ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL

EXPLORING THE ROLE OF SERVICE DESIGN FOR AGROECOLOGICAL COMMUNITIES: A CASE STUDY ON TADYA COLLECTIVE

M.Sc. THESIS

Gözde ERDEM

Department of Industrial Design

Industrial Design Programme

JULY 2024

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Thesis Advisor: Asst. Prof. Dr. Elif KÜÇÜKSAYRAÇ

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ISTANBUL TEKNİK ÜNİVERSİTESİ ★ LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ

AGROEKOLOJİK TOPLULUKLAR İÇİN HİZMET TASARIMININ ROLÜNÜN İNCELENMESİ: TADYA KOLEKTİFİ ÜZERİNE BİR VAKA ÇALIŞMASI

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Gözde Erdem, a M.Sc. student of İTU Graduate School student ID 502201923 successfully defended the thesis/dissertation entitled “EXPLORING THE ROLE OF SERVICE DESIGN FOR AGROECOLOGICAL COMMUNITIES: A CASE STUDY ON TADYA COLLECTIVE”, which he/she prepared after fulfilling the requirements specified in the associated legislations, before the jury whose signatures are below.

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Date of Submission : 5 June 2024
Date of Defense : 24 July 2024

To my family and friends,

FOREWORD

The transformative power of design has deeply influenced me since the beginning of my educational journey. I have always held a strong belief in the potential for change, making it deeply meaningful for me to write this thesis and research pressing issues that demand immediate attention.

Throughout my research process, the patience and support of my advisor, Elif Küçüksayraç, were invaluable. I extend my heartfelt thanks to her. Feeling the support of my family has always motivated me further. I am deeply grateful to them and to my friends, who provided ideas throughout this process.

I am especially thankful to each member of the TADYA community, who opened their homes, gardens, and village to me. A special thanks to Ceyhan Temürcü, who stood by me from the beginning to the end of this journey. This thesis would not have been possible without their contributions and support.

To all these individuals, I offer my sincere gratitude for being with me. This thesis was shaped by their contributions and support.

July 2024

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ABBREVIATIONS

TADYA : Tahtacıörencik Doğal Yaşam Kolektifi

SGP : Small Grants Programme

GEF : Global Environment Facility

UNDP : United Nations Development Programme

URGENCI : Urban-Rural Networks: Generating New Forms of Exchange Between Citizens

COP : Conference of the Parties

IPCC : International Panel of Climate Change

TUIK : Türkiye İstatistik Kurumu

PELUM : Participatory Ecological Land Use Management

ZBNF : Zero Budget Natural Farming

FAO : Food and Agriculture Organization

AFNs : Alternative Food Networks

CSA : Community Supported Agriculture

ANAP : The National Association of Small Farmers

HSEP : Croatian Association of Organic Producers Association

FCiencias.ID : Association for Research and Development of Sciences

BÜKOOP : Boğaziçi Mensupları Tüketim Kooperatifi

POLIMI : Politecnico di Milano

DESIS : Design for Social Innovation and Sustainability

PSS : Product Service System

SÜYADER : Sürdürülebilir Yaşam Derneği

DEAFAL : Delegazione Europea per l'Agricoltura Familiare di Asia, Africa e America Latina

DBB : Doğal Besin Bilinçli Beslenme Ağı

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EXPLORING THE ROLE OF SERVICE DESIGN FOR AGROECOLOGICAL COMMUNITIES: A CASE STUDY ON TADYA COLLECTIVE

SUMMARY

This thesis addresses the ecological, economic, and social issues caused by global climate change and their impacts on agricultural and food systems, investigating the potential role of sustainable design approaches in providing solutions.

Agroecology is an approach that aims to implement agricultural practices in accordance with ecological principles and preserve natural ecosystems. An important component of this thesis is the case study of TADYA (Tahtacıörencik Natural Life Collective), which presents a successful example of sustainable agricultural and food networks. Elements such as the digital ordering system and producer-consumer connections are examined in detail, and suggestions for improving these systems are provided.

The research process utilized various data collection techniques, including field visits, observations, interviews, and surveys. These methods provided comprehensive insights into the functioning of TADYA's systems and identified several areas needing improvement. The findings revealed specific issues within TADYA's existing system that require enhancement. The ways these areas can be developed are explained through sustainable design approaches involving community members in the design process, integrating multidisciplinary and local knowledge and experience. These approaches ensure that solutions are tailored to the unique needs of the community.

One of the critical findings of the research is the importance of involving local producers and consumers in the design and implementation of sustainable systems. This participatory approach not only helps in creating more effective and efficient systems but also strengthens community bonds and ensures long-term sustainability. By engaging stakeholders at every level, from production to consumption, the proposed improvements aim to enhance the overall resilience and sustainability of the agricultural and food networks.

This thesis aims to provide new perspectives and guidance for future research by showcasing the potential of sustainable service design in transforming agricultural and food systems. The insights gained from the TADYA case study highlight the necessity of a collaborative, informed design approach that leverages local expertise and fosters community participation. This approach is essential for developing robust, adaptive systems capable of withstanding the challenges posed by global climate change.

Keywords*: Service Design, Agroecology, Community*

AGROEKOLOJİK TOPLULUKLAR İÇİN SERVİS TASARIMININ ROLÜNÜN İNCELENMESİ: TADYA KOLEKTİFİ ÜZERİNE BİR VAKA ÇALIŞMASI

ÖZET

Bu tez, küresel iklim değişikliğinin yarattığı ekolojik, ekonomik ve sosyal sorunların tarım ve gıda sistemleri üzerindeki etkilerini ele alarak, sürdürülebilir tasarım yaklaşımlarının potansiyel çözümlerde nasıl bir rol oynayabileceğini araştırmaktadır.

Agroekoloji, tarım uygulamalarının ekolojik prensipler doğrultusunda gerçekleştirilmesini ve doğal ekosistemlerin korunmasını hedefleyen bir yaklaşımdır. Tezin önemli bir bileşeni olan TADYA (Tahtacıörencik Doğal Yaşam Kolektifi) vaka analizi, sürdürülebilir tarım ve gıda ağlarının başarılı bir örneğini sunmaktadır. Dijital sipariş sistemi ve üretici-tüketici bağlantıları gibi unsurlar detaylı bir şekilde incelenmiş ve bu sistemlerin nasıl iyileştirilebileceği konusunda öneriler sunulmuştur.

Araştırma sürecinde saha ziyaretleri, gözlemler, görüşmeler ve anketler gibi çeşitli veri toplama teknikleri kullanılmıştır. Bu yöntemler, TADYA'nın sistemlerinin işleyişine dair kapsamlı bilgiler sağlayarak, iyileştirilmesi gereken çeşitli alanları belirlemiştir. Bulgular, TADYA'nın mevcut sisteminde iyileştirilmesi gereken belirli konuları ortaya koymuştur. Bu konuların nasıl geliştirilebileceği, topluluk üyelerinin de tasarım sürecine dahil olduğu, çok disiplinli ve yerel bilgi ve deneyimi içeren sürdürülebilir tasarım yaklaşımları ile açıklanmıştır. Bu yaklaşımlar, çözümlerin topluluğun özgün ihtiyaçlarına uygun olarak şekillenmesini sağlamaktadır. Araştırmanın kritik bulgularından biri, yerel üreticiler ve tüketicilerin sürdürülebilir sistemlerin tasarım ve uygulanmasında yer almasının önemi olmuştur. Bu katılımcı yaklaşım, daha etkili ve verimli sistemler oluşturulmasına yardımcı olmakla kalmayıp, topluluk bağlarını güçlendirir ve uzun vadeli sürdürülebilirliği sağlar. Üretimden tüketime kadar her seviyedeki paydaşların tasarım sürecine dahil edilmesi, tarım ve gıda ağlarının genel dayanıklılığını ve sürdürülebilirliğini artırır.

Bu tez, sürdürülebilir tasarımın tarım ve gıda sistemlerini dönüştürme potansiyelini göstererek, gelecekteki araştırmalar için yeni perspektifler ve rehberlik sağlamayı amaçlamaktadır. TADYA vaka analizinden elde edilen bulgular, yerel uzmanlık ve topluluk katılımını öne çıkaran işbirlikçi bir servis tasarımı yaklaşımının gerekliliğini vurgulamaktadır. Bu yaklaşım, küresel iklim değişikliğinin yarattığı zorluklarla başa çıkabilecek dayanıklı, uyumlu sistemlerin geliştirilmesi için esastır.

Anahtar Kelimeler*: Servis Tasarımı, Agroekoloji, Topluluk*

1. INTRODUCTION

In the introduction section of the thesis, the overall framework and purpose of the research are presented. The introduction outlines the motivation of the study, objective of the study, the research questions, and the structure of the thesis.

1.1 Motivation of the Sudy

The transformation of existing industrial food systems requires the strengthening of small-scale production and local food communities to create more resilient food systems. Traditional food systems, characterized by scale and centralization, fail to meet the needs of local communities and contribute to environmental degradation. In this context, TADYA (Tahtacıörencik Natural Life Collective), a grassroots community composed of farmers/producers and the consumers who support them, presents an inspiring model for change. This community has significantly influenced my perspective by demonstrating how local and sustainable food networks can drive systemic transformation.

My own experience as a food producer has profoundly enriched my design practice. Direct involvement in food production processes has provided a holistic understanding of the food system from production to consumption, enhancing my design identity. This dual identity as both a producer and a designer allows me to contribute meaningfully to discussions on sustainable food systems and community-based initiatives.

Furthermore, I believe in the importance of responding to the complex issues facing our food systems through collective action rather than individual efforts. Forming food communities enables a more robust and cohesive approach to addressing food security, sustainability, and climate resilience. The spirit of collaboration inherent in these communities not only empowers individual members but also fosters a sense of shared responsibility and collective efficacy.

In this context, the seminar titled "Building Resilient Food Systems in Ankara: Adaptation to Climate Change," to be held on June 3, 2024, is particularly motivating for me. This seminar will focus on academic studies related to agroecology specific to Ankara, and I will present my academic research. Participating as a speaker offers the opportunity to share my findings and advocate for the resilience and sustainability of local food networks.

Significant research has been conducted on TADYA and the village of Tahtacıörencik, the subjects of this study. One such study is Zeynep Nagehan Kahveci's 2023 doctoral research titled "The Effects of Traditional Knowledge on Contemporary Nutrition Culture: The Case of Ankara Güdül Tahtacıörencik Village." Another important study is Buse Şişman's 2022 master's thesis titled "The Role and Importance of Agroecology in Agricultural Food Systems: The Case of Ankara-Güdül." Additionally, there are ongoing studies in which TADYA is involved. These studies provide valuable insights into the research area and strengthen the foundation of this research.

In conclusion, the motivation for this study is deeply rooted in the necessity to reimagine our food systems. By examining the role of grassroots initiatives like TADYA and their impact on local communities, this research aims to contribute to the broader dialogue on sustainable and resilient food systems. Through academic inquiry and active participation in community efforts, I seek to illuminate pathways toward a more equitable and sustainable future

1.2 Purpose of Thesis

Climate change-induced global issues, such as biodiversity loss and the negative impacts on communities in regions more vulnerable to the climate crisis, have become central concerns in many fields, including design. The increasing and urgent need for solutions to these global environmental problems necessitates a reevaluation of design approaches and the development of more sustainable solutions. Redefining the relationship between humans and nature and adopting approaches that cause less harm to the environment, or even have restorative effects, is one of the most critical requirements of our time. In this context, designers can use their creative skills to protect and restore nature. Such design should be seen not only as an application area

but also as a process that reflects ecological thinking and change. With this understanding, design can create new propositions by using its creative tools to ensure sustainability.

The current global agriculture and food system is one of the sectors most affected by the climate crisis and also one of the primary contributors to it. Increasing concerns about food security, animal welfare in industrial systems, and the environmental impact of conventional production have led to the development of alternative approaches in agriculture and food systems. Agroecology emerges as an important solution in this context. Agroecology is defined as a social movement that aims for agriculture to be conducted according to ecological principles and for the preservation of natural ecosystems. This approach prioritizes the conservation of biodiversity and the improvement of soil health while also emphasizing the sovereignty of consumer and producer communities. It considers the sustainability of agricultural production methods along with the strengthening of local economies and social structures, addressing social and economic sustainability holistically.

Design can contribute to making food systems more sustainable and equitable by supporting agroecological approaches. The co-design approach can support agroecological communities by incorporating local knowledge and experiences into the design process, encouraging the active participation of community members, and creating solutions that reflect their needs, values, and visions. This approach can push the boundaries of design, guide social change, and expand its impact by creating new synergies in the context of agricultural and food systems. Agroecology, a multidisciplinary field, can effectively collaborate with co-design to utilize collective creativity and expertise in developing sustainable agricultural systems.

This research focuses on developing various design approaches for agroecological communities. A specific agroecological community was studied, and its needs were identified. Through this example, the potential roles and contributions of design were demonstrated.

1.3 Research Questions

This research aims to investigate how sustainable design approaches can be integrated into agricultural and food systems and to determine the effectiveness of these processes through the following key research questions:

- How can service design play a role for agroecological communities? This question explores the potential impact of service design on agroecological communities and how it can enhance their sustainability. Service design can play a critical role in structuring agroecological communities, integrating local knowledge and experiences, and transforming this knowledge into sustainable practices. The research evaluates the role of service design in supporting self-sufficiency within the examined community through field visits and observations. Additionally, interviews with community members investigate the impact of design on social dynamics within the community and how these dynamics affect sustainability.
- How can service design contribute to TADYA's producer-to-consumer system? This question examines how service design can enhance producer-consumer connections in community-based projects like TADYA (Tahtacıörencik Doğal Yaşam Kolektifi) and improve the effectiveness of these processes. TADYA provides a successful example of sustainable agriculture and food systems by establishing direct connections between local producers and consumers. The research aims to assess how TADYA's existing system can be improved through service design.

In conclusion, this research highlights the significant potential of sustainable design approaches in enhancing the effectiveness and sustainability of agroecological communities and agricultural systems. By investigating the roles of service design -for sustainability- can play within these contexts and the specific contributions it can make to community-based projects like TADYA, the study provides valuable insights into the integration of design in fostering more sustainable and equitable food systems.

1.4 Structure of the Thesis

This thesis aims to examine sustainable design approaches in the context of climate change and agricultural/food systems. The structure of the thesis is carefully organized to explore the topic in depth and address the research questions.

The introductory section presents the overall framework, purpose, and structure of the research. The subsequent chapter examines the impacts of climate change on agricultural and food systems and current approaches to mitigating these effects. Topics include the impact of human activities on climate change and its implications for agricultural/food systems, agroecological approaches and their role in enhancing resilience against climate change, examples of agroecology practices at global and local levels, and the introduction of alternative approaches such as community-supported agriculture and the Slow Food movement. Following this, the sections on the role of design in transformation, design for sustainability, design for social innovation and agro-food systems, service design for communities, collaboration in service design and co-design for agro-food systems provide a literature review on design-oriented approaches within agricultural and food systems. The methodology chapter details how the research was conducted, including the methods and data collection techniques used. The research stages are supported by various methodological tools such as field visits, observations, interviews, and surveys. The case study on TADYA (Tahtacıörencik Natural Life Collective) examines the impact of this community on sustainable agriculture and food systems. This chapter explores the perspectives, desires, and needs of the communities within TADYA. The findings of the research are based on the analysis of data obtained through field visits, observations, interviews, and surveys. This section details the potential impacts of service design on agroecological communities like TADYA. Subsequently, the comparison of findings with the literature, the answers to the research questions, and the summary of the main findings are discussed.

In conclusion, after reviewing the literature on climate change and agricultural/food systems along with sustainable design literature, the case study is discussed in the light of this literature, and the contributions of the emerging issues to the topic of service design for agroecological communities are presented.

1.5 Limitations

This thesis, while being a comprehensive study on the integration of sustainable service design approaches into agricultural and food systems, includes various limitations and constraints.

The fieldwork of the research focuses on specific agroecological communities and projects such as TADYA (Tahtacıörencik Natural Life Collective). This limited geographical and social scope may restrict the generalizability of the findings to other agroecological communities and different regions. Agroecological communities in different regions may exhibit significant differences in terms of cultural and economic factors. The data collection techniques used in the research include field visits, observations, interviews, and surveys. However, the limited number of participants and the lack of sufficient diversity among participants may affect the generalizability of the obtained data. Especially, the diverse perspectives and experiences of farmers, consumers, and coordinators may not be fully represented. Cultural and social dynamics play an important role in shaping agricultural and food systems. The research may be limited if these dynamics are not fully understood and if social interactions within the community are not adequately evaluated. During the research process, the increasing uncertainty of climate change and climate events was considered a significant factor. However, the unpredictability of climate events and their potential impacts on agricultural and food systems are not fully known. In this thesis, various data collection and analysis methods were used. Field visits, observations, structured and unstructured interviews, surveys, and digital system analyses broaden the scope of the research, but they also bring some limitations regarding the consistency of the data and the integrity of the analyses. The simultaneous use of different methods may affect the comparability of the data and the generalizability of the results. Additionally, the application of multiple methods created challenges in time and resource management during the research process.

In conclusion, these limitations may affect the generalizability and applicability of the findings. Future research should consider these limitations and aim to evaluate sustainable design approaches with more extensive and diverse data sets.

2. GENERAL OVERVIEW OF CLIMATE CHANGE, AGRICULTURE AND FOOD SYSTEMS

In this section of the research, the impact of human activities on agricultural and food systems, the main challenges associated with climate change, the creation of agroecology and climate-resilient food systems, examples of agroecology practices worldwide and in Turkey, alternative food networks, community-supported agriculture, and the Slow Food movement are discussed. The topics, studies, and practices examined provide significant insights and examples of the contributions that design can offer towards more sustainable, equitable, and healthy food systems.

