both legally and institutionally. While this institutional and regulatory restructuring directs the sustainable urban development of Karşıyaka, it also directs the formation and implementation of local food policies and actions within the district. This restructuring is presented chronologically in the diagram below (See Figure 29).

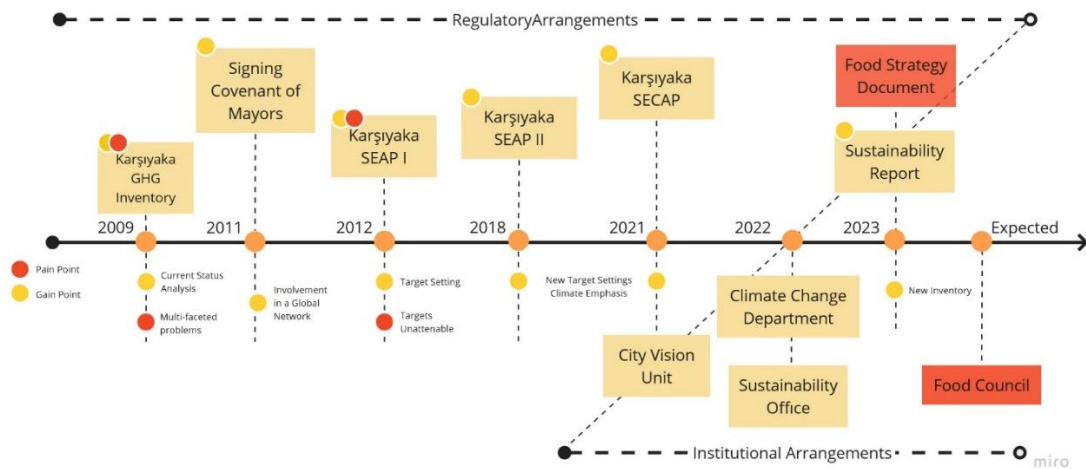


Figure 36: Regulatory and Institutional Arrangements within the Municipality of Karşıyaka
(Source: Compiled by the Author)

During the time when all these efforts were realized, Karşıyaka hosted many different but partial studies. These include projects and services under the headings of energy efficiency, low-emission transportation, organic waste management, food

security and sustainable agriculture¹⁶. At the same time, Karşıyaka hosts many social awareness projects and increases efforts towards the development of civic society. In this context, it has hosted many events and activities, from awareness events to academic events, covering topics from health to conscious consumption¹⁰. At the same time, it has undertaken pioneering projects in Karşıyaka, such as the “Zero-Carbon Zone Project” to reduce carbon emissions in public spaces and effected by the projects in Izmir such as the “Sponge City Project” where permeable surfaces are studied at metropolitan scale and in Karşıyaka¹⁷.

While Karşıyaka Municipality producing and implementing these policies within a regulatory and institutional restructuring, the Mayor of Karşıyaka works with an *‘Scientific Advisory Board’* consisting of academics who are experts on sustainable urban development and related subjects. One of the studies facilitated by this board is the process of producing the Karşıyaka Food Strategy Document, which will be discussed in detail in the following section. The second is the production of the Karşıyaka Gevrek Model based on the Doughnut Economy model in Karşıyaka and the determination of the intervention areas within the framework of this model¹⁸.

The ***Gevrek Model*** offers a data and science-based road map to address multiple crises, such as climate, energy, water and food crises encountered at urban level. The model, working on the determination of social parameters and ecological boundaries, is expected to be an example for local governments first in Turkey and then in the world, in order to combat global crises. Karşıyaka Municipality seem to have a commitment with multiple projects developed to combat climate crises. Within the scope of the Karşıyaka Gevrek Model, which is basically modelled on Kate Raworth's 'Doughnut Economy' model, the Karşıyaka Municipality Scientific

¹⁶ More than 50 activities including awareness activities, festivals, seminars and symposiums held between 2020 to present. See; <https://www.karsiyaka.bel.tr/haberler>

¹⁷ For Zero-Carbon Zone see; <https://www.karsiyaka.bel.tr/karsiyakaya-temiz-enerji-ussu>

For Sponge City Project see; <https://www.karsiyaka.bel.tr/karsiyaka-kent-ormaninda-ornek-uygulama>

¹⁸ For Gevrek Model see; <http://gevrek.karsiyaka.bel.tr/>

Advisory Board has started to work to determine both the ecological and social parameters specific to Karşıyaka. In this context, a variety of workshops are organized to measure both the participation of citizens and the local perceptions and expectations to lead the decision-making process on urban-level adaptation and mitigation against climate crises. This model lays the groundwork for a comprehensive study, examining the Karşıyaka urban section from every angle, enhancing its resilient urban development against possible crises, and ensuring it remains within the ecological boundaries defined under the model (Interview No. 30).

As a part of this process, a decision-makers workshop and a subsequent citizen participation workshop were conducted. Through this participatory process involving representatives from decision makers and residents from each neighbourhood, the key themes of the Gevrek model were deliberated upon, revealing areas of concern and potential improvement. Among these themes, food emerged as a focal point, indicating a significant need for urgent action. In this context, issues such as access to clean and local food and the need for alternative consumption mechanisms have come to the fore and expectations from the municipality are high¹⁹ (Interview No. 30; Gevrek Citizen Workshop Notes, 2023).

6.3.2 Local Food Policies and Food Programs of the District

For the sustainable transformation of the food system, one of the most important components is the local food policies and strategies, guiding local food production and organising responsible food consumption. At the same time, urban and local climate action plans, addressing issues related to the food system like the food crisis,

¹⁹ The citizen workshop was held on 12 July 2023 and the decision-makers workshop was held in 17 July 2023. The outcomes of the workshops not yet been reported. All this information compiled from the Interviews No. 30, which were done with the representative from Scientific Advisory Committee. At the same time, workshop notes were taken, and inferences were also made from these notes.

intensive agricultural production and the problems it possesses, as well as the problems related to food loss and organic waste, are also important guiding forces of this transformation.

The upper-scale studies and reports that surely affect urban food system approaches and actions are described above. For a detailed look at policies and programmes related to the agriculture and food, *SECAP* is an important leading policy output directing food related implications. The main objectives related to food asserted by *SECAP* are seen as protecting the production areas within the borders of the district, increasing cleaner production, improving socio-economic welfare of the producers, and promoting equal access of the citizens to clean, local and safe food. The main purpose with these objectives is to ensure the continuity of the resources, natural assets, and healthy environment of the district (SECAP, 2021). The other one is *the City Vision*, that directs implementation of particular practices related to sustainable food production and consumption. The *Gevrek Model* is another important approach adopted at urban level to address multiple crises including food. The model identifies areas of concern for the food system, as it does for other urban systems, and provides a road map for identifying potential improvement methods. Therefore, these 3 policy outputs are of great importance in directing the practices regarding the food system.

Following these attempts, Karşıyaka also started to take some steps towards local agri-food strategies. In this context, Karşıyaka has entered the production process of a food strategy document, which is planned to be prepared with the participation of many local actors, under the supervision of local experts on food planning (P.O. 2, 3). The final document, produced by participatory methods and presented to the public reveals the unique conditions of Karşıyaka district in terms of its local food system, includes spatial analyses regarding this, and covers the principles, strategies and actions for the food system determined in the light of these analyses and participatory methods. This was a progressive process and an important potential for the transformation of the food system towards regenerative and local food system in Karşıyaka.

The foundations of the Karşıyaka Food Strategy and the participatory process on which it is based were laid at the symposium titled "Food from Farm to Fork, Cities and Local Governments" held in 2022²⁰. All stakeholders interested in the food policy of the district took part in this symposium and put forward the necessity of producing an Urban Food Strategy Document for Karşıyaka. Within this process, the production of the Karşıyaka Food Strategy Document started, and strategies and actions were put forward with the feedback received from the participants in the workshops and forums organized under the participatory process. In this process, principles, and strategies for the Karşıyaka food system were defined according to the principles of citizen science. Spatial analyses were carried out in the light of the identified problems within the processes. The analyses were presented to the participants in participatory workshops. As a result of the relevant analyses, the strategies produced by the participants throughout the process were expanded. As a result, action suggestions were designed under the determined strategies.

As defined above, a series of participatory processes took place within the scope of the production of the document, and after answering the question of why and how a food strategy is needed, and basic strategies were determined with participatory methods (P.O. 2, 3). Accordingly, Karşıyaka Urban Food Strategy principles are defined as **Ecological, Participatory, Localized, Fair**. The principle of being ecological is aimed at supporting agroecological production methods in agricultural production, shortening supply chain in distribution mechanisms, transforming the consumption system with sustainable practices, and establishing a waste recycling system. The principle of participation is based on the creation of new inclusive governance models open to the participation of all stakeholders and citizens for the sustainable transformation of the food system. The principle of localism advocates the implementation of a food system that is sensitive to local characteristics, identifies and prioritizes local needs, and preserves local agricultural biodiversity,

²⁰ See; <https://www.karsiyaka.bel.tr/tr/karsiyaka-kentsel-gida-stratejisini-ciziyor>

and the principle of fairness is based on the idea that fair, accessible, sufficient, and nutritious food is a fundamental right for all, and that access to food is necessary (Karakaya Ayalp et al., 2023). Under the pre-determined principles, the major strategies of the food strategy document were determined again with participatory methods (Karakaya Ayalp et al., 2023). These strategies are defined as first 7 strategies within the preliminary participant workshops (P.O. 2, 3), and later revised and expanded to include 8th strategy added by participants at the last participant workshop held on March 2023 (P.O. 3). Under the last workshop held in March 2023, the actions were also identified under the 8 strategies (P.O. 3).

The strategies are defined as follows:

1. Shortening food supply chain
2. Defining food city region of Karşıyaka
3. Supporting agro-ecological agricultural production
4. Setting up participatory governance model and new mechanisms
5. Organizing producers and consumers
6. Founding waste management system, preventing food loss and waste
7. Providing fair, accessible, and safe food and water for all
8. Governing the food system in times of crises and disasters

Under these 8 basic strategies defined to realize “fair, local, agroecological and participatory” transformation of the food system, possible actions pointing out diverse action areas have been determined. These action areas include:

- establishing a cooperative ecosystem,
- spreading alternative retail mechanisms (municipal markets, bazaars, etc.) on a neighbourhood scale,
- establishing mechanisms to support local production,
- preparing an inventory of agro-ecological producers within the determined food city region,

- creating certification and training programs for producers and retail actors,
- supporting urban agriculture practices,
- establishing food communities in neighbourhoods,
- realization of food centre project,
- creating community kitchens and food banks,
- collecting food waste from various retail units and repurpose them in food banks, community kitchens or composting facilities, and so on.

The final version of the document was presented to the public in June 2023, by compiling the strategies and related actions produced within the process, in which participants from many different sectors participated and contributed.

6.3.3 Key Food Practices within the District

Since it is a very newly presented strategy, there is no action carried out under the Karşıyaka Food Strategy Document. However, there are partial applications already implemented by different units under Karşıyaka Municipality at different scales. These fragmented practices will be gathered under the scope of food strategy document, as it is essential that the actions should serve in an integrity within the holistic framework. This is one of the principles on which the strategy document is based upon.

To briefly mention here, food-related practices within the body of Karşıyaka Municipality are primarily aimed to support localisation of food system through practices linked to urban farming, local food production and diversified food consumption with alternative retail. In this context, the Municipality have already carried out some studies, such as urban farming and agriculture applications within municipality facilities (Şantiye F.), establishment of the seed centre (Interview No. 1, 6), repurposing unused lands within the Unused Lands Strategy (Interview No. 1, 6, 20). Additionally, projects such as Karşıyaka Gastro Centre and Karşıyaka Food

Centre have been designed, aiming to encourage a different consumption and culinary culture. Among these, the Food Centre is a project that has not been implemented yet, and the Gastro Centre - Culinary Arts Centre has been established and started its operations (Interview No. 6). At the same time, education and awareness activities are held for citizens on topics such as composting (E. 3), balcony gardening (E. 6), and urban agriculture. Moreover, applications related to food retail mechanisms are supported, such as local food stores, cooperative stores, online platforms as well as farmers markets and ecological bazaars, in order to create a different consumption culture and connect consumption to local producers and local, ecological and clean production.

All these food-related practices carried out by different units of the municipality are shown in the table below, together with the practices at the Metropolitan scale, whose impact area extends over Karşıyaka (See Table 26).

Table 23: Local and Province-Level Actions with Impact on Food System
(Source: Compiled by the Author)

Applications	Karşıyaka		İzmir	
Governance & Planning				
Food Agencies	-	No agency	-	No agency
Agricultural Dept.	+	Agricultural Services Dept.	+	Agricultural Services Dept. IZTARIM IZTAM
Food Plan / Strategy	+	Food Strategy D.	-	
Food Procurement	-		+	Milk project (Sut Kuzusu)
Environmental Policies	+	Water (sponge city - urban implementation)	+	Water (Basin Plans) Energy (Renewable) Waste (Management)

Table 24 (Cont.)

<i>Regenerative Local Production</i>				
Agro-ecological practices	~	Indigenous practices in Yamanlar	+	Indigenous practices (5 region)
Urban agriculture	+	Unused urban land strategy	+	IZTAM Vertical farming
Farmers Inventory	-		-	
Seed Centre/Library	~	Tohum Bohçası Atalık Tohum C.	+	Can Yücel Seed C.
Cooperatives	+	2 (imbat & women's coop)	+	90+
Community-Supported Agriculture	+	Gediz Ekoloji Top. Foça + Homeros		6 Communities
<i>Localised Food Services</i>				
Food living Labs	-		-	
Food Hubs	~	Food Centre – Not in operation	-	
Food Hall	-		-	
Food Outlets	-		-	
Local Products	-		+	İzmirli
<i>Diversified Consumption</i>				
Local food markets	~	Municipal Retail Stores (Kent Market + Halkın Bakkalı, vb.) Eco-bazaar & Farmers Markets	+	Eco-bazaars Farmers market Municipal Retail Stores (Halkın Bakkalı)
Food Festivals	~	Yamanlar Village Festival	+	Thematic Festivals (e.g. Urla Enginar Fest, Herb Fest, etc.)
Local Food Services	+	Food Aids	+	Food Packages
Food Banks	-		-	
New Buying Options	+	Kent Sanal Market	+	Halkın Bakkalı - online

Some of these practices will be explained in detail in the following part in two categories: production-oriented practices and consumption-oriented practices. These practices will then be analysed for their potential to integrate elements of circularity.

6.3.3.1 Production-oriented practices

Production-oriented practices primarily include practices aimed at challenging conventional production practices. When the production-oriented practices in Karşıyaka have been analysed, it is seen that these practices mostly include the ones carried out by the local municipality and its subsidiaries. These practices include efforts to increase urban agriculture based on local and cleaner production within the scope of municipal initiatives, such as transformation of idle urban areas into urban farms, the expansion of small-scale orchards in neighbourhoods, dissemination of local seeds through seed centre, and expansion of composting practices.

Urban Farming Practices

Urban farming and agriculture practices, which are also supported under the 3rd Strategy of Karşıyaka Food Strategy supporting agro-ecological production, have already been a tool that is supported by partial initiatives within Karşıyaka district. The fact that Karşıyaka is a rapidly developing urban region and the lack of agricultural activities in its own periphery necessitates urban agriculture practices in Karşıyaka in terms of supporting local food production. In this context, it is important to understand and reveal the background of the studies on urban agriculture in Karşıyaka in order to bring these partial efforts together and turn them into holistic actions.

Although urban agriculture and farming practices have always been a part of Karşıyaka Municipality's activities, they were highlighted for the first time in a framework with the *Yeşil Karşıyaka Master Plan Strategy*, produced by Karşıyaka municipality in partnership with the Çatı Çiftliği design and implementation

company²¹. The result of this strategy was to build a green system connected by green areas and orchards. In this strategy, urban agriculture is proposed as a multi-layered tool to connect the dispersed and multi-layered urban structure of Karşıyaka. In this approach, a spatial development centred on urban farms and gardens is proposed. However, this spatial suggestion is more of a guide, which is design proposal that has been implemented (Green Strategy, n.d.). This spatial proposal proposed a green system for Karşıyaka district as a whole, which is connected by green corridors and green networks, supported through spatial proposals and tools that include urban agriculture and food production, such as urban forests at the city scale, urban orchards at the neighbourhood scale, and urban gardens at the street level. Schools, marketplaces, and public open spaces have been redesigned and repurposed as parts of this system.

Even though this guide study was not implemented, it reveals the intention of Karşıyaka municipality. In this context, although not within the scope of the proposal, efforts are being made to increase urban agriculture under the actions and studies of the municipality. These studies include increasing edible landscapes including urban fruit gardens, implementing, and disseminating agricultural practices in idle areas as well as in school gardens and implementing urban agriculture practices at the Şantiye Facility owned by Municipality.

Starting with edible landscape practices, Karşıyaka Municipality Agricultural Services unit has established 2 orchards, serving as urban fruit gardens within two neighbourhoods²². The first garden was implemented in 2012 and is located in Latife Hanım District. In this orchard with an area of approximately 5750 m², there are a total of 335 fruit trees, including pomegranate, citrus, peach, lemon, apple, and olive trees (Karakaya Ayalp et al., 2023b). According to the observations made in the field, access to the fruit garden was found to be limited. The reason for this is that the entire

²¹ See; <https://www.karsiyaka.bel.tr/karsiyaka-belediyesi-bir-ilke-daha-imza-atiyor>

²² See; <https://www.karsiyaka.bel.tr/tr/karsiyaka-meyve-bahceleriyle-donatilacak>

garden is enclosed by a fence, and it serves with a single entrance, which is away from residential areas and main pedestrian axes. The presence of a wide stream creates a threshold between the garden and the surrounding residential areas. Including the main artery on the other side, these edges increase the limitations to pedestrian access. The use of the children's park in the garden is higher than the fruit trees in it. While it is found positive that the garden is located within low-income neighbourhood, improvements are needed to increase its usage (O. 7).

