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POTENTIAL OF COMMUNITY GARDENS FOR SUSTAINABLE URBAN
DEVELOPMENT IN IZMIR, TURKEY

By

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ABSTRACT OF THE THESIS

Potential of Community Gardens for Sustainable Urban Development in Izmir, Turkey

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Urban agriculture is becoming increasingly important in developed and developing countries that are experiencing serious environmental and social problems. As a developing country, Turkey has faced some environmental, social and economic issues in urban areas with typically irregular industrialization and urbanization processes since the 1950s. In this study, community gardening, as one of the urban agriculture practices, was evaluated as a tool for sustainable urban development in the Izmir Metropolitan area in Turkey. The potential of existing community gardens was investigated with two case study sites in Bornova and Buca regarding social, economic and environmental qualities of the region. A mixed method approach incorporates historical research, interviews, and diagramming. After the evaluation of findings from site observations, open discussions and interviews, the data was used to illustrate conceptual community garden network in Izmir.

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1. Introduction

1.1. Purpose

Urban agriculture is an important practice because of its potential to create productive and self-sustaining urban areas.¹ It is an effective solution for economic, ecological and social problems that are the result of rapid and unplanned urbanization. It is becoming increasingly important in developed or developing countries that are experiencing serious environmental and social problems, as well as in less-developed countries that are experiencing hunger and malnutrition.²

In this thesis, my main objective is to illustrate the potential of different types of community gardens support and fortify social, cultural and economic sustainability of urban communities in Izmir from local to regional scale. This reveals my hypothesis; community gardens may have a potential for sustainable urban development in Izmir. This research begins with a literature review. I determined some key questions for the literature review in light of the hypothesis. These questions are:

1. What resources are essential for community gardens to socially support urban areas?
2. What is the role of community gardens in terms of linking different communities?
3. What is the role of the planner in the process of community gardening?
4. What is the situation of urban agriculture in developing countries like Turkey?

Second chapter is dedicated to have a better understanding about urban agriculture and government interest in Turkey. In this chapter, I research previous

¹ Tjeerd Deelstra, and Herbert Girardet. "Urban Agriculture and Sustainable Cities." *Growing Cities, Growing Food. Urban agriculture on the Policy Agenda* (2000): 46.

² Jac Smit, Joe Nasr, and Annu Ratta. "Urban agriculture food, jobs and sustainable cities." *New York, USA* (1996):

gardening legacies along with current practices of urban agriculture in Turkey. At the end of this chapter, I explain governmental institutions and planning policies in order to present general information about urban agriculture in Turkey. Next, the potential of existing community gardens in Izmir metropolitan area is evaluated through two case study sites in Bornova and Buca. After determining the potential of existing community gardens, typologies of community gardens are considered for new establishments within different districts of Izmir metropolitan area at the local and regional scale.

1.2. Literature Review

Following literature review was developed to address the research questions:

- *What resources are essential for community gardens to socially support urban areas?*

Andre Viljoen examines reincorporating productive landscapes into the human settlement as an urban design/planning conceptual approach in his book, *CPULs* (Continuous Productive Urban Landscapes).³ The author places urban agriculture at the center of urban design/planning. Although this book contains various articles and case studies, mostly from the United Kingdom, I found the article written by Jeremy Iles most helpful in explaining the social role of community gardens. After defining community garden and city farm terms, Iles evaluates the benefits of a community garden or city farm projects from a social perspective. Iles presents the social benefits of community garden projects from different areas of the UK. After a policy review on food production, the author points out the need to run a successful community-led project and explains,

³ Andre Viljoen, Katrin Bohn, and Joe Howe, eds. *Continuous Productive Urban Landscapes*. (Routledge, 2005).

“The greatest need that projects have, especially when they are starting out, is local political support through committee and officer time: a clear sign that the project is valued and welcomed” (86).⁴ In addition, although local institutions are usually responsible for community gardens in small scales, their efforts in each small scaled project may influence the total in terms of developing urban agriculture in a city.

○ *What is the role of community gardens in terms of linking different communities?*

In the article “Developing Community in Community Gardens” by Firth, Maye and Pearson (2011), the nature of community in community gardens and their community building capacity are assessed in terms of social capital.⁵ Four ways of generating social capital in community gardens are suggested in the paper. The first way is the function of community gardens to bring people together for a common purpose. According to the authors, individuals in a joint activity volunteer to create something of use and benefit to the wider public and these kinds of endeavors create social connections. Second, community gardens reveal promotion of interaction and contribution to the creation of community by creating a meeting place. The third way is through the type of activities taking place in community gardens. Community gardens can create important bridging social capital, asserting that “...community gardens can help to build bridging social capital as people from different neighborhoods are brought together around a common interest in nature, food and community” (565).⁶ Finally, community gardens help to build links with institutions and authorities. According to the authors, resources are accessible for the benefit of those involved with the community garden thanks to the external links.

⁴ Quoted in Iles, Jeremy, “The Social Role of Community Farms and Gardens in the City,” *Continuous productive urban landscapes: designing urban agriculture for sustainable cities* (2005): 86

⁵ Chris Firth, Maye Damian and David Pearson. "Developing “community” in community gardens," *Local Environment* 16, no. 6 (2011): 55.

⁶ Quoted in Firth, Damian and Pearson, "Developing “community” in community gardens," 565.

The authors also describe community in two forms. One is “place-based” which is internally driven, as they are initiated and managed by participants from within the neighborhood community, and the other one is “interest-based” which is led by individuals or groups from outside the local community.

- *What is the role of the planner in the process of community gardening?*

Laura Lawson discusses the role of planners in the creation of community gardens from a historic perspective in the article, “The Planner in the Garden: A historical view into the relationship between planning and community gardens”.⁷ Lawson (2004) asserts three important assumptions that have shaped the planners’ general approach to community gardens in terms of planning. First, there is a fundamental mismatch between desire for orderly urban planning and the reactionary impulse to fill vacant land with gardens that has alienated planning from such incremental gestures. Second, the personal nature of gardening has found a better fit within the context of household consumption than as communal resource. Third, even when community gardens are encouraged, they are considered as social actions to achieve larger goals rather than as physical entities.

In the research article “Urbanization and class-produced natures: Vegetable gardens in the Barcelona Metropolitan Region”, Domene and Sauri examine the current socio-environmental problems of urban vegetable gardens in the Metropolitan Region of Barcelona.⁸ The paper focuses on the specific historical, social, institutional and economic conditions that have influenced the ascendancy and demise of vegetable gardens in urban landscapes in the Metropolitan Region of Barcelona, taking as an

⁷ Laura Lawson, "The Planner in the Garden: A Historical View into the Relationship between Planning and Community Gardens." *Journal of Planning History* 3, no. 2 (2004): 151-176.

⁸ Elena Domene, and David Saurí. "Urbanization and class-produced natures: Vegetable gardens in the Barcelona Metropolitan Region." *Geoforum* 38.2 (2007): 287-298.

example in the municipality of Terrassa. The research on vegetable gardens in the municipality includes a cartographic survey of plots, direct observation, and interviews with users. After the survey of physical and social environment, the authors discuss strategies of planners towards vegetable gardens, explaining at time how community garden establishments experienced a drastic reduction. The paper illustrates that the reduction is not related to a decrease in demand for this activity, but to the increase in the provision of land for other more “valuable” uses, such as industrial, residential, infrastructure, and conservation.

○ *What is the situation of urban agriculture in developing countries like Turkey?*

In the paper, “A Systematic Overview of Urban Agriculture in Developing Countries”, Bettina Baumgartner and Hasan Belevi evaluate the main objectives for community gardens which include food security, poverty alleviation, public health and sustainable resource managements in the processes such as agricultural practices, soil quality, irrigation, urban policy and planning, etc.⁹ In these processes, although all of them need a careful examination, urban policy and planning process subjects are emphasized to have an answer to the research question. The authors described basics for planning community gardens in developing countries: (1) state the role of urban agriculture for urban residents from a social and economic perspective, (2) understand the relationship of different actors involved in urban agriculture , (3) monitor positive and negative effects, (5) evaluate community support given to urban agriculture, (6) evaluate policy measures.

⁹ Bettina Baumgartner and Hasan Belevi. "A Systematic Overview of Urban Agriculture in Developing Countries." *EAWAG/SANDEC, Dübendorf* (2001).

De Bon, Parrot and Moustier review sustainable urban agriculture in developing countries in the article, “Sustainable Urban Agriculture in Developing Countries”.¹⁰ In this article, the authors assert that, “the continuing population growth of cities in developing countries will not decrease the economic and social importance of urban agriculture, if governments are made aware of its multi-functional role, and if the safety of its products and environment can be guaranteed.” Three characteristics of urban agriculture in developing countries were determined to prove the validity of the hypothesis: (1) the social roles of urban agriculture in relation to the urban population growth; (2) the economic functions of urban agriculture and the emergence of its multifunctionality; (3) the constraints and the risks of developing an urban agriculture for human consumption. Characteristics of urban agriculture are compared with rural agriculture and the results of this comparison were considered in the development of research in terms of urban agriculture. In conclusion, the authors report that “there is a growing need for documentation of the successful integration of urban agriculture in urban development, and on the conditions necessary for its social, economic and environmental sustainability” (30).¹¹

In the research paper, “Determination of People’s Aspects about Hobby Gardens in Erzurum City”, Yilmaz, Turgut and Demircan investigate the requirements for community gardens (hobby gardens) for the city of Erzurum (Turkey), determining a potential place for a possible community garden in Erzurum, use of community gardens

¹⁰ Hubert De Bon, Laurent Parrot and Paule Moustier. "Sustainable Urban Agriculture in Developing Countries. A Review." *Agronomy for Sustainable Development* 30.1 (2010): 21-32.

¹¹ Quoted in De Bon, Parrot and Moustier. "Sustainable Urban Agriculture in Developing Countries. A Review," 30.

and discussion of proper outdoor equipment.¹² Yilmaz, Turgut and Demircan interview some city dwellers of Erzurum City to assess their expectations from community gardens. A survey was conducted with 628 people in different districts of Erzurum. According to the survey results, individuals between the ages of 20-40 answered “yes” more than other age groups to the question of “Do you know what a community garden is?” Yilmaz et al. (2006) commented that since community gardens are a very new concept in Turkey, this result does not seem surprising.

The study also shows that participants with a monthly income level of under \$250 declare that community gardens should be located in the Erzurum city center. Participants with monthly income level of over \$250 prefer the community gardens should be located at a distance of 5-10 km from the Erzurum city center. The majority of individuals who participated in the survey state that they want to use the community gardens only for rest and leisure. While lower income individuals tend to use community gardens for profit-making purposes, relatively higher income individuals tend to use community gardens only for the leisure. Individuals who have lower incomes state that standard outdoor materials are good for them, while individuals with higher incomes prefer special design outdoor materials. Finally, the authors report that the interviewees identify community gardens as a place where people could find recreational activities and also derive economic benefit from these activities.

The importance of urban agriculture, and specifically community garden, are emphasized in the literature review. The book, *CPULs* illustrated that urban design/planning interrelating with productive landscapes supports the cities from the

¹² Hasan Yilmaz, Hilal Turgut and Neslihan Demircan. “Determination of People’s Aspects about Hobby Gardens in Erzurum city.” (2006): 96-110

social, economic and welfare perspectives. De Bon, Parrot and Moustier (2008) stated that if governments are made aware of community gardens' multi-functional role, and if the safety of its products and environment can be guaranteed, urban agriculture can be a solution for developing countries despite their high population growth rate. As a developing country, Turkey appears to be at the beginning of its urban agriculture and community garden phase. Lawson's article (2004) on the historical development of community gardens in the US may provide an opportunity to evaluate the planners' concerns about community gardens in Turkey through lessons learned in the US. The article on community gardens in the metropolitan region of Spain discusses socio-environmental issues. Finally, Yilmaz, Turgut and Demircan (2006) serve to evaluate the current perception of community gardens in Turkey.

1.3. Research Methods

More than one research method is used in this study of the potential of community gardens for sustainable urban development in Izmir. This mixed method approach includes historical research, interviews, and diagramming. Two community gardens in Bornova and Buca districts in Izmir, Turkey, provide case studies. Historical research is used to evaluate the agricultural legacy of the community. Turkey was an agriculture-dependent economy until the 1950s, but Turkish communities have been involved with agriculture or gardening activities for centuries.¹³ Urbanization and migration from rural to urban areas have led to a change in people's attitudes toward agriculture and gardening, specifically in the metropolitan regions of Turkey like Istanbul, Izmir and Ankara.

¹³ Fahri Yavuz, "Agriculture in Turkey." Republic of Turkey Ministry of Food, Agriculture and Livestock Publications, *Ankara* (2005).

Two different community gardens in the Izmir metropolitan area were identified in Buca and Bornova as study sites. Buca Golet community garden in Buca, and Bornova Municipality Community Garden in Bornova are the study sites for this research. They were chosen for their geographic location in Izmir, their demographic characteristics, and their organization/management methods. Both Buca and Bornova are key locations for public transportation and highway structures. Both community gardens are attractive regions to the communities that are keen on gardening activities in Izmir. Both districts are highly populated areas within Izmir, and have different demographic characteristics and support organizations. This perspective provides the designation of different user types of community gardens in Izmir. Observation of these sites and users (the gardeners) is part of the research method, as well as a standard survey and open discussion (Table 1). Interviews were conducted as a supportive element to observation. Deming and Swaffield reported that “Descriptive landscape questions cannot be answered by direct observation of the phenomena in question or from recorded secondary resources. They may require information that can only be found by asking what other people have seen or experienced. In this situation it can be fruitful to develop a strategy based upon a descriptive social survey.”¹⁴

Interview Questions
1. For how long have you been gardening at this location?
2. What were your initial motivations for becoming involved in the community garden? Please rank the following on a scale of 1-3, 1 being unimportant and 3 being very important: Social environment: Gardening: Grocery Bills:

¹⁴ Quoted in Ellen M. Deming and Simon Swaffield, *Landscape Architecture Research: Inquiry, Strategy, Design* (John Wiley & Sons, 2011), 72

Others
3. What types of plants are you growing?
4. How much of the plot is devoted to edible plants?
5. How often do you visit your garden plot?
6. Where do you live in Izmir? What is your housing type?
7. Which transportation do you use when you are coming to the garden?
8. What do you do with the items from your plot? How much do the items help your grocery bills?
9. Do family members garden with you?
10. Are you satisfied in terms of sharing and cooperation among gardeners in this garden? Very satisfied Satisfied Moderate Not satisfied
11. How would you describe the social or community atmosphere of the garden? Very good Good Moderate Poor Very poor
12. What forms of dialogue and exchange have you seen between gardeners? Ideas Information Plants Seeds Recreation Material
13. How many members are in your household?
14. What type of work do you do for a living?
15. What is your total household income?