2.1 Human Impact and Climate Change

Global issues caused by the climate crisis are clearly affecting every aspect of life. Increasing disasters, seasonal shifts, forest fires, soil erosion in agricultural lands, and rising ocean temperatures around the planet show that the balance of ecosystems, including humans, is changing (IPCC, 2023). This situation makes outcome-oriented solutions that will drive changes in production, consumption, and lifestyles urgent.

When discussing the impact of human activities on the planet, the concept of the Anthropocene inevitably comes to mind. This term defines humanity as a global geological force (Crutzen and Stoermer, 2000). While it is challenging to pinpoint an exact start date for the Anthropocene Epoch, Crutzen (2011) points to the Industrial Revolution beginning with the invention of the steam engine. However, some theories suggest this epoch began with the Agricultural Revolution eight thousand years ago. Indeed, agriculture is one of humanity's most significant interventions in nature. The Anthropocene is also characterized by materials solely resulting from human activities, such as radionuclides, plastics, and pesticides (Fellows, 2019). The term Anthropocene combines the Greek words "anthropo," meaning 'human,' and "cene," meaning 'new' or 'recent.' The emergence of the Anthropocene concept has influenced numerous

scientific studies and environmental movements, necessitating a historical perspective to understand these movements.

The iconic ‘Earthrise’ photograph taken by Apollo 8 astronaut Bill Anders in 1968 triggered environmental movements and became iconic itself (Fellows, 2019). The Earth Day we commemorate today was declared on April 22, 1970, when 20 million people in the US protested against environmental pollution and ecological destruction. In the same years, environmental movements against pesticides, especially Dichlorodiphenyltrichloroethane (DDT), began, leading to the establishment of the US Environmental Protection Agency and the United Nations Environment Programme. Consequently, research on the Earth's limited resources, the environment, and climate has continued to increase. The Limits to Growth report published by the Club of Rome in 1972 detailed that the world's existing resources would not support this rate of population growth and economic expansion beyond 2100 (Meadows et al., 1972). The Gaia hypothesis, developed by chemist James Lovelock and microbiologist Lynn Margulis, proposing that the planet functions as a living organism, inspired various philosophical and scientific discussions about life on Earth (Lovelock, 2000). The impact of human activities on the environment accelerated after World War II. The period from 1945 to 2000 is known as the Great Acceleration. Over the past 50 years, the population doubled, and the economy increased 15-fold. Another critical event for the Great Acceleration was the massive migration from rural areas to cities, which also increased consumption. Research shows that developing countries have significantly lower carbon emission percentages compared to developed countries. While carbon emissions continue to rise, biodiversity loss is also increasing, and the measures and actions taken are insufficient to prevent this loss (Crutzen et al., 2011).

With the increase in scientific research and evidence in the 1980s, the effects of global warming on the planet started to be more frequently discussed in the public sphere, leading to the establishment of the Intergovernmental Panel on Climate Change (IPCC) in 1988. The depletion of fossil fuel reserves and the resulting price increases have also had negative economic impacts. Fragile, underdeveloped, or developing countries have been more affected by this situation, leading to increased inequality. For instance, the 1998 flood in Bangladesh, affecting 75% of the country, resulted in thousands of deaths (Brecher, 2015). The climate crisis not only exacerbates the

destructive impact of humans on other species but also on each other. The proposed solutions for mitigating the effects of climate change required slowing down economic growth, which was not well received by global companies profiting from the status quo. Despite numerous climate protection policies and summits, such as the Earth Summit in Rio de Janeiro in 1992, the Kyoto Protocol in 1997, and the Copenhagen Climate Summit in 2009, no real solutions to greenhouse gas emissions were produced. The failure of states, particularly the US and China, to develop effective policies in response to the ongoing disaster led to the establishment of numerous international NGOs and networks focused on climate justice (Brecher, 2015). The 2015 COP21 (United Nations Climate Change Conference) aimed to limit global warming to 1.5 degrees Celsius above pre-industrial levels through the Paris Agreement. While many developed and developing countries, including Turkey, signed the Paris Agreement in 2021, the extent to which participating countries have implemented it remains debated. In response to the inadequate actions of governments, a growing youth climate movement has emerged. One of the most striking measures in the 2021 Glasgow Climate Agreement was the closure of 40% of the world's existing coal plants and a moratorium on new ones, representing a significant step towards reducing fossil fuel use. According to the 2023 IPCC report, the rate of reduction in carbon emissions is still too low to counteract increasing emissions. The report states that approximately 79% of 2019 global greenhouse gas emissions came from energy, industry, transport, and buildings, while 22% came from agriculture and forestry. Additionally, communities in vulnerable regions, which have contributed the least to global climate change, are 15 times more affected by floods, droughts, and extreme weather events related to climate change (IPCC, 2023). However, the report also highlights that we have numerous tools to enhance climate resilience. Activities such as ecosystem restoration, agroforestry, farm diversification, and community-based adaptation are crucial steps to adapt to climate change.

2.2 Key Challenges for Agriculture and Food Systems

This section of the research addresses the challenges posed by global climate change to agricultural and food systems. These challenges, discussed in environmental, economic, and social dimensions, highlight significant issues faced today and the measures needed in the future. The environmental challenges examined include the

impacts of increased greenhouse gas emissions on agriculture, biodiversity loss, and the rise in climate change-related weather events. Economically, the research addresses imbalances in the agricultural sector and the economic conditions of developing countries. Finally, the social impacts of climate change, such as food security and social inequality, are discussed, providing a perspective on the societal challenges within agricultural and food systems.

2.2.1 Environmental Challenges

Global warming is caused by the excessive increase in the emissions of greenhouse gases such as carbon dioxide (CO2), methane (CH4), chlorofluorocarbons (CFCs), and ozone (O3) due to human activities. Increasing greenhouse gas emissions, along with rising temperatures, lead to an increase in extreme and variable weather events, which present a danger to ecosystems, known as "global climate change" (Demir, 2009).

Agricultural and food systems are both contributors to and among the most affected sectors by global climate change (Keskin & Kanat, 2018). In this context, the climate change-related environmental problems faced by food and agricultural systems are examined under two main headings: those that affect and those that are affected.

2.2.1.1 How is agriculture affected by climate change?

Global climate change can impact agriculture in various interconnected ways. Warming and rising temperatures accelerate evaporation from the soil, causing plants to lose more moisture (William, 2008). This affects the diversity of plants, animals, and microorganisms living in humid environments (Demir, 2009). Biodiversity loss in food and agriculture leads to a decrease in the flow of ecosystems on which agriculture depends, weakening agricultural systems' resilience to climate change (FAO, 2023). Biodiversity loss and climate change-related weather events are expected to change disease and pest patterns, affecting crop yields. Suitable land areas for cultivating key crops may undergo geographical shifts (Aydınalp & Cresser, 2008).

Increased drought periods, rising temperatures, changes in rainfall patterns, more frequent extreme weather events, rising sea levels, and ocean temperature variability generally negatively affect agricultural production (FAO, 2016). Over the past 20-50

years, climate impacts have varied by crop and region (IPCC, 2023). However, the effects of these conditions on food systems are highly complex (Vermeulen et al., 2012). Like other Mediterranean countries, Turkey is expected to be one of the countries most affected by climate change (Keskin & Kanat, 2018). By 2030, temperatures in Turkey are projected to increase by 2°C in winter and 2-3°C in summer, with winter rainfall increasing by 10% and summer rainfall decreasing by 5-15%. The decrease in summer rainfall and the increase in temperatures are expected to significantly impact plant and animal production in Turkey (Keskin & Kanat, 2018). Therefore, Turkey's existing water, food, agriculture, and livestock systems will need to be entirely adapted to new climate conditions (TGDF, 2017).

2.2.1.2 How does agriculture contribute to climate change?

Agriculture contributes approximately 20% of human-caused greenhouse gas emissions, making it the second-largest contributor to global warming after the energy sector. The livestock industry accounts for about 5-10% of this impact in global agricultural production (Aydınalp & Cresser, 2008). Additionally, deforestation for agricultural land conversion is responsible for 10-30% of carbon dioxide emissions into the atmosphere (Keskin & Kanat, 2018). In Turkey, the rate of greenhouse gas emissions from agricultural production was 14% in 2020 (TÜİK, 2023).

Since the food system involves more than just agricultural production, the greenhouse gas emission rate is even higher. Stages such as agricultural production, processing, storage, distribution, supply, and waste disposal also contribute significantly to emissions. The total greenhouse gas emissions from the food system account for 19-29% of total emissions, making a substantial contribution to climate change (Vermeulen et al., 2012).

2.2.2 Economic Challenges

The economic impacts of climate change on the agricultural and food system are expected to be diverse and region-specific (Kurukulasuriya & Rosenthal, 2003). It is anticipated that climate change will particularly strain agricultural sectors in vulnerable regions, leading to an increase in poverty rates in countries reliant on agriculture, especially in rural areas. These regions include developing countries

located in global hotspots such as Western, Central, and Eastern Africa, South Asia, and Central and South America (FAO, 2016).

According to some studies conducted in the United States, farms in the warmer southern regions of the U.S. are found to be more vulnerable than those in the northern regions. Farms closer to the equator are likely at even greater risk (Mendelsohn, 2009). The 2023 IPCC Report indicates that yield variability in less productive agricultural regions is increasingly having significant adverse effects on livelihoods (IPCC, 2023). Although there is insufficient research on this issue in many of these countries, econometric estimates of climate change's impacts on crop productivity are generally negative. The global impact is estimated to be a small percentage of around -0.34%, but this average could be misleading as it would affect some countries more severely (Carter et al., 2018). Underdeveloped and developing countries are more dependent on agricultural production, and poor farmers in these regions are less able to adapt to climate change (Mendelsohn, 2009). In contrast, farmers in industrialized countries are more likely to adapt through changes in crop selection, crop management, and appropriate capital investments at the farm level (John, 2008). Climate change, along with other factors, is already undermining recent progress in supporting sustainable rural livelihoods and combating hunger and all forms of malnutrition (FAO, 2022).

Many studies have made predictions about the negative impacts of climate change on agriculture in developing countries; however, there have been very few economic studies that actually measure these climate impacts in these countries (Mendelsohn, 2009). Existing research indicates that countries with economies largely dependent on agricultural production, located in geographically vulnerable regions, and classified as developing need support in their adaptation processes to climate change.

2.2.3 Social Challenges

Disruptions in agricultural production and food systems caused by climate change have already begun to manifest as social issues. According to the IPCC Report (2023), increasing weather and climate events are exposing millions of people in these regions to acute food and water insecurity. The variability in yields in relatively less productive agricultural regions is increasingly having significant adverse effects on food security (IPCC, 2023). It is also anticipated that food quality and safety will be affected by

climate change (Vermeulen et al., 2012). According to the literature, food security is a prominent issue in the context of climate change and will be a subject of increasing debate in the future. Food security encompasses the availability of food, access to clean food, utilization, and stability, disproportionately affecting the most vulnerable social groups (FAO, 2022).

Farmers, who are already influenced by various factors such as soil quality, financial constraints, and market access, are expected to face increased challenges due to the growing uncertainty of climate events. Poverty, governance challenges, and limited access to services and resources can deepen vulnerability in areas where agriculture is the primary livelihood (Kurukulasuriya & Rosenthal, 2003).

Small-scale producers, in particular, encounter significant barriers when adopting practices that could make their production systems more resilient and efficient. These barriers include labor availability, land tenure security, social capital, risks, access to credit and resources, and access to information (FAO, 2016).

Farmers need support in adapting to and coping with climate change (Aydınalp & Cresser, 2008). Smallholders, in particular, require access to appropriate technologies and the support to implement them (Kurukulasuriya & Rosenthal, 2003). Additionally, creating solutions for food systems involves learning from local knowledge and practices, integrating this knowledge with science-based solutions and innovations, which is crucial (FAO, 2022).

In summary, producers operating in the agricultural and food sector need to be supported with a multifaceted, inclusive, and holistic approach to adapt to the social challenges posed by climate change.

2.3 Agroecology

“I begin with the proposition that eating is an agricultural act. Eating ends the annual drama of the food economy that begins with planting and birth.” (Berry, 1990, p.145).

The concept of agroecology is a combination of the Latin *agro* meaning field or agriculture, *eco* meaning home or environment, and *loji* meaning science. Agroecology is both a science, a practice and a movement (Özkaya & Özden, 2021).

According to Gliessman (Gliessman, 2015), agroecology is part of a larger movement that aims to secure the long-term survival of humanity. Its main goal is to preserve existing biodiversity, maintain agricultural productivity and self-sustaining capacity, and create self-sufficient agricultural systems that mimic natural ecosystems (Altieri, 1995). The first agroecological studies started in 1930 (Şişman, 2023). In the 1980s, the focus was more on the environmental impact of chemical inputs at the farm level. By the 1990s, it started to take more place in science (Özkaya & Özden, 2021).

Agroecology can be considered as an umbrella concept (Özkaya & Özden, 2021). Under this concept, there are approaches such as organic agriculture, permaculture, restorative agriculture, biodynamic agriculture, etc. Some of these definitions are given in Figure 2.1.

Organic Agriculture	It is a form of agricultural production that does not harm human health and the environment, without the use of chemical inputs in production, with every stage controlled and certified from production to consumption. (Republic of Turkey Ministry of Agriculture and Forestry, n.d.)
Permaculture Design	It is a 'guiding' concept introduced by Bill Mollison and David Holmgren in the mid-1970s to describe "an integrated system of perennial or self-sustaining plant and animal species useful to man" and includes a set of design principles (Mollison, 1988).
Regenerative Agriculture	It is a form of agriculture proposed as an alternative form of food production with lower or net positive environmental and/or social impacts. It aims to improve soil health and claims that this symbiotically increases water, vegetation and land productivity (Rhodes, 2017).
Biodynamic Agriculture	It is a diversified, resilient and thriving form of agricultural production that can provide ecological, economic and physical long-term sustainability for humanity, coined by Rudolf Steiner. Whether it is a scientific category is a matter of debate (Turinek et al., 2009).
Horticulture	Horticulture is defined as the development, sustainable production, marketing, and utilization of food and ornamental plants that are grown intensively and efficiently. (Michigan State University, n.d.)
Agroforestry	As part of a multifunctional food landscape, ecosystem services provide environmental benefits and economic value. In recent years, the number of evidence-based and scientific studies on this topic has increased (Jose, 2009).

Figure 2.1: The agroecology concepts.

When examining these sub-concepts of agroecology, it is possible to say that different perspectives have been developed with a primary focus on environmental benefits. However, agroecology, which requires a holistic perspective, cannot be reduced to specific practices and formulas; it evaluates situations and events as a whole within

social, ecological, and economic frameworks (Özkaya et al., 2021). Agroecology is an action-oriented movement that focuses on creating participatory, alternative social structures because it requires the involvement of all stakeholders from farm to table. Since it values all types of knowledge and experience in the transformation of food systems, it is said to have a transdisciplinary approach (Gliessman, 2015).

Although the design of agroecological systems varies depending on the context, there are some fundamental principles. These include ensuring the recycling of biomass, managing soil organic matter, minimizing losses by managing microclimates and precipitation, and increasing and supporting biodiversity interactions (Altieri, 1995).

2.3.1 Agroecology and building resilient food systems

At the most basic level, food systems are directly related to the ways people interact with nature, soil, and each other. Therefore, for humanity to successfully confront the ecological crises it faces, food systems must be transformed (Gliessman, 2015). One of the primary goals of agroecology is precisely this transformation.

Like the capitalist economic system, the food regime has undergone periods of liberalization characterized by significant capital concentration. This situation has led to devastating collapses in rural communities and natural ecosystems (Giménez & Altieri, 2013). In this sense, systemic change is intertwined with the changes that need to be created in many ecological, economic, and social activities, which makes it challenging. When the economies of rural communities decline, their social fabric also begins to unravel. When farmers' way of life is limited to mere subsistence, many of the reasons for engaging in that work are lost. When a commodity chain is established, individual decline ensues. The environmental result of this situation is ecological destruction (Gliessman, 2015).

In the context of Turkey, agriculture has also been affected by the neoliberal transformation that occurred after 1980 (Teoman, 2023). As a result of policies implemented in subsequent years, agriculture has come under the dominance of large corporations and become dependent on industrial agricultural inputs such as fertilizers, pesticides, and seeds. Small family farmers have fallen behind in terms of production costs, technological adaptation, and education. Therefore, the widespread adoption of agroecology requires social, economic, and political support, as well as awareness-

raising efforts on the consumer side (Teoman, 2023). In modern agriculture, dramatic increases in crop productivity have often been accompanied by environmental degradation (soil erosion, pesticide contamination, salinization), social problems (the disappearance of family farms; the concentration of land, resources, and production; the growth of agricultural trade and its dominance over farm production; changes in rural/urban migration patterns), and the overuse of natural resources (Altieri, 1995). According to Altieri (2018), when examining the obstacles to the development and adoption of sustainable agroecosystems, it is impossible to separate environmental issues from socio-economic issues.

According to the IPCC Sixth Assessment Report, agroecological approaches can enhance the resilience of farmers and food systems and play a significant role in emissions reduction (IPCC, 2023). The report discusses six dimensions of agroecology in climate change adaptation: environmental (supporting resilient food systems by maintaining ecosystem services), socio-cultural (developing local knowledge and capacity, addressing social inequalities), food security and nutrition (ensuring food security, especially in low-income countries), economic (reducing dependency on purchased inputs and strengthening economies), long-term investments (strengthening many stages of food systems), and policy (collaboration among the private sector, NGOs, various communities, and networks) tools (IPCC, 2023). Agroecological transition can facilitate the development of self-sufficient, diversified, economically viable, small-scale agricultural ecosystems, and the creation of production systems managed with technologies adapted to the local environment within the farmers' resources. However, it is also important to note that there are barriers to the widespread adoption of agroecological practices, such as land tenure issues, farmers' information needs, locality-specificity, the lack of farmer organizations, economic obstacles, national agricultural policies, and infrastructure problems (Altieri, 1995).

2.3.2 Examples from Turkey and around the world

In this section of the research, various examples of agroecology activities from Turkey and around the world are provided. These examples reflect the applications of agroecology in different geographies and the diversity in agricultural/food systems.