The Second Orchard, a relatively recent application, is located in the Yalı Neighbourhood, with a surface area of approximately 1400 m². The garden has 286 fruit trees, including various trees of citrus, apple, pear and alike (Karakaya Ayalp et al., 2023b). However, observed usage is notably low. Despite having open accessibility, it stands distanced from pedestrian linkages, embedded within an urban texture dominated by enclosed residential complexes. Ownership by the community is underdeveloped, resulting in trees being neglected. Moreover, it is left as an undesigned passive green area and has become unsuitable for recreational activities. The absence of park amenities like seating areas or benches significantly impacts and diminishes its usage (O. 6).



Figure 37: The orchards serving as urban fruit gardens within Yalı (Left) and Latife Hanım (Right) Neighbourhoods (Source: Personal Archieve)

Another application is the urban agriculture practices within the Şantiye Facility, technical units and workshops are located within the municipality. An urban garden was projected within the Facility and became operational by the Municipality in June, 2022²³. The urban garden within the Facility, is the first urban garden of Karşıyaka, where ecological production methods are used. In the production carried out in the urban garden, local seeds are used to produce vegetables. Some of the seedlings are used to produce seeds again, and some are used in activities such as distributing seedlings to local producers. At the same time, some of the harvested products are used for food serving in the events of the municipality. In addition, composting activities continue in this facility. Animal manure, vermicompost or natural compost was used in the production process. Composting works are carried out with bio-waste collected as food waste from neighbourhood bazaars and as pruning wastes from parks and gardens (Interview No. 6).



Figure 38: Urban agricultural practices within Şantiye Facility
(Source: Karşıyaka Municipality Archive, 2023).

One of the main targets of Karşıyaka Municipality is to disseminate urban gardening practices to different parts of the district. In this manner, according to a statement by

²³ <https://www.karsiyaka.bel.tr/karsiyaka-belediyesi-bir-ilke-daha-imza-atiyor>

the Head of Agricultural Services Directorate, these gardens are planned to be established in other neighbourhoods such as Zübeyde Hanım and Mavişehir¹⁰. It is also aimed at enabling production by the citizens, where the Municipality is not the only producer (Interview No. 6).

Coming along with these efforts, a more prominent project was taken into action. This is the Idle Areas Inventory Strategy held under the Urban Design Directorate and the Department of Citizen Participation (Interview No. 17, 20), which involves an intention to transform some idle urban areas into urban agricultural practices. This strategy is also supported by the Urban Design Directorate as a part of the city vision studies. With this strategy, idle and unused areas in the city were identified and analysis were carried out to assign new proper uses. One action under this strategy includes transforming these idle areas suitable for agriculture into urban community gardens and aims to contribute to urban agriculture practices where the neighbourhood residents as actual users. This strategy will be extended to cover school gardens to connect school consumption with food production as well as awareness and education on food (Interview No. 6).

The idle areas inventory study is a spatial database study completed by Karşıyaka Municipality in 2022 and identifies more than 300 areas within the urban area that belong to the municipality but are idle (Interview No. 17). Within the scope of the project, it is aimed to examine this database with a spatial suitability research in the field, to classify it in different categories of suitability for urban agriculture (community garden, guerrilla garden, urban orchard, etc.) and to examine it together with the research on the potential for organization at the neighbourhood scale through the sample selected from this classification. In this context, urban agriculture, urban orchards, community gardens, etc. were used for the selected sample. It is aimed to develop urban design suggestions for practical applications (Interview No. 17, 20).

As a result of the preliminary field work carried out on February 13, 2023, as well as workshops and online meetings, 5 idle areas suitable for urban agriculture practices were determined. These areas are generally selected from existing passive

green areas. The suitability of these areas is determined according to the criteria such as accessibility, suitability for use, width, as well as such as soil quality, access to water, and alike (Karakaya Ayalp et al., 2023b). It has been reported that it is determined according to social criteria such as ecological conditions and potential for ownership and suitability to form a community (Interview No. 17, 20). No implementation has been carried out on these yet (Interview No. 6, 17).



Figure 39: Idle areas determined as suitable for urban agriculture in Karşıyaka
(Source: Karşıyaka Municipality Archive, 2023)

As a continuation of this, some unique practices have started in schools. This approach views school gardens as important application areas for urban garden practices and as pivotal pilot areas for innovative practices to flourish. These practices also involve the implementation of urban garden practices within school gardens, integrating them into the educational activities (Interview No. 6, 17). This covers a deliberate effort to transform school gardens into dynamic spaces that serve for learning but also for practical applications for sustainable urban agriculture. Urban gardening in school gardens seems to be a key practice that can easily foster environmental awareness and sustainable practices among students, by embracing experiential learning.

Seed Centre

Seed Centre, as a continuation of the efforts on localisation within food production, was established on 28 October 2022, at the Bostanlı Güzel Sanatlar Parkı (Fine Arts Park). The seed Centre, named as Karşıyaka Seed Bundle - Şehit Muhittin and Ayşe Dudu Sağıroğlu Ancestry Seed Centre, is affiliated under the Karşıyaka Municipality Agricultural Services Directorate. The aim behind the establishment of the seed centre is to support the cultivation of local seeds, and their dissemination to be used within ecological production practices in Karşıyaka and in Aegean Region as well as within urban farming practices (Interview No.6).



Figure 40: Photos from Karşıyaka Seed Centre - Şehit Muhittin and Ayşe Dudu Sağıroğlu Ancestry Seed Centre (Source: Karşıyaka Municipality Archive, 2023)

In the first 6 months following the opening of the Seed Centre, 200 thousand seeds were packaged and delivered to the people of Karşıyaka, the producers and relevant institutions in Izmir and Aegean Region. The centre has around 1500 seed varieties from different species unique to the Region and Karşıyaka, mainly composed of vegetable seeds. These are constantly cultivated, multiplied, and shared with the public free of charge. Seedlings are also produced from the seeds and given to citizens who request them. In addition, consultancy support is provided to those who took seeds from the centre so that they can produce correctly. Information is provided on points such as planting, germinating, harvesting and propagating seeds. After

producing, citizens multiply their seeds and bring them back to the centre and contribute to sustainable and local production through seed exchange. Those who wish can also support packaging efforts²⁴.

6.3.3.2 Consumption-oriented practices

Consumption-oriented practices within Karşıyaka include deliberate practices that aims to integrate novel modes of consumption, where it establishes a direct linkage with local, cleaner, and safer food production. Upon the analysis on the consumption-oriented practices in Karşıyaka, it becomes evident that these practices predominantly implemented by the local municipality and its subsidiaries. These practices primarily include efforts to enhance accessibility to local food services especially by facilitating the availability of locally sources food products. The practices also extend to the cultivation of a new food consumption and culinary culture within the community. Through these, there is a concentrated efforts to foster a sustainable and community-based approach towards food consumption, emphasizing the importance of localisation in food provision and related services.

Food centre

One of the most important consumption-oriented food practices, the Food Centre project stands out as a pivotal initiative, conceived with the aim of establishing a central hub comprising alternative consumption units. This visionary, but not implemented project focuses on delivering locally and ecologically produced food to urban residents, by prioritising local producers. Additionally, it serves as a gathering point for various food-related organisations, creating a space that fosters collaboration and cooperation among different actors within the local food system.

²⁴ See; <https://karsiyaka.bel.tr/karsiyakada-atalik-tohum-bereketi>

The Food Centre project was designed and put forward as the first pilot project planned to be implemented within the *Yeşil Karşıyaka Master Plan Strategy*, mentioned in the previous section. The strategy was a spatial proposal proposing a connected green system that could link green areas and public spaces within Karşıyaka with urban agriculture and food. Three themes emerged under this strategy as green, edible, and walkable Karşıyaka. The first pilot project on a neighbourhood scale, which will be one of the pillars of this green system, was determined as Bahçelievler Neighbourhood Bazaar²⁵. The project was proposed to the public on 24 August 2022 (P. O. 1) but not implemented and currently postponed due to budget constraints (Interview No. 6, 18). The food centre project aims to transform Bahçelievler Neighbourhood Bazaar into a multi-purpose food centre. When it comes to life, it is aimed to create a multi-purpose centre with roof gardens, sales units for ecological and local producers, and activity areas where awareness and education activities in the field of food will take place. The multi-storey building was redesigned with its roof and the façade, to become a platform where producers and consumers meet via new uses and rehabilitated bazaar area. The seven thousand square meter area on the roof was transformed into a green roof, where rooftop farming is possible and related uses were supported. The currently unused offices and spaces on the mezzanine floor was turned into a social centre, where local NGOs and initiatives can get advantage (P. O. 1). Karşıyaka Food Centre is planned to be a food centre that brings together producers, consumers and relevant institutions and organizations, enabling sharing, learning and access to healthy food²⁶.

²⁵ Bahçelievler Çok Katlı Pazaryeri - Bahçelievler Multi-Story Bazaar.

²⁶ See; <https://www.karsiyaka.bel.tr/tr/karsiyaka-belediyesi-bir-ilke-daha-imza-atiyor>



Figure 41: The Food Centre project visual
(Source: Karşıyaka Municipality Archive, 2023)

Culinary Centre

Another important project is the “Culinary Arts Centre” which was implemented in January 2023 in cooperation with Karşıyaka Municipality and Yaşar University Gastronomy and Culinary Arts Department. It is operating under the municipal subsidiary of Kent A.Ş. It aims to create a new kitchen and food consumption culture, alongside carrying out social responsibility projects. This centre produces trainings appealing to different segments of the community and carries out activities such as enhancing the culinary culture of the Aegean, waste-free cuisine and dissemination of the use of local food products within food services (Interview No. 42).

Cordelion Culinary Arts centre, which was established with the aim of bringing academicians and gastronomy experts together to help citizens to experience the culinary arts and gastronomy sector, provide training on gastronomy culture, and train educated, skilled and qualified personnel for the food and beverage sector especially within Karşıyaka and İzmir. In this manner vocational training is provided in the field of gastronomy such as Cooking Kitchen, Pastry Kitchen, Barista Training, Restaurant and Cafe Management and Service Personnel Training. In

addition to professional training, workshops are held for interested citizens in the fields of culinary arts, pastry, barista, and waste-free kitchen. The centre includes training areas, event areas for festivals with a gastronomy concept, a museum and exhibition area that will introduce the traditional culinary culture focused on İzmir²⁷.

The Culinary Centre, which aims to increase the awareness of different age and social groups on culinary culture and gastronomy activities, gains importance as a unique example throughout Turkey. This centre, which stands out with its social responsibility projects, was awarded in the ‘Social Responsibility and Healthy Life Category’ within the competition organized by the Healthy Cities Union, among other social responsibility projects of 79 different municipalities from Turkey (Interview No. 42).



Figure 42: Photos from Cordelion Culinary Arts centre in Karşıyaka
(Source: Karşıyaka Municipality Archive, 2023)

The primary objective behind the establishment of the centre extends beyond mere food provision; it aspires to protect and promote culinary culture, as well as to integrate a new consumption culture where waste free kitchen practices and local

²⁷ See; <https://www.karsiyaka.bel.tr/tr/karsiyakanin-yeni-gozdesi-kapilarini-acti>

food product usage is promoted. In essence, the centre serves as an important junction unit promoting the connection between the culinary culture, the culture of cooking and the usage of local products and waste-free methods. By promoting this new culture of consumption, the centre not only seeks to raise awareness on the origins of local food, but also aligns with broader sustainability goals by actively contributing to the healthy food consumption and healthy living (Interview No. 42). This approach emphasizes the interconnectedness of culinary practices, local food sources and responsible consumption, making the centre a major initiative for shaping a more conscious and sustainable community in terms of food consumption.

Alternative Retail

Alternative retail mechanisms, initiated by Karşıyaka Municipality includes mechanisms such as municipal retail markets as well as alternative local bazaars including ecological bazaars and farmers markets. These mechanisms are initiated to enable direct connection between the consumers and local producers without any intermediaries.

There are two types of alternative retail mechanisms implemented under the efforts of Karşıyaka Municipality. The first one is Kent Market, which is operated by the Kent A. Ş., the subsidiary of the municipality. The establishment of these markets majorly aims to offer cooperative products along with other variable food products for sale at affordable prices. The second one is the farmers markets, which aim to bring local producers together in a local market where they can sell their products mostly produced by natural techniques and connect directly to the consumers.

Starting with an alternative retail unit, Kent Market belongs to the Kent A.Ş., a subsidiary of Karşıyaka Municipality, which was established on September 24, 1990. Since its establishment, Kent A.Ş. has been basically operating municipal food services. In present, the non-profit Kent Market was established within this subsidiary. The major goal behind the establishment of Kent Market is to bring producers and consumers together without intermediaries, to provide safer and local

food access to those in need by prioritizing disadvantaged regions in terms of income, and to ensure that urban residents can access quality food at affordable prices. Following this, the first of these non-profit Kent Markets, established by the Kent A.Ş., started operating in Cumhuriyet District in 2020²⁸. Later it spread to other low-income neighbourhoods, such as Mustafa Kemal and Örnekköy neighbourhoods. In addition, the virtual market, which enables online shopping from Kent Market, has become operational.

On market shelves safe and high-quality products are served, which are supplied from various cooperatives operating in the Aegean Region and Izmir. In addition to the cooperative products, meat products, oil and cheese varieties and daily dairy products produced by Kent A.Ş. are also offered for sale in the facility. This initiative was also supported by the "Kent Market Card" application so that low-income citizens can meet their basic needs. In this context, determined citizens are given the opportunity to shop a certain amount from the market every month for free with the help of Card application. With this application, Kent Market reached 328 families in the first year of its opening and supported low-income families in accessing food²⁹.



Figure 43: Photos from Kent Market (Source: Kent A.S. Website, 2023)

²⁸ See; <http://karsiyakakentas.com/karsiyakada-kent-market-ilk-subesini-acti/>

²⁹ <http://karsiyakakentas.com/kent-marketin-ucuncu-subesi-ornekkoyde-aciliyor/>

Municipal markets play a vital role by facilitating the promotion of local production and locally sourced food products. These markets serve as platforms for the presentation of local food to the citizens of Karşıyaka and actively contribute to the localization strategies of the municipality. They play an important role in shortening the supply chain leading to consumption, promoting a more direct connection between producers and consumers. This not only supports the local economy, but also increases the sustainability of the entire food system. Moreover, these municipal markets stand out as important initiatives in terms of access to food and enhancement of social welfare. They serve as accessible platforms where communities can source fresh, locally produced food at affordable prices. These units, which prioritize local products, strengthen the importance of cooperation where both local producers and citizens get benefit. Thus, municipal markets emerge as significant contributors to developing local economies, increasing food accessibility, and promoting social well-being within the community.

Farmers Market or Local Producer Market is another important initiative carried out by Karşıyaka Municipality, within the activities to foster localization of food practices within Karşıyaka, in order to make the food system more resilient against the food crisis. The bazaar, organized by the Agricultural Services Directorate, has been set up in Bostanlı Zühtü Işıl Square, where the municipality provides a sales platform for local producers from İzmir through organizing the market area and the stalls for the producer to sell their products. In this way, municipality aims to increase accessibility to local products produced by the local producers and build an alternative consumption culture where the consumers can connect local producers and local, ecological and clean products. In this market, local products meet with the citizens without any intermediaries³⁰.

³⁰ See; <https://www.karsiyaka.bel.tr/tr/uretilci-ve-tuketiciyi-bulusturan-pazar>



Figure 44: Photos from producer market held in Bostanlı, Karşıyaka
(Source: Karşıyaka Municipality Archive, 2023)

These producer markets emerge as a local example of the organic and producer markets implemented by the Metropolitan Municipality in various districts within İzmir. In this context, the Metropolitan Municipality is very experienced in keeping the inventory of local producers, bench control, and product inspection. This local initiative in Karşıyaka is quite new and is established only in the Bostanlı neighbourhood. This neighbourhood is at the forefront in terms of conscious consumers, so the interest in the market is at a medium level (O. 5). Benches and sunshades are provided to producers by the municipality, and the municipality even offers transportation to producers when necessary. However, according to the results of the interviews with the producers and consumers, organizing this market once a month and taking place only in Bostanlı reduces the access to relevant consumers and therefore reduces the efficiency in terms of sales (Interview No. 36, 37, 40). The increasing frequency and prevalence of these markets is very important in terms of access to conscious and interested consumers.

Consumer Cooperatives and Food Communities

In Karşıyaka, there are two noteworthy initiatives: a consumer cooperative and a food community that operates based on local consumer organisation. These initiatives stand out as significant local initiatives, providing alternative models of food consumption. The existence of these initiatives arises from the presence of a

community within Karşıyaka with high level of consciousness and awareness regarding food consumption. However, these initiatives appear to be relatively rare within the broader context of Karşıyaka. To ensure their growth and impact, it's essential to extend support with incentives, that can foster the expansion and disseminations of such initiatives throughout the entire district.