Table 1. The interview questions for Bornova Municipality and Buca Golet community gardens' members.

Diagramming is used as a research method to visually illustrate typologies of existing and proposed community gardens. After the evaluation of findings from site observations, open discussions and interviews, the data is used to develop diagrams for the conceptual community garden network in Izmir. Diagrams are divided into two different typologies at the local and regional scale related to the social, economic and ecological qualities of the city.

2. Site Background: Urban Agriculture and Government Interest in Turkey

2.1. Agriculture and Urban Agriculture in Turkey

This chapter contextualizes community gardens in Turkey within the debate on the role of urban agriculture in the development of current urban communities. As in many nations, Turkey has a long agricultural history. However, agriculture in Turkey has become less important in light of rapid industrialization, urbanization, industrial-focused development strategies and policies of the governments.¹⁵ During this period, the role of urban agriculture has been underestimated according to the current examples. This chapter will first summarize the past and present conditions of agriculture in Turkey. Then, it will describe examples of preserved urban agriculture- Ataturk Forest Farm and Yedikule Walls Gardens- to illustrate the difficulties of preserving existing agriculture sites. The discussion will shift to community gardening in Turkey, with specific community garden examples in metropolitan areas. Finally, this chapter will examine government interest in urban agriculture in Turkey in terms of government institutions and present policies about urban agriculture.

2.1.1. Agriculture in Turkey

In rural areas, there is a harmonious relationship between geographical location, climate and land use in Turkey. Forests are usually located in humid regions of Turkey, animal husbandry is practiced in highland and arid regions, and crop production is possible in all regions. Geography and climate give the opportunity to produce region-specific agricultural products in different ecological zones.

¹⁵ Fahri Yavuz, *Agriculture in Turkey*, 9.

Turkey's 77.9 million hectares of land assets include 26.3 million hectares of agricultural land. While the cultivated area is 14.8 million hectares in 1940, it reached 26.3 million hectares in 2001. Distribution of plant production areas contain 69% field crops, 19% fallow fields, 5% of the fruit fields, 3% vegetable production areas, 2% olive fields and 2% bonding areas.¹⁶

Turkey is a major producer of cereals, such as wheat, barley and maize; fruit and vegetables such as apples, citrus, grapes, figs, hazelnuts, olives and tea; and sheep and goat meat. Turkey's agricultural exports are not highly varied. Fruits, nuts and vegetables are the major export categories.¹⁷ Some problems affect agricultural activities and production in Turkey. Akkarca Kose declared these problems by saying that:

“...agriculture in Turkey has had persistent problems which led the country to undergo a radical reform process in the early years of the second millennium. There are major structural problems which include small size of agricultural holdings, fragmented and scattered farms, low efficiency, insufficiencies regarding production and marketing infrastructures. This list may be lengthened to include rural development problems: low levels of professional agricultural activity, low investment capacity, low level of education and relatively high levels of illiteracy, a large proportion of the agricultural workforce working as unpaid family labor, low income levels and lack of alternative income sources, and significant rural out-migration.”¹⁸

As a well-known fact, in 1950s, rural migration started to create high rates of urban population growth in Turkey's metropolitan areas like Istanbul, Ankara and Izmir. The main reason for migration was due to low agricultural productivity, mechanization of agricultural activities and loss of agricultural land. Urbanization in a short period of time is closely related to rapid change in the socio-economic structure of the cities.¹⁹ As a

¹⁶ Yavuz, *Agriculture in Turkey*, 13.

¹⁷ Melike Akkaraca Köse, “Agricultural Policy Reforms and Their Implications on Rural Development: Turkey and EU,” *Ankara Avrupa Calismalari Dergisi*, (2012):77

¹⁸ Quoted in Akkaraca Köse, “Agricultural Policy Reforms and Their Implications on Rural Development: Turkey and EU,” 78

¹⁹ Zekeriya Caliskan, “Urbanization and Squatters in Turkey,” *Fırat Üniversitesi Doğu Anadolu Bölgesi Araştırmaları Dergisi* (2006): 57.

result, immigrants who were familiar with only farm-based employment have faced unemployment and dwelling issues in urban areas.

2.1.2. Urban Agriculture in Turkey

Because of frequent changes in land planning and management decisions and gaps in knowledge of urban agriculture in Turkey, existing urban agriculture examples are converted to parks or to different land use types. In this section, I intend to illustrate the difficulties of preserving existing land use through the examples of preserved urban agriculture- Ataturk Forest Farm and Yedikule Walls Gardens.

Mustafa Kemal Ataturk founded Ataturk Forest Farm in 1925, right after the World War I, to fulfill the agricultural demands of the new capital city, Ankara.²⁰ Its founding developed the agricultural potential in the region. It also provided an example to other agriculture related businesses and economic support to the farms in the neighborhood.²¹ It also became a place to promote agriculture-related recreational activities. Today, Ataturk Forest Farm's biggest problem is the loss of land. Ankara Natural Heritage Area Commission in Turkey changed the present land-use decision for seven hectares of Ataturk Forest Farm in 2012. According to the new land-use decision, some parts of Ataturk Forest Farm are not in the historic and natural preservation area anymore. Government buildings and highways have been built on its agricultural and forest lands despite of the fact that its lands cannot be broken into pieces for non-

²⁰ Ataturk Forest Farm was translated from Turkish; Ataturk Orman Ciftligi

²¹ Sebahat Aciksöz and Yalçın Memlük, "Revolution of Ataturk Forest Farm with respect to urban agriculture," *Tarım Bilimleri Dergisi* (2004): 79.

agricultural purposes according to the particular law for Ataturk forest farm (Fig. 1 and 2).²²



Figure 1. Conditions of Ataturk Forest Farm in Ankara before 2004²³

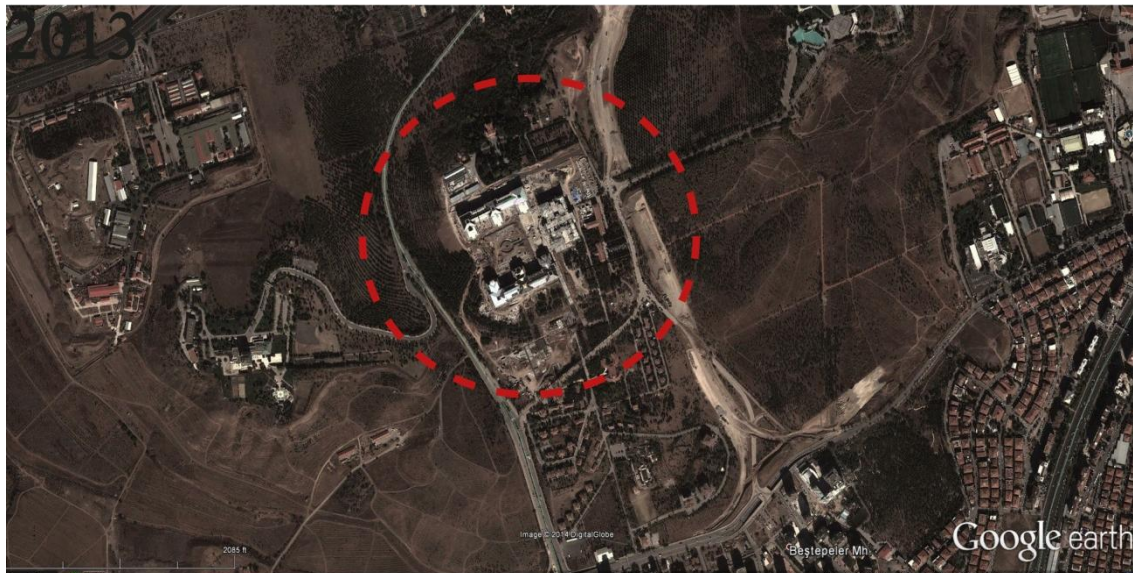


Figure 2. Conditions of Ataturk Forest Farm in Ankara after 2013²⁴

²² Turkish Law No. 10- article 5659

²³ Google Earth, 2014.

²⁴ Google Earth, 2014.

Another existing urban agriculture example is Yedikule Walls Gardens in Istanbul. This place has been a vegetable garden for centuries. Recently, the Fatih municipality changed and designed a new public park project. According to the data from a civil association of Yedikule Gardens, vegetable gardens cover 8000 square meters in the current condition but will cover only 800 square meters when the project is finished (Figure 3).²⁵ In Istanbul, Ankara and some other cities of Turkey, there are additional urban agriculture examples with similar stories to Ataturk Forest Farm and Yedikule Walls vegetable gardens. Many of them have been converted into different land use types entirely or partly depending upon changes in land use policies, regulations and codes.

Urban agriculture may have been underestimated from the establishment of Turkey to present. However, after the establishment of the first community garden in Bursa in 1985, it started to gain more local support with the attention of local governments and civil agencies.

²⁵ “The website of the civil association in Yedikule Walls Gardens,” last modified March 7, 2014, <http://yedikulebostanlari.tumblr.com/>.



Figure 3. Children members of Yedikule Walls vegetable gardens are protesting the conversion of the site into a public park.²⁶

2.2. Gardening Legacy in Turkey

2.2.1. Shift from home gardens to community gardens

Gardens have a spiritual value within the Turkish community. In the Ottoman Empire garden style, trees, plants, water, light and shadow were defined precisely and all of them were used at the same time in most of the gardens. Historically, it was believed that nature was a reflection of God and gardens area of nature. Turkish gardens are considered as a part of the Islamic garden culture, with substantial affect from Mediterranean, Persian and Byzantium garden styles.²⁷

Turkish people paid attention to the functional values of the gardens more than aesthetics during the Ottoman Empire period.²⁸ In particular, fruit trees were

²⁶ T24 Internet Gazetesi, <<http://t24.com.tr/haber/tarihi-yedikule-bostanlari-yok-ediliyor/233742>

²⁷ Sanem Çınar and Simay Kırca, 'Perception of Garden in Turkish Culture,' Journal of the Faculty of Forestry, Istanbul University (2010): 56-65.

²⁸ Özkan Ertuğrul, Art of Turkish Garden Arrangement (Anonymous, 1983), 37.

indispensable components of the gardens.²⁹ Fruit trees in Turkish gardens were not only a food resource, they were also a way to empower social activities in the neighborhood. In Istanbul and many other cities, sending fresh fruit from the fruit trees in the garden to other houses was a tradition.³⁰

Turkish culture has been shaped with experiences of ancestors, location and religion. Nature and garden concepts in the mind of Turkish people were affected by religion as well.³¹ Gardens were an indispensable part of people's social and cultural lives. It started to change, especially in urban areas, after the 1950s due to the high migration rate from rural to urban areas, rapid urbanization, and changes in socio-cultural and economic structures. As a result, high density housing developments have compromised most of the traditional residential types in urban areas of Turkey. People who reside in high density developments do not have a chance to grow something in their garden. This causes a loss in the traditional gardening perception and its positive effects on neighborhood relationships.

2.2.2. Evolution of community gardening in Turkey

Community gardening is a recent topic in Turkey. The term “community garden” is one of several used in Turkish terminology. Although the most popular term is “hobby garden”, some other terms include “allotment garden”, “small city garden” and “community garden.”

The first community garden in Turkey was founded in 1986 by the Metropolitan Municipality of Bursa under the name of a “small city garden.” Subsequently,

²⁹ Aslı Bayçın Korkut, *Landscape Architecture* (Istanbul: Hasad Publications, 2002)

³⁰ İffet Evin, *Former Bosphorus People* (Çelik Gülersoy Vakfı. İstanbul Kütüphanesi, 1992).

³¹ Sanem Çınar and Simay Kırca, “Perception of Garden in Turkish Culture,” 65.

municipalities founded community gardens in Ankara (1987), Izmir (1989), Konya (1994), Istanbul (1998), and Kayseri (2002).³² Establishing community gardens in Turkey has increased significantly since 2000. The following examples illustrate their physical characteristics and context.

Nilufer Community Garden in Bursa, constructed in 1985 by the municipality and opened for the retired community at the end of 1986, covers 9 hectares with 167 garden plots. Each garden plot is about 150 square meters and some individual garden plots contain sheds for gardening materials and tools (Figure 4).³³ The gardeners decorate their sheds with furniture and kitchen materials in time. Bursa community garden has been an important example for latter community gardens in terms of its design characteristics. After the first community garden in Bursa, many community gardens in other cities were designed as large individual plots with sheds. This enabled to the members more private space and less common areas. This community garden style became a traditional model for many following community gardens and it is usually called ‘hobby garden’ in Turkey.

³² Adnan Kaplan, Bulent Ozkan, Nihan Aslan and Hilal Kilic, “A Study on the Development of Community Gardens in Turkey,” *Ekoloji ve Cevre Dergisi* 18 (1996): 20.

³³ “Nilufer Community Garden,” last modified May 9, 2010, <http://www.nilufer.bel.tr/anahaber.php?id=571>.



Figure 4. Nilufer community garden in Bursa, Turkey³⁴

Another early community garden facility is the Batikent community garden was established by the Eskisehir Tepebasi Municipality. It involved ninety-eight garden plots with each garden plot measuring fifty square meters. Only retired and disabled communities in Eskisehir are allowed to join the community garden (Figure 5).³⁵ Design characteristics of the community garden are similar to Bursa community garden. It included large garden plots with sheds. However, common/social spaces are designed by a central meeting area and a gym in the garden. Recently, Eskisehir metropolitan municipality and some other local municipalities in Eskisehir have increased its community garden number and established many gardens in high density development areas.