La Via Campensina (Cuba):

Agroecology played a crucial role in helping Cuba recover from the crisis caused by the collapse of the socialist bloc in Europe and the tightening of the US trade embargo. Cuban peasants managed to increase food production without expensive imported agricultural chemicals by substituting imported inputs with more ecological ones and transitioning to more agroecological farming systems. The National Association of Small Farmers (ANAP) conducted this process using the 'Campesino a Campesino' (Farmer to Farmer) methodology within a grassroots agroecology movement led by the international agricultural movement La Via Campesina, to which ANAP is a member. This movement spread to one-third of the farmers in Cuba (Rosset et al., 2011).

La Via Campesina, active in 81 countries, aims to support peasant agriculture for peasants, small-scale farmers, landless people, and indigenous peoples. It brings together more than a hundred organizations from Latin America, North America, Asia, the Caribbean, the Middle East, Africa, and Europe that advocate for rights-based rural development and environmental justice against neoliberalism (La Via Campesina, n.d.).

La Via Campesina, which supports agroecology, is fighting to preserve seed diversity among peasant farmers. It has been prominent in politically contentious campaigns against global corporate giants and genetically modified organisms (GMOs), and transnational companies promoting them, such as Monsanto, a leading producer of agricultural chemicals and genetically modified seeds (Borras, 2004). Additionally, the Campesino a Campesino movement has worked with NGO networks focused on sustainable agriculture, such as the Participatory Ecological Land Use Management (PELUM) in Africa, to restore degraded agricultural lands using agroecological practices on smallholder farms (Holt-Giménez, 2006).

Zero Budget Natural Farming (ZBNF) (India):

Another grassroot movement is Zero Budget Natural Farming (ZBNF), which first developed in the southern Indian state of Karnataka. It is known that approximately 100,000 farming families are involved in ZBNF just in Karnataka (FAO, 2016). The ZBNF movement consists of a network of volunteer coordinators, including local

community leaders, representatives from progressive political parties, various independents, and farmers, led by Subhash Palekar known as guru. Palekar is a farmer and agricultural expert who has written numerous books on natural farming and conducted extensive research to improve traditional Indian agricultural practices in the early 1990s (FAO, 2016). ZBNF is an independent organization that promotes farming without the use of external inputs, relying instead on natural methods. According to a study, ZBNF not only provides agricultural benefits for farmers but also various social and economic advantages (FAO, 2016).

Participatory Ecological Land Use Management (PELUM) (Kenya):

PELUM is a network of NGOs working with small-scale farmers in Eastern, Central, and Southern Africa. In the context of agroecology, the network focuses on policy influence, networking, capacity building, and information sharing. PELUM supports production methods such as organic farming, sustainable agriculture, regenerative agriculture, agroforestry, permaculture, and biodynamic farming. It also opposes the use of GMOs and synthetic agricultural inputs (PELUM, 1995).

Rede EcoVida (Brasil):

Rede EcoVida is a network that includes organic and traditional farmers, local NGOs, and other actors in the production chain. It was established in 1998 when different local NGOs came together to find an alternative to the Green Revolution. The network operates in three states of southern Brazil: Paraná, Santa Catarina, and Rio Grande do Sul. In this network, the certification of organic products is based on a participatory approach. The responsibility for guaranteeing product quality is shared among farmers, technicians, and consumers, involving a multi-layered process of participatory inspection (Zanasi et al., 2009).

Buğday Association for Supporting Ecological Living and MedCaravan Project (Turkey):

The Buğday Association for Supporting Ecological Living, founded on August 12, 2002, conducts various activities related to sustainable living with the support of volunteers and members from different parts of Turkey. The association works on both national and international scales in areas such as access to healthy and reliable food,

promoting eco-friendly production and consumption habits, and strengthening the connections between rural and urban areas. Buğday Association pioneered the establishment of 100% Ecological Markets, starting with the first one in Şişli, Istanbul, and has been involved in sustainable agriculture and food projects such as the Seed Exchange Network and the Toxic-Free Tables project (Buğday Association, 2002).

The Buğday Association also participated in the Mediterranean Agroecology Caravan – MedCaravan project, which was supported by the Erasmus+ Program of the EU and led by European Delegation for Family Farming in Asia, Africa, and Latin America (DEAFAL) from Italy, in partnership with URGENCI (France), Zelena Tranzicija (Serbia), HSEP (Croatia), and FCiencias.ID (Portugal). The MedCaravan project aimed to compile, share, and disseminate best practices applicable in food production. The project collected agroecological knowledge from rural areas and disseminated it through various educational materials and an online platform (Buğday Association, 2023).

Four Seasons Natural Life Association and 'Our Food Our Future' Project (Turkey):

Another agroecology project implemented in Turkey is the "Our Food Our Future, Building Resilient Food Systems in Times of Crisis: Tahtacıörencik and Beyond" project, which started in Tahtacıörencik Village in Ankara's Güdül district and aims to expand across Ankara. Supported by the United Nations Development Programme (UNDP) Global Environment Small Grants Programme (GEF-SGP) fund, the project focuses on promoting eco-friendly production with an emphasis on gender equality, uncovering traditional production knowledge, and creating a small-scale production guide for the Ankara region (Our Food Our Future, 2022). Part of the fieldwork for this research was conducted while this project was ongoing. Detailed information about this section is provided in the Findings section.

Urban-Rural Networks: Generating New Forms of Exchange Between Citizens (URGENCI):

URGENCI is the international grassroots network for Community Supported Agriculture (CSA) and all forms of local solidarity-based partnerships for agroecology. The International URGENCI Network brings together individuals working on agroecology, small-scale food producers, consumers, activists, and

researchers from more than 40 countries (URGENCI, n.d.). Its primary aim is to develop a transnational network consisting of regional and local partnerships between producers and consumers. The organization focuses on enhancing knowledge transfer through education and the sharing of experiences. As part of this goal, the 'E-learning hub' website has been established to provide services (Hub URGENCI, 2006).

2.4 Alternative Food Networks (AFNs)

In recent years, concerns about ecology, health, and animal welfare on the consumption side of the agricultural food chain have led to the consideration of alternative solutions. The controversial production methods of food have changed consumer perceptions and created a potential market for consumers seeking safe food (Renting et al., 2003). Thus, producers adopting alternative production methods, consumers, consumer groups, and other actors involved in the food supply system have formed Alternative Food Networks (AFNs) in opposition to the standardized food system (Renting et al., 2003). While terms such as alternative food systems and alternative food initiatives are used in the literature for these networks and communities, the most widely and commonly used term is Alternative Food Networks (Ayalp, 2021).

Defined by terms such as 'quality,' 'transparency,' and 'locality,' these networks represent a food and agricultural system formed by the collaboration of consumers, producers, and other community members who have moved away from the traditional food sector (and typically operate on a smaller, independent scale compared to the industrial food system) (Sonnino & Marsden, 2005). AFNs vary in size, scope, and purpose—such as farmers' markets, community-supported agriculture programs, farm-to-consumer programs, etc.—and offer real-world, working models of a decentralized approach to the ecology and economy of food (Gliessman, 2015).

In this research, the Tahtacıörencik Natural Life Collective (TADYA), examined as a case study, is an example of an AFN. TADYA is a network formed by consumers living in Ankara who, for various reasons, wish to purchase food products from local producers, producers working in the village, collective facilitators, and other supporters (Tahtacıörencik, 2011). Detailed information about TADYA is provided in the Findings section of the research.

2.4.1 Community-Supported-Agriculture (CSA)

Community Supported Agriculture (CSA) is a social movement that aims to establish direct connections between producers/farmers and consumers. This movement can be seen as a potential tool against the problematic aspects of modernization in the context of food (Cone & Myhre, 2000). The emergence of CSA occurred in the 1960s and early 1970s with the spread of the alternative food movement known as teikei. Meaning partnership, teikei is a grassroots movement where producers and consumers share organically grown products, with consumers supporting and ensuring the security of farm activities. This movement later became known as CSA in the USA and Association pour le maintien de l'agriculture paysanne (AMAP) in France (Kondoh, 2014). The goal is for consumers to purchase directly from producers to support small farms.

CSA is a contractual agreement between a farm and a group of consumers. By purchasing a "share" at the beginning of the season, consumers enable farmers to plan production for a guaranteed market and provide upfront capital to purchase inputs. Risks are shared: if there is a poor harvest, everyone receives less, not just the farmers (Cone & Myhre, 2000). The social and economic ties associated with the CSA model are significantly different from those in the global food system. It is a win-win system where the producer gains some financial security and cash flow (Gliessman, 2015). Consumers gain information about the production methods and conditions of the food they consume, and farmers and consumers act together (Cone & Myhre, 2000).

Many models within AFNs typically focus on the perspectives of either producers or consumers. Compared to other alternative food networks, the CSA model is unique in sharing and distributing responsibility and risk. CSA involves a collaborative creation process where producers and consumers make decisions together (Savarese et al., 2020). The first known CSA implementation in Europe was in Switzerland in 1978. In Turkey, the concept of food communities came to the forefront with the establishment of the Boğaziçi University Members Consumer Cooperative (BÜKOOP) in 2008. Since then, numerous food communities have been established, especially in Istanbul, Ankara, and Izmir. These CSA implementations aim to deliver clean and quality food to consumers while ensuring that producers find buyers at fair prices and produce with purchase guarantees (Özden, 2020).

2.4.2 Slow Food Movement

The Slow Food Foundation, born as part of the Slow Food Movement, emerged as a response to the rapid consumption and 'fast food' trend brought by industrialization. It advocates for the richness of local cuisines and a sustainable food culture (Slow Food International, n.d.). Founded by Carlo Petrini, Slow Food is a global movement of local groups and activists with the common goal of ensuring everyone has access to good, clean, and fair food. Established in Italy in 1986, it now operates in over 160 countries, working in the areas of biodiversity, education, and advocacy. The main principles of Slow Food can be summarized as follows:

- Good: Promotes tasty, nutritious, and culturally meaningful food. It emphasizes the enjoyment of food and the importance of sharing meals with family and friends.

- Clean: Advocates for environmentally sustainable and socially responsible food production. This includes supporting local farmers who use organic and eco-friendly farming methods and reducing the carbon footprint associated with food production and distribution.

- Fair: Ensures that producers and workers are paid fairly throughout the food supply chain. It rejects exploitation and aims to ensure that farmers and food producers receive fair prices for their products, enabling them to sustain their livelihoods and communities.

Slow Food encourages consumers to be more conscious of their food choices, support local farmers and artisans, and contribute to the preservation of food diversity and cultural heritage. The movement aims to bring together everyone from activists to local groups and institutions for better, cleaner, and fairer food (Slow Food, 1986).

The Slow Food Foundation supports and coordinates the global activities of the Slow Food movement. While supporting local communities, farmers, and producers, the foundation also conducts education, information, and advocacy activities to spread the principles and values of slow food. The foundation works towards various goals, including preserving biodiversity, supporting traditional food production methods, and fighting injustices in the food industry. Its main activities include supply chain

management, education and awareness, food justice advocacy, and the conservation of food biodiversity. In this way, the foundation creates a community for a healthy, sustainable, and fair food system and strives to spread these values (Slow Food International, n.d.).

3. DESIGN, AGRICULTURE AND FOOD SYSTEMS

How can design offer an innovative approach to alternative networks, systems, and organizations developed for better sustainable food and agriculture systems? The potential roles of design in developing more sustainable and resilient food and agriculture systems while preserving ecological balance and contributing to social justice are outlined in the following sections.

3.1 The Role of Design in Transformation

Design is one of the most fundamental actions through which humans shape the environment, life, culture, and themselves (Papanek, 1984). Heskett (2005) defines design as a human ability to shape and form our surroundings in ways that serve our needs and add meaning to our lives in ways not found in nature. However, according to him, the extent to which humans have shaped this world has reached such dimensions that tragically little of the planet remains in its original state (Heskett, 2005). Today, all design actions made with the anthropocentric thinking that assumes all other living beings serve humans have rapidly led to catastrophic consequences. Activities intended to improve human life and the environment have severely damaged ecosystems (Papanek, 1984). As a result, nearly all of humanity faces serious global issues today.

But does this mean that the creativity and shaping ability humans possess will always lead to destructive outcomes? While we are receiving many wake-up calls regarding humanity, we are also starting to become aware of the consequences of our actions (Manzini and Tassinari, 2022). According to Latour and Porter (2018), anthropocentrism is so deeply rooted in our lives that even when we see its disastrous consequences, we cannot help but act in an anthropocentric manner. However, they argue this is a misconception. It is possible to think and act differently because anthropocentrism is a social and cultural construct that emerged at a certain historical

time. The act of designing can be reconsidered and acted upon without anthropocentrism (Manzini and Tassinari, 2022). In this sense, human design capability also has a powerful potential for repairing and healing. The capacity of design to create meaning opens up a new challenge to design the right choices and actions and frame them beyond anthropocentrism.

At this point, it is necessary to address what the responsibilities of design are and how they can be fulfilled. The controversial concern about every aspect of human existence and this unstable situation shows us that we have entered a new political realm (Latour, 2012). First, design can be rethought not just as a practice but also as practices that reflect thought, trigger change, and sometimes facilitate it. With this perspective, designers should be more involved in the public space to transform relationships with governments, companies, technologies, cities, and natural systems (Tassinari, Staszowski, and Arendt, 2021). By developing a critical relationship with these actors, they take on the role and responsibility of combating political corruption, promoting hope, and exposing many of the deceptions of our time (Tassinari, Staszowski, and Arendt, 2021). Thus, a correctly directed design capability also creates the courage to confront economic forces that ignore the planet's limited capacity (Nardi, 2019).

Design's remedial characteristic, which allows it to cope with situations encountered (Latour, 2012), enables collaboration with actors and participants who are part of the problem during these times of crisis. This way, new, collaborative design forms emerge. Designers take action with actors in various areas while also empowering their actions (Tassinari, Staszowski, and Arendt, 2021). The spread of the idea that there are actors who cannot be designed and that these actors are connected to complex systems is developing new perspectives that include natural ecosystems in the process (Manzini, 2015). Today, it is possible to say that there are many design concepts that prioritize change against social, economic, and ecological problems both theoretically and practically. For example: design for social innovation, design for services, and

design for participatory services. In the following sections, these design concepts relevant to the context will be elaborated and discussed in detail.

3.2 Design For Sustainability

In the document "Our Common Future" by the World Commission on Environment and Development (WCED) published in 1987, the concept of "sustainable development" was introduced for the first time (WCED, 1987). The definition is as follows: "...the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). As understood from this definition, sustainable development is a concept concerning the well-being of 'people' rather than the environment itself. It concerns the lives of society and future generations but does not mention that this situation depends on the systems of nature (complex ecosystems) and the quality of their functioning (Vezzoli & Manzini, 2008). In this sense, while talking about sustainability today, staying away from anthropocentric thinking can enable more inclusive thinking. Following this report, other international initiatives were launched, and over time, sustainable development became an important issue among all societal actors. However, today, it can be said that the term sustainable development has lost its true value due to its overuse in ways that do not correspond to its real meaning (Vezzoli & Manzini, 2008).

When we look at the concept of sustainability itself, since it is a system characteristic, it requires a process-based, multi-scale, and systemic approach driven by a specific goal (Ceschin and Gaziulusoy, 2016). Implementing sustainability requires dynamic interventions and networks of action rather than miraculous solutions (Öztekin & Gaziulusoy, 2020). Although sustainability, like sustainable development, has become a controversial concept, the issue of transitioning to a concrete and definitive action plan proposed by the original meaning of the concept remains important (Vezzoli & Manzini, 2008).

Looking at the first studies on the relationship between sustainability and material production, one of the impactful ones is Fuller's research (1969) emphasizing the physical limits of the planet. Victor Papanek’s book "Design for the Real World: Human Ecology and Social Change," published in 1985, has become one of the

important works on sustainability in design literature. Papanek's studies have inspired future research on the subject, and many of these topics remain relevant today. By criticizing the design profession, Papanek draws attention to its role in promoting consumption and contributing to ecological and social degradation. His works reflect a view on both improving design activities and the radical transformation of design (Papanek, 1985). He also argues that designers can be responsible and thus create real ecological and social change in the world (Papanek, 2012). According to him, if design is sensitive, then it can also be revolutionary.

Following this, research shows that design focused on sustainability began to appear more prominently towards the end of the 20th century with strategies, methods, and tools related to eco-design or design for the environment (Rocha et al., 2019). Initially, approaches to design for sustainability manifested at the material innovation level (Ceschin & Gaziulusoy, 2020). Subsequently, different approaches at the product level, such as eco-design, which aims to reduce environmental impact by focusing on product life cycles, and biomimicry, which takes nature as a model and mimics it, were developed. However, this understanding only focused on environmental impact and ignored the systemic complexities and social dimensions (Ceschin & Gaziulusoy, 2020). Although it improved the environmental performance of products, it lacked material and political depth, thus demonstrating limited capacity to achieve significant environmental gains on its own.

With the reconsideration of interconnected systems, design for sustainability has expanded at different levels (product-service system innovation, spatio-social innovation, socio-technical system innovation), leading to more inclusive and complex concepts involving many stakeholders (policy makers, NGOs, consumer groups, etc.) in the process (design for social innovation, systemic design, strategic design, etc.) (Ceschin & Gaziulusoy, 2016). From the perspective of these concepts, design can take on the role of creating socio-cultural propositions by combining what is technologically possible with what is ecologically necessary (Vezzoli & Manzini, 2008). In this context, the designer can lead change by acting as a facilitator, proposer, provocateur, and connector. Thus, a designer with their own views on the world can take on the responsibility of facilitating discussions among actors in the design process and bringing proposals to the table that can go beyond what the community can

imagine (Meroni & Sangiorgi, 2011). Design for sustainability is a heavily studied and dense field in recent years. Due to the scope of this research, it has been narrowed down and summarized.