The Imbat Consumer Cooperative is an extremely important structure, especially in terms of organizing consumers. The Cooperative aims to bridge the gap between production cooperatives spread across various regions in Turkey and end consumers, by delivering the cooperative products without intermediaries. Although physically located in Karşıyaka, the Cooperative's mission transcends the boundaries of this district, aiming to serve not only to inhabitants of Karşıyaka but also to all residents of Izmir. The reason behind the choice of being located in Karşıyaka is attributed to the central location of the district within Izmir as well as the presence of a conscious consumer within the district. However, rapidly increasing rental costs along with the other costs of operation have forced the cooperative to temporarily suspend their operations, leading to the closure of their centres located in the Bahariye neighbourhood in Karşıyaka. If the food centre is realized, the Imbat Consumer Cooperative and the market are planned to be re-established within the centre as one of the food organizations supported by the Municipality (Interview No. 29)

Alternatively, the consumer-initiated food community, named as GETO, holds great importance as a bottom-up consumer organization. Again, it is possible to attribute the reason behind the operation of such community in Karşıyaka to the existence of conscious consumers and strong civil society. These grassroots organizations, such as GETO, play a crucial role in reshaping consumption behaviour, promoting a more responsible consumption culture, advocating for sustainable and environmentally friendly production practices and enabling direct connection between the conscious consumers and ecological producers (Interview No. 24 - 27). Such consumer-led initiatives and organizations, which are considered as grassroots initiatives, are very vital organizations as they offer alternatives to the incumbent regime of food production and consumption, by questioning established consumption culture,

establishing a more responsible consumption culture, and supporting more sustainable and ecological production practices. Hence, as these grassroots initiatives become widespread, their potential to trigger the transformation of the conventional food system is quite high (Özatağan & Karakaya Ayalp, 2021). Their impact lies in their potential to challenge the existing patterns, offering novel models that prioritize ecological production methods while simultaneously empowering consumers to involve and support sustainable production processes. This connection between consumers and producers has the potential to catalyse substantial transformations within the larger food system, by strengthening the linkage between producers and consumers.



Figure 45: Photos from the former market of Imbat Consumer Cooperative
(Source: Imbat Consumer Coop Website, 2023)

6.4 Overview and Discussion

The key food practices aimed at fostering transition in Karşıyaka are primarily driven by the local municipality, which plays a pivotal role as a catalyst for change. In this sense, the Municipality emerges as the change actor that triggers the transition. The establishment of an advisory board with a visionary approach further highlights the municipality's commitment to innovative and sustainable initiatives. However, despite these efforts, it is evident that these practices remain top-down and concentrated in specific neighbourhoods mainly associated with higher socio-economic classes.

As an overview on the institutional and regulatory restructuring, it is evident that the Municipality plays an important role as a catalyst for change in terms of transition. Through its active promotion and facilitation of sustainability initiatives, the institution plays a crucial role in initiating and driving positive change towards sustainability, especially in terms of food system transition. The Municipality with its departments often acts as change agent, bringing together different stakeholders and fostering collaboration and innovation, where it becomes catalysts for creating momentum and mobilizing resources for sustainability initiatives.

The advisory board, characterized as a visionary structure, is an important structure behind the implementation and decision-making processes of sustainability initiatives and related practices. Karşıyaka Municipality carries out its studies under the guidance of this advisory scientific board consisting of academicians and experts from different disciplines. These experts form a visionary structure as these experts have a visionary role with their forward-thinking and innovative mindset, envisioning and advocating for a sustainable future. The advisory board together with the Municipality as the major decision-maker, shape the long-term vision and goals for the future development over Karşıyaka urban-section. This visionary structure has been driving change by challenging the business-as-usual and proposing transformative ideas and solutions for sustainability³¹.

When looking at food practices within Karşıyaka, it becomes evident that again a visionary structure underpins the initiatives undertaken so far. The studies on food show that the primary transformation of the food system is linked to this visionary approach and endeavour. A notable solid state of this effort is the food strategy document produced through participatory process, emphasizing a commitment to an inclusive and sustainable transformation of the food system. This institutional effort is noteworthy in that it will gather all fragmented practices under a holistic structure.

³¹ Based on the actor roles defined by Hauck et. al. (2020) as catalysts, opponents, intermediaries, frontrunners, drivers and visionaries in the context of sustainability transition.

This holistic approach is particularly valuable in addressing the complexity of food systems and allows the municipality to consistently implement new, pioneering ideas and actions.

The key practices on food that emerged within the scope of this visionary structuring are presented in detail in the previous sections of this chapter. A key focal point of this descriptive evaluation is to have a circularity assessment over the practices conducted so far. Specifically, the analysis of circularity on the key food practices is important in terms of activating the circular structure of the system and determining the necessary action areas. Within this context, it becomes important to analyse consumption-oriented applications as well as production-oriented applications through the lens of circularity parameters. This is essential for a detailed understanding over the circularity potential embedded in these practices. Through an evaluation with circularity parameters, the potentials, and limitations of the existing practical applications in terms of implementing a circular system will be determined. By undertaking this analysis, the aim is to understand how well these initiatives align with circularity principles and elements, contribute to minimizing waste, and foster resource efficiency. This assessment will not only shed light on the current practices aligning with circularity but will also provide important insights over necessary interventions for achieving a transition towards circular and sustainable food system.

Karşıyaka hosts some key practices targeting the transformation of both production and consumption practices. While drawing inspiration from existing global examples and practices, these applications strive to introduce novel and innovative mechanisms for Karşıyaka. Although these applications are not completely circular, they incorporate elements that contribute to circularity. Identifying and highlighting the elements contributing to circularity becomes important in terms of transition towards a circular food system.

Starting with production-oriented practices, urban agriculture practices are discussed. As a result of examining urban agriculture practices in terms of circularity parameters, it was aimed to reveal the potentials produced by these practices in issues such as resource use, material circulation and recovery, waste generation,

localization, and access to food. At the same time, the changes it brought to institutional or legal structures were examined. Upon this examination concerning circularity parameters, a shift towards utilizing local inputs emerges as a notable trend in Karşıyaka. This is observable in the adoption of local seeds sourced from the seed centre, taking the place of industrial seeds, as well as in the integration of compost generated at the Şantiye Facility, replacing conventional fertilizers. When assessing water and energy usage, no innovative patterns were identified, highlighting the need for the efforts to be widespread. An analysis upon material flow and recovery revealed a low material flow rate with some success in material recovery, particularly observed in compost practices. This success highlights the importance of creating a more systematic approach that includes collection, sorting and re-valorisation. Although there is an organic waste stream for composting, its prevalence throughout Karşıyaka remains quite low.

It is also important to note that urban agriculture practices were observed only at the Şantiye Facility and a small number of public green areas as fruit gardens, and some schoolyards. This highlights the need for the wider adoption of urban agriculture practices and their integration into a holistic system to serve for a comprehensive circular approach. The implementation of key urban agriculture practices observed to be incremental and piecemeal in application, showing the absence of a comprehensive and systematic implementation, and inadequate organizational support for widespread adoption. These urban agriculture practices are highly compatible with circularity parameters as they foster implementation of shorter chains, accelerate localisation, support ecological production and increase the inner circle uses such as composting and bio-waste utilization, therefore have high potential in terms of building a circular food system. To fully take the advantage of this circularity potential, there is an urgent need for a more organised and systematic approach that embraces urban agricultural practices and resource management within a holistic framework, ultimately promoting a more circular and sustainable food system in Karşıyaka.

Production-Oriented Practices

Practitioner		Target group	
Municipality		Citizens & Producers	
Explanation			
Urban Farming Practices: Actualized by Municipality			
In operation: Only within Şantiye Facility			
Projected: Within idle areas across Karsiyaka			
Tools:			
• Ecological prod. techniques • Composting • Local seedling and seed production • Distribution to citizens and producers • Using harvested crops in municipal services			
Parameters		Circularity elements	
Resource Use		• Urban Farming with ecological production techniques • Short Chain - local production & consumption • Inner circle use: Composting & Bio-waste	
Local inputs: * Local seeds instead of industrial ones * Compost instead of fertilizers Water / Energy Consumption: * No new model on water or energy			
Localisation		• Small level of Public Procurement • Unorganized collection	
* Direct connection between producer and consumer * No intermediaries * Local sourcing * No application owned by citizens			
Material Recovery & Material Flow		Circularity Assessment	
* Organic waste flows * Composting * Soil improvement in urban farming areas * No collection mechanisms or material banks		Piecemeal Unprevailing Unorganised Top-down High compliance High Potential	
Accessability			
* To clean food produced by ecological methods * To local food from local urban region * No new ownership methods * No sharing platforms			
Change in			
* Organisational settings * No new regulations			
Waste Generation			
* FLW generation is generally low in urban agricultural practices * GHG emissions resulting from distribution also decrease.			

Figure 46: An overview of the production-oriented practices and their circularity potential (Source: Compiled by the author based on the field analysis on the key practices in Karşıyaka)

When a detailed look is provided over consumption-oriented practices, especially alternative retail mechanisms are focused, revealing their potentials over resource use, material circulation and recovery, waste generation, localization, and access to food. Likewise, the changes offered by these alternative mechanisms brought to institutional or legal structures were also examined. Upon this detailed analysis on consumption-oriented practices, an important effort becomes visible, which focuses on the delivery of locally sourced food products to consumers within Karşıyaka. This effort prominently focuses on providing direct linkage between local producers and cooperatives along with their food products with consumers, which is notably seen in the municipal retail mechanisms. This is supported in the municipal markets as well as the farmers markets, both of which are an alternative effort in terms of supporting direct involvement of producers, and ensuring consumers receive products directly from the local producers or producer cooperatives and unions. Hence, there is a remarkable effort on local sourcing revolves around the cooperative-led supply chain and retail, supporting the circularity parameters directly or indirectly. The indirect support could be associated with resource use, material flows and waste minimisation, and direct support is associated with localisation as well as local food access in Karşıyaka. Local sourcing holds significant promise in shortening supply chains and accelerating resource efficient and sustainable production methods within the local food ecosystem of Karşıyaka. Local food flow is also linked to the local material flows, bringing lower food miles so that indirectly contributing to emission reduction caused by distribution via long supply chains.

Addition to these, there are composting initiatives within Karşıyaka Facilities, increasing material recovery within the system. Composting initiatives contribute significantly to waste reduction and support inner material circulation, again indirectly contributing to emission reduction. However, the current material circulation and recovery primarily limited to compost production, which is observed to be unprevailed throughout Karşıyaka. This process requires comprehensive support through systematic collection and sorting mechanisms and the establishment

of material banks. Additionally, collaborative efforts among Municipality Facilities aim to mitigate food waste by redistributing and sharing surplus edible food³². However, these initiatives are limited to individual efforts and lack a structured system for comprehensive implementation. Although the existence of such efforts and initiatives constitutes potential, it is of great importance for these to be integrated into a more holistic system and supported by the necessary mechanisms in order to accelerate transition towards circular food system.

In the context of localization and ensuring access to local, nutritious and affordable food, facilitating the delivery of food products from local producers to consumers and promoting shorter supply chains without intermediaries remains as the main objective of the Municipality. These concerted efforts at localization underscore a determined and sustained approach to making local and more affordable food options accessible to consumers. These mechanisms serve as important initiatives aimed at delivering locally sourced and economically viable foods directly to consumers. However, it can be said that these efforts, like other initiatives, are insufficient at this stage, as they are piecemeal efforts without a systematic background. Additionally, since they remain as top-down initiatives in their nature, these mechanisms struggle to become widespread to serve across society, leading to a lack of widespread ownership and dissemination. Notably, in these observed practices, no collaboration was evident with existing civil organisations such as consumer cooperatives (such as Imbat Coop.) or consumer-initiated food communities (such as Geto). Absent among these efforts are important initiatives such as food banks or sharing platforms, which play pivotal roles in providing access to affordable food, especially for disadvantaged segments of society. Consequently, fostering civic engagement becomes crucial and efforts to integrate civil society are essential in fostering broader accessibility and dissemination of localized solutions throughout society.

³² This collaborative effort is found between Culinary Centre and other Food Services operated by the municipal subsidiary Kent A.S., where the surplus edible food is redistributed among services with the individual effort of Culinary Centre Officer (Interview No. 42).

Consumption-Oriented Practices

Practitioner Municipality		Target group Conscious Consumers
Explanation Alternative Retail and Consumption Mechanisms Actualized by Municipality In operation: Culinary Arts Centre Kent Market & Facilities (Services) Farmers Market Projected: Food Centre		
Tools: • Local sourcing • Farm to fork (No intermediaries) • Low pricing • New consumption culture		
Resource Use Local sourcing: * Local food products *No implementation regarding other resources		Parameters Localisation * Direct connection via cooperatives * No intermediaries * Local production & local sourcing * Low partnership with local initiatives
Material Recovery & Material Flow * Local food flows * Composting * No collection mechanisms or material banks		Accessibility * To local food from local urban region * Affordable prices * No food banks * No sharing platforms
Waste Generation * Redistribution surplus edible food in between facilities and services * Decrease in GHG emissions resulting from distribution		Change in * Organisational settings * New mechanisms * No new regulations
Circularity elements • Short Chain - local production & consumption • New consumption mechanisms • Inner circle use: Recirculation of edible food		Circularity Assessment Piecemeal Unsystematized Low material flow Top-down Low Compliance High Potential

Figure 47: An overview of the production-oriented practices and their circularity potential (Source: Compiled by the author based on the field analysis on the key practices in Karşıyaka)

Moreover, despite the valuable efforts, a critical analysis reveals that the practices are predominantly initiated by the municipality and remain top-down and concentrated in specific neighbourhoods with relatively high-income levels (e.g. Bostanlı, Yalı, Nergiz, and alike). This is a sign that these practices cannot be disseminated over Karşıyaka to become widespread to reach the entire community. Key applications remain very niche and have difficulty becoming mainstream. This indicates a challenge in the broader dissemination of these practices, with an absence in targeting low-income segments of community.

In the next chapter, the obstacles and barriers in implementation of wider practices will be discussed and evaluated on the basis of actor roles and positions. The next section aims to explore the barriers and barriers that hinder wider implementation of the circular practices. By evaluating these challenges through the lens of various actors and revealing their strategies and manoeuvres on transformation, the study aims to uncover why certain segments of the society do not participate and the obstacles that actors face in promoting more sustainable, inclusive and widespread circular food initiatives.

CHAPTER 7

BUILDING A CIRCULAR MODEL FOR KARŞIYAKA: BARRIERS AND DRIVERS FOR TRANSITION

The world is struggling through a period of “multiple crises” encompassing ecological and climate crises and economic and social crises along with them. Cities, as the places of consumption, are places where the multiple crises deeply manifest themselves. Among these crises, the food crisis manifests itself deeply in cities, especially on the issue of sufficient food provision and equal food access. The unsustainable production and supply structure of the food system intensifies the challenge of access to clean, healthy, nutritious, and affordable food products. The market-driven restructuring of the agri-food system, increasing commercialized retail chains in food provisioning also increased these inequalities in food access. Coupled with economic stagnation, high inflation and decreased purchasing power, food inequalities, inability to access food and malnutrition become inevitable in urban settings.

Addressing these crises necessitates a holistic approach beyond production, incorporating issues of food access, food justice, and equal distribution. This thesis argues that the circular food system helps to build a more sustainable, resource-efficient and socially just and equitable approach. In addition, circular model also requires reconsideration of consumption junction practices, as they have a great impact on the complex mechanisms of food provisioning. Novel consumption models are needed to foster sustainability and circularity within food systems, ensuring food safety, social justice, and ecological harmony. Local innovative strategies and actions improving crisis adaptation abilities are key to construct resilient food systems. In this manner, a public model that brought alternative models for consumption while supporting local producers and building bridge between production and consumption is indispensable. Focusing on urban consumption

requires the implementation of local retail structures that redefine the production-consumption relationship and restructure access to food.

The detailed exploration on the case of Karşıyaka in the previous chapter shed light on the public structures and retail mechanisms providing alternatives to existing food provision and urban consumption mechanisms. Karşıyaka represents an urban subsection with limited local self-sufficiency in food supply, resulting in limited public access to local, clean and ecologically produced food. Moreover, the distance between food production and consumption is considerably evident, as the local food supply is limited within the borders of the district. Yet, Karşıyaka hosts consumption practices with alternatives to commercialized forms and maintain alternative markets and food consumption culture in the public sphere. However, despite the ambitious studies on food sustainability, the initiatives remain fragmentary, lacking widespread adoption. Therefore, these initiatives fall short in the implementation of a holistic, sustainable, and circular food system. Consequently, this underscores the need to explore the possible drivers for new models that support circularity and sustainability as well as the barriers that prevent their proliferation. *The aim of this chapter is to uncover shifts in traditional technologies, lifestyles, consumption patterns, food provisioning, retail strategies, supply chains, as a driver of change, while assessing obstacles within organizational, regulatory, institutional, and political structures as barriers for circular transition.*

Essentially, this research aims to examine the barriers and drivers in reference to the changes in existing patterns of food supply, retail and consumption and highlights the role of each change agent in advancing or hindering the transition to a circular food system. While revealing the driving forces for building new alternative mechanisms in terms of circular transition, it is also aimed to discuss the barriers to accelerate the transition to the circular system, in respect to the obstacles experienced by the different actors within the food system. The aim is to look for ways of a more coherent, collaborative effort towards the realization of a sustainable and circular food system in Karşıyaka, by examining the strategies, limitations, and successes within the existing practices in relation to the local food system.

7.1 Drivers for Transition

7.1.1 Demand-Side Drivers & Consumer Preferences

In order to examine drivers advancing the transition towards circular urban food system, it is crucial to distinguish the factors associated with urban settings. Unlike supply-side factors, demand-side factors have a stronger relationship with urban components and agents, especially due to their direct relationship with consumption-based factors. Supply-side factors revolve around the productivity and efficiency in food production, diversity and sufficiency in food supply and diversification of supply-based services. In contrast, demand-side factors are intertwined with the urbanization dynamics, population growth, demographic characteristics, income levels and consumer preferences, all influence the factors related to urban food consumption. These demand-side factors, combined with increasing ecological vulnerabilities amid the climate crisis, social and individual health concerns, deepening economic depressions and ascensive food inflation, are triggering the need for a transition towards cleaner, safer, ecologically balanced, and socially just urban food systems.

The most prominent demand-side driver behind the transition is changing food consumption practices based on shifting consumer preferences. Notably, consumption is thought to have a strong correlation especially with income level, as income determines purchasing power and so affordability. Therefore, income level directly affects food consumption preferences. At this point, food prices emerge as another major determinant for food demand, in relation to income levels and affordability. However, in recent years, income and price determinants alone are not sufficient to describe consumer preferences and shifting consumption patterns. Changing lifestyles, evolving consumer roles³³, heightened consumer concerns

³³ Looking at the consumer roles triggering the change, 4 main types of roles are decisive (Emel Tez):

regarding environmental issues and health problems, along with searches for alternatives fuel an emergent alternative consumption culture. This burgeoning consumption culture exerts pressure of change over supply side factors and upstream practices, advocating diversified and alternative models of food access.