³⁴ Ihlas Haber Ajansi, < <http://www.iha.com.tr/bursada-sehir-ortasinda-koy-hayati-yasiyorlar-foto-galerisi-8-2890-5#fotogaleri>>

³⁵ "Batikent Community Garden," accessed March 13, 2014, <http://www.tepebasi.bel.tr/park/projeler.asp?id=5>



Figure 5. A couple member and their garden plots in Batikent Community Garden in Eskisehir³⁶

In 2002, the first community garden in Kayseri was founded by the Kayseri metropolitan municipality. This garden and its success became an example for other community gardens in Kayseri. The municipality founded four more community gardens by 2012 (Figure 6). Each included large individual garden plots and sheds with facilities like bathrooms, management building with meeting rooms (Figure 7). According to the municipality community gardens policy, the members of community gardens are selected from the retired community. The total area of all community gardens in Kayseri is 41.5 hectares by 2013.³⁷

³⁶ Tepebasi Municipality Website, <<http://www.tepebasi.bel.tr/haberler/HaberDetay.aspx?hid=2093>>

³⁷ "Community gardens in Kayseri," last modified October 2, 2013, <http://www.kayseri.bel.tr/web2/index.php?page=hobi-bahceleri-2>



Figure 6. Karpuzatan community garden in Kayseri, Turkey³⁸



Figure 7. The meeting room in Altinoluk community garden management building in Kayseri, Turkey³⁹

³⁸ Kayseri Metropolitan Municipality, <<http://www.kayseri.bel.tr/web2/index.php?page=bestepeler-mesire-alani-2>>

Although many community gardens in Turkey have supported the privacy of the gardeners with comparatively excluded garden plots and sheds, recently, some new establishments of community support open garden plots and common/social areas. Also these gardens aim to locate more garden plots for more members by lessening their garden plot's size and not using sheds in each garden plot. For instance, Kucukcekmece Municipality in Istanbul founded a community garden in 2012. The community garden includes 266 garden plots and each garden plot is 40 square meters. The garden plot size of this garden is smaller than usual garden plots sizes of many community gardens in Turkey (Figure 8).⁴⁰



Figure 8. Atakent community garden in Kucukcekmece, Istanbul⁴¹

Community gardens in Turkey have been established to provide recreation to city-dwellers. The community gardens in the metropolitan areas of Turkey are mainly established to decrease the stress level of people who like to engage in gardening activities. Gardeners usually live in high density, multi-story apartments and they have

³⁹ Kayseri Metropolitan Municipality, <http://www.kayseri.bel.tr/web2/index.php?page=bestepeler-mesire-alani-2>

⁴⁰ "Kucukcekmece Community Garden," accessed February 15, 2014, <http://www.kucukcekmece.bel.tr/>

⁴¹ Kucukcekmece Municipality, <<http://www.kucukcekmece.bel.tr/>>

little or no space for gardening or other types of recreation. In addition, gardens are established for urban dwellers as a leisure time activity. In other industrial cities, the main goal for the gardens is to provide economic support for both retired and unemployed community members. In all cases, these gardens are owned, designed and managed by municipalities for which the gardeners have to pay a monthly minimal rent fee to the municipality.⁴²

Community gardens in Turkey are usually established on vacant land or public parks. They become the center of attraction for city dwellers in time. People from all age groups use the community gardens for leisure time activities or selling their crops in the farmers' markets. Farmers' markets in the community gardens also create new businesses for rural farmers who wanted to sell vegetables, seeds, gardening tools, etc.⁴³

In Turkey, community gardening represents an urban agriculture activity. Local municipalities in the cities attach importance to increasing community garden numbers in their jurisdictions. In Turkey, most districts in the metropolitan cities have one or more community gardens. In addition, although civil associations and organizations usually are not involved with establishment of community gardens, they provide information in terms of finding a community garden in the neighborhood, gardening lessons and connecting with other gardeners.

⁴² Hasan Yilmaz, Hilal Turgut, and Neslihan Demircan, "Determining the Opinions of Erzurum Community about Hobby Gardens" Suleyman Demirel Universitesi Orman Fakultesi Yayinlari (2006), 97

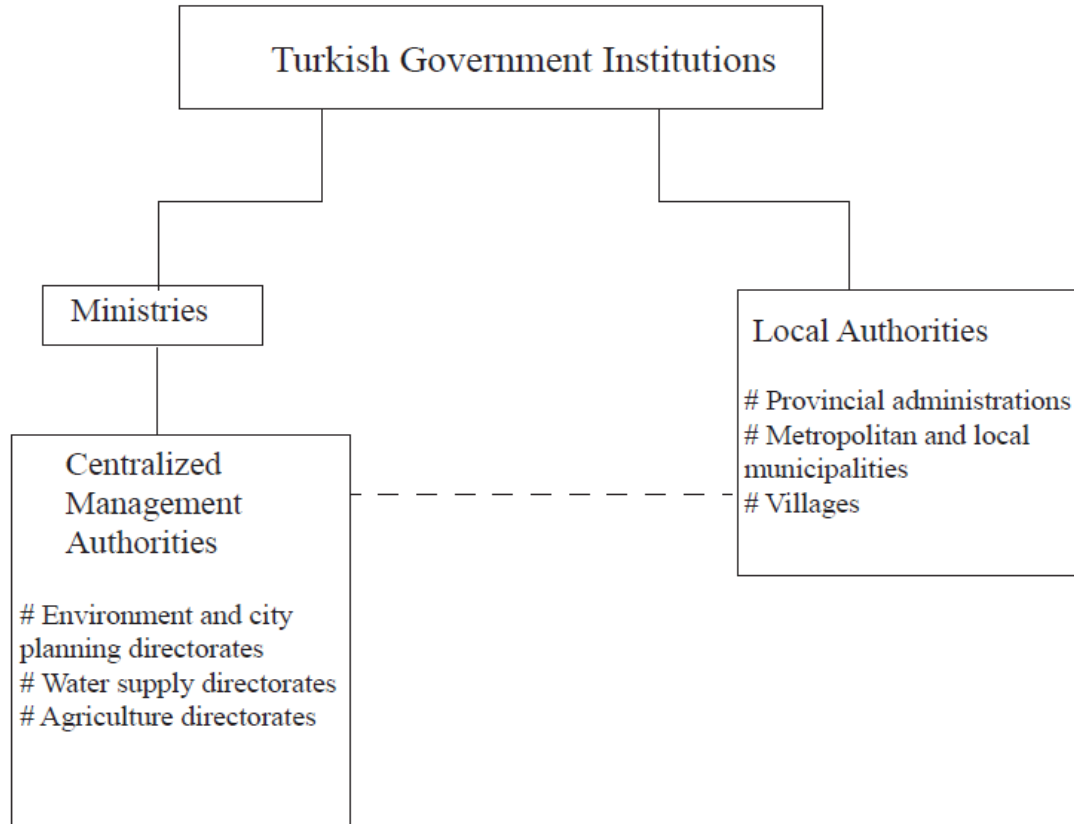
⁴³ Yilmaz, Turgut and Demircan, "Determining the Opinions of Erzurum Community about Hobby Gardens," 109

2.3. Government interest in urban agriculture in Turkey

2.3.1. Government Institutions

According to the 1982 Turkish Constitution, establishment and duties of the government agencies is divided into centralized and local management systems. Strategic plans are usually prepared by centralized management authorities and approved by ministries. Land-use decisions are usually made in this process in Turkey. In the scheme, you will see the hierarchy of the authorities in the process of planning and land-use decisions (Scheme 1). Although centralized management authorities can inspect local authorities, local authorities have stronger authorization than centralized management authorities in terms of decision-making and implementation processes. Unclear distribution of duties and bureaucratic obstacles in the government institutions usually cause some problems in terms of the planning process and implementation of planning decisions.⁴⁴ In this chapter, some of the primary government institutions and urban agriculture-related planning policies in Turkey are presented to evaluate their actual role for developing urban agriculture in the planning process.

⁴⁴ Mercan Efe, “Urban Agriculture and Its Integration to Urban Planning” (Master’s thesis, Dokuz Eylul University, Turkey, 2003).



Scheme 1. Scheme of the organizational hierarchy in Turkish Government Institutions based on urban agriculture related authorities

Centralized Management Authorities

In Turkey, centralized management authorities serve as the provincial directorate in urban areas. They play a major role in the planning processes of the cities.⁴⁵

Environment and city planning directorates represent the Turkish ministry of environment and urbanization. According to a change in the related regulation, the ministry of environment and urbanization fulfills duties and responsibilities in order to complete urban transformation, ensure environmental sustainability and livable

⁴⁵ Mercan Efe, “Urban Agriculture and Its Integration to Urban Planning” (Master’s thesis, Dokuz Eylul University, Turkey, 2003).

settlements, and maintain the cities' environmental health.⁴⁶ Some of the tasks of the environment and city planning directorates are to prepare spatial strategy plans by cooperating with relevant institutions and inspect the validity of planning decisions of local administrations to these strategies. Therefore, these directorates are responsible for the demand of local governments to establish facilities for preparing their physical plans, defining strategies and inspecting the validity of the decisions.⁴⁷

Water supply directorates in cities represent the Turkish ministry of forestry and water supply. They are responsible for planning, management and development of all water resources in Turkey. Planning of water use for existing and future urban agriculture activities and determining the use of strategies in urban agriculture can be included in duties of this organization.⁴⁸

Agriculture directorates represent the Turkish ministry of food, agriculture and livestock in the cities. They are responsible for designating and protecting agricultural lands in urban areas. Agricultural directorates may play a major role in the initial attempts to establish urban agriculture in cities.

Local Authorities

In Turkey, provincial administrations, metropolitan municipalities and local municipalities are established to meet local and common needs of the community in a particular area. Each of them has specialized units as a part of local authorities based on their geographic location.

⁴⁶ Turkish Ministry of Environment and Urbanization mission statement, accessed March 13, 2014, <http://www.csb.gov.tr/turkce/index.php>

⁴⁷ Mercan Efe, "Urban Agriculture and Its Integration to Urban Planning" (Master's thesis, Dokuz Eylul University, Turkey, 2003) 100.

⁴⁸ Turkish Ministry of Forestry and Water Supply mission statement, accessed March 16, 2014, <http://www.dsi.gov.tr/kurumsal-yapi/hakimizda#misyon>

Provincial administrations are responsible for establishing and improving sample and experimental farms, nurseries and agricultural crop and livestock markets in accordance to the related law.⁴⁹ Provincial administrations are in charge of designating the existing/potential agricultural land and fulfilling the requirements for protection.

Metropolitan municipalities and **local municipalities** are in charge of basic urban infrastructure requirements like creating green zones, establishing social and cultural services and maintaining highways and roads. Establishing and supporting urban agriculture as a part of the green zone and social and cultural services in cities can be accepted in the jurisdiction of the metropolitan municipalities.

2.3.2. Planning Policies and Strategies for Urban Agriculture in Turkey

2872-Environmental law includes the regulations for protecting and improving environmental conditions; protecting and using land and natural resources properly; preventing air and soil pollution; protecting existing natural and cultural areas and considering economic and social development targets of the sites (Article 1). Decision-makers and authorized institutions for land and resource usage should consider not affecting development strategies negatively while protecting the environmental areas (Article 3).⁵⁰ This law does not completely guarantee environmental protection and improvement. In addition, article 3 of the related law supports that protection and improvement of the environment can be less important in order to maintain the physical development of cities. Therefore, agricultural lands in cities can be easily converted into different land uses in light of this law.

⁴⁹ Turkish Provincial Administrations Regulations: article 78.

⁵⁰ Mercan Efe, “Urban Agriculture and Its Integration to Urban Planning” (Master’s thesis, Dokuz Eylul University, Turkey, 2003).

Regulations for non-agricultural use of the agricultural lands were applied to agricultural directorates based on legislation 3161 and 3202. The regulations allow the use of predetermined agricultural lands in existing land-use maps for other land-use types. According to changes in this regulation, classified agricultural lands (according to Turkish agricultural land type standards: I and II) are protected but agricultural land types III and IV are available for any tourism related development.⁵¹ Additionally, agricultural land types III and IV can be converted into other land-use types such as school zone, residential zone, industrial zone, highways and malls in urban realms.⁵²

The Ministry of Environment and City Planning in Turkey⁵³ defines the strategy for urban agriculture: “urban agriculture zones will be integrated with the residential areas and developed in addition to green zones in the cities. Ministry of environment and city planning is in charge of clarification of terminology of urban agriculture such as community gardens, allotment gardens or hobby gardens, children's urban farms, etc. and then, including urban agriculture zones in master and development plans”.⁵⁴

2.4. Summary

Considering Turkey's economy was an agriculture-dependent country until 1950s, agriculture in Turkey has become less important in light of rapid industrialization and urbanization through the emphasis on industrial-focused government development strategies. As a consequence, rural migration led to a high rate of urban population in

⁵¹ In Turkey, the most common of the land use classification is “land use capability classification (Arazi Kullanma Kabiliyet Sınıflaması)” method. Considering land-use restrictions and inconveniences that may occur if used incorrectly, the class is divided into 8 plots in this method. The first of these four classes points out suitable lands for agriculture such as processed farming and long-lasting plant cultivation.

⁵² Mercan Efe, “Urban Agriculture and Its Integration to Urban Planning” (Master's thesis, Dokuz Eylül University, Turkey, 2003).

⁵³ Formerly it was Ministry of Housing and Public Works and changed to Ministry of Environment and city planning in 2011; Translated from Turkish; T.C. Çevre ve Şehircilik Bakanlığı

⁵⁴ Related article is illustrated in Ministry of Housing and Public Works, *Urbanization Council* (Ankara, Turkey: Ministry of Housing and Public Works publications, 2009), 111.

Turkey's metropolitan areas such as Istanbul, Ankara and Izmir. The main reasons of the migration from rural to urban areas are usually presented as low agricultural productivity, mechanization of agricultural activities and loss of agricultural lands. Heavy migration rate of urban areas in Turkey caused changes in the physical and socio-economic structures of the cities. High density housing developments and squatter houses increased substantially, and infrastructure was not developed fast enough to fulfill the requirements of the new community. From the socio-economic perspective, some problems arose in urban areas like high rate of unemployment and unqualified workers, and deficiency in providing education activities.

Although urban agriculture strategies in general are not parallel to the industrial-focused development strategies in Turkey, urban agriculture can assist development strategies for more sustainable urban areas by evaluating existing qualified people in agriculture, slowing down the high rate of urban sprawl, and providing opportunities to reach more food for low-income or no-income communities. In Turkey, "agriculture" has been usually defined by many government agencies and some scholars as an activity for only rural areas. However, Ataturk Forest Farm was an urban farm with the aim to provide food resource for the capital of the new established country, Turkey in the 1930s. Though there was no high rate of migration and urbanization issue in Ankara in those years, this example illustrates that agriculture was not dedicated only for rural areas in the very first years of Turkey. This fact can be explained the importance of edible plants in Turkish gardens during the Ottoman Empire years. Many houses in the cities had gardens and nearly all of them had fruit trees and some vegetable gardens inside. Apparently, influences of this tradition shaped the perception of agriculture for the first few years in

Turkey. Modification of laws and planning strategies over time has led to changes the perception of “agriculture”.