3.3 Design for Social Innovation and Agro-Food Systems

Innovations recombine existing resources and capabilities to create new functions and meanings (Manzini, 2014). Social innovation is a concept that provides another perspective on using design for social needs or societal benefits (DiSalvo, 2011). Manzini (2014) defines social innovation as follows: “Social innovation is a process of change emerging from the creative re-combination of existing assets (from social capital to historical heritage, from traditional craftsmanship to accessible advanced technology), the aim of which is to achieve socially recognized goals in a new way” (Manzini, 2014, p.57). Social innovations combined with technological innovation find new ways to solve specific problems, and this meeting itself transforms infrastructure and production/consumption systems (Manzini, 2015). There are different perspectives in the literature on design for social innovation and various answers to the question of how design can play a role in social innovation (Ceschin & Gaziulusoy, 2016). Before discussing the role of designers in social innovation, it is essential to consider the distinction between designer/non-designer. This is because work focused on social benefit, social innovation, and social impact often involves not only designers but also people from the field who have spent more time with the activities and are not professional designers. The term social innovation is widely used outside the design community, and thus it is likely that social innovation extends the scope of design and consequently expands social design (DiSalvo, 2011). For example, Manzini (2014) mentions Carlo Petrini, the founder of the Slow Food Organization (discussed in more detail in later sections), who, although not a designer, is seen as an innovator and a de facto designer. According to Manzini, such stories say significant things about what designers can do. Campbell (2017) introduces the concept of 'lay designers' for grassroots innovations. This term refers to "a person who is not a

member of a particular profession." Thus, a lay designer is an ordinary person who designs without any judgment regarding professional knowledge (Campbell, 2017).

To explore the topic more deeply, we can look at new food networks in the context of food-agriculture systems. These networks, as defined by Manzini (2015) as distributed food networks, arise from concerns about agriculture's dependence on chemicals and petroleum and aim to promote local food to make these systems more resilient. These networks are complex structures with multiple actors from various fields such as farmers, consumers, activists, policymakers, food traders, etc., based on experience and knowledge accumulated from producers. Therefore, design interventions proposed in this area require a good understanding of these complex, multi-layered, and multi-actor structures and must act in collaboration with the actors (Manzini, 2015). Similarly, it can be said that a critical method in such design processes is for the designer to play a role together with other subjects who support their ideas and are involved in the project (Meroni et al., 2013).

From another perspective, food is a nexus for the ecological, economic, and environmental problems faced today. Transforming the agriculture-food system is one of the most impactful tools on the path to sustainability. There are multiple issues to address at this point: food waste, the root causes of hunger, countries more vulnerable to climate change, increasing emissions, soil degradation and deforestation, soil pollution due to agricultural chemicals, etc. These are issues where significant design changes are needed to prevent or provide solutions (Finn, 2023). The relationship between design and food is rooted in the emergence of mass societies as a result of the Industrial Revolution. Design was vital not only for the new distinction between urban life and rural areas but also for transporting food from small places to cities where it is distributed and consumed (Margolin, 2013). However, as a discipline, design’s role in agriculture has been minimal until today. Currently, more intersections between design and the food system are being discussed, and there is a need to design an agriculture, food industry, and distribution system that can move in the opposite direction of the prevailing trend (Manzini, 2008). There are several trends, such as increasing community garden activities, support projects for small farms and family

farming, and community-supported food networks. Some examples of these activities are provided below.

3.3.1 Güneşköy Cooperative

Güneşköy, established on September 21, 2000, in Ankara, is a non-profit organization engaged in agricultural production activities on 75 decares of land in Hisarköy, Yahşihan district, Kırıkkale. As a member of the European Ecovillage Network (GEN-Europe), this organization aims to develop and share sustainable living experiences in harmony with nature in rural areas. They have conducted Community Supported Agriculture (CSA) activities, producing certified organic vegetables between 2005-2014. Within its CSA network, Güneşköy has been a significant part of the system by distributing weekly products directly from farmers to consumers in Ankara. Despite this, the Güneşköy Cooperative paused organic production due to the initiation of the Sivas-Ankara High-Speed Train Project but resumed its CSA project in 2017 (Güneşköy, n.d.). As a grassroots organization, Güneşköy has played an important role in the sustainable transformation of food/agriculture systems in Turkey and specifically in Ankara with its production and distribution system and projects.

3.3.2 Boğaziçi Members Consumption Cooperative (BÜKOOP)

Established in 2009 in Istanbul, BÜKOOP is a university-based consumer food cooperative aiming to reorganize producer and consumer relations to ensure justice for both farmers and consumers simultaneously (BÜKOOP, n.d.). The cooperative aims to address the problems faced by small producers and consumers in food, agriculture, and livestock, questioning and solving the issue of making healthy, chemical-free products accessible to all income groups, not just high-income groups. Through activities organized with producers and consumers, they aim to establish long-term

relationships based on trust between consumers and producers. BÜKOOP is a university-based example of designing new solidarity networks focused on food.

3.3.3 Feeding Milan Project

Feeding Milan is a design for social innovation and social entrepreneurship project. It promotes solutions for an innovation-based alternative food network that supports social and economic development. Designers have mobilized local projects within this initiative. The project created a space for designers to experiment with new service ideas that nourish the city with food and the region with agricultural well-being. The "Community Supported Agriculture" scenario developed a new relationship between the city and the surrounding rural areas. The process involved concept proposals, rapid prototyping, reshaping, concept discussion, and service prototyping stages through community-centered design. The collaboration among various stakeholders plays a central role in the Feeding Milan project. Designers have aimed to produce solutions for food system challenges by working closely with local communities, businesses, government institutions, and NGOs. By promoting collaboration and partnership, the project has developed innovative solutions using collective expertise and resources. Additionally, Feeding Milan adopts a systemic perspective that acknowledges the interconnectedness of social, economic, and environmental factors within the food system. Designers have tried to identify intervention points by analyzing the entire food value chain, from production to distribution, consumption, and waste management. By understanding the complex dynamics of the food system, the project aims to create sustainable impact by addressing root causes (Cantù et al., 2013).

3.3.4 Coltivando Project

Coltivando is a community garden project designed within the framework of two research programs conducted by POLIMI-DESIS Lab, a member of the DESIS Network at the Department of Design of Politecnico di Milano. Like Feeding Milan, it is a community-centered design initiative. Fundamentally, it is a public space within a university campus where vegetables are grown, aiming to bring individuals and communities together. It also serves as a social space that strengthens the bond between people and the place and increases interactions among people through various

activities. The project aims to educate city residents on organic farming and environmental sustainability and to promote local food production. Coltivando aimed to create community gardens by utilizing vacant urban spaces, where city residents could practice organic farming while preserving natural habitats. The activities of Coltivando include educational programs on sustainable farming practices, waste reduction, and recycling. As an example of design activism, the Coltivando project encourages community participation, utilizes local resources, and strengthens social ties. Such initiatives help urban residents strengthen their connection with nature and adopt a more sustainable lifestyle (Fassi et al., 2018).

3.4 Service Design for Communities

Design thinking emphasizes that design is not only a creative process but also a powerful tool for transforming economic, social, and environmental systems. Design strategies aim to create new possibilities to address existing issues more effectively. Product-Service-System (PSS) design integrates products, services, and communication strategies among users, stakeholders, and organizations. Strategic design includes elements such as problem definition and analysis, social innovation, collaboration with different stakeholders, and capacity building through empowerment. The distinction between business and design strategies lies in the tools used. Business strategies typically employ data analysis, while design strategies use tools such as customer journeys, context mapping, and ethnography to create meaningful interactions and sustainable innovative systems (Ballantyne-Brodie & Telalbasic, 2017).

Design research plays a crucial role in managing the complexity of Product-Service Systems (PSS), which requires the simultaneous design of both products and services. Initially focused on environmental efficiency, these design approaches have expanded to include design engineering and socio-ethical sustainability dimensions (sustainable service design). With the rise of the circular economy concept, the term "circular

business models" has emerged, incorporating additional aspects such as increasing resource value and industrial symbiosis (Ballantyne-Brodie & Telalbasic, 2017).

PSS solutions offer significant environmental benefits. These systems encourage stakeholders to take responsibility for the entire product lifecycle and optimize material and energy consumption. PSSs support the design of long-lasting and energy-efficient products, though it is essential that these products have minimal environmental impact. Furthermore, PSSs provide strategic opportunities for companies, enhance competitive advantage, and strengthen customer relationships. Socio-ethically, PSSs encourage greater involvement from local stakeholders, increase local employment, and make services more accessible to low-income customers (Meroni & Sangiorgi, 2011).

Service design focuses on developing service systems that go beyond physical products to enhance user experience and address community needs. This approach considers the abstract nature, diversity, inseparability of production and consumption, and perishability of services. Although these characteristics complicate service design, strategies such as interaction and functional paradigms offer ways to address these challenges (Sangiorgi, 2011).

Collaborative service design involves design processes conducted with communities, stakeholders, and users. This method contributes to societal and economic transformations by using tools like co-design workshops, stakeholder collaboration, and experimental methods to develop more inclusive and sustainable services (Ballantyne-Brodie & Telalbasic, 2017). In conclusion, service design and collaborative service design play crucial roles in creating effective and sustainable service systems through active participation of communities and stakeholders. These approaches help achieve environmental, economic, and socio-ethical goals,

contributing to the creation of a more equitable and sustainable future (Meroni & Sangiorgi, 2011).

3.5 Collaboration in Service Design

Service design is one of the potential tools for developing new social networks in the local context, enabling these new networks to take new actions and create strategic dialogues (Meroni & Sangiorgi, 2011). Through service design, new strategic products and processes can be designed that limit environmental resource and waste consumption, support the fulfillment of essential needs, and provide lasting economic value, thus contributing to sustainability (Fiksel, 2003). One possible role of the designer is to facilitate the ongoing transition by creating conditions for people to use creativity and innovate at the local level (Baek & Manzini, 2009). In this way, design actively progresses towards innovation rather than merely focusing on product and communication design. With the increase in various networks and demand for sustainable products/systems, some macro trends emerge. These trends form a dynamic layer called Social Experimentation (Meroni & Sangiorgi, 2011). They come from both demanding communities (e.g., collective buyer groups) and communities at the first links of the chain (e.g., networks of organic products). This gives us the theme of 'creative communities' (Meroni, 2007), who come together to solve an existing problem or create new opportunities (Baek & Manzini, 2009). With the rise of new network movements, strong and new models develop, changing vertical hierarchies and uncompromising solutions. Creative communities enable the formation of multi-local systems with their own identities and open communication with other communities (Meroni & Sangiorgi, 2011).

Alternative Food Networks (AFNs), composed of many local communities coming together for various needs and desires in agriculture-food systems, can be an example (Ayalp, 2021). In such networks, the designer can potentially play the role of bringing people together to promote a sustainable agriculture-food system. In self-organizing, bottom-up systems, designers can work on increasing visibility, making communication channels more fluid, spreading the platform, and improving the efficiency of activities while enhancing the networks' experience and sensory/aesthetic aspects (Meroni & Sangiorgi, 2011). Design for collaborative services can play an

important role in creating inclusive and polycentric platforms where final users contribute to developing solutions for these community-based networks. Collaboration in digital and physical spaces holds great potential for creating synergy. The digital aspect increases accessibility in a social and economic context, expands stakeholder communication, and makes the platform more resilient (Baek & Manzini, 2009).

3.5 Co-Design for Agro-Food Systems

Co-design, as an interdisciplinary collaboration process, refers to a space where people with different knowledge and skills come together to create innovative solutions for a common goal (Zamenopoulos & Alexiou, 2018). In other words, co-design refers to collective creativity applied throughout the design process. It is a concept used to refer to the creativity of designers and non-designers working together in the design development process (Sanders & Stappers, 2008).

Co-design processes are often used to address complex social, political, environmental, educational, and technological problems. These problems are multifaceted and often global, requiring more than one discipline or area of expertise. As shown in Figure 3.1 the "co" prefix emphasizes the collaborative, cooperative, collective, and connected nature of the design process. Co-design involves different people coming together around issues they care about to develop, experiment with, and negotiate new ideas (Zamenopoulos & Alexiou, 2018).

Figure 3.1: Participatory design (Zamenopoulos & Alexiou, 2018).

Co-design's origins date back to the 1970s with research projects related to user participation and system design. The beginning of this process coincided with similar movements elsewhere. For example, the "Design Participation" conference organized

by Nigel Cross in Manchester, UK, in 1971 was a milestone in this field. The conference aimed to discuss the importance of user participation in various forms of design practice and to create a community interested in these issues. Such participation ensured that users were not only end-users but also active participants in design processes. Today, co-design has a much broader application area and can involve individuals from various disciplines such as business, marketing, science, and art (Sanders & Stappers, 2008).

Co-design application is based on several principles: collaboration, participation, innovation, and sustainability. These principles encourage participants to freely express their ideas, resolve them, and directly impact the final product at every stage of the design process. During this process, participants work together to achieve common goals while also acting according to their independent goals. Thus, collective and binding approaches can coexist, resulting in a dynamic and flexible process. Co-design processes often include consensus-building methodologies, creative and proactive activities. In these processes, the role of design experts involves mediating and facilitating the ideas and initiatives of other participants and incorporating their individual creativity and cultural contributions. Introducing, maintaining, and directing the process may require materials such as prototypes, models, design games, mock-ups, and sketches. These materials serve as tools for concretizing and testing ideas in the design process (Fassi & Sedini, 2018).

One of the most significant innovations brought by co-design is making the design process more transparent, participatory, and democratic. This approach brings users and designers together, leveraging the experiences and expertise of both sides. This collaboration helps products and services better meet the needs of end-users, thereby increasing user satisfaction. Co-design also provides significant benefits for organizations. Encouraging creativity and innovative thinking, strengthening interdisciplinary collaboration, and managing projects more effectively and efficiently are the primary benefits of this process (Steen et al., 2011).

As an example of a participatory social design project, the "growBot Garden" can be mentioned. The project explores the speculative potential of new technologies that can impact farms and farming. It aims to provide practical and theoretical knowledge on

integrating robotics and sensing technologies into small-scale farming practices. In this context, the project's work examines how technological applications can be optimized on farms and their impact on farm productivity. Another important aim of the project is to work on integrating these technologies into small-scale farming communities. During this process, local farm visits, workshops, and public events were organized to obtain direct feedback on using the technology. The findings obtained from the project can play an important role in shaping the future direction of small-scale farming, providing insights into how small-scale agricultural practices can be transformed with technology (DiSalvo et al., 2011).

In conclusion, co-design is a critical approach that fosters interdisciplinary collaboration to produce innovative solutions to the challenges of today and the future (Steen et al., 2011). This process can help individuals and communities build a better future, allowing design to go beyond being merely a technical discipline and becoming a true tool for social change, with potential application areas expanding in the future. This can push the boundaries of design and enable the development of new design skills and capacities. Addressing issues collectively can be seen as a way to open new possibilities in design processes and explore and invent social innovation opportunities from a broad perspective (DiSalvo et al., 2011). This process can support the transformation of products and services, enabling design practice to have broader social impacts.

4. METHODOLOGY

In this research, a literature review was conducted to establish a theoretical framework related to the research topic (Yin, 2014). Information obtained from various sources has shed light on the formulation of the research questions. The main research question is as follows:

- How can service design play a role for agroecological communities?
- How can service design contribute to TADYA's producer-to-consumer system?

In this research, multiple data collection techniques—both qualitative and quantitative, but primarily qualitative data collection methods—were used to gather information about the views and perspectives of members (producers, coordinators, and consumers) of the Tahtacıörencik Natural Life Collective (TADYA) regarding the ordering system. Bernard (2011) defines the multiple data collection techniques as combining qualitative and quantitative data to answer research questions of interest to researchers. According to him, qualitative and quantitative approaches in social sciences can be considered together to support each other. In this sense, multiple sources were used for data collection. These sources include interviews with participants, surveys, observation documents, and information obtained from various documents. Nevertheless, the primary aim of the research, which mainly consists of qualitative methods, is to understand the participants' perspectives (Yin, 2016). In Table 4.1, the steps of the study, research questions, applied methodology, and data collection techniques are explained.

Table 4.1: Research steps and methodology.

Steps	Key Questions	Methods	Data Collection Techniques
1	How can service design play a role for agroecological communities?	Field visits, observations, unstructured interviews	Photo taking, note-taking
2	How can service design contribute to TADYA's producer-to-consumer system?	Field visits, participatory observations, semi-structured interviews with coordinators, consumer surveys, data collection from previous documents, online observation	Photo taking, note-taking, voice recording and transcription, review of previous documents, online surveys

4.1 Case Study and Case Selection

A case study is an empirical inquiry that investigates a contemporary phenomenon in depth, within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident. It involves a detailed examination of a single group and focuses on multiple sources of evidence (Yin, 2014). This research methodology is well-suited to studying complex situations with multiple variables and unique conditions (Saldaña, 2011). Through this case study, satisfactory data were obtained via interviews, observations, and documents/records, which provided answers to the research question. To address the main research question, specific sub-questions were posed to the participants. The more specific the questions and propositions in a case study, the more applicable it will be within defined boundaries (Yin, 2014). The aim was to find alternative answers to the main question through the interpretation of literature alongside the data from the case study.

For this research, the collective named TADYA was chosen for the case analysis. The reasons for selecting this community for a case study are as follows: the community has been active for many years, organizing and participating in various agroecological activities and exemplifying the farmer-to-consumer system; the openness of different members of the TADYA community to contribute to the research; the researcher's accessibility to Tahtacıörencik Village in Ankara's Güdül district where the community is located; and TADYA's community management and production principles being based on agroecology.