Analysing Karşıyaka reveals **three pivotal demand-side factors** that significantly influence food consumption patterns and the need for alternatives in terms of food access. These factors, often act as drivers, initiating a transition within the dynamics of the food system. The first factor correlates with urbanization trends and growing population within the district, along with the socio-demographic consequences across different neighbourhoods. The second is related to the diverging consumer preferences depending on the increasingly widening - mostly shrinking income level and purchasing power, coupled with increasing concerns amid increasing food inflation. The third and the last one is the existence of broader concerns among consumers about environmental and social problems produced by the dominant food regime, primarily defended by conscientious groups with high awareness within the district. Collectively, these factors are shaping consumption preferences and driving demand for locally sourced, healthy, clean and affordable food options with diversified alternatives within the region.

The first demand-side driver for a need for alternatives revolves around the trends of hyper-urbanization and rapid growth of population within the district, resulting in rapidly growing and increasingly dense urban neighbourhoods. These fast-growing neighbourhoods in Karşıyaka bring with them diverging forms of urban development

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- **Co-producers** who have the claim to transform themselves from passive consumers to active consumers that can affect production through actively engaging within alternative food networks,
 - **Ethical consumers** that have ethical concerns about prevailing consumption practices, and try to change their consumption practices towards consuming less,
 - **Concerned consumers** that have concerns on environment, health, nature and/or have quality food and accordingly try to change their consumption practices,
 - **Beneficiary consumers** are those involving in the system to take the benefit of accessing quality and healthy food with cheaper prices, or socializing, or both. (Karakaya, 2017)

as segregated and uneven urban regions with different socio-demographic characteristics and lifestyles. Different patterns of urban development and socio-demographic characteristics specific to each neighbourhood requires an urban food system with *localised food mechanisms* that will serve increasing and varying consumption needs.

Since each neighbourhood has a different character, it is necessary to look at the neighbourhoods in detail in order to reveal the increasing and changing consumption needs. In this context, to reveal the needs of neighbourhoods with increasing populations, information on neighbourhood-based food access mechanisms, and consumption needs are synthesized in the table below. Since it is very difficult to obtain neighbourhood-based socio-demographic information in the context of Turkey due to data limitations, only population growth and income level (produced within the scope of the Karşıyaka food strategy document) are taken as basis in the table below. It is aimed to reveal the needs of the neighbourhood residents by combining this information with the quantitative status of existing food access mechanisms and the demands of residents specified within the citizen workshops for Gevrek Model. The need to increase and diversify this synthesis based on other socio-demographic factors such as age, gender, people with special needs (health-related), and cultural diversity is lacking in this table, but still maintains their importance for future studies. According to this table, İnönü, Mustafa Kemal from upper income levels, Fikri Altay and Latife Hanım from lower- and middle-income levels stand out as neighbourhoods with low number of retail mechanisms, in need of diversity in food supply and retail. On the other side, almost all neighbourhoods with lower- and middle-income levels are in need of alternatives, in terms of their need to access more affordable food products.

Table 24: Growing neighbourhoods with current status and future demands over food
(Source: Compiled by the author with the secondary data)

N.hoods	Pop. Change (10 years)	Income Level	# Supermarket	# Alternatives	Consumer Needs (Gevrek W.)
Growing – Upper Incomes					
İnönü	70%	Upper middle	2 National 1 Discount	-	Diversity in food products Alternatives: Food Coops Municipal Retail
Yalı	49%	Upper middle	9 National 8 Discount 3 Local	1 N. Bazaar	Transparency: Healthy and fresh food
Mustafa Kemal	37%	High	1 Discount	1 N. Bazaar 1 Kent M.	Diversity in food products Alternatives: Food Coops Municipal Retail
Mavişehir	3%	High	2 National	-	Transparency: Healthy and fresh food
Growing – Middle and Lower Incomes					
Fikri Altay	54%	Middle	4 Discount	-	High-nutritional foods w/ affordable prices Alternatives: Local Producer Markets Urban Gardens
Demirköprü	44%	Middle	2 National 2 Discount	1 TKK	High-nutritional foods w/ affordable prices Alternatives: Local Producer Markets Urban Gardens
Dedebaşı	40%	Middle	1 National 9 Discount 2 Local	-	High-nutritional foods w/ affordable prices Alternatives: Local Producer Markets Urban Gardens

Table 24 (Cont)

Örnekköy	38%	Middle	2 National 6 Discount 7 Local	1 N. Bazaar 1 Kent M.	Affordable food products Alternatives: Food Coops Municipal Retail
İmbatlı	31%	Middle	1 National 3 Discount 6 Local	1 TTK 1 AOC	High-nutritional foods w/ affordable prices Alternatives: Local Producer Markets Urban Gardens
Şemikler	51%	Lower middle	2 National 8 Discount 4 Local	1 N. Bazaar 1 TTK	High-nutritional foods w/ affordable prices Alternatives: Local Producer Markets Urban Gardens
Latife Hanım*	16%	Low	1 Discount	-	Affordable food products Alternatives: Food Coops Municipal Retail
Zübeyde Hanım	9%	Low	1 National 5 Discount 2 Local	1 N. Bazaar	Affordable food products Alternatives: Food Coops Municipal Retail

* Change rate is calculated for 5 years unlike other neighbourhoods.

In addition to these, there is a growing support from local consumers for the need for alternatives in neighbourhoods, referring to the limited opportunities especially in recently urbanized neighbourhoods. Looking at the general tendency obtained from the interviews conducted with consumers within the scope of the thesis, it is seen that opinions supporting the need for alternatives in food access in neighbourhoods are predominant among the consumers. In interviews, they often emphasize insufficient and limited opportunities within neighbourhoods in terms of food access, forcing them to obtain food products from prevalent mechanisms (Interview No. 47).

Relatedly, they stress the need to increase alternatives such as municipal markets or farmers markets within their neighbourhoods (Interviews 44, 45, 48).

A consumer from Mustafa Kemal neighbourhood affirms this problem by emphasising the limited opportunities in their neighbourhood:

“In the neighbourhood I live in, there are mostly residential units and shopping opportunities are limited. For this reason, I prefer the nearest supermarket (a discount chain) and sometimes neighbourhood bazaar for fruits and vegetables. And once a month Karşıyaka Çarşı, for products that I cannot obtain in close surrounding.” (Interview No. 47).

Another argument that strongly supports this approach is the scarcity of different alternative units that can be accessed within a short distance and the limitation of existing options in creating price alternatives (Interview No. 12, 47). A consumer from Nergiz neighbourhood explains this problem as follows:

“I shop from supermarkets or neighbourhood units in our neighbourhood because these are the only options I can easily access in a close distance. Supermarket chains have high prices, but since I have no other alternative, I often have to settle for this price.” (Interview No. 12)

Neighbourhood bazaars, regarded as a viable alternative to conventional retail chains, hold a favoured position among consumers. They are particularly valued for enabling access to fresh products, especially vegetables and fruits (Interview No. 11, 15, 46). Additionally, these markets offer a more affordable pricing alternative (Interview No. 11, 12, 46). Despite these advantages, like many other alternative options, accessibility remains a challenge for the bazaars (Interview No. 15, 43, 44). A consumer emphasizes the necessity to expand the bazaar alternatives, providing easier access to fresh and cost-effective food choices, and adds:

“In fact, the bazaars are more affordable than supermarkets, but they are not always accessible, especially considering that they need to be accessed by public transport and the need to carry the shopping bags all the way back.” (Interview No. 11)

The interviews consistently highlighted the constrained availability of current mechanisms and emphasized the imperative to diversify alternatives. This need was further supported by the outcomes of Gevrek Citizen workshops. Within this framework, there's a growing demand for the creation of alternatives, especially farmers markets and municipal retail (Kent Market) in various neighbourhoods (Interview No 39, 44, 48). Notably, emphasis is placed on increasing these mechanisms in number and ensuring their accessibility. Considering the tendency to obtain fresh food from neighbourhood bazaars, increasing alternatives such as small-scale producer/farmers markets in neighbourhood centres comes to the fore as an option that should be considered (Interview No. 44, 45). Additionally, there is an emphasis among citizens on the need to promote alternative methods of accessing food, such as neighbourhood orchards and urban gardens (Gevrek Citizen Workshop Notes, 2023). These insights underscore the necessity of expanding the range of options to increase food availability and accessibility within the neighbourhoods of Karşıyaka.

Related to the first factor, ***second demand-side driver*** revolves around the emergence of distinct consumption preferences among different segments of society, predominantly related to the widening income gap. Additionally, within Turkish context, cities, and urbanized sections like Karşıyaka, are grappling with rising food inflation amid economic recessions. This economic scenario heightens concerns among consumers, which are intricately linked to income contraction and food price fluctuations (Interview No. 11, 15, 38, 44). At the heart of this concern is the critical balance between affordability and conscious consumption, emphasizing the desire to have access to healthy, nutritious, and clean foods at affordable prices.

Regarding this, several consumers emphasize that the biggest problem in accessing food is increasing food prices (Interview No. 11, 12, 15), stating that purchasing power is lower than before and this is reflected in food shopping preferences (Interview No. 15). A consumer states the following about the importance of food prices and the resulting change in consumption habits:

“Cheapness is very important because we cannot keep up with food prices. Prices have increased tremendously. My peers used to travel from market to market, now I do the same and compare prices to find the best price. But I don't buy it anymore because I don't want to pay that price for vegetables. For this reason, I give up some products.” (Interview No. 15)

Increasing food prices make it difficult to access and afford desired foods which increases concerns about access to quality food. In terms of price concerns, affordability, and accessibility to quality food, another consumer noted:

“Access to good and quality food in greengrocers or supermarkets has become difficult. I try to choose healthy and clean food, but certified (e.g. organic) products are very expensive and difficult to access in this manner.” (Interview No. 44)

In this context, consumers create their own alternatives. For example, some consumers prefer food shopping from bazaars because of the perception that food provided in bazaars are cheaper, local, and natural (Interview No. 11, 12). Some consumers who do not find bazaars accessible prefer discount markets and supermarkets nearby due to accessibility and sometimes cheaper product alternatives (Interview No. 15, 45, 46). However, concerns about the nutritional value of food products purchased from markets are also increasing (Interview No. 38, 39, 43, 44).

In addition to all these, cooperative or municipal markets stand out as strong alternatives, increasingly preferred in recent years. A majority of consumers highlighted their preference for shopping at municipal markets due to affordability (Interview No 15, 45, 46) and reliability (Interview No. 15, 45, 46, 47). Some emphasised their inclination due to the perception of reliability in terms of healthiness of cooperative products provided by the municipal market (Interview No. 44), some others expressed safety in terms of quality and control offered by the municipality (Interview No. 47). Eventually, the prevalent arguments supporting the preference over these mechanisms revolve around the cheapness and affordability, freshness and healthiness as well as reliability and safety of the products available.

Likewise, producer markets also emerge as a significant alternative. However, this alternative has not gained widespread prominence in Karşıyaka and lag behind in other consumption preferences. Some consumers emphasize the need for these markets to proliferate and become prevalent, stating that the quality, freshness and reliability of the products along with reasonable pricing. Conversely, consumers shopping from the producer market find this alternative pivotal for supporting local producers while offering a more transparent and reliable option (Interview No. 12, 39, 45, 48). On the other side, another segment of consumers perceives the product quality and variety in these markets indifferent from regular greengrocers and markets (Interview No. 47). and express doubts regarding control over safety and cleanness (Interview No. 46). Many of them remark on the lack of consistency and visibility of these markets (Interview No. 43), and emphasize the importance of increasing the frequency, prevalence and promotion of these markets within the district (Interview No. 43).

Considering these insights, the second price-related factor necessitates a food system model that provide accessibility to healthy, nutritious, reliable but also affordable food products. Expanding the array of alternatives under a public oriented food system model, not only provide access to food products suitable for diverse needs, but also facilitates access to alternative price options. The proliferation of cost-effective alternatives will also have an impact on price determination among existing mechanisms. Despite the existence of valuable practices in Karşıyaka, the dissemination of similar mechanisms with increased accessibility emerges as an important requirement.

The third important driver aligns closely with concerns about environmental and social problems produced by the dominant regime, seen in addition to the price- and quality-related concerns mentioned above. This concern is majorly expressed by a diverse group of consumers with high social awareness in Karşıyaka, who advocate localized solutions for food consumption and are deeply concerned with public health and environmental issues. These issues have increasingly included issues on climate change, the health of local ecosystems, ecological agriculture, and local and

safer food systems in recent years. Accordingly, consumers with such stance advocates a shift towards locally produced foods that are both healthy and environmentally sustainable. Hence, there is a growing demand for food products from local sources, driven by the desire for clean, healthy options that are also environmentally sustainable.

This consumer stance, majorly concerned and sometimes ethical, was initially highlighted during the citizen workshops of the Gevrek model (Gevrek Citizen Workshop Notes, 2023), as well as during the citizen workshops of the Karşıyaka Food Strategy Document (PO. 1, 2) where representatives from various segments in Karşıyaka participated. The prevalent approach among participants revolves around the *demand for transparency* in food retail, particularly concerning the lack of information regarding the quality and healthy production of the product offered by existing conventional mechanisms. There is an increasing sense of insecurity and uncertainty regarding the production of food, especially in terms of the methods used, the place of production, the use of chemicals particularly in fresh fruits and vegetables. This uncertainty continues about the nutritional value of the food products available, leading to greater concerns combined with the limited access conditions brought by ascending food prices. All these creates a sense of dissatisfaction among the consumers about the available food access options, the product quality and health implications. In this context, the majority of consumers advocate for mechanisms that prioritize high transparency and direct contact with producers. However, these preferred mechanisms are not widely available in neighbourhoods, posing a gap between consumer demands and the current retail landscape (PO. 1, 2; Gevrek Citizen Workshop Notes, 2023).

These concerns were also encountered in interviews with individual consumers and consumer groups in Karşıyaka. In the explanations that can be included in this scope, the emphasis is on the fact that foods accessed only from prevalent retail options contain high levels of chemicals and are therefore unsafe and unhealthy (Interview No. 39, 43, 46). In this context, consumers emphasize that they do not have any information about the production of the product they consume and the stages it goes

through until consumption (Interview No. 39, 41). On the other hand, consumers who approach the issue from a more ethical perspective state that the relationship between the producer and the consumer has largely broken and that this process creates unequal conditions for all food system actors, from the producer to the consumer (Interview No. 39, 40). This situation encourages concerned consumers to consume products that they think are more natural, clean and local, in their expressions (Interview No. 11, 15, 41). Hence, they are willing to establish relationships with alternative mechanisms where they can access cleaner, chemical-free products, shop more safely, and establish direct contact with local producers (Interview No. 39, 40, 41).

For all these reasons, there were consumers who stated that they preferred to shop at the producer market (Interview No. 15, 39, 40, 41), due to the availability of ‘sustainable’ products including local, chemical free, ecological/natural products offered by cooperatives or local producers. Direct interaction with local producers empowers consumers with information regarding the production process, contributed to increased comfort when making purchases. This direct interaction also allows consumers to build connection and support with the local producer. Within this context, the importance of price as a determinant factor, diminishes as consumers perceive the value of transparency and reliability. Even if the price is slightly higher, the perceived cleanliness and reliability of the product obtained through direct interaction with local producers outweigh the price consideration (Interview No. 39, 41). This shift in perspectives underscore the importance consumers place on the quality, locality, and support for local producers in their purchasing decisions. A consumer insight into this contains valuable information:

“I prefer this place because I can interact directly with local producers in this market. I can learn how they produce, and a relationship of trust is formed between us. At the same time, I have the opportunity to support them. ... It is a little more expensive than other markets, but this difference is worth paying because it is very difficult to reach clean food and I have no doubt that the product here is of better quality in this manner” (Interview No. 39).

Groups with these concerns turned into concrete, small-scale, niche structures in Karşıyaka. There are alternative food consumption structures operating in the district, one is a consumer cooperative named ‘İmbat Consumption Cooperative’ and the other is a food consumption community named as ‘Gediz Ecology Community (GETO)’. These groups operate an alternative food access mechanism within themselves. While İmbat Consumption Cooperative focuses on delivering cooperative products from different regions of Turkey to its members³⁴ (Interview No. 29), GETO establishes a structure that completely shapes the ecological production and distribution process based on consumer demands. In GETO, consumers can shape the production process by specifying the products they need. This community establishes a structure where ecological production and consumption are intertwined and support each other. Members³⁵ who make constructive contributions to both ecological production and consumption processes, design the entire process from production to consumption together (Interview No. 23, 24, 25).

In conclusion, insights gathered from a limited number of consumer interviews in Karşıyaka, as well as citizen workshops spanning various processes, it is evident that a growing segment of concerned consumers is emerging in the region. On one hand, these consumers find themselves challenged by the rising food prices, linked to high level inflation, and seek access to more affordable food products without compromising on the quality. On the other hand, there are consumers in Karşıyaka characterized by a high level of social awareness, advocating for a transformed food

³⁴ İmbat Koop. has been founded in 2019, with its members as organized consumers, producers and producer unions/cooperatives. They carry out commercial activities with nearly 40 production cooperatives focusing on the production of various products from Turkey. In principle, the cooperation aims at strengthening consumer organization and link consumption with production operated by producer cooperatives. Hence, all of the products intended to be delivered to consumers are provided by the member cooperatives, in order to support cooperative production.