In Turkey, the most common example of urban agriculture is community gardens. Since the establishment of the first community garden in Bursa City in 1986, community gardening has not significantly changed. However, it has become more popular in urban areas of Turkey with the attention of local municipalities. It can be explained by the fact that community gardening is more applicable for the municipalities in the local scale because there is no dedicated planning strategy for urban agriculture in the city and country scale. The aim of the local governments in community gardens is to provide its local community more open space, food resources and stronger neighborhood bonds. Therefore, local municipalities make their own decisions to establish and develop new community gardens in their neighborhood, usually without support of centralized management authorities. Beside this, some nursing homes, schools and other private organizations pursue community gardening with their personal efforts.

The reasons for local efforts in urban agriculture in Turkey can be more comprehensible when the government interest in agriculture and urban agriculture are examined. Unclear distribution of duties and bureaucratic obstacles in the government institutions usually cause some problems in the planning process and implementation of the planning decisions. For instance, since some regulations about agriculture and land use decisions are not well-defined or inadequate, many agricultural lands in urban areas are open to conversion to different land-uses when higher economic value of some lands are considered by the representatives of centralized authorities. Focusing on economic development of cities by centralized management authorities and sometimes local

authorities have led to producing the regulations, codes and strategies in this way. As a result, urban agriculture remains at a locally based projects such as, establishment of the community gardens by some municipalities, and is not a part of the development plan of the cities.

3. Site Description: History, Physical Environment and Demography

3.1. Izmir

3.1.1. Brief History of Izmir

According to the Ahmet Pristina city archive and museum information, Izmir's history dates back to the year 3000 BC. It was established where the Gediz River meets the Aegean sea on a large protected bay. Documents from archeological excavations show Izmir's first settlement was in Bayrakli in 3000 BC. Some excavations from the years 2000 BC suggest that Izmir and the surrounding area were ruled by the Hittites. There was a trade route from the Hittite capital, Hattusa, to Ephesus. According to the ancient sources, Izmir was founded by Erektid king Tantanos.⁵⁵ The streams in Izmir were used for irrigation. Flat lands between the end point of the bay and the Belkahve passage were used for agricultural activities. These spacious plains provided advantages in terms of meeting the nutritional needs of the city.⁵⁶

Izmir was managed by Rome between 133 BC -395 AD. At the time, the Roman Empire was divided into two empires as Roman and Byzantium and Izmir took its place in history as the city of Byzantium. The city was attacked by the Huns and Arabs during the Byzantine period. In 1081, Çakabey, a Turk clan, captured Izmir. Ottomans started to lead Izmir in 1426 and it remained part of the Ottoman Empire until the Republic of Turkey was founded in 1923.⁵⁷

Until the last quarter of the 16th century, Izmir harbor only served to fulfil Istanbul's agricultural products and it remained as an inner-trade size harbor.

⁵⁵ "Ahmet Pristina city archive and museum information," accessed on April 9, 2014, <http://www.apikam.org.tr/Bagimsiz/izmirin-tarihi>

⁵⁶ Erkan Serçe, Fikret Yılmaz, and Sabri Yetkin, *City Which Rise from the Ashes* (İzmir Büyük Şehir Belediyesi Kültür Yayını, 2003), 22-23.

⁵⁷ Serçe, Yılmaz, and Yetkin, , *City Which Rise from the Ashes*, 203-216.

Concurrently, the Ottoman Empire tried to revive the Western Anatolian agriculture. This action made Izmir the largest producer of agricultural products.⁵⁸

Izmir developed as a city due to its strategic location, being a port city during the Ottoman Empire period. Izmir's urban development has gained momentum since the 17th century. Between the period 1425 and the 17th century, the town was the gateway to the west for the Ottoman Empire. Izmir's existence as a port city in the capitalist world happens concurrently with the Ottoman Empire's eagerness to spread across Europe. Since Izmir had productive farmlands, agriculture was developed and its strategic location allowed exportation of agricultural products. Additionally, Izmir was the only western port in Anatolia and all of the rich agricultural products from Anatolia were transferred from Izmir port to Europe. In the 18th century, Izmir became one of the most important centers of interest to western companies and to Levantine family businesses. As a result, a significant change in the appearance of the city's spatial and sociological structure occurred, and different cultures and lifestyles began to live in peace. All of the journals from 19th century emphasize the city as 'Little Paris' because the city experienced an increasingly western lifestyle.⁵⁹ Between the years 1770-1870, Izmir harbor gained an important position in the Ottoman Empire in terms of transferring domestic agricultural products to world markets. Domestic agricultural products of Izmir like cotton, opium, raisins, dried figs, acorns, natural dye, olive oil, soap gained importance in international markets (Figure 9).⁶⁰

⁵⁸ "Ahmet Pristina City Archive and Museum Information" accessed April 9, 2014, <http://www.apikam.org.tr/Bagimsiz/izmirin-tarihi>

⁵⁹ "Ahmet Pristina City Archive and Museum Information"

⁶⁰ "Ahmet Pristina City Archive and Museum Information"

Emergence of local governments in the Ottoman Empire occurred during the second half of the 19th century. Ottoman modernization and the development of local municipal organizations (which is one of the most important steps of the modernization) emerged in port cities such as in Istanbul, Izmir and Thessaloniki. These cities contained a multi-cultural social structure; as well, they were important trade centers. After the establishment of Republic of Turkey in 1923, an agriculture-focused strategy was determined for Izmir's development in order to decrease the destructive consequences of the Independence War. However, industrialization attempts started in 1928. Industrialization in those years was developed as a support for processing and distribution of agricultural products. After the Marshall aids went to Turkey in 1950s, Izmir was determined for primary industrial area for the region. As a consequence, Izmir's transformation from agriculture-dependent economy to industry-dependent economy in 1960s was quick. This process also determined the present condition of agriculture in Izmir.⁶¹

⁶¹ Sabri Yetkin and Fikret Yilmaz, "The History of Izmir", Izmir Metropolitan Municipality Website, accessed April 3, 2014, <http://www.izmir.bel.tr/Izmir%E2%80%99inTarihi/225/196/tr>.



Figure 9. A general view of Bornova with farmlands in 19th century in Izmir⁶²

3.1.2. Physical and Economic Characteristics of Izmir

Izmir is located in the Aegean region in the west of Turkey (Figure 10 and 11). Its neighbors are Balıkesir City to the north, Manisa City to the east, and Aydın city to the south and it is surrounded by the Aegean Sea to the west. Izmir includes 30 districts in its city boundaries and covers 12,012 km² of land excluding lakes.⁶³ Mountains in Izmir extend perpendicularly to the shore and include lots of large and small gulfs and shores as well as peninsulas and islands. Izmir's topographic structure is comprised of plain fields, valleys and deltas from upland to the bay. It has a Mediterranean climate with generally hot and arid summers and temperate winters. Temperature average is 27.5 °C during summer months and between 12 °C - 14 °C during winter months. The vegetation of Izmir is under the influence of Mediterranean climate. Most Mediterranean species are

⁶² Reprinted from A. Nedim Atilla, *Gelisen Izmir*, Izmir Municipality Publications, 2001

⁶³ Izmir Development Agency, *Izmir Bölgesi (TR31) Mevcut Durum Raporu*, IZKA, 2008 (Izmir, Turkey: Planning, Programming and Coordination Office, 2008), 22-23.

present in Izmir. A large part of the mountainous area of Izmir includes forests and lowlands are usually covered with scrub vegetation.⁶⁴

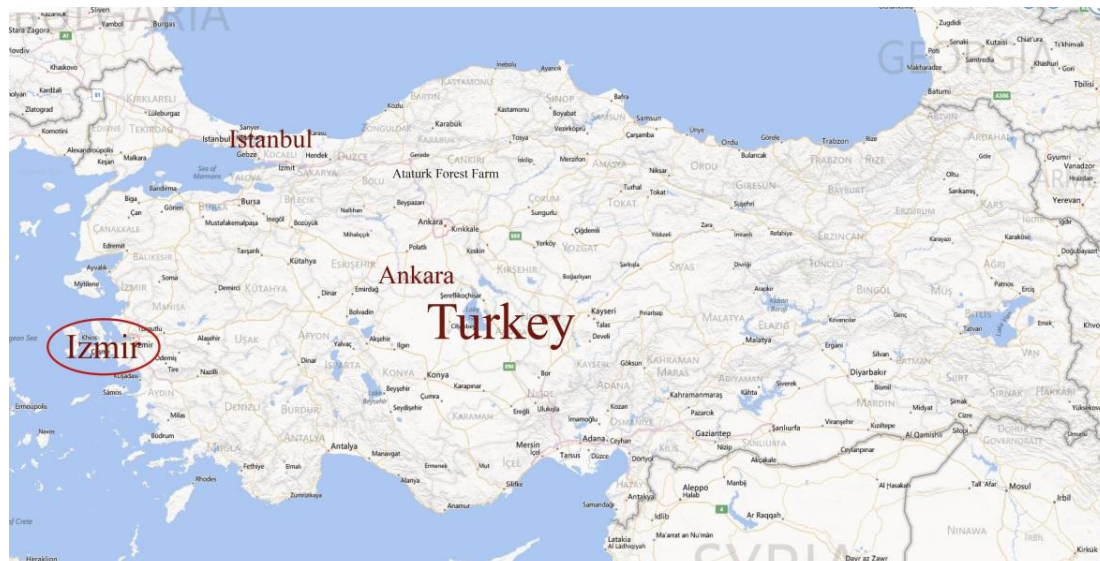


Figure 10. Location map of Izmir⁶⁵

⁶⁴ Izmir Development Agency, Izmir Bolgesi (TR31) Mevcut Durum Raporu, 2008, (Izmir, Turkey: IZKA, 2008), 25.

⁶⁵ Bing Maps, 2014

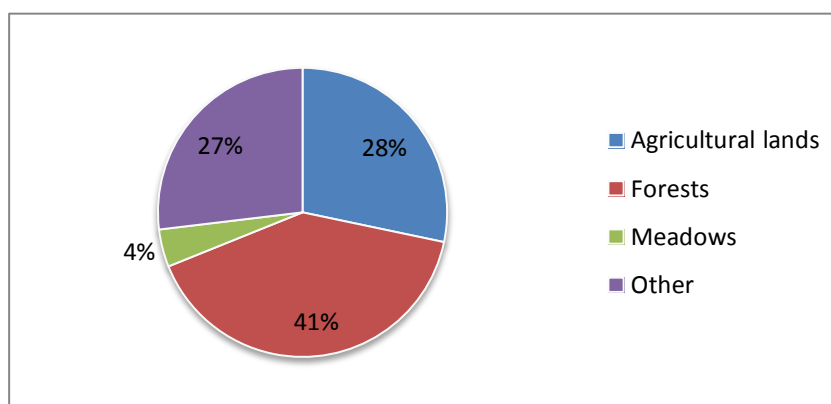


Figure 11. Location map of Izmir⁶⁶

⁶⁶ Bing Maps, 2014

Land use distribution in Izmir contains 40.6 % of forest area, 28.3% of agricultural lands, 4.2% of meadow area and 26.9% of other areas (Graph 1). The 344,984 hectares of agricultural lands are comprised of 42.2% industrial crop area, 27.1% olive gardens, 12% vegetable gardens, 7.9% fruit gardens, and 3.9% vineyard area.⁶⁷

İzmir is the port city of a wide hinterland spreading from Çanakkale to Fethiye. In addition to being an important Turkish trade city with its free zones, industrial zones and maritime transportation opportunities, İzmir also has a significant qualified labor force and developed infrastructure. It is also a prominent tourism center with its environmental and historical assets, and cultural heritage and natural beauty. Agriculture-based industries are also considerably developed. The main products produced in the region are cotton, grape, fig, dried fruits, vegetables, spices, alcohol drinks, animal feed and tobacco. Fifteen percent of total population work in agriculture related sectors. İzmir is the biggest producer of organic food in Turkey. Currently, 1,702 farmers work on organic farming and 84 out of 135 varieties of organic products are produced in İzmir.⁶⁸



Graph 1. Land use distribution in Izmir based on the data from Izmir Food, Agriculture and Livestock City

Directorate

⁶⁷ Sebnem Boran and G. Binici Altintas, “Agriculture in İzmir,” accessed March 4, 2014, <http://www.izto.org.tr/bilgi-bankasi/izmir/tarim>.

⁶⁸ Boran and Altintas, “Agriculture in İzmir.”

Located at the westernmost point of Turkey, Izmir combines its western culture and its outwards-oriented structure with Anatolian culture and traditions. It has integrated and strengthened its tourism culture with its deep-rooted history and ancient civilizations; faith tourism with its hosting of different beliefs; thermal tourism with the geothermal resources and facilities; and eco-tourism with the organic farms and sea-side assets.⁶⁹

3.1.3. Demography in Izmir

Between 1927 and 2008, Izmir's population grew from 531,579 to 3,795,978, according to the 2008 census data. Recently, Izmir is considered as the third most populated city after Istanbul and Ankara in Turkey. Additionally, the State Planning Organization (DPT) declared that Izmir is the third most socioeconomically developed city out of 81 cities of Turkey.⁷⁰

Population density in Izmir (316 persons / km²) is much higher than both of the Aegean Region (105 persons / km²) and the country (93 persons / km²). Based on this data, Izmir is the third most populated city in Turkey. Even though the birthrate in Izmir is much lower than both Turkey (2.53) and the Aegean Region (2.04) averages, population increase is still at high level. This situation can be explained by immigration. The Aegean Region in general and Izmir in particular have some of the highest immigration rates in Turkey.⁷¹

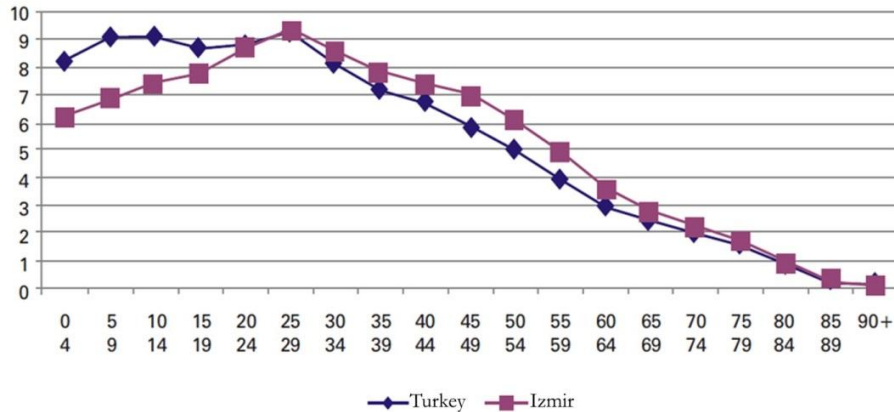
⁶⁹ Izmir Metropolitan Municipality, 2010-2017 Izmir Master Plan, (Izmir Metropolitan Municipality, 2009), 68.