TADYA, which began operating in Tahtacıörencik Village in Ankara's Güdül district, was founded in 2013 as a grassroots organization. The organization aims to protect and support its environment, life, and eco-friendly producers, with its production based on agriculture and animal husbandry (Tahtacıörencik, n.d.). TADYA is one of the rare formations that deliver food directly from producers to consumers without intermediaries. In variable economic and climate conditions, TADYA operates as a community-supported agriculture group (Gliessman, 2014), where producers share responsibility with consumers instead of bearing it alone. It is a self-organized entity committed to ecological production and solidarity, creating a link between producers and consumers and maintaining its activity for over a decade, both in Ankara and throughout Turkey. This research aims to examine the potential contributions of design by focusing on the Tahtacıörencik Natural Life Collective.

4.2 Data Collection

In the research, data were collected through various methods to answer the main and sub-questions of the study.

4.2.1 Observation, participatory observation and online observation

Throughout the research process, visits were made to Tahtacıörencik Village, the agricultural production site of the TADYA Collective. These initial visits established familiarity with the producers, farmers, and coordinators. Observation allows the recording of behavior as it occurs (Merriam & Tisdell, 2016). When systematic and addressing a specific research question, it becomes a research tool (Merriam & Tisdell, 2016). Two different types of observation were conducted during these field studies: participant observation and complete observation. Participant observation, the foundation of cultural anthropology, involves approaching people, observing their lives, and becoming involved in the community to record information (Bernard, 2011). Various data were collected by participating in events held in Tahtacıörencik Village in both participant observer and complete observer roles. Data were recorded during the observation process through note-taking and photography. Ethical guidelines were followed, and permission was obtained from community members for taking photographs. As seen in Figure 4.1 and Figure 4.2, the process of organizing orders was observed during the village visit and recorded through photography.

Figure 4.1: Preparation of Orders, February 23, 2024.

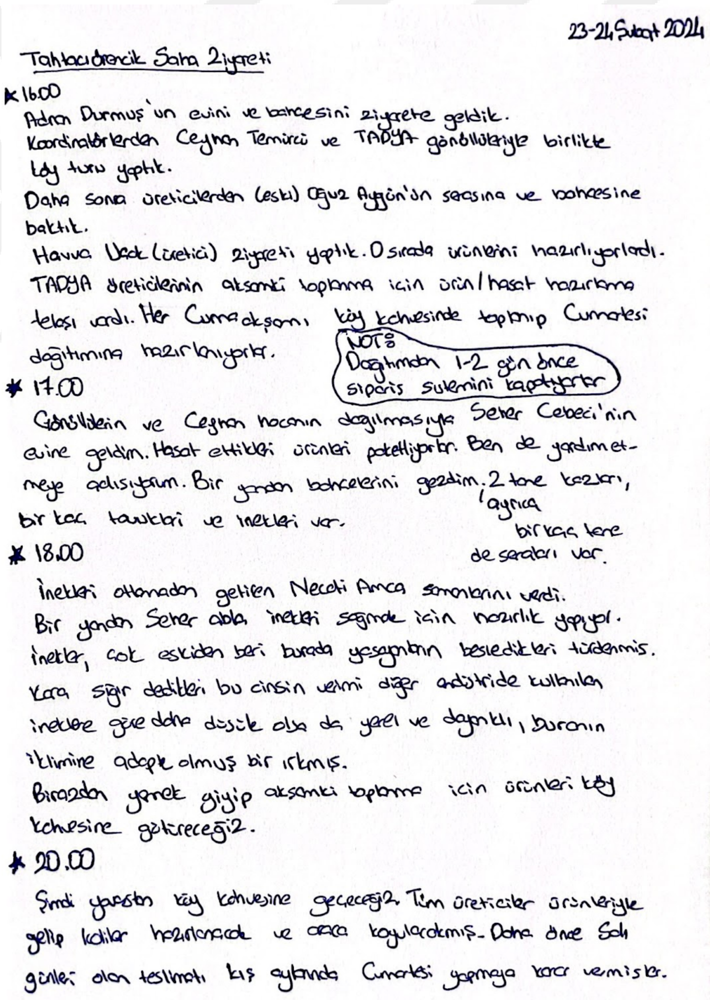
Figure 4.2: Preparation of Orders, February 23, 2024.

When the research questions were fully formed, more extended periods were spent with the farmers in the village as a participant observer. Most of the data collected through this method were qualitative: field notes on what was seen and heard in natural settings, photographs of the farmers' production areas, transcriptions of conversations, narratives, and open-ended interviews (Bernard, 2011). In participant observation,

people, activities, and interactions were mainly observed, and the following questions were addressed:

- What happens during the order operation process?
- How do farmers, coordinators, and consumers interact with each other?
- What are the connections between people and activities/tasks?
- What is the procedure followed during the operation process?

These questions facilitated the participant observer approach. The answers obtained paved the way for the study and enabled the collection of various data.



23-24 Şubat 2024

Tahtacıörencik Saha Ziyareti

* 16.00

Adnan Durmuş'un evini ve bahçesini ziyarete geldik. Koordinatörlerden Ceyhan Temirci ve TADYA gönüllüleriyle birlikte köy turu yaptık.

Daha sonra üreticilerden (eski) Oğuz Aygün'ün serasına ve bahçesine baktık.

Havva Uçak (üretici) ziyareti yaptık. O sırada ürünlerini hazırlıyorlardı. TADYA üreticilerinin akşamki toplama için ürün/hasat hazırlama telaşı vardı. Her Cuma akşamı köy kahvesinde toplanıp Cumartesi dağıtımına hazırlanıyorlar.

NOT: Dağıtımdan 1-2 gün önce sipariş süreçlerini kapatıyorlar

* 17.00

Gönüllülerin ve Ceyhan hocanın dağılmasıyla Seher Cebeci'nin evine geldim. Hasat ettikleri ürünleri paketliyorlar. Ben de yardım etmeye çalışıyorum. Bir yandan bahçelerini gezdim. 2 tane kazları, birkaç tavukları ve inekleri var. Ayrıca birkaç tane de seraları var.

* 18.00

İnekleri otlamadan getiren Necati Amca samanlarını verdi. Bir yandan Seher abla inekleri sağmak için hazırlık yapıyor. İnekler, çok eskiden beri burada yaşayanların besledikleri türdenmiş. Kara sığır dedikleri bu cinsin verimi diğer endüstride kullanılan ineklere göre daha düşük olsa da yerel ve dayanıklı, buranın iklimine adapte olmuş bir ırkmış.

Birazdan yemek yiyip akşamki toplama için ürünleri köy kahvesine götüreceğiz.

* 20.00

Şimdi yavaştan köy kahvesine geçeceğiz. Tüm üreticiler ürünleriyle gelip koliler hazırlanacak ve araca koyulacakmış. Daha önce Salı günleri olan teslimatı kış aylarında Cumartesi yapmaya karar vermişler.

Figure 4.3: Field notes, February 24, 2024.

Online observation is a research method that involves selectively monitoring and recording online events (Dawson, 2020). In this research, the activities, people, and interactions within the TADYA Collective were observed by participating in WhatsApp and email groups. Groups that included consumers, producers, and coordinators provided more general data, while closed groups consisting of producers and coordinators offered insights into operations, the internal workings of the order system, and real-time developments. Additionally, the blog section of the TADYA website was observed during its active period, and the information obtained was included in the research process.

In this research, the findings were synthesized through triangulation: observation methods, interviews/surveys, and analysis of various documents. Triangulation is a method used to ensure the accurate and reliable analysis of data. This method contributes to a more comprehensive understanding by comparing and reassessing data obtained from different perspectives on the subject being studied (Merriam & Tisdell, 2016). The following sections provide detailed information on these methods.

4.2.2 Interviews and surveys

In this research, most of the data were collected through interviews, which are the primary data collection method. The main purpose of the interviews is to obtain specific and particular types of information and to gather data from a large number of people representing a wide range of perspectives (Merriam & Tisdell, 2016). The initial interviews were unstructured, exploratory interviews aimed at gaining new ideas and insights at the beginning of the research (Merriam & Tisdell, 2016). As the research progressed, semi-structured and structured interviews were conducted to follow up with participants. There are four methods for collecting data in interviews: face-to-face interviews, surveys, telephone interviews, and online interviews (Bernard, 2011). As shown in Table 4.2, all these methods were utilized during the research process to gather the necessary data. For example, face-to-face interviews were preferred for producers living in rural areas with limited internet and computer access, while surveys were used to collect data from the more numerous urban consumers. Interviews with TADYA producers and coordinators were conducted face-to-face in the research field. Two participants were interviewed via telephone and online. Interviews with producers and coordinators were conducted using minimally

structured, open-ended questions. This approach was chosen to hear participants' thoughts on the topic and help them express themselves comfortably. This format allows the researcher to respond to the situation at hand, the emerging worldview of the participant, and new ideas related to the topic (Merriam & Tisdell, 2016). Although a list of questions or topics guided most of the interview, the timing and flow of the interview were kept flexible. Participants were encouraged to prioritize their experiences, personal stories, and opinions in their responses (Merriam & Tisdell, 2016). The questions were designed to elicit both opinions and information from the participants. The interviews were documented through note-taking and audio recording/transcription.

Online surveys were conducted with consumers. These surveys were distributed collectively to TADYA WhatsApp consumer groups, email groups, and shared on social networks. Many of the survey questions were multiple-choice, ranked, and scored to increase participant engagement. The survey form shared with consumers provided information about the research, including research ethics and protocol. The collected data helped analyze the views of 47 participants on TADYA's ordering system from a user perspective.

The interviewed producers consisted of seven who were actively continuing their production during the research period. In the TADYA Collective, which has a total of 15 producers, interviews could not be conducted with some producers who moved from their production areas to city centers at certain times of the year. Interviews were conducted with all four coordinators of the TADYA Collective. The following table contains summary information about the surveys and interviews. Table 4.2 summarizes the data collection processes involving consumer surveys, producer interviews, and coordinator interviews. Qualitative and quantitative data were gathered through online surveys and open-ended interviews conducted during field visits. The table provides details on the number of participants, the types of data collected, and the duration of each data collection method.

Table 4.2: Interviews and surveys data collection.

Interview, Survey Group	Number of People Reached	Data Type	Data Collection Details	Data Collection Duration
Consumer surveys	47	Qualitative and quantitative data	The online survey form was shared through various email and WhatsApp groups to request partipication.	10 minutes
Producer interviews	7	Qualitative data from open-ended interviews	Interviews were conducted in the production areas during field visits, audio recording were transcribed into written documents.	10-20 minutes
Coordinator Interviews	4	Qualitative data from open-ended interviews	Face-to-face and online interviews were transcribed into written documents.	10-20 minutes

4.2.3 Data collecting from documents

Another method used in this research for data collection was document analysis. Documents were examined by consulting with the interview participants and reviewing publicly available documents as well as those archived in files, storage, and personal areas with their permission (Saldaña, 2011). Information on the TADYA website and blog section, and data from the "Our Food Our Future (Building Resilient Food Systems in Times of Crisis: Tahtacıörencik and Beyond)" project—conducted in partnership with the Sustainable Living Association (SÜYADER) and the Four Seasons Ecological Living Association and supported by the United Nations Development Programme SGP (Small Grants Program)/GEF (Global Environment Facility)—were used. This included various documents, photos of village visits organized with consumers by the TADYA community, traditional village breakfast festivals, and open-source documents from other events involving TADYA.

Digital culture has created new data sources for qualitative researchers (Saldaña, 2011). Frequently used email groups, WhatsApp groups, and Instagram accounts by the TADYA Collective provided important data related to the project's critical component of service design. Reviewing these documents, archives, and digital files

before conducting interviews helped form ideas for questions directed at the participants (Yin, 2016).

4.3 Data Analysis

The results predominantly consist of key representations and presentations of salient findings derived from the analytical synthesis of the data (Saldaña, 2011). In this study, a detailed data analysis method was employed, which involved transcribing audio recordings from interviews and organizing observation notes. The data, including transcripts, observation notes, and responses from open-ended interviews and surveys, were categorized and coded with descriptive keywords to facilitate analysis.

Coding is the exploratory process in qualitative data analysis. It involves breaking down the data into individual segments to discover their meanings and then reorganizing these segments into emerging categories. Codes serve the function of patterning, classifying, and preparing the data for further analysis.

A code is typically a word or a short phrase that symbolically captures the essence and summary of a portion of data. This coding process can include interview transcripts, observation notes, documents, photographs, and other types of data. The piece of data to be coded may consist of a word, a sentence, or more. Codes represent the core content and essence of the data (Saldaña, 2011). Subsequently, connections between the categories were meticulously analyzed to identify underlying themes. This systematic approach facilitated the recognition of patterns and thematic connections across the data, aiding in qualitative analysis and supporting the broader conclusions of the research.

5. FINDINGS

This section presents the key findings on Tahtacıörencik Village and the Tahtacıörencik Natural Life Collective (TADYA). The data collected through semi-structured interviews, detailed surveys, and ethnographic observations provide significant insights into the functioning of the TADYA food system. The findings are based on data obtained from interviews with farmers, facilitators, and consumers, various surveys, direct observations in the village, and online observations.

The analysis of the coded data illuminates participants' experiences, motivations, challenges, and interactions within the community. The interview and survey findings reveal the operational mechanisms of TADYA and the perspectives of both producers and consumers, while the observation findings closely document the daily life of the village and the production processes of the farmers.

The findings are presented in three main sections: starting with a section that provides general information about TADYA and Tahtacıörencik Village, followed by a section on survey/interview findings, and concluding with the observation findings. These findings can guide future research and practices.

5.1 General Overview of the Research Area

This section presents data obtained from various documents and interviews with the founders of TADYA. Information about the formation story, mission, and activities of TADYA, as well as basic information about Tahtacıörencik Village where this organization is located, is provided. These details offer a general overview to better understand TADYA's activities and impacts.

5.1.1 Village of Tahtacıörencik

The location of the case study for this research, Tahtacıörencik Village (also where TADYA operates), is a neighborhood in the Güdül district of Ankara. Güdül is situated

89 km northwest of Ankara and neighbors the Beypazarı and Ayaş districts (Tahtacıörencik, 20122). Güdül has been designated as Ankara's first *Cittaslow. Cittaslow* is a movement that promotes a slower, more enjoyable, and balanced pace of life. It started in Italy in 1999 and encourages sustainability, local culture, and nature conservation (CittaSlow Türkiye, n.d.) city. The district's economy is primarily based on gardening, livestock, and agriculture, with notable vegetable and dairy production and extensive viticulture. The district experiences a continental climate, and its land is traversed by the tributaries of the Sakarya River: the Kirmir, Suvari, and İlhan streams. Rich in agricultural production and diversity, small-scale family farming is prevalent in this district. Güdül, consisting of 31 neighborhoods, has a history that dates back to prehistoric times according to research. Since 1073, the district has been settled by the Oğuz tribes and is notable for its unique architectural structures and traditional cuisine (T.C. Kültür ve Turizm Bakanlığı, n.d.).

Tahtacıörencik neighborhood is located near the Beypazarı border of Güdül, at the foothills of the Köroğlu Mountains. It is approximately 13 km away from the Güdül district center. Following the "Law on the Establishment of Metropolitan Municipalities in Fourteen Provinces and Twenty-Seven Districts and Amendments to Certain Laws and Decrees," its status as a village was annulled, and it was incorporated as a neighborhood of Güdül district municipality. The elevation is approximately 928 meters, and while the village experiences the temperate effects of the Black Sea transitional zone, it primarily has a continental climate. The village's agricultural water needs are met by the Suvari Stream. In Figure 5.1, a map of Tahtacıörencik and the TADYA producers, providing an overview of the village's layout and key agricultural areas.

Figure 5.1: Tahtacıörencik, TADYA Village Map (Tahtacıörencik, 2011)

The Suvari Stream valley and the surrounding area host a significant variety of wild plants. Species such as thyme, dandelion, camomile, plantain, salsify, goosefoot, nightshade, blueweed, thistle, sow thistle, wild chicory, and many others are found in the natural environment. In Tahtacıörencik Village, small-scale natural farming and livestock farming are practiced. Families mainly grow pesticide-free and hormone-free crops for their own needs, and native Anatolian breeds such as black cattle, Ankara goats, and sheep are freely grazed. Local grains and legumes, including various chickpeas, kunduru wheat, rice varieties, local cotton, and dyer's woad (keyman), as well as heirloom tomatoes, peppers, and beans, are cultivated. There are also many native mulberry, walnut, apple, pear, plum trees, and grape varieties (Tahtacıörencik, 2011).

5.1.2 Tahtacıörencik Natural Life Collective (TADYA)

The TADYA Collective is a grassroots organization that began operating in the Tahtacıörencik Village of the Güdül district in 2009-2010, officially adopting the name TADYA in 2013. TADYA was established to contribute to the ecological development of the village and to support the nature-friendly livelihoods of the village residents. It is a small-scale production and sales model that promotes collaboration while maintaining the autonomy of each producer (Tahtacıörencik, 2011).

In interviews with the founders of TADYA, they were asked to share the story behind the initiative. While living in Ankara in 2009 and maintaining their connection with the Güneşköy Cooperative, the founders began searching for a place where they could contribute to ecological projects, such as nature conservation. Initially, they worked on the land of the local headman in the town of Yeşilöz, Güdül. Later, in 2009, their relationship with Tahtacıörencik Village began, and in 2011, they purchased a piece of land in the village. Together with the Kardeş Bitkiler group, they developed projects on ecological agriculture and architecture. As a result of the relationships formed with the villagers, TADYA was established, aiming to produce healthy and eco-friendly food, deliver these products directly to consumers, and protect nature.

Altieri (1995) defines agroecology as a discipline that provides the fundamental ecological principles for agroecosystems that conserve natural resources while being culturally sensitive, socially just, and economically viable. In this context, TADYA also defines itself as an agroecological formation through its production and organizational structure (Tahtacıörencik, 2011). Additionally, TADYA has established a nature and human-centered, small-scale, and thus manageable system, operating through a short supply chain directly from producer to consumer, as opposed to the existing global food system. Short supply chains are examples of producer/consumer solidarity that emerged against trade-dependent, long-distance, multi-actor, modern agriculture (van der Ploeg et al., 2000). Considering TADYA's formation, story, and system, it can be said to represent an alternative network in food systems.