³⁵ GETO has approximately 20 ecological producers (varies periodically), spread across the rural periphery of İzmir and approximately 30-40 consumer members (hence the number of households from Karşıyaka and surrounding region). In principle, the aim is to reach more conscious consumers and to design a ecological production process shaped by this conscious consumption.

system mechanisms that contribute to environmental and social issues. Considering these, there arises a clear need for a public model fostering localised retail and consumption capable of addressing these demand-side drivers and concerns. Such public model with alternative food supply and retail not only support consumption of cleaner, safer and healthier food products, while supporting local producers, but also foster circularity through localization, shorter supply chains, resource efficiency, thus reducing emissions. Such models also have the potential to contribute to a more equitable and just food system, where all segments of society reach same quality products with balanced prices and the producers are strengthened. The localized and public-oriented retail mechanisms highlight the potential for a transformative approach that is aligned with both consumer demands and broader environmental and social goals within the community.

7.1.2 Consumption Junction Drivers & Retail Strategies

Consumers have the power to influence the production and supply of sustainable and circular products through responsible purchasing decisions (Borrello et al., 2017; Canto et al., 2021). Therefore, demands of the consumers are important drivers in terms of transition. However, transition could not be solely attributed to the consumer demands and individual practices; novel models of food supply and provisioning at consumption junction play an important role for the transition (Mylan et al., 2016; Ooesterveer & Spaargaren, 2012). Diversifying access channels through alternative mechanisms in response to evolving consumption trends will increase an alternative market with local, sustainable and circular products, therefore accelerate transition in downstream practices. For this reason, it is vital to focus on the consumption junction practices, where supply and consumption intersect, in order to meet the responsible consumption demands, as observed and discussed in the case of Karşıyaka.

Considering that the mechanisms at the consumption junction are important in terms of transition, the effects of the dominant consumption mechanisms and alternative structures in Karşıyaka on production and consumption should be discussed in detail.

Currently, consumption mechanisms in Turkish cities are dominated by the supermarket model fuelled by the dominant food regime (Atasoy, 2013). The increasing dominance of the supermarket model, in which global and national corporate chain structures are rapidly spreading in cities, accelerates the commercialization of food production, processing and supply. This model leads to the expansion of agro-industrial food production connected to long supply chains, increasingly dominated by chemical concentration, ecological degradation, waste generation and nutritional problems (FAO, 2019). Simultaneously, small-scale producers face greater vulnerability as they struggle to integrate into the highly commercialized supermarket-driven system through contract farming. The supermarket model paves the way for corporate control over food supply chains via the industrialization of agriculture, incorporating certification systems and quality standards. While control is deemed necessary for food safety, it disadvantages producers unable to meet these conditions, forcing them to comply with the demands of contract farming regulations. Therefore, supermarket model is eroding small-scale, local food production, thus diversity in food provisioning in Turkish cities, as in the case of Karşıyaka (Interview No. 22, 29).

The food supply system has historically generated alternatives both within and outside of the dominant supermarket model. To give an example, different corporate alternatives employing distinct retail strategies have emerged within the supermarket model, ranging from discount markets targeting middle- and low-income groups to niche luxury markets offering exclusive food products. Simultaneously, more robust alternatives have emerged, driven by grassroots organizations or local government initiatives to provide stronger responses to systemic problems. In particular, as seen in Chapter 5 and 6, it is noteworthy that local governments in Turkey have currently taken initiatives in the face of rising food inflation, similar to the first forms of supermarkets in food provision in Turkish cities. However, the first examples of food provisioning in major cities - in the form of municipal mechanisms that started as shopping cooperatives or local subsidiaries, assimilated in the corporate food regime and dissolved within the system over time. Today's examples are being reconstructed

in similar ways but trying to maintain their existence, where they struggle to become widespread option.

In the cities of Turkey and urban-sections like Karşıyaka, the food provisioning is generally dominated by global and national chain supermarkets (e.g. Migros, Carrefour and alike). In addition, there are discount markets, where national retail chains (e.g. BİM, A101, Şok) have started to take part in the market together with their established rivals. Discount markets in Turkey have grown very rapidly, where they have forced their established competitors to produce new strategies and supermarket forms (e.g. Migros Jet or Carefour Express) (Bardakci & Taran, 2019). The discount markets, which set out with a hard discount strategy, aim to deliver basic goods and food products to consumers with high quality and the most affordable prices³⁶, and have gained an important place among the food shopping options in Turkey in recent years. There are also local chains that have grown on a city or regional levels, have begun to take place in the food market (Atasoy, 2013; Bardakci & Taran, 2019).

Observing Karşıyaka reveals that all the different forms of supermarkets form the basis of the food supply in the district, as analysed in the previous chapter (See Chapter 6). The prevalent mechanisms for food provision include national supermarket chains along with the discount markets. Additionally, local chains are quite numerous in Karşıyaka, dispersed around the district. There are also niche markets, catering niche products such as organic, vegan or gluten-free food varieties. The number of these niche markets is less than other established chain markets, operating in locations suitable for their retail strategies. Finally, the online shopping options have become an increasingly popular form of shopping in recent years (Interview No. 22). Alternative forms of food shopping also stand out among the consumption patterns in Karşıyaka. These alternatives include especially

³⁶ BIM Supermarkets - <https://english.bim.com.tr/Categories/108/about-us.aspx>

neighbourhood bazaars (Interview No. 11, 12), as well as cooperative markets, municipal markets (Interview No. 44, 45, 46, 47), organic bazaars and producer/farmers markets (Interview No. 39, 40, 41) initiated by the local municipality (See Chapter 6).

Among the prominent alternatives, **neighbourhood bazaars** stand out as an important form of food provisioning (Interview No. 12, 15). It is a traditional alternative to the supermarket model, but increasingly dominated by wholesale market dynamics shaped by conventional production, national supply chains and rules of intermediaries (Interview No. 7, 8, 13). Neighbourhood bazaars, which hold an important place especially in fresh fruit and vegetable shopping, mostly supply conventional chain products (Interview No. 7, 8), contrary to the perception that fresh, local and natural products are available, as examined in the previous chapter.

Another alternative in recent years is the **cooperative markets** under the roof of Agricultural Credit Cooperatives in Turkey. This is a national-scale upper producer union, providing input and financial support to producers through the producer cooperatives, as well as sales and marketing supports through cooperative markets dispersed around the cities of Turkey³⁷. The cooperative purchases and processes the products from the cooperative members at their facilities and deliver the end products to consumers through the cooperative supermarkets. The Agricultural Credit Cooperatives claims that they offer high-quality, healthy products at cooperative supermarkets with the motto “from farm to table” (TTKK Website, 2023). There has been ongoing debate that cooperative markets have faced difficulties in offering lower prices compared to supermarkets in recent years, and some attributed this problem to increased production costs³⁸. There are also opinions in the literature that credit cooperatives have transformed into a privatized structure that prioritizes

³⁷ Türkiye Tarım Kredi Kooperatifleri (TTKK), Cooperative Markets - <https://www.tarimkredi.org.tr/en/what-we-do/cooperative-supermarket/>

³⁸ <https://tr.euronews.com/2021/10/07/yeni-tar-m-kredi-kooperatifi-marketleri-g-da-fiyatlar-n-dusurecek-mi>

contract farming and conventional production (Atasoy, 2013), so that fails to become an alternative to the prevalent supply mechanisms. None of the interviews conducted with consumers in Karşıyaka indicated these markets among the preferred ones.

Municipal markets (Kent Market³⁹), which are designed on a more local scale, appear as a new mechanism for food provision in Karşıyaka. The objective of Kent Market is to connect producers directly with consumers without intermediaries, especially focusing on disadvantaged regions, ensuring that consumers have access to quality food at affordable prices (Interview No. 49). Its purpose is to provide access to quality, reliable, local and healthy food at affordable prices. The market features a range of products sourced from cooperatives in the Aegean Region and Izmir, emphasizing localization, reliability, and high quality. In addition to local cooperative products, municipality also contributes to the market's offerings with own products produced through subsidiaries (Kent Market Website, 2023). The reliability and affordability of the products are also acknowledged by the consumers (Interview No. 15, 45, 46, 47).

However, there are certain financial problems faced by the Kent A.Ş., the subsidiary responsible for the operation of Kent Markets in Karşıyaka. According to the annual reports, the operational costs have exceeded the total turnover for the last few years. According to the 2022 report, the personnel expenses are equivalent to twice the income generated by the facilities under Kent A.Ş. in 2011. In 2022, although expenses remained below revenue, a very small profit rate was achieved (Karşıyaka Municipality, 2023a)

Producer markets and organic markets serve as alternative models to traditional neighbourhood bazaars. Organic markets specialize in selling certified organic food products to consumers, ensuring adherence to specific organic standards. On the other hand, producer markets operate as a less formal arrangement, lacking

³⁹ Kent Markets - <https://www.karsiyaka.bel.tr/tr/marketler>

certification but involving direct inspections from municipality (Interview No. 37). In both cases, the key feature is the establishment of a direct connection between producers, producer unions and consumers, fostering a closer relationship within the food provision. Both of them prioritize the sale of healthier, and especially naturally produced, chemical-free food products.

All these forms of food provisioning have different producer-distributor-retailer relationship, some of which support the sustainability and circularity through shorter supply chains. In Karşıyaka, there are various forms of retail, presenting a considerable advantage in terms of diversification of food provisioning and access to sustainable options. Linking this diversity with shorter supply chains and promoting local production becomes a catalyst for achieving circularity within the food system. In this manner, municipal retail alternatives align with these principles, with their advantages in terms of prioritizing short supply chains and emphasizing local production. Nevertheless, challenges exist in the widespread adoption of the municipal retail options. The reasons behind these will be investigated through comparisons of retail strategies of existing mechanisms with respect to the strategies for availability and affordability of local, healthy and safe food products.

Retail strategies in comparison

Supermarket chains generally follow a strategy focusing on product variety and moderate prices. Discount chains differ from supermarket chains with strategies over target groups, product and pricing strategies as well as location strategies (Bardakçı & Baran, 2019). Behind the success of the rapidly expanding discount stores, there are two basic dimensions of competitive strategies: *differentiation* and *cost leadership*. Within the scope of differentiation strategy, discount chains differ from prevalent chains in determining both product varieties based on private labels and target groups as low- and middle-income consumers. In terms of cost leadership, discount chains focus on reducing costs in every sense, including production of private label products, location and floor area choices, lower stock levels as well as

store simplicity and product presentation (Bardakçı & Baran, 2019). Relatedly, discount markets choose location at local streets in the neighbourhood centres of Karşıyaka, where proximity to urban residents is also higher, relevant to their retail strategies. Supermarkets with national and global chains, on the other hand, prefer central locations where commercial use and population density as well as visibility opportunities are higher.

Discount chains and municipal markets have similar strategies in terms of offering more affordable food products, but municipal markets adopt different strategies in terms of product placing, including offering local products from cooperatives, supporting localization and accessing high quality food at affordable prices. On the other side, there is the principle of non-profit making as a municipal mechanism (Interview No. 49). They differ in this manner because discount markets do not have strategies such as localization or non-profit making. However, while sustainability and localization maintain its importance in terms of circularity, economic sustainability as well as sustainable pricing in the times of high inflation are also important. Additionally, proliferation is an important requirement for municipal markets to become widespread, since the number of stores are low throughout Karşıyaka. In this context, the cost effectiveness strategies including location choices of discount markets could be an appropriate strategy to be adopted for municipal markets.

The other important criterion are diversity and continuity of the products available. It is important that markets sell diverse products with the same quality regularly. In this context, some problems are experienced in terms of ensuring the diversity and continuity of local food products (Interview No. 50), which can also be attributed to the cooperative products (Interview No. 29). Local market chains that attach importance to the local product range give importance to this issue as ensuring the continuity of local products has become a problem in recent years. For example, local market chains stated that while they were trying to expand their local product range, they were having problems with shelf continuity (Interview No 50). Behind such problems, the main emphasis is on the increase in production costs and its impact on

product supply, as well as the increasing problems in logistics of the products (Interview No. 22, 29, 50). In this manner, municipal markets are advantageous due to strong level of coordination with cooperatives and public procurement as well as efficient level of self-production (Interview No. 49). However, logistics emerges as an issue that needs to be supported, especially for local products (Interview No. 22).

The limited prevalence of municipal markets can be attributed to the lack of a well-defined retail strategy compared to other retail mechanisms (See; Table 25). While there are strategies such as selecting disadvantaged areas in terms of location choices, there is a lack of clarification and integration with other strategic elements for diversification and cost-effectiveness. Relying solely on self-production is an advantage in terms of cost effectiveness but may become insufficient to ensure long-term sustainability in local product pricing. It is important to address additional aspects such as product diversity to enhance overall effectiveness of municipal markets. To further support local product diversity to comply with the emerging consumer preferences needs systematic support to the logistic problems of local producers and producer unions. In this context, cost sharing methods can be supported and increased within public procurements of local products.

Table 25: Retail Strategies of Prevalent Food Supply Mechanisms in Karşıyaka
(Source: Compiled by the author based on the outcomes of the interviews with different retail mechanisms and literature review)

Retail Type	Retail Units	Target Group / Consumer Profile	Product / Pricing Strategy	Product Placement	Local & Natural Product	Affordability	Production – Supply Relationship	Location Strategy
National Supermarket Chains	Supermarkets	High & Middle-income / General	Variability / Average - High Price	Variable - Certificated (e.g. Good Farming) Private Labels	Low	Average	Conventional Contract Farming Private Production	Visibility & Large Floor Area; Urban centres, main arterials
	Niche markets	High-income / Concerned	Speciality / High Price	Variable – Certificated (e.g. Organic)	High – Organic	Low	-	Visibility; Urban centres, main arterials
National Discount Chains	Discount markets	Low-income / General & Need-based	Affordability / Low Price	Variable – Affordable Private Labels	Low	High	Conventional Private production	Low rent & proximity; Neigh. centres, local streets
Local Supermarket Chains	Local Chains	Middle & Low-income	Affordability / Average price	Variable – Local - Affordable	Variable	Average	Local SMEs Conventional	-
	Regional Chains	Middle & Low-income	Affordability / Average price	Variable – Local - Affordable	Variable	Average	Local SMEs Conventional	-
Alternative Retail	Municipal Retail – Kent Market	<i>Not specified clearly</i> Middle & Low-income / Concerned & Need-based	Affordability / Low Price	Local – Affordable Private Labels	High	High	Cooperatives Private production - Subsidiary	<i>Not specified clearly</i> Disadvantaged Regions; Neigh. centres
Bazaar Alternatives	Local Bazaars	Middle & Low-income / General & Concerned	Affordability / Low Price	Local - Affordable	Variable	High	Conventional Small-scale - Traditional	Suitability; Neigh. centres
	Farmers Markets	<i>Not specified clearly</i> Middle & Low-income / Concerned & Ethical	Affordability / Low Price	Local - Natural - Affordable	High	High	Small-scale - Traditional Cooperatives	Suitability; Neigh. centres main squares



Circularity Potential

Examining circularity, municipal markets, neighbourhood bazaars and producer markets exhibit advantages in terms of establishing a circular system, primarily due to the existence of areas available for local government intervention. These retail mechanisms, especially the municipal mechanisms, have initiated efforts to increase the presence of local products, including those from local producer cooperatives. This supports the major parameters of circularity, that is shortening food supply chains and localisation. In addition, waste minimization practices in these retail mechanisms continue to exist, although not systematically. These applications stand out as potential applications in terms of circularity (See Table 26).

Table 26: Retail mechanisms aligning with circularity (Source: Compiled by the author)

Retail Model	Length of Supply Chain	Localisation	Waste Minimisation
National Chains	Long – national scale Self-production	Low	Hard discounts Selling to fertilizer companies
Discount Chains	Long – national scale Self-production	Low	<i>No information</i>
Local Chains	Long – national scale Short – local cooperatives in a few number	Medium	Hard discounts Selling to fertilizer companies
Municipal Market (& Facilities)	Short – Via Cooperatives Self-production	Strong	Sharing - Exchanging Composting
Farmers Market	Short – Direct Connection	Strong	Own solutions – composting, animal feed
Neighbourhood Bazaars	Long – national scale Short – local producers in a few number	Medium	Low level of municipal collection Reusing

The emphasis on local products is very prominent in both municipal markets and producer markets, including successful practices in this regard. Municipal markets, with their focus on self-production, also enables a range of affordable, local and reliable food products. There is a room for stronger circularity principles to be integrated within this self-production in the municipal facilities. For the integration of local products, diversity should be a criterion where public procurement through cooperatives can further enhance this diversity. At the same time, introducing circularity criteria in procurement processes encourages circular and sustainable product placement and motivates cooperatives to adopt more circular practices. These practices can certainly be increased and evolved into a more systematic intervention.

Localization could be further supported in the local bazaar regulations where the number of local producers is very low, or the ones suffer from visibility and opportunities provided (Interview No. 10, 14). Creating quotas to increase the number of local producers within the bazaars and increasing regulations to support the visibility of local producers will be a practice that will contribute to localization (Interview No. 22).

There are also supports for some practices towards waste minimization within these mechanisms. These includes supports for composting, recycling and reusing surplus edible food and food waste. For example, Municipality collect leftover food from bazaars (Interview No. 13, 14), redirecting edible items to institutions and non-edible components to composting, alongside waste from parks and gardens (Interview No. 6). Apart from this, surplus food is shared and distributed within municipal mechanisms, contributing to waste reduction (Interview No. 42). All these have a potential in terms of building waste reduction mechanisms in the support of systemic integration of circularity within local food systems.

7.2 Barriers for Transition

While demand-side factors, such as consumer preferences and the availability of alternative food provisioning, act as significant drivers for food system transition, various barriers hinder this process in Karşıyaka. These obstacles encompass institutional, financial, practical, and organizational challenges that impede the widespread adoption of sustainable and circular practices within the food system. This section will delve into a detailed examination of these barriers with the aim of identifying strategies to overcome them and establish a more sustainable and circular food system.