⁷⁰ State Planning Organization in Turkey, Sociocultural Developments of Cities and Regions, (Ankara, Turkey: DPT Publications, 2003), 12

⁷¹ Izmir Development Agency, Regional Plan Report, 2010-2013, (Izmir, Turkey: IZKA, 2010), 14.

Izmir's population median age is 32.4 which is above the median age of the Aegean Region (32.2) and Turkey (28.5). While the proportion of elderly population in Turkey is 6.84%, it is 8.7% in the Aegean Region and 8.05% in Izmir.⁷²

As can be seen in the graphs 2 and 3, according to data from Address Based Population Registration System (ABRS) in Turkey, there are some significant differences in the rates of different age groups in Turkey and Izmir populations. In particular, the ratio of child population (0-14) to the population of Izmir is lower than the ratio of the same age group to the general population in Turkey. In addition, this information proves that while the young population ratios (15-35) remain comparable, middle-age (35-65) and elderly populations (65 and older) are proportionally higher than the same groups' proportions to the general population in Turkey.⁷³ The total elderly population in Izmir is 305,631.⁷⁴ Considering this situation, social services and care institutions were inadequate for the elderly population in Izmir.⁷⁵



Graph 2. Proportion of Different Age categories to Izmir and Turkey population, 2007⁷⁶

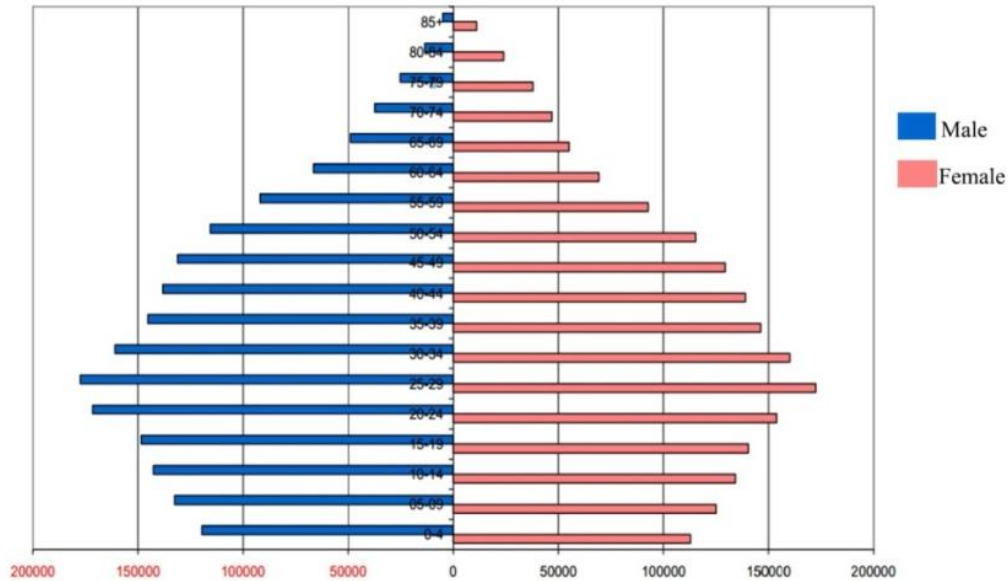
⁷² Izmir Development Agency, Regional Plan Report, 2010-2013, 16

⁷³ The data was obtained from searches on Address Based Population Registration System in Turkey.

⁷⁴ Address Based Population Registration System of Turkey.

⁷⁵ Izmir Development Agency, Regional Plan Report, 2010-2013, 17

⁷⁶ Izmir Development Agency, Izmir Region (TR31) Existing Condition Report, 2008.



Graph 3. Population of Izmir by age and gender, 2007⁷⁷

Almost 1 million people are employed in Izmir. Seventy-three percent of these employees are male, and twenty seven per cent of them are female. When the sector shares are examined, female employees mostly join the agricultural sector as labor whereas most of the males are employed in industry. Considering the overall number of employees in Izmir, employment potential is greater in the service sector for both male and female employees. Unemployment rate in Izmir is 14.7% of the total population as of 2011.⁷⁸

Izmir's average household size is smaller than Turkey's average household size. Izmir is third most developed city out of 81 cities in Turkey in terms of socioeconomic aspects. Because Izmir's birthrate is lower than the country's general rate, Izmir's average household size remains lower than the country's general standards (Figure 12).⁷⁹

⁷⁷ Izmir Development Agency, Izmir Region (TR31) Existing Condition Report, 2008.

⁷⁸ Address Based Population Registration System of Turkey.

⁷⁹ Izmir Development Agency, Izmir Region (TR31) Existing Condition Report, 2008, (Izmir, Turkey: IZKA, 2008), 25.

According to the census data of 2000, 49.07% of the adult population had only primary school education in Izmir. 8.74% of the adult population graduated from secondary or primary school. The rate of the adult population who graduated from high school or equivalent was 14.83%, and finally, the proportion of people who graduated from higher education institutions in Izmir's population is 10.78% (Figure 13).

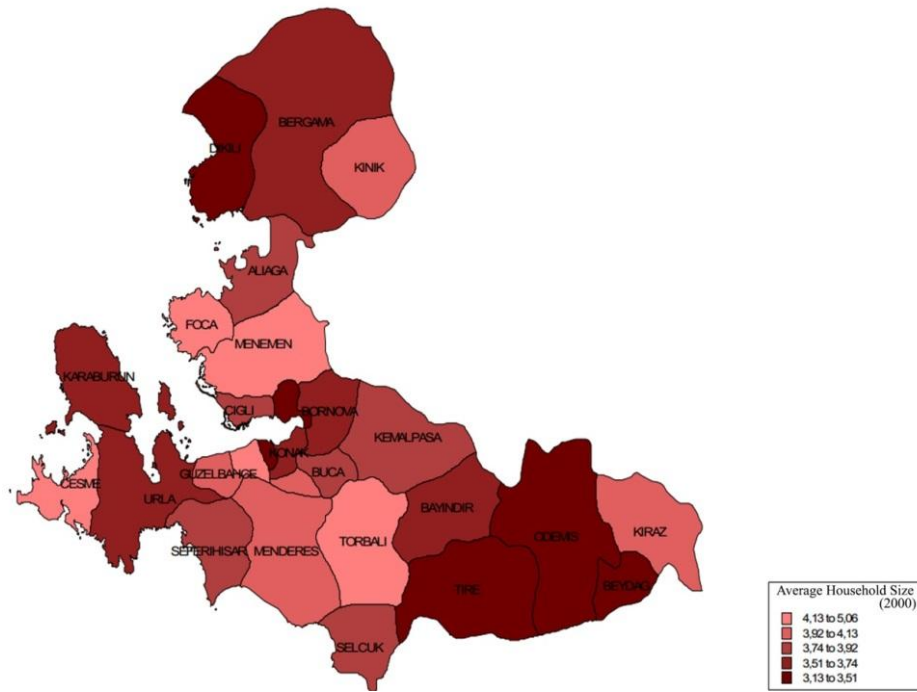


Figure 12. Average Household Size of Izmir in each district, 2000⁸⁰

⁸⁰ Izmir Development Agency, Izmir Region (TR31) Existing Condition Report, 2008.

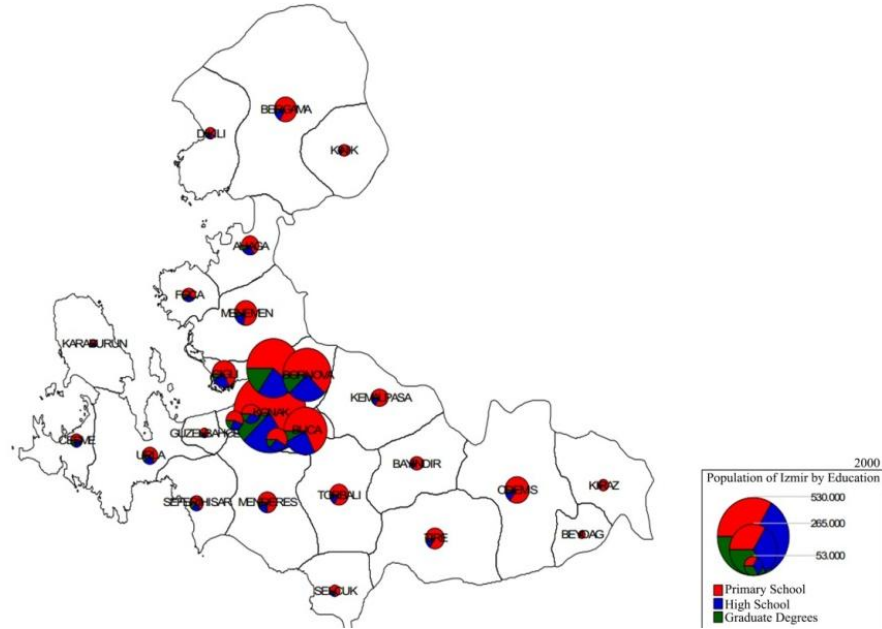


Figure 13. Population of Izmir by Education in each district, 2000⁸¹

3.2. Bornova

3.2.1. Physical Characteristics of Bornova

Bornova is a metropolitan district of Izmir. It is the third largest district in Izmir's Greater Metropolitan Area and is almost fully urbanized at the rate of 98.6%, with corresponding high levels of industrial and service developments. Bornova is located in the northeast of Izmir, and 8 km away of Izmir city center (Figure 14). Bornova has a population of 423,063 residents covers 205 km² of area.⁸² Bornova district is surrounded by Manisa City and Menemen to the north, Kemalpaşa to the east, Buca to the south, and Konak and Karsiyaka to the west, where the larger part of Izmir's urban area extends. Bornova is home to the main campus of Ege University.

⁸¹ Izmir Development Agency, Izmir Region (TR31) Existing Condition Report, 2008.

⁸² Izmir Development Agency, İzmir Regional Plan: Bornova District Meetings Report, 2014-2023 (Izmir, Turkey: IZKA, 2013), 2.



Figure 14. Location map of Bornova⁸³

Location of Bornova is important in Izmir because the Pınarbaşı, Cicekli and other villages provide green spaces for Izmir; Bornova is in the center of the road network of Izmir- Ankara, Izmir- Aydın and Izmir- Canakkale transitions; and also the subway network and the central bus port of Izmir is located in Bornova.⁸⁴

Bornova district is an alluvial plain towards the Gulf of Izmir, open towards the west, and surrounded by mountains to the south, north, and east. The most agricultural activities in Bornova are on the lowlands. There are 7 major soil groups in Bornova. Plain lands which make up 32.4% of the colluvial soils show a wide spread. Red Mediterranean soils with shallow and stony calcareous soils feature a total of 33%. Higher elevations with forest and scrub vegetation have been dominated by brown and brown forest soils without lime at the rate of 38.4%.⁸⁵ Bornova shows very similar patterns with Izmir's vegetation.

⁸³ Google Maps, 2014

⁸⁴ "Location of Bornova," accessed February 21, 2014, http://www.bornova.bel.tr/index.php?option=com_content&view=article&id=279&Itemid=270&lang=tr

⁸⁵ Izmir Development Agency, Izmir Regional Plan: Bornova District Meetings Report, 2014-2023,2.

3.2.2. Demography in Bornova

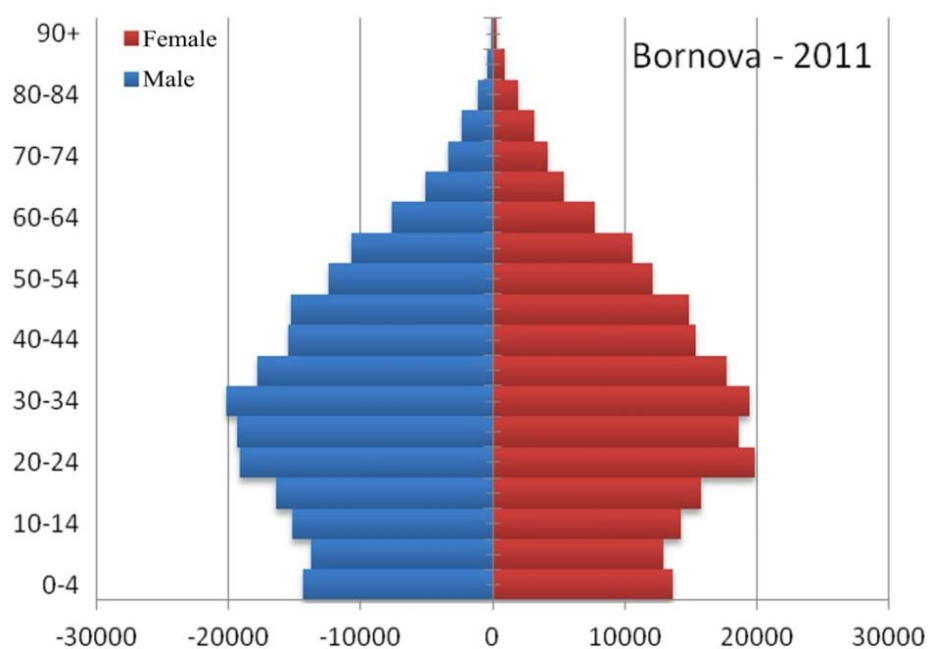
The population of Bornova is 423,063 people and it is the fourth most populous district in Izmir. It is comprised 10.6% of Izmir's population. According to data from the same year, population density in Bornova is 1,902 people per km². This is lower than the country's general statistics.⁸⁶