5.1.3 Agroecological production in TADYA

Among the products produced at TADYA are various vegetables and fruits, processed products, grains and grain-based processed products, dairy and dairy products, and honey and bee products. TADYA operates a website that provides extensive information on its producers, their contact details, the range of products, and the self-regulation process. The website also outlines some basic agroecological criteria related to production. These principles include avoiding the use of systemic pesticides and herbicides, refraining from artificial fertilizers, using only limited non-systemic chemicals permitted in organic farming, and preferring local and heirloom seeds over genetically modified or hybrid seeds. Additionally, soil conservation methods such as mixed planting and minimum tillage are emphasized. For animal products, the principles cover allowing animals to roam freely in natural environments, ensuring natural feeding, and avoiding industrial feeds (Tahtacıörencik, 2011). These principles of TADYA can be considered an example of sustainable agricultural practices and nature conservation efforts.

5.1.4 Producer-to-consumer food system of TADYA

One of the main topics addressed in this research is the direct (farmer-to-consumer) food system of the agroecological community TADYA. This section discusses how this system was formed (the need it arose from and how it developed), how it operates, and how it is managed using digital tools.

The answer to the question of which need led to the creation of TADYA's direct food system was obtained through interviews with the founders of TADYA. TADYA was established in 2009 with the aim of promoting ecological farming practices and creating a market by forming a group called Doğal Besin Bilinçli Beslenme (DBB). This group aimed to create a consumer community based in Ankara, facilitating direct product delivery from producers to consumers. Initially, cooperation was established with a producer in Antalya. Organized via email, the group supported the producer by enabling direct sales, thereby making it easier for villagers to access urban markets. This structure allowed producers in the village to reach urban consumers more effectively and increased the village's appeal, attracting more visitors.

Based on the interviews, it can be said that TADYA's system has evolved and developed over time with increasing demand. Today, apart from shopping during

village markets and visits, orders are taken once a week through a digital system and delivered to homes. This system is created using Google Forms, which are updated weekly. The visuals of the order pages are shown in Figure 5.2 and Figure 5.3.

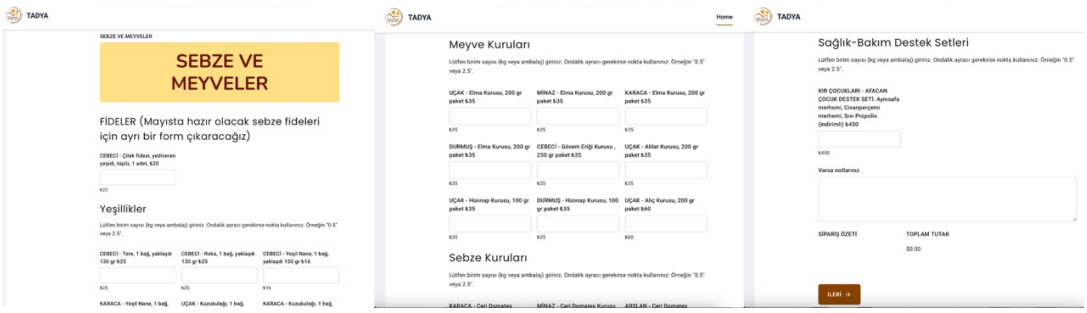


Figure 5.2: TADYA weekly order lists' screenshoots.

Figure 5.3: TADYA weekly order lists' screenshoots.

To closely examine the current digital ordering system, questions about the operation process were asked to TADYA coordinators/facilitators. According to the information provided, the process is as follows: TADYA's producers share updates to their weekly product lists via a WhatsApp group. This information is processed and organized by the coordinators using Google Sheets. Subsequently, this information is transferred to the TADYA order page using Google Forms and Neartail. Once finalized, it is shared through email groups. The product lists, updated every Saturday, are finalized by Friday morning; out-of-stock items are removed, and necessary adjustments, such as price or product descriptions, are made via Neartail. On Friday morning, the lists are closed, and documents detailing which producer should send how much of each product to which consumer are shared in the producer groups.

To better convey TADYA's ordering system, a flowchart illustrating the step-by-step operation of TADYA's digital ordering system is provided in Figure 5.4 Initially, coordinators/facilitators organize product information and prepare the lists. In the next step, after the products are gathered and packaged by the producers, the boxes are

arranged according to the consumers and noted by the facilitators. Subsequently, the products are delivered to designated distribution points or directly to the consumers. This system map is designed using linear and color coding to clearly show the flow of information, labor, and materials.

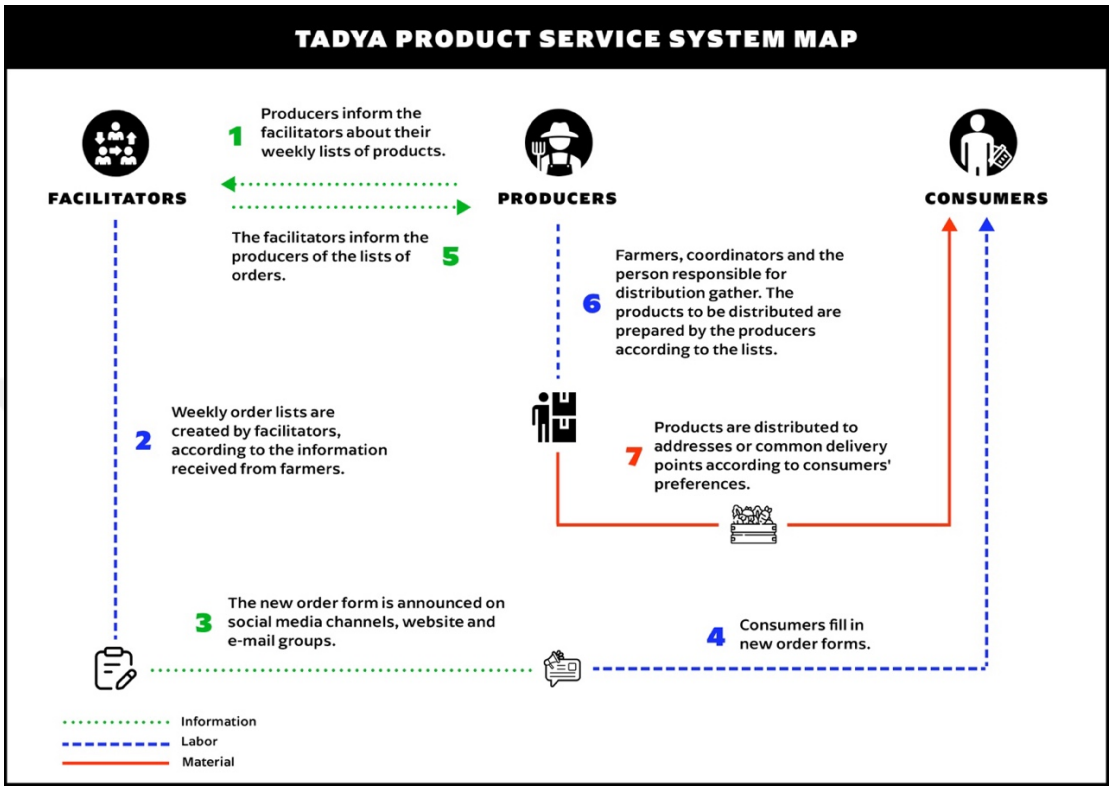


Figure 5.4: TADYA's Product Service System Map.

However, the relationships between each step in the system, particularly those dependent on the coordinators' roles, can increase the complexity and burden on these actors. Additionally, since consumers place orders only through specific technological tools, participation from community members with limited technological access may be restricted. At this point, innovative designs that can make the system more sustainable and efficient can be developed. Building web-based network platforms and fostering interdisciplinary collaborations in the social innovation process can enable a more sustainable community (Vezzoli et al., 2014).

5.1.5 Other projects of TADYA

Since its establishment, TADYA has hosted a series of activities. These activities include consumer events, harvest festivals, breakfast festivals, producer markets, workshops, and composting events. The researcher participated in some of these events, making significant observations and gaining insights. Particularly, the project

titled "Our Food Our Future" provides valuable information on how social innovation in agriculture can be achieved and is detailed below.

5.1.5.1 "Our Food Our Future" Building Resilient Food Systems in Times of Crisis: Tahtacıörencik and Beyond (2022-2023)

Supported by the United Nations Development Programme GEF-SGP fund, the project "Building Resilient Food Systems in Times of Crisis: Tahtacıörencik and Beyond" aims to create a small-scale production guide and projections for Ankara and strengthen social and ecological awareness regarding food systems across the country. Conducted in partnership with the Sustainable Living Association (SÜYADER) and the Four Seasons Ecological Living Association, the project seeks to collaborate with producers engaged in "human-scale" production in rural Ankara, who aim to enhance their capacities in agroecological farming and community-supported production, as well as with food communities, civil society organizations, and consumers who wish to stand in solidarity with them.

The project includes various activities such as urban meetings with producers, food and conversation days, agroecological farming and sustainable nutrition training in rural and urban areas, learning journeys to farms, and advocacy activities. These efforts were planned and carried out together with stakeholders, producers, and consumers working towards a vision of a resilient food system for Ankara. Figure 5.5 illustrates an example of the dissemination efforts for the Our Food Our Future monthly newspaper.

SAYI 06

GIDAMIZ GELECEĞİMİZ

KRİZLER DÖNEMİNDE DAYANIKLI GIDA SİSTEMLERİ OLUŞTURMAK

03 23

Küresel, bölgesel ve yerel gıda sistemlerini tehdit eden sosyal, çevresel ve ekonomik krizlere karşı çözümler oluşturabilmek ve kriz koşullarında daha dayanıklı hale gelebilmek üzere insan ölçekli doğa dostu tarım yöntemlerini desteklemek ve yaygınlaştırmak için çalışıyoruz.

Krizlere Karşı Dayanıklılık

Kahramanmaraş Depremleri

Gıda sistemleri depremleri nasıl etkiler?

Şimdi malum olanı ilam edelim: Gıda sistemi depremleri kapımızda. Üstelik bunlar, yer sarsıntıları gibi 400-500 yıllık döngülere bağlı olarak değil; kümülatif şekilde artan beşeri etkenlerin sonucu olarak karşımıza çıkacak. ...

Ceyhan Temürcü, sayfa 1-4

Deprem yaralarını sarma çabasında topluluklar

Depremler sonrasında çeşitli topluluk ve bireylerin sarf ettiği çabaları görünür kılmak istedik:

- Mustafa Alper Ülgen: Hayat Defne Günlükleri
- Ekoharita Dayanışma ve Destek Ağları
- MoniBostan: Afet Sonrası Çalışmalar
- GEA Arama Kurtarma Eğitim, Tatbikat ve Koordinasyon Ekibi'nin Çalışmaları
- 100. Yıl Gıda Topluluğu'nun Çalışmaları
- İlkyerleşim Mahalle Bostanı'nın Çalışmaları
- Çiğdem'im Derneği: Komşuluk ve Dayanışma
- Deprem Bölgesindeki Üreticilere Destek Ağları
- Antakya Gönüllüleri: Kentin hafızası ve kültür mirası

Deprem ve Gıda Güvencesi

Köyler ve kentlerin etrafındaki alanlarda tarım ve hayvancılık yapan yüzbinlerce çiftçinin varlıkları ve iş imkânları (ahırlar, sağımhaneler, yem depoları, silolar, ambar/depo ve buradaki ürünlerin zayi olması, evlerin yıkılması, tarım alanlarının bozulması gibi) ciddi düzeyde zarar gördü. Ağır hasar gören ve yıkılan evler ve yakınlarındaki traktör ve benzeri tarım makine ve ekipmanları enkazların altında kalarak kullanılamaz duruma geldi ...

Emine Aksoydan, sayfa 6-9

Deprem Tarımdaki Kırılganlığı Açığa Çıkardı

Ülkemizde bazı iller hariç hayvanlar büyük ölçüde karma yem ile besleniyor. Bu sürdürülebilir bir durum değil. Karma yem büyük ölçüde soya, mısır gibi ithal hammaddelere dayalı olarak üretiliyor. Döviz sıkıntısı içinde bir ülke için bu büyük bir sorun ...

Tayfun Özkaya, sayfa 5

Figure 5.5: Our Food Our Future monthly newspaper screenshoot (URL: https://gidamizgelecegimiz.org/gidamiz-gelecegimiz-e-gazete-no6/)

The first phase of the project began with the 'Producer-Consumer Meeting.' Held on February 12, 2022, this meeting brought together producers, consumers, food communities, relevant civil society organizations, and decision-makers to discuss local food networks, human-scale production, and direct supply methods. Experience sharing was conducted with the participation of TADYA producers.

Following the producer-consumer meetings, sustainable nutrition workshops were held. On February 19, 2022, and March 12, 2022, experts provided training to consumers, producers, and interested invited guests during these workshops. The aim of these events was to raise awareness about conscious and healthy consumption and sustainable food production. Additionally, on May 14, 2022, on World Farmers' Day, an event titled “Preparing Fixed Vegetable Beds and Making Natural Protective Medicine” was conducted in the gardens of TADYA producers. Figure 5.6 contains

photographs from these events, capturing key moments and interactions. These types of activities contribute not only to knowledge sharing but also to the community's transition to sustainable lifestyles (Our Food Our Future, 2023).

Figure 5.6: Preparing raised vegetable beds and TADYA traditional breakfast event.

Additionally, from June to October 2022, Nature-Friendly Producer Markets and Fairs were organized to facilitate meetings between producers who engage in traditional and eco-friendly production and consumers. These events, where producers and consumers came together, included panels and forums for sharing information on resilient food systems, new developments, and improvement suggestions (Our Food Our Future, 2023).

Participating in this project early in the research provided the researcher with opportunities to spend time in the field, make observations during visits to the village, meet villagers and TADYA producers, and gain insights by visiting their farms. As demonstrated by this project, TADYA is a community open to the development of agroecological activities, supported by a wide range of collaborations and events. Therefore, by conducting social innovation activities with the community on various topics, the resilience of the community can be increased, contributing to rural development.

5.2 Interview and Survey Findings

This section presents the findings from interviews conducted with farmers and facilitators, as well as from surveys administered to consumers. Using the coding and thematic analysis methods detailed in the methodology section, the interview and survey data were analyzed to contribute to the understanding of the community's needs, expectations, and experiences.

5.2.1 Consumer survey findings

In the surveys conducted with consumers, questions were first directed towards understanding the relationship between consumers and TADYA.

Out of the 47 respondents, 29 pointed that they started shopping from TADYA by hearing about it from friends or acquaintances. According to the responses, the primary motivations of consumers were, in order, to consume healthy food, to support eco-friendly producers, realiability and transparency. The detailed information is provided in Table 5.1.

Table 5.1: Shopping motivations of consumers.

Question	Codes	Respondents
Shopping motivations from TADYA	Consuming healthy food	45
	Supporting farmers	44
	Realiability	25
	Transparency	21

It was found that the most visited pages on the TADYA website were the order page, followed by the order tracking page, the page with information about producers, and the announcements section. The detailed information is provided in Table 5.2.

Table 5.2: Most visited pages.

Question	Codes	Respondents
Which pages of TADYA do you visit	Order page	44
	Order tracking page	27
	Producers' page	24
	Announcements	22

As shown in Table 5.3 below, 21 respondents indicated that they place orders from TADYA once a month, while 12 respondents reported ordering every week.

Table 5.3: How often do consumers shop from TADYA.

Question	Codes	Respondents
How often do you shop from TADYA?	Once a mont	21
	Every week	12
	Once every six month	5

The analysis of the coded data from participant statements regarding the advantages of purchasing food products from TADYA reveals several main themes. The most prominent theme is accessibility and health.

The theme accessibility encompasses various contexts such as home delivery, direct sales from producers, easy access to information about products and production conditions, and the ease of obtaining natural products. This theme highlights the importance of convenience and ease in the purchasing process, indicating that consumers prefer simple, user-friendly services.

The health theme is connected to the interest in healthy, fresh, pesticide-free, and naturally produced foods.

Reliability reflects the customers' trust in the safety, quality, and integrity of TADYA's food products.

Sustainability is another critical theme; participants noted efforts to support pesticide-free and heirloom seed usage, environmentally friendly production, and reducing carbon footprints in the survey.

This indicates a consumer tendency towards environmental responsibility and sustainable farming practices. Supporting local and small-scale producers, under the recurring theme of supportiveness, reflects a community-oriented approach that values strengthening local food networks and supporting local economies.

Overall, the themes that emerged from the interviews with TADYA consumers regarding their reasons for shopping at TADYA can be listed as health benefits, accessibility, reliability, sustainability, supportiveness, safety and locality. Table 5.4 reflecting these themes is as follows.

Table 5.4: Advantages of shopping from TADYA.

Codes	Respondents
Healthy	13
Accesible	13
Reliable	11
Sustainable	10
Being supportive	5
Safe	4
Local	3

The themes that emerged from the responses regarding the disadvantages of purchasing food products from TADYA are product variety, accessibility issues, distribution problems, product quality, transparency, and costs. According to consumer statements, the lack of product variety is one of the biggest disadvantage of TADYA. Limitations due to regional conditions, particularly the lack of variety in fruits and vegetables, were frequently mentioned. Accessibility issues also emerged as a disadvantage. Consumers noted that some products quickly run out and that certain items have limited availability. It was mentioned that products sometimes get damaged or lose quality during transportation. Another theme is product quality, representing issues such as receiving spoiled, moldy, or poorly prepared products. The themes of transparency relate to the process of preparing processed products by the producers. Concerns about the producers' level of hygiene, information, and adherence to proper procedures were noted by consumers. And some customers stated that prices are high. Table 5.5 reflecting these themes is as follows.

Table 5.5: Disadvantages of shopping from TADYA.

Codes	Respondents
Variety	14
Unaccesible products	8
Distribution	6
Quality	5
Transparency	4
High costs	2

When analyzing the section of the survey where TADYA consumers shared their opinions about TADYA, four different themes emerged. These were coded as

satisfaction, user-friendly digital improvements, logistic improvements, and product improvement which is about product variety and quality.