7.2.1 Institutional

In-depth examination of the key urban food practices in Karşıyaka discern both the driving forces triggering positive change and the barriers that prevent the realization of widespread adoption. Through the analysis done, several key institutional drivers and barriers have been identified for Karşıyaka. Drivers are related to the active role of the local government with internal bodies working on food and agriculture related applications, showing political commitment to urban food planning. However, the barriers often overshadow these ambitious practices, where the internal coordination is low with fragmented efforts and central government support is a significant problem.

The active involvement of the municipality as a local actor and main decision-maker, with ambitious internal bodies on agri-food issues is a significant driver. In this context, the influence of the local administrator who tries to bring a vision to the city is very clear. Emphasizing the priority of food at every opportunity, the Mayor is one of the most important actors and driving forces of this process, and speeches show the existence of a strong political determination on food. As an important local actor, the Mayor emphasizes that coping with crises is possible with a conscious society and responsible managers, and explains the determination on food with the following statements:

“Nobody listens to politicians talking about the climate crisis, they prefer talking about wages and inflation. These discussions are only possible in an environment where there are no crises. But crises are at the doorstep, food and energy crises will be even deeper in 5-10 years and we must take precautions. We cannot live without water and food. ... We are working hard on this issue, we have set a model for ourselves and in this manner, we have drawn our first road map for the food crisis. The food system must continue to be improved, and local governments such as Karşıyaka municipality must ensure and support this.” (PO. 5).

Under such a political commitment, many steps are being taken regarding food, including the comprehensive study of the Food Strategy Document, aiming at placing incremental practices in a conceptual framework. The preceding chapter has detailed the various practices, projects and programs initiated by the municipality, showcasing a commitment to fostering a positive change in the local food system. Initiated by the scientific committee and its active members, the preparation of a comprehensive food strategy document serves as a primary driver, outlining a structured approach to address food-related issues within the district.

While the presence of a food strategy is seen as a very important driver for effective food governance, the need for an institutional structure is clear and needs to be created to address food more systematically (Interview No. 1). Such an agency would produce food policies with strategies and action plans based on the necessary analyses and monitor their implementation in a coordinated manner. The absence of a dedicated food agency within Karşıyaka serves as a barrier to the widespread adaptation of the food applications, which is also acknowledged within the scope of the food strategy. The first step in the implementation of the strategy is the establishment of a Food Council in Karşıyaka and gather all food-related studies under this umbrella structure (PO. 5). This body is intended to operate as an upper structure on food responsible for implementing, monitoring, and organizing the actions set out in the Karşıyaka Food Strategy Document. It is clear that the establishment of such a structure will lead to a stronger food organization and will find ways to achieve financial as well as organizational problems.

Currently, the prominent challenge arises from the dispersed structure within the municipality, where decision-making authority for food issues is fragmented among various departments. While various units are designated to handle specific aspects of urban development, such as City Vision Unit and Sustainability Office, issues related to food management are distributed across diverse bodies, such as Agricultural Services, Parks and Gardens, Climate Change and Zero-Waste, and Social Services. For instance, the Vision Unit formulates the city's vision, while the Sustainability Office ensures the coordination of implementations aligned with the dimensions of the city vision (Interview No. 18). Citizen participation is overseen by the Citizen Participation Unit, continuously integrated into various processes (Interview No. 20). Waste management falls under the responsibility of the Zero-Waste Unit, whereas food-related aspects, including production, consumption, and new food projects, are managed by Agricultural Services (Interview No. 6). Some practices related to the food aid are under the responsibility of social services, as exemplified in both Izmir and Karşıyaka. This multi-headed structure results in disjointed efforts and hinder the continuous implementation of comprehensive food policies and practices. This is one of the most important institutional barriers to establishing a holistic food approach.

These disjointed efforts become evident with the implementation of key urban food practices, including both production-oriented and consumption-oriented practices. For instance, in production-oriented practices like urban agriculture, the Vision Unit takes the lead to carry out initial process, the Citizen Participation Unit manages participation processes, and the Agricultural Services and Parks and Gardens Directorates undertake the practices (Interview No. 6, 17, 20). Despite the cooperation, the independence between units sometimes poses challenges in the execution of works (Interview No. 17).

On the consumption side, there lacks an institutional organization, leading to fragmented applications managed through different units. Consumption-oriented initiatives are primarily handled by the Agricultural Services Department along with the Facilities Directorate and municipal subsidiaries (Interview No. 6, 42, 49). In this

context, along with the lack of institutional organization directing food consumption practices, institutional capacity inadequacies such as human resource shortages and a lack of know-how are mentioned as institutional barriers to effective implementation (Interview No. 6).

The fragmented efforts also reveal themselves in practices related to food waste. Despite being a main action topic in the food strategy, food waste is the weakest issue addressed within municipal units (Interview No. 1, 6). There are limited number of practices over food waste, and food waste management system has yet to be proposed. There are ongoing incremental practices like compost production, with the efforts taken by the Agricultural Services in collaboration with Parks and Gardens Directorate (Interview No. 6). However, studies on waste management are carried out by the Zero-Waste Department. Notably, the Zero-Waste Department has not conducted a specific study on food waste (Interview No. 21). Apart from all these, Municipal units currently lacks studies on the redistribution or reuse of edible food surplus obtained from food services and food retail, leaving a gap for implementation.

While Agricultural Services make efforts for clean food production, local food consumption, and recycling of food waste, these practices remain outside an institutional framework and lack a systematic approach, resulting in fragmented efforts that cannot be scaled up comprehensively. In addition, the fact that the delivery of food to disadvantaged groups is carried out by a separate unit of the Department of Social Services is an indication that the issue of access to food is not addressed in a systematic manner.

Alongside the fragmented institutional structure in the realm of food, another notable barrier is the presence of jurisdictional conflicts, particularly conflicts arising between central and local authorities in both implementation and support processes (Interview No. 6, 28, 34). Such conflicts can impede the effective execution of sustainable and circular practices, necessitating careful navigation and coordination between different levels of governance (Interview No. 34). However, establishing such coordination is often challenging in the context of Turkey.

While relations between local municipalities (district and metropolitan scales) are relatively stronger, notable differences exist between local government policies and national policies along with institutional supports. These disparities contribute to increased conflicts between local and national levels. Emphasizing the importance of seeing this situation as a political culture problem, the municipality representative details the issue as follows:

“Karşıyaka, on its own, faces limitations in applications and lacks authority in certain matters. For example, we (as local municipal units) cannot intervene in production processes; our influence is limited to the urban agriculture practices within our responsibility area. At this point, policies regarding sustainable agricultural production are gaining importance and more attention should be paid to this at the national level. But the absence of such political culture poses challenges for local municipalities in terms of implementation and support.” (Interview No. 6)

Karşıyaka maintains bureaucratic relations with two institutions in relation to food. The first is the IPDAF, which provides support limited to the safety control of the food consumed in the city (Interview No. 16). The second is the Metropolitan Municipality, from which Karşıyaka Municipality receives know-how and logistics support from Izmir Metropolitan Municipality, allowing them to collaborate on necessary initiatives (Interview No. 6). However, likewise Karşıyaka, the Metropolitan Municipality also express encountering similar problems:

“The existence of a national state policy is necessary for cooperation and support, but unfortunately, upper-scale policies often fall short of addressing the needs of local governments. This disparity can be perceived as an obstacle rather than a support for local administrations, leading to differences in approach and financial support challenges in the context of Izmir.” (Interview No. 34).

Fragmented institutional structure, diverse efforts and initiatives tackling food problem, and differences between national and local policies emerge as the reasons for the institutional challenges faced by Karşıyaka. These challenges primarily affect

the decision making as well as implementation processes, thus influencing local administrations and their institutional settings. However, there are other problems extending beyond decision-makers, affecting various stakeholders under the implementation processes. Among these is the financing problem, intertwined with institutional shortcomings, that will be examined in detail in the subsequent section.

7.2.2 Financial

Within the process of transitioning towards a more sustainable and circular food system in Karşıyaka, financial barriers present significant challenges, individually for every food actor in the field. A notable barrier is the escalating costs precipitated by high inflation rates in Turkey, encompassing both rising input costs and rental expenses. This section will delve deeper into the multifaceted challenges posed by these cost-related barriers, examining their implications for both civic organizations and municipal initiatives in sustaining a viable and circular food system in Karşıyaka.

Starting with the primary implementer, financial constraints and budgetary issues emerge as the foremost challenges limiting the Municipality's capacity to implement and disseminate its initiatives (Interview No 6, 18). The budget constraints, largely influenced by rising inflation in Turkey, extend to municipal levels, impacting the continuity of ongoing food projects. These budgetary limitations exert pressure on various expenditures, including urgent spending on urban infrastructure and maintenance, potentially affecting the trajectory of alternative mechanisms.

The most concrete example of this is the Food Centre project, which remains unrealized due to insufficient financing. The Food Centre project was aimed to transform Bahçelievler Neighbourhood Bazaar into a multi-purpose facility featuring roof gardens for urban agriculture, sales units for local and ecological producers, and social spaces for food-related awareness and education activities. The envisioned centre aims to serve as a platform fostering connections between producers and consumers, acting as a social hub where local NGOs and initiatives can also benefit

(Interview No. 29). However, the project could not be realized due to the increasing costs of investment and maintenance, in relation to rising input costs (Interview No. 6). Regarding this, the representative from Karşıyaka Municipality conveys the following:

“Food centre was a project we cared about. The aim was to build an urban agriculture facility for municipal production and to support cooperation with local cooperatives. However, the project stopped at the moment since financial constraints create obstacles against the implementation of such projects. The reason is the increase in investment costs and the decrease in municipal budgets due to the economic crisis we experience in Turkey”
(Interview No. 6)

The escalating costs present a potential risk of affecting all food-oriented practices of the municipality (Interview No. 28, 34). The rising prices not only impact production practices within the municipality facilities for affordable food provisioning, but also create challenges for the maintenance and sustainability of existing mechanisms such as seed centre, urban orchards, municipal retail and alike. As it is already discussed, there are certain financial problems faced by the Kent A.Ş., where the operational costs have exceeded the total turnover for the last few years. In 2022, the personnel expenses are almost equivalent to the revenue generated by the facilities under Kent A.Ş. (Karşıyaka Municipality, 2023a), which shows the problems posed by the increasing costs in recent years. Additionally, the intended support services for producers, such as logistics and input assistance, may face difficulties due to these increasing costs, as in the case of Izmir Metropolitan Municipality (Interview No. 28). Despite the municipality's clear desire and determination, budget constraints become apparent, limiting its capabilities in certain aspects (Interview No. 6, 18).

In addition to the practical challenges faced, financial constraints also contribute to the institutional shortcomings mentioned earlier. The difficulty of securing budgetary support emerges as a significant obstacle to establishing and operating a food agency within the organizational framework (Interview No. 1). Consequently,

there is a pressing need to explore alternative financing models to overcome these problems and ensure the effective functioning of such an agency.

Financial constraints also pose obstacles in front of the civil organizations to implement their food practices. Particularly, civil organizations, such as consumer cooperatives, grapple with the financial strain induced by elevated costs, rendering them unable to sustain operations in urban centres. This is clearly seen in the example of Imbat Consumer Cooperative, a very important consumer association that aims to shorten the distance between production and consumption. This consumer cooperative, which aims to deliver cooperative products directly to the consumer by creating a retail alternative in consumption, struggles with the economic crisis and rising costs of production and retail (Interview No. 29). The representative explains the main reasons as follows:

“Cooperative products may remain at higher prices majorly because of the high input prices and production costs. The rapidly increasing prices make it difficult to replace sold products, which directly impact product diversity. When the prices remain high, sales become limited to a smaller number of consumers. This time, the profit margin decreases along with the competitive capacity. So, we have chosen to close our place because it is not possible to continue commercial activities under these conditions.” (Interview No. 29).

Like Imbat Consumer Cooperative, civil mechanisms cannot afford the increasing costs of logistics as well as stocking to ensure price continuity (Interview No. 22, 33, 35). These expenses, which used to be easily covered, now almost compete with the price of the product itself (Interview No. 29). High costs of logistics and delivery of alternative food products cannot be met with the limited budget of alternative structures. This creates interruptions in product supply or resulting in higher prices of sale. The rise in costs has a cascading effect on the affordability and competitiveness of providing accessible food products. As these elevated costs are absorbed into pricing structures, it places limitations on the ability of these mechanisms to offer affordable food options (Interview No. 22, 29). On the other hand, rising costs of choosing central locations, along with the increasing urban

rents, bring about the withdrawal of these mechanisms from urban centres (Interview No. 29). In this context, rent and logistic support are prominent issues, especially in terms of supporting these alternative structures and civil organizations.

Like these civil alternatives, private retail chains are also looking for ways to cope with financial difficulties. Increasing logistic costs based on increasing fuel prices is particularly emphasized in terms of the financial problems. In this context, supermarkets are trying to reduce these costs through methods such as cost-sharing with suppliers or turning back to warehouse shipments instead of partial purchasing (Interview No. 50, 51). Despite considering supply of products from local producers or producer associations in the nearby region as a means to reduce distance costs, the challenges related to supply and continuity for these local products diminish the feasibility of adopting this approach as the primary strategy (Interview No. 50).

7.2.3 Practical

Like institutional factors, practical factors also includes both drivers and barriers in terms of building sustainable and circular urban food system. On the driving front, the existence of pivotal practices detailed in Chapter VI serves as a catalyst for transformative shifts. These encompass a spectrum of urban agriculture practices that extend to the production side, supported by structures like seed centres, composting initiatives, and educational and awareness raising practices. On the consumption side, diverse alternatives come to the forefront, ranging from municipal retail initiatives to farmers' markets, cooperative markets, and consumer groups. These practices collectively form a strong foundation, offering multifaceted efforts driving transition towards a more sustainable and circular food system.

However, examining the barriers in detail reveals two prominent challenges. One of them is the fragmented and incremental nature of existing practices, falling short in systematic implementation within a holistic framework. The other is majorly associated with the top-down nature of current practices and the low level of civic

implementation. Both pose challenges in achieving widespread adaption and social dissemination of the applications.

While incremental practices present significant efforts, their limitations arise from their fragmented implementation (Interview No.1). This affects the potential of applications to reach a broader public. This is observed both in consumption-oriented and production-oriented practices, where challenges are associated with a small number of applications, inability to spread throughout the district and low accessibility, outlining the main problems contributing to their lack of widespread adoption. These challenges impede the broad dissemination and social acceptance of such practices across various segments of the urban population.

However, the challenges are more evident in production-oriented practices, including efforts to increase urban agricultural practices and support environmentally friendly production. The challenge for these practices lies in their limitation to be founded on the real needs of various food actors including producers, urban consumers, disadvantaged groups, and others. There are limited practices in the district aimed at supporting producers and promoting environmentally friendly production. Support in this context is insufficient due to the lack of a clear definition of the real needs of urban food actors involved in production⁴⁰ (Interview No. 23, 24). For this, practices such as seed or seedling distribution exist, but the basis and purpose of this distribution remain unclear (Interview No. 24).

GETO members stated that such studies should be implemented in a more systematic manner rather than being random and one added the following:

“Municipal activities may be effective, but the fragmented practices they carry out can actually undermine each other at some point. For example, seedling or heirloom seed distributions take place, but whether they reach the actual producer is not monitored. Or the distribution does not proceed through a producer inventory. Therefore, it does not really work as a support

⁴⁰ Can be either agricultural production or urban agriculture including horticulture and balcony gardening.

mechanism, and it is not known whether it works or not. At some point it remains a wasted effort.” (Interview No. 24).

Composting efforts, another production-oriented practice, remain an effort carried out within the municipality and do not reach any producers as support (Interview No. 29). It works indirectly as a support mechanism by supporting internal production at the Santiye Facility and the seed production. On the other side, the awareness raising activities and training related to this subject is progressing through a completely different group of citizens (E.3, 6). Despite the intention to encourage practices such as composting and balcony gardening, practices are insufficient to organize agri-food production and known to be quite inadequate in disseminating among urban resident (Gevrek Citizen Workshop Notes, 2023).

Furthermore, there are challenges associated with efforts to increase urban agriculture practices. Primarily there is a problem of ownership of urban farms and gardens that are planned to be implemented. The use of existing urban fruit gardens is quite limited (O. 6, 7), and their maintenance is solely the responsibility of the municipality, which highlights an ownership problem (Interview No. 17). Additionally, there is again the problem of lack of organization and ownership to ensure the sustainability of the five areas identified as suitable for urban agriculture under the idle areas study (Interview No. 6, 17). The representative responsible for agricultural services states the following on the subject:

“Ownership is higher in neighbourhoods where white-collars are concentrated, because their demand for such practices is higher. However, the social groups we aim to reach regarding food are difficult to reach and their interest is weaker than others. This creates difficulties in terms of ensuring the continuity of the applications even if they are implemented.” (Interview No. 6)

At this point, the problem of the top-down nature of applications emerges. The municipality comes to the forefront as the primary implementor of existing food practices, while the involvement of civic organizations within food-related activities

remains somehow limited. Collaborations with civil society are mostly limited to citizen participation within decision-making processes regarding food issues (e.g. Food Strategy workshops, and Gevrek Workshops), with limited engagement during the implementation phase. Engagement with civil actors who can mobilize, expand, and encourage food-focused activities remains minimal during the implementation. Consequently, the municipality dominates the field of application. The exclusive implementation of these practices by the municipality diminishes their potential for widespread adoption.

Despite an active civil organization in Karşıyaka with diverse NGOs and Local Associations dealing with various societal issues, the number of local organizations dedicated to food-related initiatives is scarce. In this context, only the active presence of Imbat Consumption Cooperative and GETO food community was observed. The participation of these two formations in food practices varies. While Imbat Cooperative has collaborations with the municipality regarding food aids and social projects (Interview No. 29), GETO's involvement in the processes as an independent organization is low (Interview No. 23).