Bornova, with a median age of 31.1, has a slightly younger population than Izmir (32.8). Based on the Turkish Statistical Institute information, the birth rate in Bornova is 1.75 lower than Turkey's 2.53 rate. In this case, migration is a determining factor in increasing the population in Bornova.⁸⁷

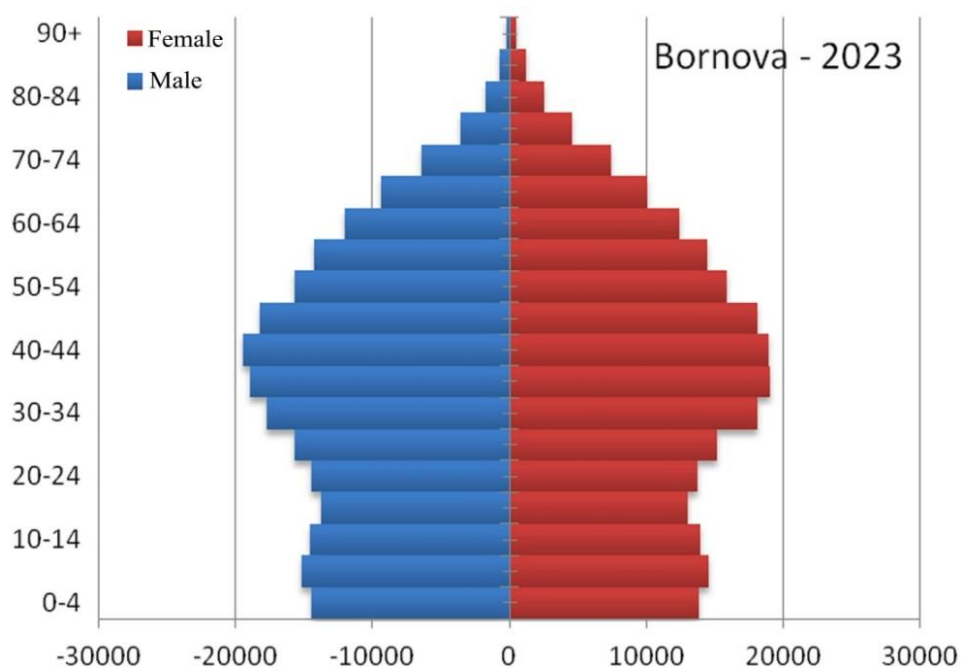
When population projections are analyzed for Bornova, population aging trend is similar to Izmir's population aging trend (Graph 4 and 5). Bornova has experienced an increase of 8% in the total population of Izmir and there will be likely some changes within the major age groups in 2023 compared to 2011. For example, in 2023, while 0-24 age-group ratios will decrease by 11%, 60-90 age-group and older individuals ratios will be likely to increase by 66% on average.²⁸

⁸⁶ Izmir Development Agency, İzmir Regional Plan: Bornova District Meetings Report, 2014-2023,3.

⁸⁷ Izmir Development Agency, İzmir Regional Plan: Bornova District Meetings Report, 2014-2023,4.



Graph 4. Population in Bornova by age and gender in 2011⁸⁸



Graph 5. Population in Bornova by age and gender in 2011⁸⁹

⁸⁸ Izmir Development Agency, İzmir Regional Plan: Bornova District Meetings Report, 2014-2023.

⁸⁹ Izmir Development Agency, İzmir Regional Plan: Bornova District Meetings Report, 2014-2023.

3.3. Buca

3.3.1. *Physical characteristics of Buca*

Buca is a metropolitan district in Izmir. It is located on 9 kilometers south east of Izmir city center with an area of 134 square kilometers and an altitude of 38 meters from the sea level. Adjacent districts are Bornova to the north, Konak and Gaziemir to the west, Kemalpaşa to the east, and Menderes and Torbalı to the south (Figure 15). Buca has flat and fertile lands and surrounding hills, valleys and rich vegetation are distinct features.⁹⁰ The morphology of Buca district typically offers low hills and broad valleys. Valleys and ridges generally are located on the north-south and east-west orientation of Buca.

The total area of Buca is 8208 hectares. General land use types are 102 hectares of archaeological sites, 143 hectares of industrial sites, 1742 hectares of housing, 68 hectares of green space, and 6244 hectares of other areas (university campuses, stadiums, etc.). Buca typically has the characteristics of the Mediterranean climate. Winters have abundant rainfall and the summer months are hot and dry. The annual average temperature is 26-27 °C.⁹¹ The vegetation type of Buca is parallel to Izmir's typical Mediterranean vegetation type.

⁹⁰ Buca Municipality, Buca Strategic Report, 2012-2014 (Buca, Izmir: Buca Municipality, 2011), 6

⁹¹ Buca Municipality, Buca Strategic Report, 2012-2014, 9



Figure 15. Location map of Buca⁹²

3.3.2. Demography in Buca

Buca is one of the central districts in Izmir. According to the last census, in 2013, Buca has been the fastest growing metropolitan district with a 97% rate of increase over 1980 census. Migrations from east to west in the 1950s in Turkey also affected Buca like other metropolitan districts in Izmir.⁹³ While the population of Buca was 203,383 in 1990 and 285,250 in 1997, the population reached 423,082 in 2010 (Graph 6).⁹⁴

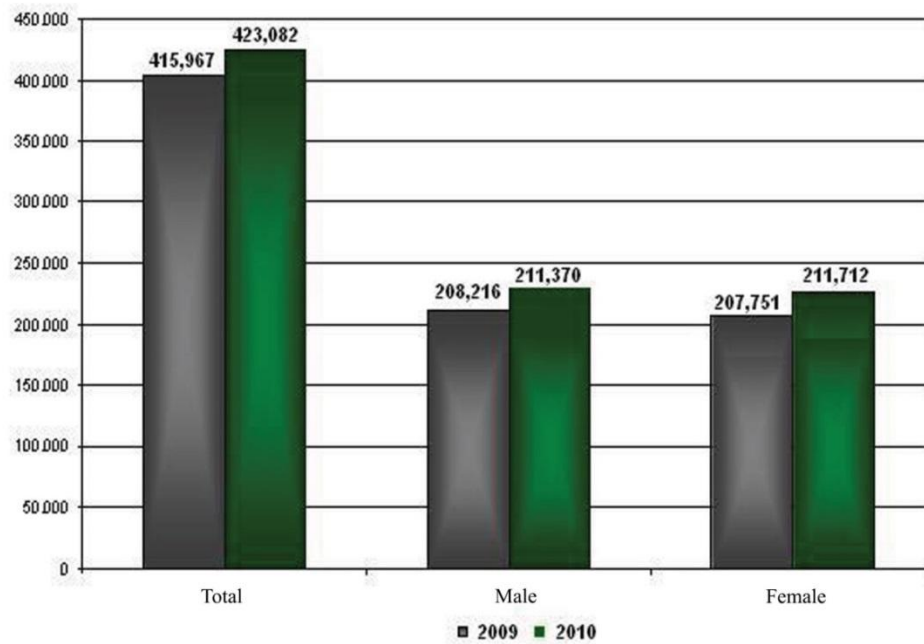
One of the biggest problems of the district is the high migration rate. As a result of migration, urban sprawl and traffic problems emerged in Buca. High migration rate and low income level cause illegal housing developments and squatter houses in the

⁹² Google Maps, 2014.

⁹³ Buca Municipality, Buca Strategic Report, 2012-2014, 10.

⁹⁴ Demographic data in the Buca Strategic Report was obtained from Turkish Statistics Database by Buca Municipality.

district.⁹⁵ Moreover, establishments of high density housing types (Evkur, Izkent, Ege-koop, Buca- koop) and the new Dokuz Eylul university campus have accelerated the migration to Buca in recent years.



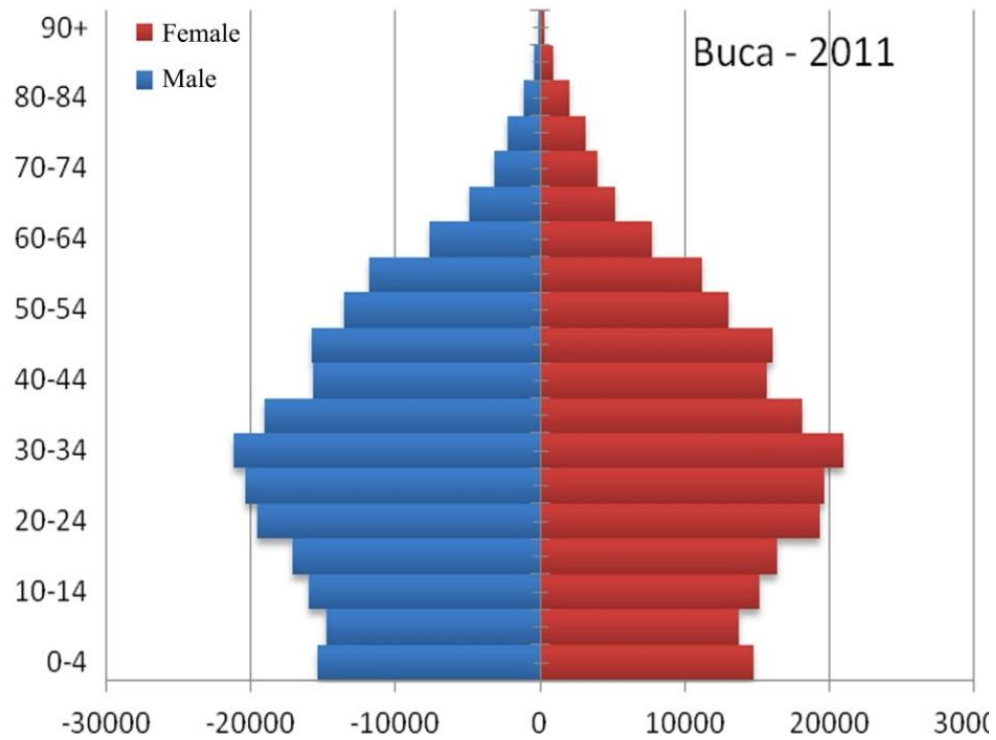
Graph 6. Population in Buca by gender, 2009-2010⁹⁶

Finally, when population projections are analyzed for Buca, the population aging trend of the district is higher than the country (Graph 7). Buca will increase by approximately 8% of the total population and there will be likely some changes within the major age groups in 2023 compared to 2011. For example, in 2023, while 30-34 age-group ratios will decrease by 14%, 40-90 age-group and older individuals ratios will likely increase by 48% on average (Graph 8).⁹⁷

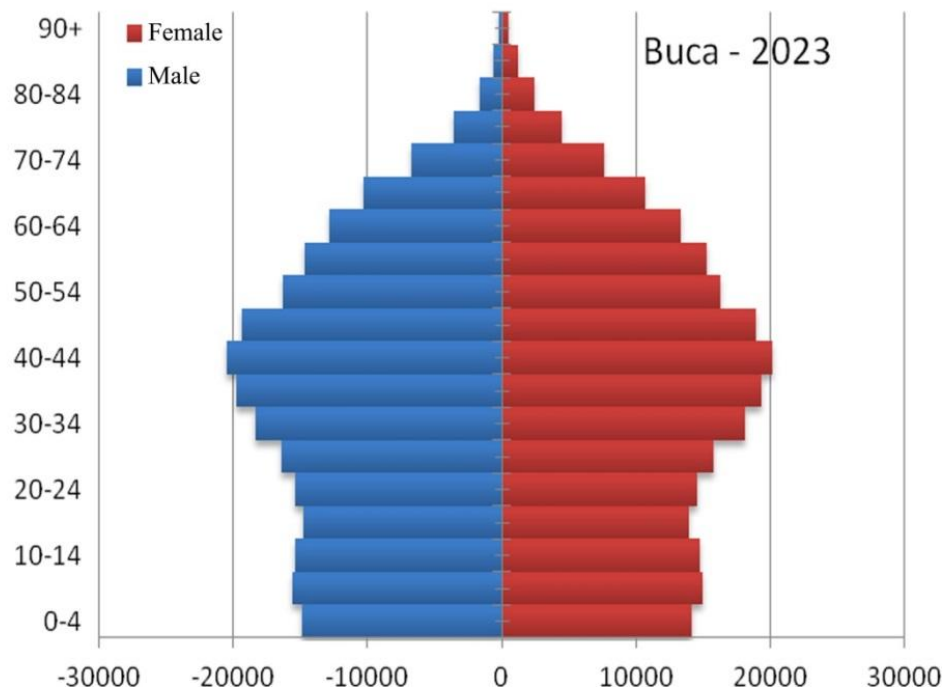
⁹⁵ Izmir Chamber of Commerce, Buca Report (Izmir, Turkey: Izmir Chamber of Commerce Publication, 2007), 273.

⁹⁶ Buca Municipality, Buca Strategic Report, 2012-2014.

⁹⁷ Izmir Development Agency, Regional Plan Report, 2010-2013, (Izmir, Turkey: IZKA, 2010), 17



Graph 7. Population in Buca by age and gender in 2011⁹⁸



Graph 8. Population projection for Buca by age and gender in 2023⁹⁹

⁹⁸ Izmir Development Agency, Izmir Regional Plan: Buca District Meetings Report, 2014-2023

3.4. Summary

Being captured by different civilizations in the past caused a significant change in the appearance of Izmir's spatial and sociological structure. Even though Izmir has been known as a harbor city, agriculture has been an indispensable part of the city since its first establishment in 3000 BC. The harbor served to ship agricultural products, especially during the Ottoman Empire. Therefore, agriculture in Izmir was the most important source of income for the city dwellers. The development of agriculture in Izmir has been related to its geographic and climate characteristics. Izmir's topography is comprised by plain fields, valleys and deltas from upland to the bay. The plain fields, in particular, provide a great source for agricultural activity because of its rich soil structure. Additionally, the Mediterranean climate in Izmir enhances its opportunity to grow a wide range of agricultural products.

Population density in Izmir is much higher than the country's general average, while the birthrate is lower than the country's average. Therefore, high population density in Izmir is related to immigration, usually from the eastern part of Turkey. Izmir's population median age is 32.4 which is above the country's general median age. As a result, Izmir's general population is older when compared to the rest of the country. The unemployment rate in Izmir is 14.7%, comparatively higher than the country's rate of 9.8%.