As illustrated in Table 5.6, participants frequently expressed their satisfaction with TADYA and their appreciation for the platform's role in promoting sustainable and eco-friendly practices. Despite the satisfaction with TADYA's ethical and community-focused aspects, the system's efficiency was criticized. Users mentioned that the ordering process was complex and time-consuming, indicating a need for improvements. These opinions were categorized under the theme of UI/UX development. A significant shortcoming highlighted in the feedback was the lack of sufficient product information, especially for lesser-known items.

Logistical improvements, included suggestions such as using refrigerated transport for perishable products and ensuring timely deliveries.

The final theme, product development, encompassed requests for a greater variety of products and higher quality.

Table 5.6: Consumer comments of TADYA.

Codes	Number of participants
Satisfaction	8
UI/UX improvements	5
Logistic improvements	4
More variety/better quality	4

In the survey, participants were asked to rate TADYA’s alternative producer-to-consumer system and supply chain on a scale of 1 to 5. According to the responses, 23 participants rated it 5, 29 participants rated it 4, and 4 participants rated it 3.

The surveys with consumers revealed that the main motivations included consuming healthy food, supporting eco-friendly and reliable producers. However, some disadvantages also became apparent, particularly regarding product variety, accessibility issues, and distribution. Additionally, the need for improvements in the digital ordering process and logistics was highlighted. In conclusion, while supporting TADYA's eco-friendly and sustainable practices, participants expressed the need for the platform to become more user-friendly, efficient, and transparent.

5.2.2 Coordinator interview findings

Interviews with coordinators were conducted in a semi-structured manner, both face-to-face and online. The statements from the facilitators were analyzed and categorized into themes.

The emerging themes from the interviews with coordinators/facilitators are system efficiency, communication, informative system, digital innovation, and organization.

As shown in Figure 5.7 the current TADYA system is criticized for its efficiency, especially due to the long and complex order form. Participant F1 mentioned that the form's inclusion of over 200 products could be overwhelming for consumers and extend the ordering process. Additionally, F3 stated that processing the form could take up to 2.5 hours, highlighting the time-consuming nature of the current system. The second theme, communication, concerns the challenges of maintaining effective communication. F2 suggested that improving internet connectivity in rural production areas is essential. On the other hand, F4 described the chaotic nature of managing all stakeholders, which can lead to distribution interruptions and general operational inefficiencies. The third theme, information system, includes statements about the need for sufficient product information within the order system. F1 emphasized the necessity for consumers to receive basic information about products, storage, and usage, using local products like tarhana and Kızılca pear as examples. Digital innovation relates to statements about potential innovations in TADYA's existing system. Participant F3 argued for modifications to the digital system to provide producers with more control. According to him, this would allow producers to manage their inventories directly on the platform, thus increasing transparency and reducing errors regarding product availability after orders are placed. The final theme, community management, includes statements related to effective community management. F4 particularly emphasized the challenges of dealing with producers, other coordinators, and consumers. Improving organization could help reduce distribution interruptions and improve overall system efficiency.

Participants:	Challenges:	Code:
F1	More effective system due to complex order form	System efficiency
F1	Adding more information about products	Informative system
F2	Better internet infrastucture in the village	Communication
F3	Producers should be able to use and enter the stock informations in the digital system.	Digital innovation, system efficiency
F4	Preventing disruptions in distribution with more effective system	Organization
F4	Producers should be able to track their own orders	Digital innovation, system efficiency

Figure 5.7 Coordinators' statements on system improvement

The interviews with facilitators revealed the current challenges and potential improvements in the TADYA system. The discussions were categorized under various themes such as system efficiency, communication, informative system, digital innovation, and improving organization, providing insights for making the system more functional and effective.

5.2.3 Producer interview findings

Interviews with producers provided comprehensive information about their production motivations, challenges faced, future expectations, and use of digital tools. This analysis offered valuable insights into producers' relationships with TADYA, how these relationships can be improved, and potential design-focused enhancements for TADYA. Similar to the coordinators interviews, these discussions were analyzed through the identification of common themes and codes.

Participants generally joined TADYA after hearing about it from acquaintances in the area. According to their statements, their motivations included a passion for eco-friendly farming, empowering women, and producing healthier food. For example, P2 mentioned the desire to support the role of women in agriculture and to produce without using pesticides. The challenges faced by participants frequently included physical labor, market access, and increasing sales. P5 and P6 expressed the difficulties encountered in their production processes and their expectations from TADYA to overcome these challenges. Digital tools play a crucial role in the TADYA system, as they are used both for consumers to place orders and for facilitating communication within the community. According to the participants' responses, digital tools are rarely used, and they experience difficulties in utilizing modern digital tools.

The themes that emerged from the interviews include financial support, trust, increased sales, production improvement, and community support.

Financial support encompasses participants' statements regarding access to producer markets, the request for financial support, and gaining more customers. Trust includes producers' statements about their desire to produce without conflict within the community, using sustainable methods, and maintaining honest production practices. The necessity for trust in the production methods used by other producers within the community was frequently expressed. Increased sales were mentioned by producers who sometimes have surplus products and expressed their desire to increase sales. As shown in Figure 5.8, producers discussed the need to reach more customers to increase their income. Production improvement includes participants' statements about product variety, production methods, and improving production areas. Frequently used expressions among participants included solidarity and collaborative production. Additionally, statements about experimenting with new production methods together and producing different varieties together highlighted the theme of community support.

Participants:	Motivation:	Challenges:	Expectations:	Codes:
P1	Passion for farming, community belonging	Labor due to age, more sales and marketing	Community support and growth	Community support, more sale, trust
P2	Supporting his wife in farming to make income	Lack of control mechanism in natural farming	Direct market access and improving production control mechanism	Financial support, sustainability, trust
P3	Community support, sharing	Improving sales	Access to farmers markets, expanding consumer network	Community support, more sale
P4	Income, enjoying farming	Labor	Expansion of production and market	Financial support, more sale
P5	Producing healthy and safe food	Labor	Fair pricing	Improving production
P6	Income	Dealing with pests, low sales	Better consumer outreach, maintain quality	Financial support, improving production
P7	Learning new methods, financial support	Labor, minimal challenges	Honest production by all community members	Financial support, trust

Figure 5.8: Producers' interviews chart

The interviews with producers provided a comprehensive understanding of TADYA producers' experiences, motivations, and challenges. Most producers joined TADYA through acquaintances and were influenced by values such as eco-friendly farming practices, women's empowerment, and healthy food production. The interviews revealed the fundamental needs of producers for financial support, trust, and community solidarity. Additionally, it was identified that producers face challenges in using digital tools.

Table 5.7: What kind of digital tools do producers use?

Participants	Digital tools
P1	Whatsapp for coordination
P2	Facebook for promotions, Whatsapp for communication
P3	Occasional use of social media for promotions
P4	Regular use of WhatsApp for communication
P5	Rare use of WhatsApp for communication
P6	Rare usage
P7	Does not use

5.3 Observational Findings

In this research, ethnographic observation methods were used to understand the daily operations of the TADYA community in Tahtacıörencik Village and the production processes of the farmers. Throughout the research process, direct observations were made in the field, and online interactions were also carefully examined. Visiting the farmers in the village, spending time with them, and participating in the TADYA community's WhatsApp groups are the main components of these observation processes. The table below summarizes the main findings from field and online observations, and these findings has been explained in more detail in Figure 5.9.

Category	Field Observation	Online Observation
Events	Farmers' product collection and packaging operations Daily farming and livestock activities	Producers updating product stock information in WhatsApp groups Information exchange regarding the opening and closing of product stocks
Communication	Interactions between farmers and coordinators during operations Daily and social conversations within the village and among families	Intense messaging traffic Sharing information about products and discussing issues Digital communication and information management via WhatsApp groups
Challenges	Conflicts experienced during intense physical labor and coordination Financial and customer relationship management	Efficiency issues caused by manual processes
Other Interactions	Meetings with professionals, coordinators, and researchers.	Community development meetings with participants from various disciplines.

Figure 5.9: TADYA Observation findings.

5.3.1 Field observation

The visits to Tahtacıörencik Village in February and March 2024 contributed to gaining insights about the village, the producers, and the production and distribution processes. The research process aimed to observe the daily life practices of the farmers in the village, their production processes, and the dynamics within the community. The

researcher's stay at a farmer's house in the village reinforced the in-depth and participatory approach of the study, allowing for the direct experience of the unique village routines in the region. Figure 5.10 contains photographs of the preparation of products for delivery.

Figure 5.10: Preperation of products for delivery, February 23, 2024.

The research was enriched through tours within the village and observations made in the farmers' production areas. Prior to the visit, community members' consent was obtained through an informational briefing conducted by the coordinators, in accordance with ethical research principles. This process was critical for the transparency of the research and the active participation of the community members in the research process. During the visits, the intense work pace of the farmers was noteworthy. Various conflicts within the community were observed, particularly during the collection and packaging of products. These processes were managed under the supervision of the coordinators, highlighting the significant workload on the coordinators.

One of the most significant issues observed was the lack of an effective digital system, with most processes being conducted manually. This situation led to challenges in order management and meeting customer expectations. Specifically, negative feedback from customers was noted due to insufficient stock of certain products. The

integration of digital tools could contribute to managing these processes more efficiently and transparently. Figure 5.11 contains photograph from the heirloom seed exchange event in the village.

Figure 5.11: Seed exchange, March 17, 2024.

In addition to village visits, participation in meetings with professionals and academics who produce various projects related to TADYA expanded the scope of the research. These meetings brought together perspectives from participants across different disciplines, providing insights into how TADYA could be developed and improved.

In conclusion, the daily life, production processes, and intra-community interactions of the TADYA community in Tahtacıörencik Village were comprehensively examined and documented. This information provided concrete data for the improvement of TADYA's current operational structure.

5.3.2 Online observation

As part of the research process, participation in the WhatsApp groups used to facilitate internal communication within the TADYA community was undertaken. These groups are utilized for community members to interact with each other, update product stock information, and ensure operational coordination. These groups, which are used quite intensively throughout the day, enable producers to exchange information about

products that have sold out or will be restocked. For instance, when a product is sold out, producers announce this through the group, notifying that the stock for the relevant product is closed.

The WhatsApp groups illustrate the extent to which the TADYA community has digitized its business processes and how these digital tools shape internal communication. Such digital communication channels facilitate rapid and effective information flow among producers, enhancing the community's operational efficiency and strengthening its ability to swiftly address challenges in production processes.

6. DISCUSSION

Tahtacıörencik Natural Life Collective (TADYA) plays a significant role as a community that aims to deliver products from small-scale agroecological farmers directly to consumers. However, the research findings indicate that TADYA's producer-consumer digital system requires some design interventions to enhance its effectiveness. This can be achieved through the participatory service design approaches. Figure 6.1 illustrates the design requirements needed to enhance TADYA's producer-consumer digital system.

<table>
<tr><th colspan="3">Design Needs</th></tr>
<tr><th>For Consumers</th><th>For Producers</th><th>For Coordinators</th></tr>
<tr><td>Better packaging (to access more information about processed products)</td><td rowspan="2">A software that allows manufacturers who do not use digital tools extensively to easily update product stock levels</td><td rowspan="4">Coordinators are currently required to constantly update long product lists and stock levels. With a better interface, each producer should be able to update their own product stock levels independently.</td></tr>
<tr><td>Information about the product contents should be available on the website</td></tr>
<tr><td>Stock levels on the ordering website need to be up-to-date</td><td rowspan="2">Manufacturers should be able to write blog posts and upload product photos without needing coordinators.</td></tr>
<tr><td>Avoid having to repeatedly enter personal details such as name, surname, and address on the ordering website</td></tr>
</table>

Figure 6.1: Design Needs.

Making digital systems easier to use will make the ordering process mor effective for consumers. TADYA's current system should enable users to gain more information about products and manage the ordering process more efficiently. Specifically, digital systems need to be effectively usable by producers as well. Interviews with producers

revealed that while most are not interested in digital tools, they actively use WhatsApp. This indicates the need for a redesign of the digital ordering system with a simple and easy-to-use interface, along with digital training processes tailored for producers. Therefore, design interventions here should not only focus on the redesign of the digital system but also include capacity-building activities such as training and events in the digital domain. Improving TADYA's ordering system can be achieved through co-design processes involving collaboration among producers, facilitators, and consumers. This cooperation will ensure that the system responds to real needs and establishes a sustainable structure. Developing participatory service designs within co-design processes can create a community-based and sustainable platform. In this way, a service system is built where all stakeholders in the community (consumers, coordinators, and producers) have a say, not just the coordinators. Figure 6.2 includes an alternativ map of the existing TADYA system, as previously shown.

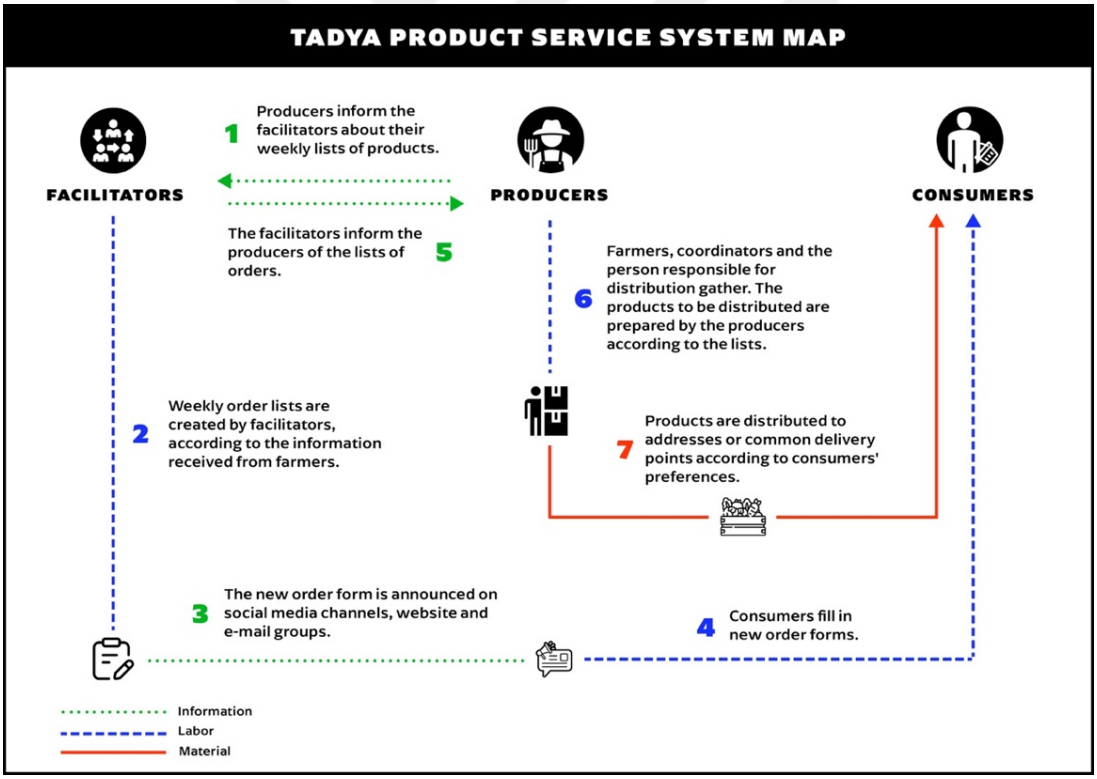


Figure 6.2: Alternative Product Service System Map

Improving TADYA's ordering system through co-design and participatory service design approaches can create a structure that is suitable for the community's needs, democratic, participatory, and sustainable. These approaches will enhance TADYA's

effectiveness in both digital and physical spaces, strengthen communication within the community, and reinforce the sustainable food system.

6.1 Research Questions Revisited

In this section, the research questions will be revisited, posed at the beginning of the study to evaluate the extent to which they have been addressed through the findings and discussions presented in this thesis. The primary aim of this thesis was to investigate the role of sustainable design in enhancing agroecological communities, in TADYA (Tahtacıörencik Natural Life Collective) as a case study. The research was guided by two main questions: How can service design play a role in agroecological communities? How can service design contribute to TADYA's producer-to-consumer system?

6.1.1 How can service design play a role in agroecological communities?

The research highlighted the importance of involving community members in the design process. By engaging local producers and consumers, design solutions can be more effectively aligned with their needs and values, leading to increased acceptance and sustainability. Direct involvement in food production processes enhances the designer's understanding of the entire food system, from production to consumption. This holistic perspective is crucial in creating comprehensive solutions that address various aspects of sustainability. Service design can drive social innovation by creating new models of community interaction and support. For example, improving TADYA community's digital ordering system and producer-consumer connections demonstrate how service design for sustainability can facilitate more efficient and equitable food distribution networks. The case study illustrates how design can help communities adapt to climate change and other environmental challenges by promoting co-design studies.

6.1.2. How can service design contribute to TADYA's producer-to-consumer system?

Service design can enhance the producer-to-consumer process, increasing efficiency through improved digital ordering systems. By facilitating direct interactions, these

systems can strengthen community relationships and boost consumer loyalty for local producers. Equipping producers to adapt to these digital systems will further ensure sustainable usage by all members.

7. CONCLUSION

This research aimed to answer the questions: "How can service design play a role for agroecological communities?" and "How can service design contribute to TADYA's farmer-to-consumer system?". The research findings reveal that while TADYA's direct-to-consumer food system is effective in reaching consumers directly from producers, there is a need for improvements in the informativeness, efficiency, and usability of the digital system. Additionally, the fact that the digital system is managed only by certain members of the community poses a long-term sustainability issue. To enhance TADYA, an agroecological community, the existing digital service design should be transformed into a more participatory digital service. This transformation should involve the participation of all stakeholders in the TADYA community by using co-design methods, and efforts should be made to develop the community's capacity to utilize these new designs effectively.