While the Municipality expresses its acknowledgement of the existence of civil society in Karşıyaka and their willingness to cooperate, they also express challenges encountered in practice (Interview No. 6, 18, 20). Here, the presence of conscious city residents is seen as potential in terms of civic organization, there is also the recognition of potential conflicts due to a high level of questioning among these well-informed residents. Such conflicts sometimes create obstacles to implementation. Additionally, despite the importance of civil organization in terms of creating demand throughout society, maintaining existing practices and supporting their operations, challenges arise in implementation due to the lack of know-how on food practices (Interview No. 6).

All these are deeply related to the problematic nature of incremental approaches, bringing the inability to become a part of an integral system that expands to integrate diverse segments of the community. However, problems experienced in practice, such as fragmented implementation, inability to social dissemination, and inability

to build social ownership, are also closely related to problems behind a social organization. This context underscores the need to examine the organisational barriers in detail.

7.2.4 Organisational

Within the food system of Karşıyaka, the roles played by various social actors, a strong civil society and conscious consumers emerge as important factors triggering change. On the one hand, conscious consumers and active civic engagement contribute to the dynamics of change, creating a fertile ground for sustainable practices. On the other hand, organizational barriers reveal the obstacles that prevent food system actors from translating their ambitions into concrete collective actions rather than individual actions.

In examining the organizational barriers, the focus is on the organizational difficulties encountered in implementation of key food practices. Just as practices require an organizational model for adoption by neighbourhood residents and to ensure continuity through building ownership, food production and distribution also need a regulatory and organizational model (Interview No. 6, 22). As per interviews, there is no implemented model or developed framework for new projects yet. Despite a strong civil society structure and belief in cooperative potential in Karşıyaka and İzmir, the previously mentioned difficulties in producing an organizational model that will ensure the continuity of practices still continue.

Regarding this, different food system actors, particularly civil society organizations and local institutions, express challenges in establishing strong and resilient organizations (Interview No, 6, 29, 33, 35). Various groups with different priorities face obstacles in forming a strong organizational structure to articulate their wills, needs, and commitment to the food domain. The absence of neighbourhood associations and a scarcity of communities directly focused on food contribute to this problem.

This challenge is also notably emphasized in the case of cooperatives, which play a crucial role in localizing food systems and shortening supply chains. According to the interviews, cooperative and organizational success is hampered by factors such as low demand for participating in cooperatives, inter-institutional as well as interpersonal conflicts within organisational structures (Interview No. 29).

The lack of neighbourhood associations and communities directly focused on food poses a barrier to the collaborative process, hindering the implementation of practices even when stakeholders are engaged. This deficiency creates organizational challenges, as potential alignments, common areas, and collaborative pathways are challenging to establish.

Additionally, building cooperation with the private sector is another obstacle, as there are currently no collaborations with this sector. The existing partnerships are primarily with cooperatives, producer unions, and citizens, excluding engagement with other food actors.

7.3 Overview and Discussion

Upon examining key urban food practices in Karşıyaka, significant drivers and barriers for transition were identified, particularly for the consumption junction. The driving forces include the evolving consumer preferences bringing along responsible consumption, fostering the search for alternatives in food consumption. Gradually decreasing access to food due to the growing population, declining income levels, and rising food prices elevate consumer concerns and prompt a quest for alternatives. Moreover, there is a fundamental motivation in Karşıyaka towards accessing cleaner and healthier food, along with affordable prices. This is met by a range of alternative supply structures, including public mechanisms that have the potential to drive a transition. However, despite the emergence of alternatives in response to food provisioning, there is a lack of a comprehensive and systematic structure to fully meet and organize this emerging motivation for local food consumption.

In return, the fundamental barriers can be summarized as the institutional problems including lack of agency, and dispersed level of internal coordination to coordinate fragmented actions; financial obstacles against ensuring economic sustainability of the initiatives; and organizational problems including internal and external disengagement where top-down nature of incremental practices are dominant. While lacking an agency causes dispersed actions with fragmented efforts on food, it also reduces internal and external coordination. This brings with it an organizational problem, with the lack of an umbrella structure that mobilizes civil and public organizations together to achieve concrete food actions. On the other side, the financial barriers are significant to overcome the problems caused by increasing costs and a limited budget and to ensure the continuity of the applications. In this manner, there is a need for a public model along with financing and organizational model to implement and sustain more circular food applications.



CHAPTER 8

CONCLUSION

CIRCULAR URBAN FOOD SYSTEM FOR KARŞIYAKA

The *food system* stands out as one of the alarming systems of the post-industrial society, with its unsustainable production and consumption patterns pushing environmental and social limits, leading to social inequality as well as ecosystem destruction. Operating within a linear system, the industrial agri-food sector is built on long supply chains, which not only escalate resource consumption and pollution but also endangers clean and safe food production while deepening waste generation. As centers of consumption, cities bear the brunt of these systemic problems of the food system, especially in terms of malnutrition and hunger caused by the unequal access to nutritious, safe and ecologically produced food products. All this makes the food system the largest contributor to climate change and ecosystem degradation as well as socio-economic vulnerabilities. Addressing these multifaceted challenges within urban settings is imperative to promote healthier, more equitable, environmentally sustainable, and regenerative food systems. The potential for transformation lies in the development of innovative strategies at the local level aimed at reshaping both production and consumption patterns via strong public models.

Amid the challenges posed by the linear food systems for cities, numerous studies highlight the urgent need for sustainable reconstruction. This reimagination of the linear food system necessitates a shift towards building *Urban Food Systems* where food production and consumption are *linked to local or regional supply networks*. UFSs encompass all facets of food production and distribution, considering their impacts on communities and the environment holistically. Such a paradigm shift necessitates a holistic food planning approach, recognizing the food system as a multifaceted, multi-actor, and multi-stage system with complex relationships. In

response to these complexities, local municipalities are compelled to initiate the adoption of *novel food system models*, with a focus on *prioritizing local food networks*. These models with innovative urban practices aim to facilitate shorter food supply chains, ensure the availability of clean and locally sourced food, and promote equitable access for all social groups. Moreover, they aspire to foster regenerative practices that nurture healthy ecosystems, thus laying the ground for a more sustainable and resilient food ecosystem.

Integrating Circular Models into this approach offers a path to build more sustainable, resource-efficient and socially just and equitable food systems. The *Circular Food System* approach, rooted in Circular Economy (CE), offers a promising approach to redesign food system in a sustainable and regenerative way. Central to this approach are three key principles: producing food regeneratively and locally, designing waste out of the system; keeping materials in use. The way behind realization of these principles of circularity lies in localization. Moreover, to accelerate this transition, it is also essential to advocate *responsible consumption practices* especially in urban settings where consumption is concentrated. In this manner, this thesis considers the most fundamental enabler of circularity as the creation of consumption mechanisms connected to localized food supply chains, where localisation and short supply chains are the major parameters. For this purpose, the thesis also advocates the need to develop innovative models that promote sustainability and circularity within food systems, while concurrently prioritizing food security, social equity and ecological balance.

The detailed exploration on the case of Karşıyaka, Izmir, shed light on the key urban food practices providing alternatives that can support circular and sustainable transition of the food system within urban level. Karşıyaka, as a dynamic sub-centre of Izmir, Turkey, is an urban region where self-reliance is low in terms of local food supply, as the food production is limited within the borders of the district. While agricultural activities persist within the borders of Karşıyaka, food production is notably insufficient to adequately support an urban area as densely urbanized as Karşıyaka. This shortage of local food production poses a significant challenge,

preventing Karşıyaka from achieving self-sufficiency in local food production and consumption. Conversely, the predominant food practices within Karşıyaka's local food system revolve around consumption activities. Organized primarily around urban food consumption, these practices are largely dominated by a supermarket model, characterized by the dominance of global and national corporate chain structures. This supermarket-driven consumption model, highly commercialized in nature, is intricately linked to long supply chains, without any linkage to local production processes. The prevalent consumption models in Karşıyaka demonstrate a reliance on external sources for food provisioning and are characterized by waste-dominant processes, thus lacking compatibility with circular chains and its parameters. The limited connection to local production hinders the progress toward establishing a local food system in Karşıyaka, which underscores the critical necessity for interventions that facilitate integration between urban consumption and local production processes.

In response to these challenges, Karşıyaka hosts a range of applications targeting the diversification of urban food production and consumption practices. These applications, which are the focus of analysis in this thesis, are designed to introduce novel and innovative mechanisms for Karşıyaka. These initiatives encompass a variety of applications aimed at increasing localisation of Karşıyaka's food system. These practices include:

- *Urban farming practices*, encouraging and supporting food production within urban area, through implementation of fruit gardens and planning of neighbourhood gardens for urban farming.
- *Production supports*, providing resources to local farmers and producers to enhance their productivity, and local food production.
- *Internal local food production*, promoting the production of food within the municipal facilities to reduce reliance on external sources and foster self-sufficiency.

- *Composting*, through practices at food production sites to recycle organic waste and improve soil health, thereby fostering activities to close the nutrient loop and reduce food waste.
- *Diversification of retail mechanisms and increasing local food consumption alternatives*, which includes introducing a variety of retail mechanisms that offer locally sourced and ecologically produced food options to consumers, thereby increasing access to local foods and supporting local producers.
- *Building connections with local production and urban consumption*, facilitating direct relationships between consumers and local producers through initiatives such as farmers' markets, municipal retail (Kent Market), local food platforms (food centre) and farm-to-table facilities (Culinary centre), thereby strengthening the local food economy and enhancing transparency and traceability in the food supply chain.

Although these applications are not completely circular, they incorporate elements that contribute to circularity. In this context, the deficiencies of prevalent consumption models and the potentials of alternatives in terms of circularity have been tried to be revealed by examining them with circularity parameters. For this purpose, the study conducts a comprehensive examination of both prevalent and alternative food mechanisms, as well as the supply chains to which these mechanisms are connected. By scrutinizing these components in detail, the research identifies the weaknesses inherent in prevailing supply chains in terms of circularity parameters, while uncovers the potential strengths and advantages offered by alternative applications. Through this detailed analysis, the study pinpoints the specific "intervention points" within prevalent supply chains, where inefficiencies related to material circulation and waste generation arise and specific interventions could be implemented to increase circularity. These are summarized in the diagram below for each supply chain model (See; Figure 49). These intervention points and inefficiencies represent opportunities for intervention and improvement, where

targeted strategies can be implemented to enhance the sustainability, and circularity of the local food system in Karşıyaka.

Retail Type	Chain Models	Circularity Parameters	Intervention Points	Intervention Type
Neighbourhood Bazaars				
Model I	Long	●	Marketplace	• Producer quotas • Collection systems
Model II	Short	● ● ● ● ●	Bazaars	• Producer quotas • Collection systems
Modern Retail Chains				
Model I	Long	● ● ●	Retail	• Collection systems
Traditional Units				
Model I	Long	●	Marketplace	• Producer quotas • Collection systems
Alternative Mechanisms				
Model I - Kent Market	Cooperative-Led	● ● ● ● ●	Retail	• Collection systems • Sharing Platforms • Circular Procurement
Model II - Farmers M.	Short - Direct	● ● ● ● ●		• Dissemination at neighbourhood level
Model III - Cooperatives	Cooperative-Led	● ● ●	Retail	• Retail Platforms • Circular Procurement
Model IV - Food Com.	Short - Direct	● ● ● ● ● ● ●		• Dissemination at neighbourhood level
● Material Recovery & Flow ● Waste Minimisation ● Localisation ● Accessibility ● Change in Tech				

Figure 48: Diagram showing intervention points and intervention types for each supply chain model (Source: Produced by the Author)

Simultaneously, the study explores the potential of alternative food consumption mechanisms stand out among the key urban food practices within the district. By identifying and analyzing these alternatives, the research highlights their capacity to address the shortcomings of prevailing systems and contribute to the development of a more resilient and sustainable food system.

The key food practices aimed at fostering transition in Karşıyaka are primarily driven by the local municipality, which plays a pivotal role as a catalyst for change. Examination of the key urban food practices initiated by the Municipality reveals two major implementation areas: production-oriented practices and consumption-

oriented practices. Production-oriented practices encompass urban agriculture practices, while consumption-oriented practices encompass alternative food provisioning and retail mechanisms in Karşıyaka. Starting with the production-oriented activities, the implementation of key urban agriculture practices observed to be incremental and piecemeal in application, showing the absence of a comprehensive and systematic implementation. Even though being highly compatible with circularity parameters, these practices have inadequate organizational support for widespread adoption. Looking at consumption-oriented practices, the municipal retail mechanisms come to the forefront. These mechanisms prominently focus on providing direct linkage between local producers and cooperatives with urban consumers. Hence, there is a remarkable effort on local sourcing revolves around the cooperative-led supply chain and retail, supporting the circularity parameters directly or indirectly. These mechanisms serve as important initiatives for delivering locally sourced and economically viable foods directly to consumers. However, these efforts are insufficient as they are piecemeal without a systematic background. Additionally, these efforts struggle to become widespread to serve across society, leading to a lack of widespread dissemination. The major reasons behind this are found to be organisational and financial, where there is lack of organizational background for a holistic implementation and deficient financial model.

Overall, despite the ambitious studies on food sustainability in Karşıyaka, the initiatives remain fragmentary, lacking widespread adoption as well as a holistic implementation of sustainable, and circular food system. Despite the efforts, it is evident that these practices remain top-down and concentrated in specific neighbourhoods mainly associated with higher socio-economic classes. This requires a more system-wide approach to fully integrate each other and gain a widespread acceptance and support from the society.

In order to build a holistic approach, it is essential to leverage existing practices with high potential in Karşıyaka. While the existing practices offer a foundation for a circular model, they also exhibit certain shortcomings. Transforming exiting model

with consumption and production-oriented practices into a circular system necessitates bolstering existing strengths while addressing areas of improvement.

Through in-depth analysis, it becomes evident that current practices support a food system characterized by shorter supply chains with non-intermediaries, and increased localization through cooperatives, while strengthening reliability and social accountability within the community. However, it is crucial to address the identified challenges, including the low efficiency and profitability of existing mechanisms, inadequate management without an organisational model, and inability to build collective efficacy among various food actors. Rectifying these shortcomings is imperative for the development of a circular and sustainable food model.

The table below asserted the major aspects that need support and development to transition to a sustainable public model, including enhanced efficiency, improved profitability with cost reduction measures, effective management, strengthened collective efficiency to foster collaboration, and innovative financing mechanisms to overcome financial barriers and incentivize sustainable practices. By addressing these key points, Karşıyaka can progress towards establishing a sustainable public model for its food systems, fostering resilience, equity as well as circularity.

Table 27: Factors that need to be strengthened and supported for a circular model
(Source: Produced by the Author)

Existing Model w/ Urban Farming Practices w/ Alternative Retail	A Strong Public Model w/ circularity w/ organizational model		Through
• Affordability and profitability	Low	Deficient - To be supported	Financial alternatives Cost-cutting methods
• Good management	Low	Deficient – To be build	Institutional Model
• Collective efficiency	Low	Deficient - To be supported	Local Cooperation
• Reliability	High	Continuity to be ensured	Organizational Model
• Shorter Chain (Non-Intermediary)	Medium	Needs further support	Organizational Model Local Inventory
• Localisation	Medium	Needs further support	Organizational Model Local Inventory
• Social Accountability (Producer Relationship)	High	Continuity to be ensured	-
• Local Food Provisioning	Medium	Needs further support	Local Cooperation Local Inventory

Building the Model for Karşıyaka

Building on the drivers and barriers identified in previous section, there is a need to develop a public model based on current practices to support the initial food organization and circularity within the food system in Karşıyaka. While strengthening the organization of consumption, the model should also aim to organize production-oriented and consumption-oriented practices together in a

connected system. It is already asserted that ***both existing production-oriented and consumption-oriented food practices are compatible with circularity parameters*** as they foster implementation of shorter chains, accelerate localisation, support local ecological production and increase the inner circle uses such as composting and bio-waste utilization. These practices should be built within a connected holistic model to further support each other existence. While local production is supported, consumption organization should also be supported by establishing a relationship with local consumption through public retail mechanisms.

Given that Karşıyaka is an urban section with dominance of consumption practices, the essential focus of the public model should initiate with ***the organization of consumption***. This emphasis is justified by the existing potential initiatives in Karşıyaka, along with the significant drivers for their dissemination. Hence, there is a remarkable effort on ***local food provisioning*** through ***cooperative-led supply chains, retailing*** and ***public procurement***, supporting circularity through localisation and shorter supply chains. This effort should be further supported and proliferated for building a circular food system.

In this context, municipal retail should play a central role in the circular model, in order to accelerate efforts to enhance and prioritize local food provisioning. Currently, food provisioning is primarily undertaken by dominant supermarket model in the absence of financially profitable alternatives to provide local, affordable, and reliable food products. Therefore, urban food practices should be directed towards increasing the profitability and financial sustainability of alternative retail. For this, primary strategy is to build cooperations with local initiatives and support their localization efforts, through logistics, inputs and rental supports as well as certain incentives. The secondary strategy is to proliferate alternative municipal retail such as municipal markets and farmers market, as well as other localised retail options such as food centres or food outlets.

In this context, it is crucial to continue and sustain the municipal retail mechanisms initiated in Karşıyaka. To increase the financial sustainability of these initiatives, cost-cutting methods should be developed based on methods specific to other

conventional mechanisms (e.g. discount markets). This could also involve establishing more cost-effective structures with direct consumption channels eliminating intermediaries and creating shorter supply chains, drawing inspiration from the Izmir Model. However, the potential advantages of localization and shorter supply chains, there is a notable absence of innovative financing models or cost-cutting methods within food production, distribution, and retail mechanisms in Karşıyaka. For this, defining the target group, improving product placement, increasing local sources and producer products, and developing a location strategy for all type of retail are crucial steps. Product placement in municipality markets should be diversified via procurement from various local producer unions or cooperatives. Additionally, reducing self-production costs for certain food products is a key consideration for Karşıyaka. Addressing this gap through building circular chains becomes crucial, as circularity is expected to reduce production costs by relying on inner and cascading use of secondary food materials.