Buca and Bornova districts of Izmir present similar physical, economic and demographic features. But, while Bornova is comprised of plain land and a mix of colluvial and red Mediterranean soil, Buca has low hills and broad valleys with generally

⁹⁹ Izmir Development Agency, Izmir Regional Plan: Buca District Meetings Report, 2014-2023

red Mediterranean soil. They both have fertile agricultural lands with different variety of products.

Because of the reasons I analyzed above, Izmir may have a potential for urban agriculture. Along with rich agriculture background and suitable physical conditions, urban agriculture in Izmir may enhance social and economic structure in the consideration of facilitating population density pressure, and evaluating elderly and unemployed populations.

4. Profiles of Community Gardens in Bornova and Buca

4.1. Status of Community Gardens in Izmir

Community gardening in Izmir has evolved parallel to Turkey's community gardening history. The first community garden in Izmir, Izmir City Gardens, was founded in 1989. Other community gardens started to appear three years later and have increased gradually. Although the number of community gardens in Izmir is not certain, city dwellers have an obvious demand for community gardens, according to the public administrators in Izmir.

"Izmir City Gardens" project was opened by the Izmir Metropolitan Municipality in 1989. Izmir City Gardens was established with a total area of 13,950 square meters. There are 44 individual garden plots and the size of the each garden plot is 140-160 square meters. Only the retired community is allowed to rent a garden plot. The demand for the community gardens has increased over time more than expected.¹⁰⁰ This has triggered the community garden movement in other districts in Izmir and many local municipalities so that Buca and Bornova municipalities have established their community gardens.

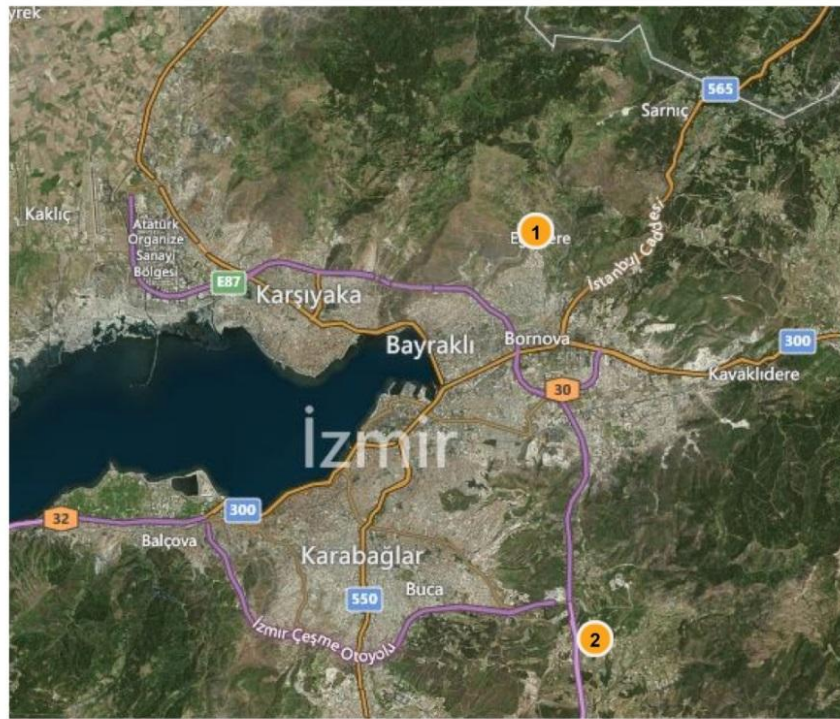
Currently, many municipalities in Izmir, such as Bayrakli, Karsiyaka and Cigli, are working to establish community gardens in their municipalities. Also, private organizations and entrepreneurs have established many hobby gardens in Izmir's different regions.

¹⁰⁰ Adnan Kaplan, Bulent Ozkan, Nihan Aslan and Hilal Kilic, "A Study on The Development of Urban Community Gardens in Turkey," *Ekoloji Cevre Dergesi* (1996): 20

4.2. Introduction to Study Set

Bornova and Buca Golet community gardens in Izmir are examined in greater detail as case studies for this thesis. The location of the sites in Izmir can be seen in Figure 16. They are selected based to their location, demographic characteristics and their design characteristics. Buca and Bornova are strategic points in easy access of public transportation and highway structures. This condition makes both districts more attractive to neighborhood communities that are keen to garden. While the location of Bornova municipality community garden is more appropriate for neighborhood communities, the Buca Golet community garden is more convenient for any resident in Izmir.

Although both districts are located in one of the highest populated areas in Izmir, they have different characteristics. The Bornova Municipality community garden is smaller than the Buca Golet community garden. The Bornova municipality community garden includes common areas such as gazebos, kitchens, bathrooms and playgrounds. Individual cottages for each member are not allowed in the community garden. On the other hand, the Buca Golet community garden members are allowed to have their individual cottages in their garden plots. The size and planting type of the garden plots in each community garden is different. The garden plots in the Bornova municipality community garden are comparatively small and mostly edible plant-oriented. However, most garden plots in the Buca Golet community garden are nearly three times larger than the plots in the Bornova municipality community garden and substantially ornamental plant oriented.



- 1 Bornova municipality community garden
- 2 Buca Golet community garden

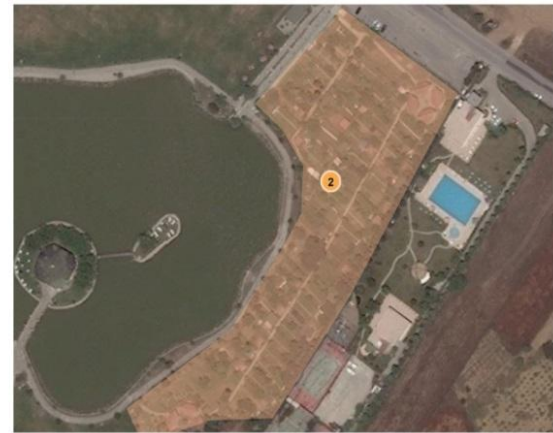
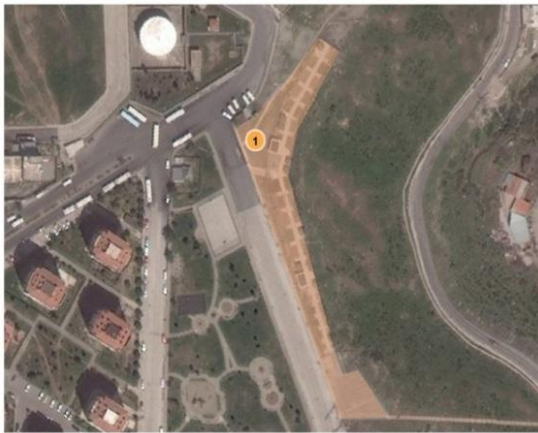


Figure 16. The location of Bornova municipality and Buca Golet community gardens in Izmir¹⁰¹

High density development types have been determined for this region's development. The situation of the Evka 4 and other similar districts is that the squatter-house type development occurred excessively in some areas of Bornova in parallel to the

¹⁰¹ Bing Maps, 2014

development of industrial activities and urbanization in Bornova after 1950.¹⁰² In recent history, in order to stop further dissemination of the squatter-house type development, high density housing developments have been constructed on the north of Bornova, the Evka4 is one of the districts in this area, and so urban sprawl started to increase to the north side of Bornova. Evka 4 district is approximately eight kilometers away and it takes about fifteen minutes by private vehicle or twenty-five minutes by public transportation from Bornova city center. Buca also was exposed to high density housing development types extensively in order to stop further dissemination of the squatter-house type development like Bornova. Although Buca downtown experiences high density development type, Buca Golet recreation area neighborhood consists of rural development type mostly picnic areas, open green spaces, recreational areas and industrial facilities.

The Bornova Municipality community garden is managed by the Bornova Municipality, and the Buca Golet community garden is a municipality-supported private organization. Different design and management characteristics in each garden present more opportunities to identify the pros and cons of social and economic aspects.

4.3. Data Collection and Interviews in Bornova Municipality Community Garden

4.3.1. Observations and Site Analysis in Bornova Municipality Community Garden

Bornova municipality community garden was founded by Bornova municipality in 2011 in the Evka 4 district where is on the north of Bornova and northeast edge of Izmir (Figure 17).

¹⁰² Arife Karadag, Kentsel gelişim süreci, çevresel etkileri ve sorunları ile İzmir (İzmir: Ege Koop, 2000), 57.



Figure 17. An axonometric image of Bornova municipality community garden¹⁰³

Twenty-seven garden plots are located in the Bornova municipality community garden (Figure 18 and 19). The size of the garden plots varies between 12 to 24 square meters. There are three 12 square-meter garden plots, five 16 square-meter garden plots and seventeen 24 square-meter garden plots in the Bornova municipality community garden. The total area of the community garden is approximately 0.3 hectares. Two facility rooms, six gazebos, and a playground are in service as common places in Bornova municipality community garden. Each facility room is comprised of a restroom, a tool room and a kitchen. Although kitchens were designed just for the basic needs of the gardeners (such as a sink and a counter), the gardeners brought a refrigerator, some chairs and tables with their personal effects (Figure 20 and 21). The playground includes only a swing. Each gazebo in the community garden is nine square meters and the gardeners bring various types of benches and chairs under the gazebos (Figure 22 and 23).

¹⁰³ Google Earth, 2014



Figure 18. Garden plots of Bornova municipality community garden

The gardeners usually prefer to come to the community garden with other family members. Since there are so many retirees, they usually come to the community garden every day and bring their grandchildren and spouses (Figure 24). According to the observations in the study site, the children in the garden are interested in gardening activities more than playing in the playground (Figure 25).

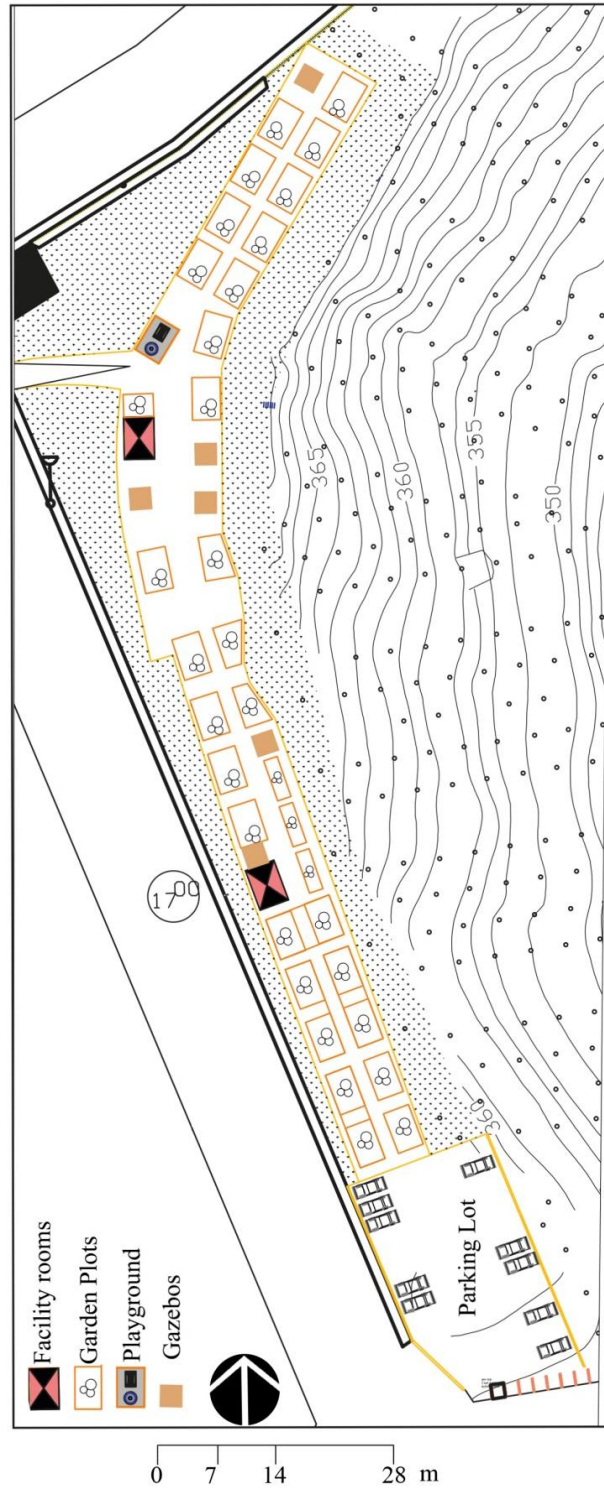


Figure 19. Plan drawing of Bornova municipality community garden¹⁰⁴

¹⁰⁴ Bornova Municipality Parks and Recreation Database



Figure 20. Facility rooms in Bornova Municipality community garden



Figure 21. Gardener's kitchen in Bornova municipality community garden



Figure 22. The facility room and playground in Bornova municipality community garden



Figure 23. A gazebo as a gathering place in Bornova Municipality community garden



Figure 24. A retired couple member of Bornova municipality community garden



Figure 25. Grandchildren of a gardener in Bornova municipality community garden

According to the Bornova municipality community garden policy, gardeners are not allowed to grow trees or woody plants on garden plots. In terms of plant selection, the gardeners select a wide range of fruit and vegetables. The selection illustrates that the gardeners substantially support edible plants instead of flowers or ornamental plants. Currently, plants that are grown by gardeners are: cucumbers, beans, gherkin, leek, spinach, tomatoes, pepper, eggplant, squash, and cauliflower as vegetables, and strawberries and watermelons as fruits. Additionally, lots of different kinds of herbs were grown like mint, parsley, basil and rosemary (Figure 26).

The Bornova municipality community garden is enclosed by a metal chain link fence to protect against vandalism. Only one entrance/exit exists in the garden. A parking lot with a capacity of 20-25 vehicles is located on the south edge of the community garden. Spot Illumination systems are used at certain points to allow gardeners night time gardening and to protect against vandalism.

The Bornova municipality proposed this community garden project in 2010 and it was built in 2011. The garden was designed by the Bornova municipality parks and gardens department. They are responsible for the maintenance of the community garden such as providing soil for garden plots and maintaining common areas. Meanwhile, Bornova municipality zoning and city planning department is in charge of collecting annual rent for the garden plots.