In the research, which was conducted while adhering to the fundamental motivation, the primary challenges related to climate change were initially identified. Climate change creates global issues that impact every aspect of life, and in the era defined as the "Anthropocene Age," human activities have exerted significant pressure on the environment. Agriculture and food systems are sectors that both contribute to and are profoundly affected by climate change. Countries in the Mediterranean region, such as Turkey, are more severely impacted by rising temperatures and changing precipitation patterns. Research highlights that climate change leads to economic instability in the agricultural sector and exacerbates poverty, especially in developing regions that are geographically vulnerable to climate change. Additionally, in these regions, food security diminishes, and small-scale producers face various obstacles in developing resilience.

There are numerous theoretical and practical studies on making agriculture and food systems resilient to the climate crisis. One of the most important concepts that emerges in this context is agroecology. The primary goal of agroecology is to ensure

agricultural productivity and self-sustaining capacity while conserving biodiversity and creating agricultural systems that mimic natural ecosystems. According to various studies cited in the literature section, agroecology can play a significant role in enhancing the resilience of farmers and food systems, contributing to environmental sustainability, food security, and the improvement of rural economies. Agroecology is also an umbrella concept for a range of practical methods that can help develop self-sufficient, economically viable, small-scale agricultural ecosystems. It represents not only a form of agricultural production but also a social movement. This movement is supported by grassroots-organized networks and communities that produce local solutions to the problems faced in food/agriculture systems. In recent years, concerns about ecology, health, and animal welfare have increased interest in alternative food solutions. The quest for safe and healthy food by consumers has led to the formation of Alternative Food Networks (AFNs). These networks are systems created by producers, consumers, and other stakeholders that move away from traditional food systems, promoting localized, transparent, and high-quality food production and consumption. One example of an AFN is the Community Supported Agriculture (CSA) model, which establishes direct connections between producers and consumers, inviting consumers to share the risks of production with farmers under challenging conditions. The global demand for healthy, safe, and fair food has led to the proliferation of these communities and organizations. Another movement, Slow Food, emerged as a reaction to industrialization and the fast food culture. This movement has worked to promote the concept of good, clean, and fair food through education, information dissemination, and advocacy, supporting biodiversity and traditional food production methods.

These community activities aimed at creating alternative agriculture and food systems can be seen as acts of social innovation. Design for sustainability has expanded into more inclusive and complex concepts such as design for social innovation and co-design. These concepts can contribute to agroecological communities by including multiple stakeholders in the process, offering more comprehensive solutions. Designers can lead ecological and social change by combining technological and ecological necessities. Issues such as food waste, hunger, vulnerability to climate change, increasing emissions, soil degradation, and agricultural chemicals can be addressed through these expanding design concepts. While design became significant

with the shaping of mass societies during the Industrial Revolution, its role in agriculture has been limited. Today, however, the intersections between design and food systems are emphasized more. In this context, co-design can be an important tool for producing innovative solutions through interdisciplinary collaboration.

In this research, the Tahtacıörencik Natural Life Collective (TADYA) was examined as a case study. The potential roles of design within the TADYA network, an alternative and local food system, were explored. TADYA's direct food system delivers products directly from producers to consumers. Initially, this structure supported producers and conducted direct sales by creating consumer communities in Ankara, eventually transitioning to a digital system for weekly orders and home deliveries. TADYA produces a variety of fresh and processed products and aims to apply the principles of agroecology through various production guidelines.

Data for this case study were obtained through consumer surveys, interviews with facilitators and producers, and observations during village visits. The surveys indicated that consumers shop from TADYA motivated by healthy food consumption, supporting eco-friendly producers, and supporting local production. However, concerns about product variety, access issues, and product quality were noted. Interviews with facilitators revealed inefficiencies due to the complexity and length of the current ordering system. Communication challenges and issues with using digital tools were also highlighted, emphasizing the need for more user-friendly and efficient systems. Additionally, notes recorded during village visits and observations of online groups demonstrated the importance of digital tools in community communication for operational and information-sharing purposes.

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APPENDICES

APPENDIX A: Online questionnaire form for customers

APPENDIX B: Interview questions for producers

APPENDIX C: Interview questions for coordinators

APPENDIX D: Permission form for TADYA

APPENDIX A

Gıda Sistemleri için Tasarım: TADYA

Bu araştırma İstanbul Teknik Üniversitesi Endüstriyel Tasarım Yüksek Lisans Programı'nda, Dr. Öğretim Üyesi Elif Küçüksayraç danışmanlığında Gözde Erdem tarafından yürütülmektedir.

Bu araştırmada Tarım/Gıda Sistemlerinde Sürdürülebilir Dönüşüm için Tasarım konusunun incelenmesi hedeflenmektedir.

Araştırmaya katılımınız tamamen gönüllülük esasına dayanır. Bu çalışmayla bağlantılı olarak elde edilen ve sizinle özdeşleşmiş her bilgi gizli kalacak, üçüncü kişilerle paylaşılmayacak ve yalnızca sizin izniniz ile ifşa edilecektir. Gizlilik, tanımlanmış bir kodlama prosedürüyle sağlanacak ve kod çözümüne erişim yalnızca çalışmanın sorumlusu araştırmacıyla ve danışmanla sınırlı kalacaktır. Araştırma sonuçları tüm gizlilik ilkelerine uyularak sadece bilimsel çalışmalarda kullanılacaktır.

* Indicates required question

1. ***Katkıda bulunduğunuz tez araştırmasının yayınının 'teşekkürler' bölümünde isminize yer verilmesini onaylıyor musunuz?** *

   Mark only one oval.

   - ◯ Evet
   - ◯ Hayır

2. **İsminiz ve Soyisminiz** *

3. **Yaşınız** *

4. **Mesleğiniz** *

_____

5. **Eğitim Dereceniz** *

Mark only one oval.

- ◯ İlkokul
- ◯ Ortaokul
- ◯ Lise
- ◯ Ön Lisans
- ◯ Lisans
- ◯ Lisansüstü
- ◯ Doktora
- ◯ Other: _____

6. **TADYA'dan alışveriş yapma motivasyonunuz nedir?** (Birden fazla seçebilirsiniz.) *

Check all that apply.

- ☐ Sağlıklı gıda tüketmek.
- ☐ Daha lezzetli gıda tüketmek.
- ☐ Ailem için sağlıklı gıda satın almak.
- ☐ Doğa dostu üreticileri desteklemek.
- ☐ Yerel üretimi desteklemek.
- ☐ TADYA Kolektifi'ni desteklemek.
- ☐ Güvenilir olması.
- ☐ İstediğim zaman üretim ile ilgili bilgi alabiliyor olmak.
- ☐ Farklı çeşitlere ulaşabiliyor olmak.
- ☐ Üreticileri tanıyor olmak.
- ☐ Other: _____

7. **TADYA ile nasıl tanıştınız?** (Birden fazla seçebilirsiniz.) *

Check all that apply.

- ☐ İnternet üzerinden araştırma yaparak.
- ☐ Arkadaşlarımdan duydum.
- ☐ Instagram uygulamasından gördüm.
- ☐ E-posta gruplarından duydum.
- ☐ Other: _____

8. **TADYA duyurularını nereden takip ediyorsunuz?** (Birden fazla seçebilirsiniz.) *

Check all that apply.

- [ ] Instagram uygulamasından.
- [ ] E-posta gruplarından.
- [ ] TADYA websitesinden.
- [ ] WhatsApp gruplarından.
- [ ] Other: _____

9. **TADYA websitesinde hangi sayfaları ziyaret ettiniz/ediyorsunuz?** (Birden fazla seçebilirsiniz.) *

Check all that apply.

- [ ] Sipariş sayfası
- [ ] Sipariş kontrol
- [ ] Blog
- [ ] Paylaşım formu
- [ ] Duyurular
- [ ] Üreticiler
- [ ] Üretim
- [ ] İlkeler
- [ ] Ölçütler
- [ ] Özdenetim
- [ ] Geri bildirim formu
- [ ] Köy ziyaret rehberi
- [ ] Resim galerisi

10. **TADYA'dan ne sıklıkta alışveriş yapıyorsunuz?** *

Mark only one oval.

- ◯ Her hafta. (Ortalama)
- ◯ Ayda bir kere. (Ortalama)
- ◯ Altı ayda bir kere. (Ortalama)
- ◯ Senede bir kere. (Ortalama)
- ◯ Sadece bir kere sipariş verdim.
- ◯ Other: _____

11. **Gıda ürünlerinizi TADYA'dan satın almanın avantajları neler?** *

_____

_____

_____

_____

_____

12. **Gıda ürünlerinizi TADYA'dan satın almanın dezavantajları neler?** *

_____

_____

13. **Sipariş ve tedarik süreçlerinde yaşadığınız zorluklar oldu mu? Olduysa detaylı bir biçimde anlatır mısınız?** *

14. **TADYA'nın Katılımcı Güvence Sistemi hakkında bilginiz var mı?** *

15. **TADYA sipariş sistemini 5 üzerinden değerlendirin.** *

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

16. **TADYA sipariş sistemi için aşağıdakilerden hangileri sizi ifade ediyor? (Birden fazla seçebilirsiniz.)** *

Check all that apply.

- ☐ Ürünlerle ilgili ihtiyaç duyduğum bilgilere ulaşabiliyorum.
- ☐ Üreticilerle ilgili ihtiyaç duyduğum bilgilere ulaşabiliyorum.
- ☐ Kolaylıkla alışverişimi tamamlayabiliyorum.
- ☐ İyi bir sipariş sistemi olduğunu düşünüyorum.
- ☐ Zaman zaman sipariş verirken zorlanıyorum.
- ☐ Aradığım, ihtiyaç duyduğum bilgilere ulaşamıyorum.
- ☐ Alışverişimi yaparken zorlandığım oluyor.
- ☐ Other: _____

17. **Siparişimi:** *

Mark only one oval.

- ◯ Bilgisayar üzerinden veriyorum.
- ◯ Telefondan/tabletten veriyorum.

18. **TADYA websitesini 5 üzerinden değerlendirin.** *

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

19. **TADYA'nın üreticiden tüketiciye olan alternatif sistemini ve tedarik zincirini 5 üzerinden değerlendirin.** *

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5

20. **TADYA sipariş sistemi ile ilgili eklemek istediğiniz düşüncelerinizi aşağıdaki kutucuğa yazabilirsiniz.**

Figure A.1: Online questionnaire form for customers

APPENDIX B

Gıda Sistemleri için Tasarım: TADYA

Bu araştırma İstanbul Teknik Üniversitesi Endüstriyel Tasarım Yüksek Lisans Programı'nda, Dr. Öğretim Üyesi Elif Küçüksayraç danışmanlığında Gözde Erdem tarafından yürütülmektedir.

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***İletişim bilgilerinizin araştırmacının sizinle yeniden iletişime geçilebilmesi için kullanılmasını onaylıyor musunuz?**

- Evet
- Hayır

***Katkıda bulunduğunuz tez araştırmasının yayınının 'teşekkürler' bölümünde isminize yer verilmesini onaylıyor musunuz?**

- Evet
- Hayır

İsim Soyisim	Yaş	Meslek	Eğitim	Yaşadığı Yer

1. TADYA'daki üretimlerinize nasıl başladınız? Hikayenizi anlatır mısınız?

2. TADYA topluluğu ile birlikte üretiminizi gerçekleştirirken motivasyonunuz ne oluyor?

3. Bu üretimi gerçekleştirirken karşılaştığınız zorlukların dereceleri nedir?

	Hazırlık	Ekim	Bakım	Hasat	İşleme	Satış	Diğer
Az							
Orta							
Çok							

4. Üyesi olduğunuz topluluktan beklentileriniz neler?

5. TADYA'nın kooperatiflerden ve diğer üretici topluluklarından farkı nedir?

6. TADYA ürünlerinin organik sertifikalı ürünlerden ve market ürünlerinden farkı nedir?

7. Bir üretici olarak sizin için TADYA'nın artıları neler?

8. Bir üretici olarak sizin için TADYA'nın eksileri neler?

9. Üretim, satış ve pazarlama gibi konularda kullandığınız dijital araçlar var mı? Varsa hangileri?

Facebook	Instagram	Twitter	Youtube	Çiftçi Uygulamaları	Websiteleri	Blog Siteleri	Diğer

10. Bu araçları ne amaçla kullanıyorsunuz?

Facebook	Instagram	Twitter	Youtube	Çiftçi Uygulamaları	Websiteleri	Blog Siteleri	Diğer

11. Bu araçları hangi sıklıkta kullanıyorsunuz?

Facebook	Instagram	Twitter	Youtube	Çiftçi Uygulamaları	Websiteleri	Blog Siteleri	Diğer

12. Kullandığınız dijital araçların avantajları ve dezavantajları neler?

	Facebook	Instagram	Twitter	Youtube	Çiftçi Uygulamaları	Websiteleri	Blog Siteleri	Diğer
Avantaj								
Dezavantaj								

13. Yeni dijital araçları kullanmak ile ilgili aşağıdakilerden hangisi/hangileri sizi tanımlıyor?

o Yeni dijital araçları üretime faydası olacaksa denemek isterim.

o Yeni dijital araçları bilgi edinmek amaçlı denemek isterim.

o Yeni dijital araçları satışı artıracaksa denemek isterim.

o Yeni dijital araçları tüketicilerle bağlarımı güçlendirmek için denemek isterim.

o Yeni dijital araçları çağın yeniliklerine ayak uydurmak için denemek isterim.

o Yeni dijital araçları çevremde kullanan varsa ben de kullanırım. |

o Yeni dijital araçları pazarlamada kolaylaştırıcılık sunacaksa denemek isterim.

o Yeni dijital araçları topluluğuma faydası olacaksa denemek isterim.

Figure B.1: Interview questions for producers

APPENDIX C

Gıda Sistemleri için Tasarım: TADYA

Bu araştırma İstanbul Teknik Üniversitesi Endüstriyel Tasarım Yüksek Lisans Programı'nda, Dr. Öğretim Üyesi Elif Küçüksayraç danışmanlığında Gözde Erdem tarafından yürütülmektedir.

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***İletişim bilgilerinizin araştırmacının sizinle yeniden iletişime geçilebilmesi için kullanılmasını onaylıyor musunuz?**

- Evet
- Hayır

***Katkıda bulunduğunuz tez araştırmasının yayınının 'teşekkürler' bölümünde isminize yer verilmesini onaylıyor musunuz?**

- Evet
- Hayır

İsim Soyisim	Yaş	Meslek	Eğitim	Yaşadığı Yer

1. TADYA'daki faaliyetlerinize nasıl başladınız? Hikayenizi anlatır mısınız?

3. Burada nasıl bir göreviniz/sorumluluğunuz var?

4. Faaliyetlerinizi yürütürken nasıl bir süreç izliyorsunuz?

5. Burada bu faaliyeti yürütmenizdeki motivasyon kaynaklarınız neler? Neden TADYA?

6. TADYA'nın kooperatiflerden ve diğer üretici topluluklarından farkı nedir?

7. TADYA'nın artıları neler?

8. TADYA'nın eksileri neler?

9. Sizin görev alanınızda en çok zorlandığınız konular neler oluyor?

10. Bu konularla ilgili (eğer yapıldıysa) daha önce ne gibi çalışmalar yapıldı?

11. Bu çalışmaların artıları ve eksileri neler oldu?

12. Faaliyet alanınızda ne gibi dijital araçlardan yararlanıyorsunuz?

13. Bu araçları ne amaçla kullanıyorsunuz?

14. Bu araçları ne sıklıkta kullanıyorsunuz? (Nadiren, Sık, Çok Sık)

15. Kullandığınız dijital araçların avantajları ve dezavantajları neler?

16. Faaliyetlerinizde neleri geliştirmeyi hedefliyorsunuz?

17. Bunun için ihtiyaçlarınız nelerdir?

Figure C.1: Interview questions for coordinators

APPENDIX D

Onay Formu

Tez Başlığı: AGROEKOLOJİK TOPLULUKLAR İÇİN TASARIM: TADYA KOLEKTİFİ ÜZERİNE BİR VAKA ÇALIŞMASI

Araştırmacı: Gözde Erdem

Kurum: İstanbul Teknik Üniversitesi

Program: Yüksek Lisans Tezi, Endüstri Ürünleri Tasarımı Bölümü

İzin Talebi:

Bu tezin içerisinde ve başlığında TADYA Kolektifi'nin adını kullanmak için iznizi talep ediyorum. İzniniz, TADYA'nın faaliyetlerini içeren bir durum çalışmasını tezime dahil etmeme olanak sağlayacaktır.

TADYA Kolektifi Temsilcisi

Adı Soyadı: Ceyhan Temürcü

Pozisyon: Kurucu

İmzası:

Tarih: 7/7/2024

Bu araştırma çalışmasına olan iş birliğiniz ve desteğiniz için teşekkür ederim.

Onay Beyanı: Yukarıda imza atarak, Gözde Erdem tarafından İstanbul Teknik Üniversitesi Endüstri Ürünleri Tasarımı Bölümü'ne sunulan "Agroekolojik Topluluklar İçin Tasarım: TADYA Kolektifi Üzerine Bir Vaka Çalışması" başlıklı yüksek lisans tezinde "TADYA Kolektifi" adının kullanılmasına izin verdiğinizi kabul etmektesiniz.

Gözde Erdem
Endüstri Ürünleri Tasarımı Bölümü
İstanbul Teknik Üniversitesi

Figure D.1: Permission form for TADYA

CURRICULUM VITAE

Name-Surname : Gözde Erdem

EDUCATION:

- **B.Sc. :** 2019, Istanbul Bilgi University, Architecture Faculty, Industrial Product Design Departmant.

PROFESSIONAL EXPERIENCE:

- 2017: Studio Punto, Internship
- 2019: (Exhibition) Studio X, Dreamscapes: Hypercritical Dissections in Space
- 2019: Helene Dashorst, Erasmus+ Internship
- 2022: Four Seasons Ecological Life Association, Designer and Volunteer
- 2023-…: Anatolian Grasslands, Visual Designer