This process requires comprehensive support through **systematic collection and sorting mechanisms** and the establishment of **material banks**, working in connection with retail mechanisms and urban agriculture practices. Notably, collaboration with existing civil organisations such as consumer cooperatives (such as Imbat Coop.) or consumer-initiated food communities (such as GETO) should be further supported. Additionally, collaborative efforts to mitigate food waste by redistributing and sharing surplus edible food should continue and put into a systematic manner. Important initiatives such as **food banks** or **sharing platforms** should also be founded to further support this systematic sharing which play pivotal roles in providing access to affordable food, especially for disadvantaged groups within low-income neighbourhoods. Consequently, fostering civic engagement becomes crucial and efforts to integrate civil society are essential in fostering broader accessibility and dissemination of localized and decentralised solutions throughout Karşıyaka.

The organizational model behind the circular model comprises two main pillars: production-oriented initiatives supported by strong collaborations with Agricultural Services and consumption-oriented initiatives implemented by the Facilities

Directorate and municipal subsidiary of Kent A.Ş. The bio-economy dimension necessitates a different organization progressing through possible partnerships established between the Sustainability Office, Karşıyaka Collective Centre and external entrepreneurial stakeholders.

Agricultural Services hold the potential to establish a viable approach in creating a neighbourhood and school-based urban agriculture network. Existing production-based applications have the capacity to catalyse such a network and implementing it on a demand-based basis with the involvement of non-governmental organizations provides substantial organizational support. Implementing an urban production organization, in harmony with demand and local needs, starting from the neighbourhood level, can be achieved by providing support to all stakeholders interested in production through the seed centre and compost facility.

While production-oriented studies are organized according to the needs of the neighbourhoods, consumption-oriented studies should be adaptable to the diverse needs and preferences of society, ensuring inclusiveness. A broad structure, incorporating civil organizations and cooperatives, is crucial in this context, primarily built on the inventory of local producers and producer associations within food city-region. Supporting retail mechanisms through public procurement over this inventory will ensure product diversity. Additionally, establishing partnerships with the private sector or non-governmental structures is vital for diversification and accession.

Food waste acts as the main connector in these processes. Establishing a material bank to collect, separate, and revalorise food waste supports production processes, through composting efforts. Over this, exchange mechanisms could be created between compost and food products, thus increasing product placement and reducing procurement costs. Simultaneously, material banks facilitate offering edible products as an affordable alternative through building collection mechanism over a range of retail units in Karşıyaka. This could be connected to food banks located in disadvantaged regions would increase alternatives in access to food. Besides all

these, the bioeconomy dimension is important aspect to build which can also introduce a new financial channel in this comprehensive public system.

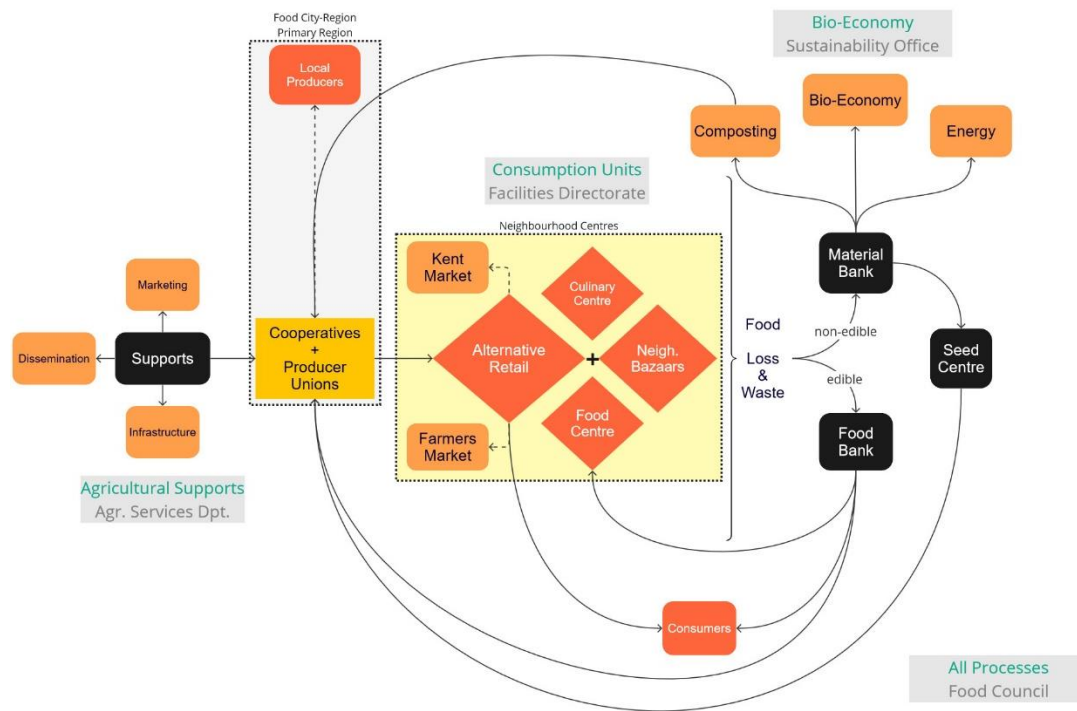


Figure 49: The Circular Model proposal for Karşıyaka Local food system

In response to the identified challenges, the thesis advocates the implementation of a public model centered on diversified consumption mechanisms to support the circular model in Karşıyaka. This proposed model emphasizes facilitating the dissemination of circularity principles and practices by establishing a decentralized network at the neighborhood level. This network of decentralised nodes where urban agriculture and alternative consumption units are organised in connection and serve as important application points in the proposed model. On the one hand, these nodes include urban agriculture and production practices, with practices that encourage

local food production and reduce dependence on external resources. On the other hand, it is strengthened by the proliferation of public consumption mechanisms in every neighborhood, ensuring equal access to sustainable food options for all residents. By strengthening the connections between production and consumption at neighbourhood level, the model aims to improve integration between local food production and consumption, promoting a more resilient and self-sustaining food system.

Within the scope of the circular model, the following strategic areas are expected to be further supported:

a. *Widespread Adoption of Local Retail Mechanisms:*

- Promoting and expanding local retail mechanisms within neighbourhood centres to form the foundational element of the system,
- Increasing the distribution and presence of markets within neighbourhoods such as Kent Market, Civil Cooperative Markets, and Farmers Market.
- Striving for increased diversity (with food markets, food centre, food outlets and/or food banks), accessibility, and efficiency in the system, emphasizing a balance in prices.
- Establishing consumer-concentrated food platforms for surplus products, prioritizing low-income neighbourhoods and creating a network of food banks.

b. *Increasing Localisation through Retail*

- Initiating measures to augment the number of local producers participating in neighbourhood bazaars.
- Establishing a public procurement mechanism for the supply of local products in retail, supported by a detailed local producer inventory.

c. *Expansion of Local Producer Supports:*

- Creating a comprehensive inventory of local agro-ecological producers and producer unions within the city region.

- Expanding mechanisms supporting producers, including product support, seed support, and compost support, based on the inventory.

d. *Strengthening Bioeconomic Integration:*

- Enhancing the weak integration of the bioeconomy sector, potentially achieved through a collective entrepreneurship centre and supporting young cooperatives.

Essentially, based on qualitative and exploratory research methodology with a case study on Karşıyaka, this research aims to examine the key practices and highlights the role of new models in advancing or hindering the transition to a circular food system in a local context. Through this, the thesis is intended to provide a more holistic view of the food system, and to help identify ways to promote sustainable and circular practices. Ultimately, it aims to contribute to circular food systems, urban food systems and food planning literature.

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APPENDICES

A. Interviews

#	Name	Institution	Type	Date
1	E. K. A.	Scientific Advisory Board	InDepth Int. - Online	11 Nov. 2022
2	E. B.	IzDoğa - Iztam	InDepth Int. - Online	29 Nov. 2022
3	H. K.	IzDoğa - Iztam	InDepth Int. - Online	29 Nov. 2022
4	Y. B.	IzDoğa - Iztam	InDepth Int. - Online	29 Nov. 2022
5	M. A. T.	IMM - Iztarım	InDepth Int. - FtF	20 Dec. 2022
6	Y. G.	KM – Agri. Services	InDepth Int. - FtF	17 Mar. 2023
7	Anonymous	Stallholder – M.K. Bazaar	Interview - FtF	17 Mar. 2023
8	Anonymous	Stallholder – Z.H. Bazaar	Interview - FtF	18 Mar. 2023
9	Anonymous	Producer – Z.H. Bazaar	Interview - FtF	18 Mar. 2023
10	Anonymous	Producer – Ş. Bazaar	Interview - FtF	18 Mar. 2023
11	Anonymous	Consumer – Ş. Bazaar	Interview - FtF	18 Mar. 2023
12	Anonymous	Consumer – Ş. Bazaar	Interview - FtF	18 Mar. 2023
13	Anonymous	Stallholder – B. Bazaar	Interview - FtF	19 Mar. 2023
14	Anonymous	Producer – B. Bazaar	Interview - FtF	19 Mar. 2023
15	Anonymous	Consumer – B. Bazaar	Interview - FtF	19 Mar. 2023
16	B.Ü.	IPDAF	InDepth Int. - Online	28 Mar. 2023
17	Y. Ş.	KM – Urban Design D.	InDepth Int. - Online	29 Mar. 2023

18	E. U.	KM – Sustainability O.	InDepth Int. - FtF	14 Apr. 2023
19	G. K.	KM – Sustainability O.	InDepth Int. - FtF	14 May 2023
20	A. D.	KM – Citizen Particip. U.	InDepth Int. - FtF	14 May 2023
21	C. E.	KM – Climate Change D.	InDepth Int. - Phone	27 May 2023
22	B. Ş.	Gençisi Cooperative	InDepth Int. - Phone	07 Apr. 2023
23	E. P.	Buğday Derneği	InDepth Int. - FtF	27 May 2023
24	M. O.	GETO	InDepth Int. - FtF	27 May 2023
25	P. K.	GETO	InDepth Int. - FtF	27 May 2023
26	T. Ö.	GETO – Dalgıç Farming	Interview - FtF	27 May 2023
27	S. H.	GETO – Dağ Bahçe	Interview - FtF	27 May 2023
28	F.E.	IMM	InDepth Int. - FtF	06 July 2023
29	E. A.	Imbat Coop.	InDepth Int. - FtF	06 July 2023
30	P. Ö.	Scientific Advisory Board	InDepth Int. - Online	28 July 2023
31	Ç. D.	IMM Tarımsal Hiz.	InDepth Int. - FtF	11 Aug. 2023
32	Anonymus	IMM Tarımsal Hiz.	InDepth Int. - FtF	11 Aug. 2023
33	A. K.	ETO	InDepth Int. - FtF	17 Aug. 2023
34	A. S. A.	IMM Tarımsal Hiz	InDepth Int. - FtF	07 Sep. 2023
35	A. S. A.	Ulusal Tarım Gıda Birliği	InDepth Int. - FtF	07 Sep. 2023
36	Anonymous	Producer– Farmers Market	InDepth Int. - FtF	15 Oct. 2023
37	Anonymous	Producer– Farmers Market	InDepth Int. - FtF	15 Oct. 2023
38	Anonymous	Producer– Farmers Market	Interview. - FtF	15 Oct. 2023

39	Anonymous	Consumer – F. Market	InDepth Int. - FtF	15 Oct. 2023
40	Anonymous	Consumer – F. Market	Interview - FtF	15 Oct. 2023
41	Anonymous	Consumer – F. Market	Interview - FtF	15 Oct. 2023
42	M. Ö.	Cordelion Cluinary Centre	InDepth Int. - FtF	16 Nov. 2023
43	Anonymous	Consumer – Supermarkets	Interview - FtF	16 Nov. 2023
44	Anonymous	Consumer – Supermarkets	Interview - FtF	16 Nov. 2023
45	Anonymous	Consumer – Supermarkets	Interview - FtF	16 Nov. 2023
46	Anonymous	Consumer – Supermarkets	Interview - FtF	16 Nov. 2023
47	Anonymous	Consumer – Supermarkets	Interview - FtF	16 Nov. 2023
48	Anonymous	Consumer – Supermarkets	Interview - FtF	16 Nov. 2023
49	N. H.	Barış Gross Markets	InDepth Int. - Phone	29 Nov. 2023
50	Y. Y.	Kent Market	Interview - Phone	29 Nov. 2023
51	D/O.	Gürmar Markets	InDepth Int. - Phone	29 Nov. 2023
52	M.A.	Migros Markets	Interview - FtF	29 Nov. 2023

B. Participant Observations

Participant Observations				
#	Name	Date	Place	# Participants
PO1	Food Centre Workshop	24 June 2022	Karşıyaka Zübeyde Hnm Wedding Palace	~50
PO2	Karşıyaka Food Strategy Document Participant Workshop I	24 June 2022	Karşıyaka Zübeyde Hnm Wedding Palace	~50
PO3	Karşıyaka Food Strategy Document Participant Workshop II	31 March 2023	Karşıyaka Roof Bostanlı	~50
PO4	Karşıyaka Sustainability Report Launch	19 April 2023	Karşıyaka Zübeyde Hnm Wedding Palace	+100
PO5	Karşıyaka Food Strategy Document Release	22 August 2023	Karşıyaka Zübeyde Hnm Wedding Palace	+100
Observations				
#	Name	Date	Place	# Participants
O1	Observation at local bazaar I	17 March 2023	Mustafa Kemal	-
O2	Observation at local bazaar II	18 March 2023	Zübeyde Hnm	-
O3	Observation at local bazaar III	18 March 2023	Şemikler	-
O4	Observation at local bazaar IV	19 March 2023	Bahçelievler Çok Katlı Pazaryeri (Neighbourhood Bazaar)	-
O5	Observation at farmers market	15 Nov. 2023	Bostanlı Zühtü Işıl Square	-
O6	Observation at Fruit Garden I	16 Dec. 2023	Yalı Mah.	-
O7	Observation at Fruit Garden	16 Dec 2023	Zübeyde Hnm	-

C. Participation at Trainings and Educations

Educations				
#	Name	Date	Institution	# Participants
E1	Circular Economy and Sustainability	27 April 2023	Karşıyaka Collective Entrepreneurship Centre	30
E2	Impact Oriented Agriculture and Food Practices	11 May 2023	Karşıyaka Collective Entrepreneurship Centre	25
E3	Composting	12 May 2023	Karşıyaka Municipality Agricultural Services D.	5
E4	Sustainable Supply Chain Management	8 June 2023	Karşıyaka Collective Entrepreneurship Centre	30
E5	Zero-Waste Kitchen	12 June 2023	Karşıyaka Cordelion Culinary Art Centre	20
E6	Vertical Agriculture and Balcony Gardening	30 Dec. 2023	Karşıyaka Municipality Agricultural Services D.	30

D. Interview Questions and Interview Guide

Name of the Interviewee:

Interview No:

Profession / Company:

Date:

Questions :

All related food actors including:

Local Municipality and its related departments and institutions, Producers/Producer Unions, Modern Retail Chains, Producer Markets, NGOs & Civil organisations, Consumers/Consumer unions, Cooperatives

1. What are the working areas and objectives of your institution?
 - a. What are your projects on food?
 - b. Do you have any studies on circular food system, local food system, short supply chain and waste revalorisation?
 - c. Which institutions and organizations do you work with? (Actor interaction)
2. What are the major products, product groups and by-products consumed / supplied?
 - a. Where is the production location/region of the products? (Source)
 - b. What are the production techniques of the products you serve? (organic/good agriculture/conventional/industrial etc.)
 - c. Through which channels are the products supplied? (from manufacturer/market/chain market/local channels etc.)
 - d. What are the factors you pay attention to when choosing a product? (quality/local product-manufacturer/price etc.)
3. How would you describe your consumer profile/target audience?
4. What are the main problems experienced in food provision / access to food? (Price/nutritional value/multi-intermediary system/waste etc.)
5. What are your solution suggestions/alternatives on this issue?
6. What are your approaches on food waste, bio-wastes and residues?
 - a. At what stages do waste and losses occur and what are the main reasons?
 - b. How much surplus/loss occurs?
 - c. What are your methods for utilizing/disposing of the residues/losses?

7. Are you aware of local food studies and practices within your district?
 - a. How and in what way are you affected by these studies?
 - b. What do these studies change in the food system? (localization/short supply chain/waste approaches/food flow/production-consumption practices/nutrition etc.)
 - c. What are the problems/potentials you observe in this context?
 - d. What else can be done about this? What are your suggestions and expectations?



E. Ethics Committee Approval

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ APPLIED ETHICS RESEARCH CENTER DÜMLÜPINAR BULVARI 06800 ÇANKAYA ANKARA/TÜRKİYE T: +90 312 210 22 91 F: +90 312 210 79 99 uam@metu.edu.tr www.uam.metu.edu.tr	 ORTA DOĞU TEKNİK ÜNİVERSİTESİ MIDDLE EAST TECHNICAL UNIVERSITY
Konu: Değerlendirme Sonucu	21 EKİM 2022
Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)	
İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu	
Sayın M. Melih PINARCIOĞLU Danışmanlığını yürüttüğünüz Zeynep Özçam'ın "Kentsel Gıda Sisteminin Döngüsel Ekonomi ile Dönüşümü: İzmir'den bir Örnek" başlıklı araştırmanız İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay 0547-ODTÜİAEK-2022 protokol numarası ile onaylanmıştır. Bilgilerinize saygılarımla sunarım.	

CURRICULUM VITAE

Surname, Name: Özçam, Zeynep

EDUCATION

Degree	Institution	Year of Graduation
MS	METU City Planning	2016
BS	IZTECH City and Regional Planning	2014
High School	60. Yıl Anadolu High School, İzmir	2008

FOREIGN LANGUAGES

Advanced English, Basic Spanish & Italian

PUBLICATIONS

1. Özçam, Z. (2018). Wind Farm Conflict: Rural Areas and Wind Energy-The Karaburun Experience. *Journal of Planning*, 28(Supp:1), 15-24.
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