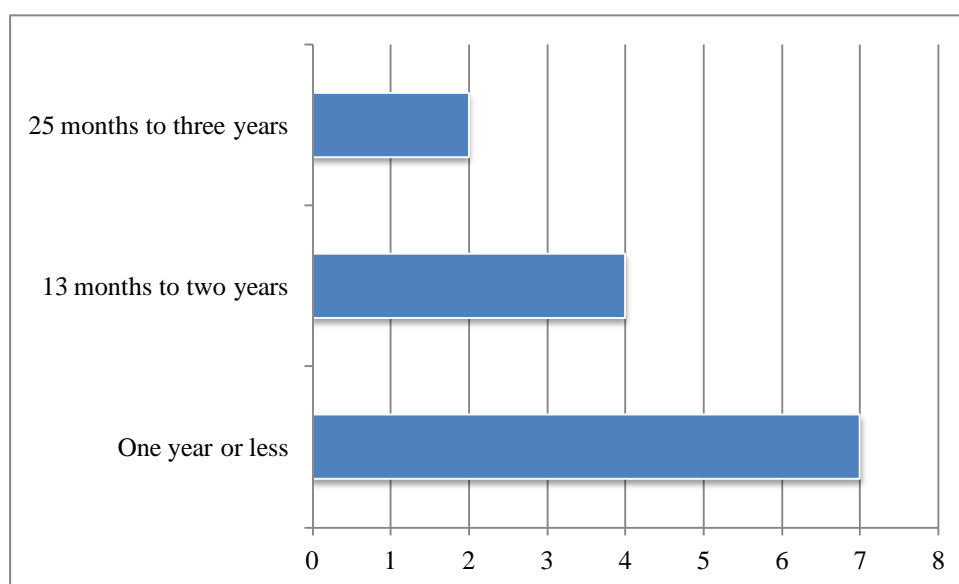


Figure 26. Plant selection of a member in Bornova municipality community garden

4.3.2. Interviews with Gardeners in Bornova Municipality Community Garden

Visits to the Bornova community garden and interviews with gardeners were carried out during the summer of 2013, total of 13 gardeners responded to the standard questionnaire and open discussions. Interviewees were selected according to availability in the gardens. In order to gather a wide range of participants, interviews were carried out at a range of times and days of the week. Information obtained in field-work was organized under two headings: (1) social characteristics of the users (permanence in the plot, work hours, purpose of the food production, labor situation and personal motivations); and (2) Physical characteristics of the individual plots (size, number and area occupied by the built parts or sheds, type and material of the fences, species grown, irrigation system, and incorporation of other features, access).

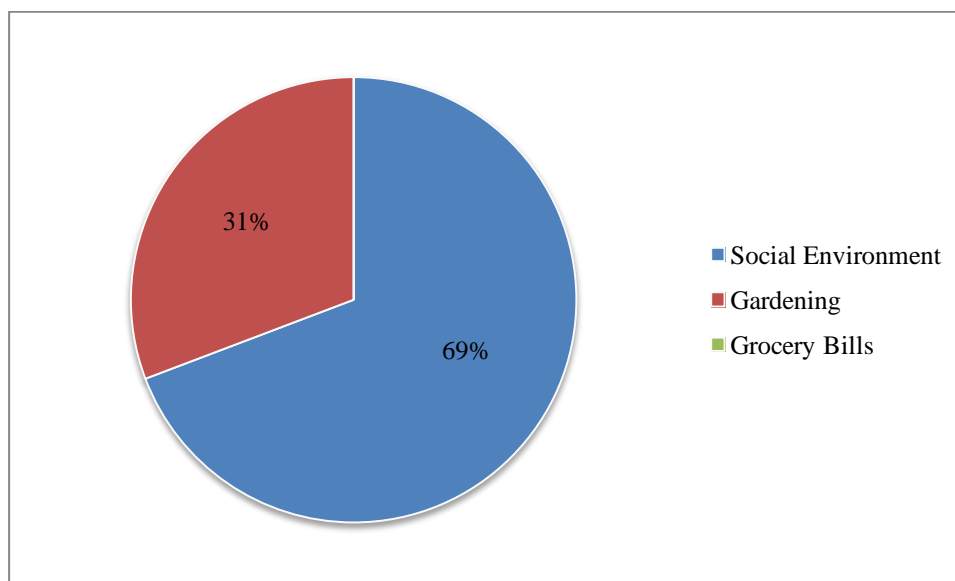
According to the standard questionnaire conducted on the site, duration of garden membership ranged from two months to three years. Duration of garden membership was divided into three categories: “one year or less”, “thirteen months to two years” and “twenty five months to three years”. More than half of the interviewees had been in the garden for one year or less. 30% of interviewees have been of the community garden for 13 months to two years and almost 15% of them have been in the garden for three years, (Graph. 9). Considering that the garden was established three years ago, varied distribution duration of garden membership enabled to qualify the results from multiple perspectives.



Graph 9. Duration of Garden Membership, (n=13)

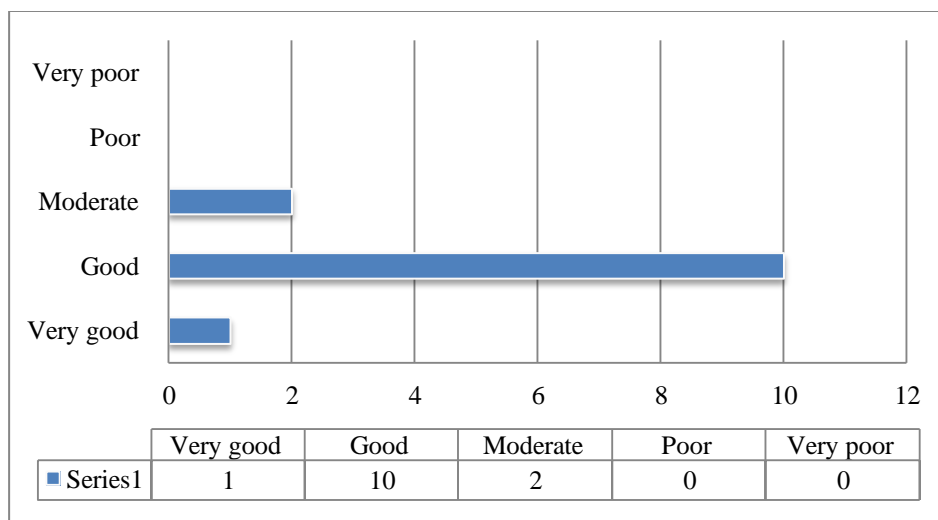
The interviewees ranked their initial motivations for becoming involved in the community garden from 1- being unimportant to 3- being very important. While almost 70% of the members who were interviewed declared that social environment was very important, 30% of the interviewees informed that gardening is important motivation for being involved the community garden. All of the interviewees agreed that the economic

aspect was unimportant for them (Graph. 10). This result suggested that most of the gardeners in the garden came to the site to fortifying neighborhood connections and find friends with similar interests.



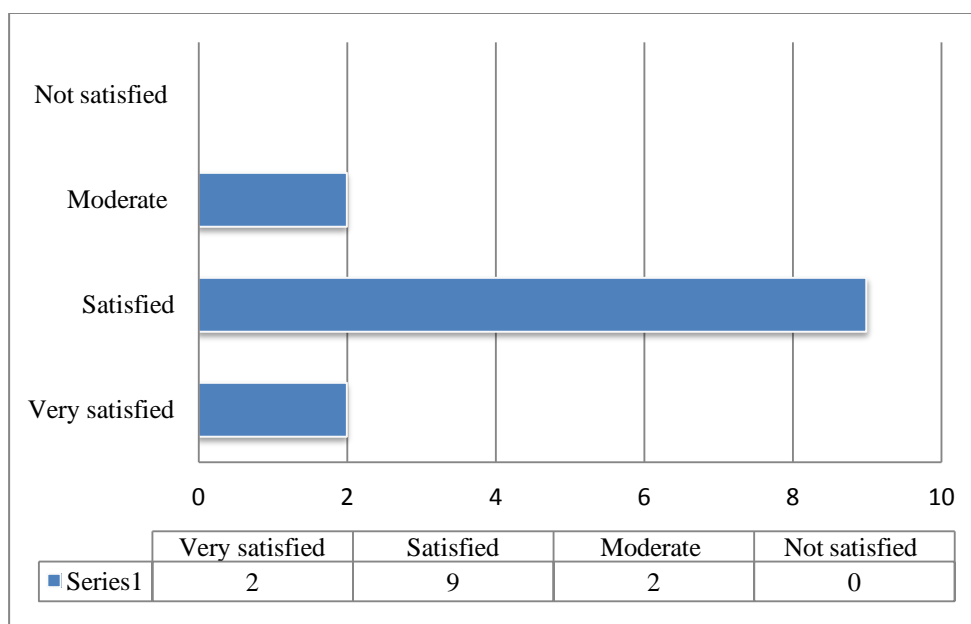
Graph 10. Initial Motivations of the gardeners for community gardening, (n=13)

The gardeners evaluated the social or community atmosphere in the community garden with multiple choice answers. More than 75% of the interviewees answered this question as “good”, 15% of them answered as “moderate” and only one interviewee answered as “very good” (Graph. 11).



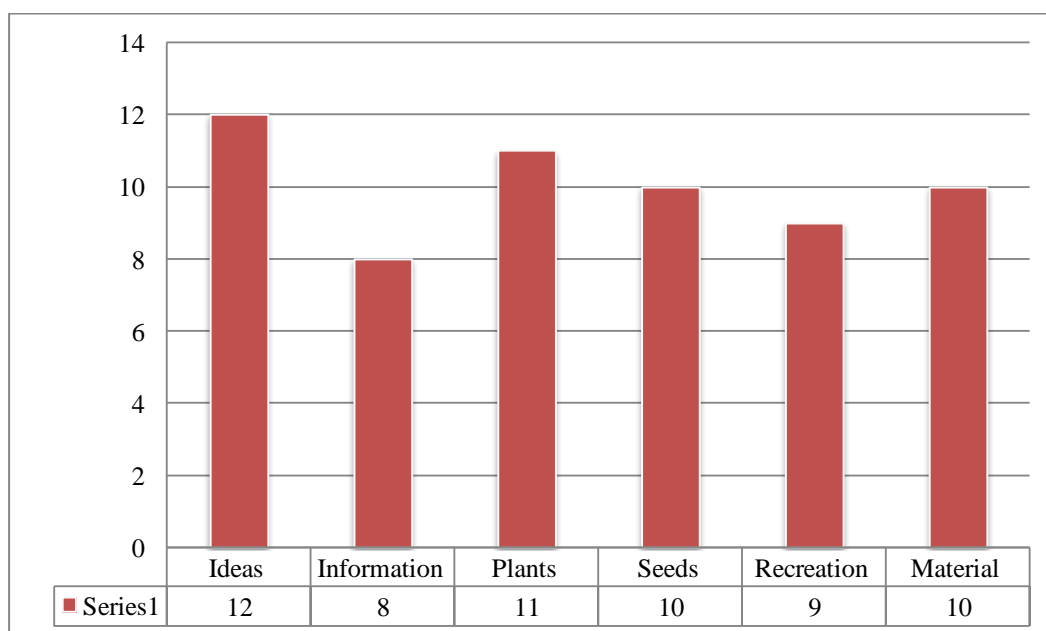
Graph 11. The social or community atmosphere description of the gardeners, (n=13)

Satisfaction of the gardeners in terms of sharing and cooperation included the answers 'very satisfied', 'satisfied', 'moderate' and 'not satisfied'. Almost 70% of the interviewees answered as "satisfied", and both "very satisfied" and "moderate" answers were chosen with 15% (Graph. 12). None of the interviewees chose the "not satisfied" answer. In parallel to the social atmosphere question, most of the interviewees agreed that Bornova community garden enables them to have a good sharing and cooperation environment.



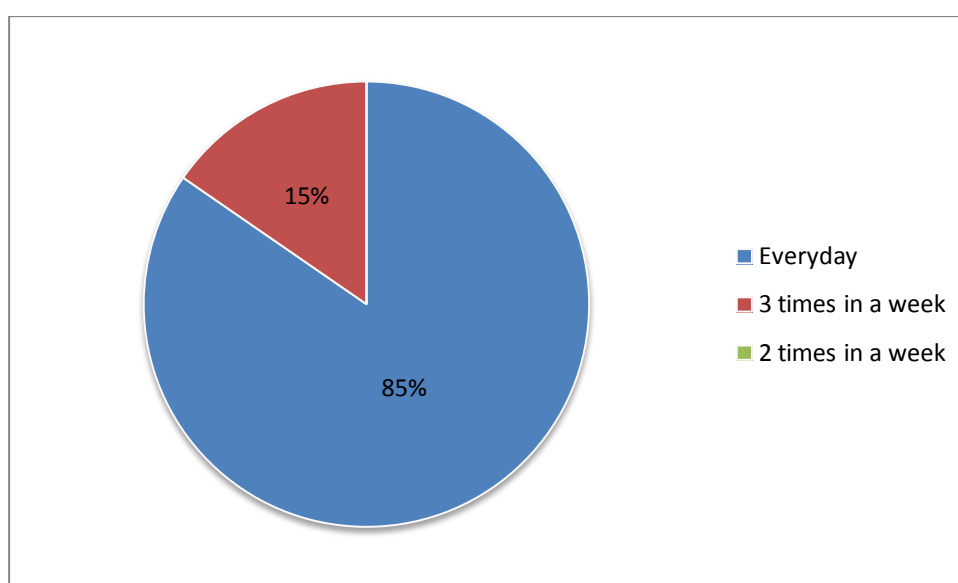
Graph 12. Satisfaction of gardeners in terms of sharing and cooperation, (n=13)

In terms of forms of dialogue and exchange between gardeners, the interviewees were allowed to choose multiple answers (Table 2). While “ideas” answer was the most common form of a dialogue, “information” was the least common form of a dialogue or exchange between gardeners (Graph 13).



Graph 13. Forms of Dialogue and exchange between gardeners, (n=13)

While almost 85% of the interviewees visited their garden plots every day, 15% of them preferred to visit their garden plots three times a week (Graph 14). This data can be related to the distance from their dwelling to the community garden. Most of the interviewees declared that they live within a walkable distance to the garden. During the open discussion, the retired members informed that they usually came to the site in the mornings and afternoons, and employed members usually preferred to visit the site in the afternoon after work.

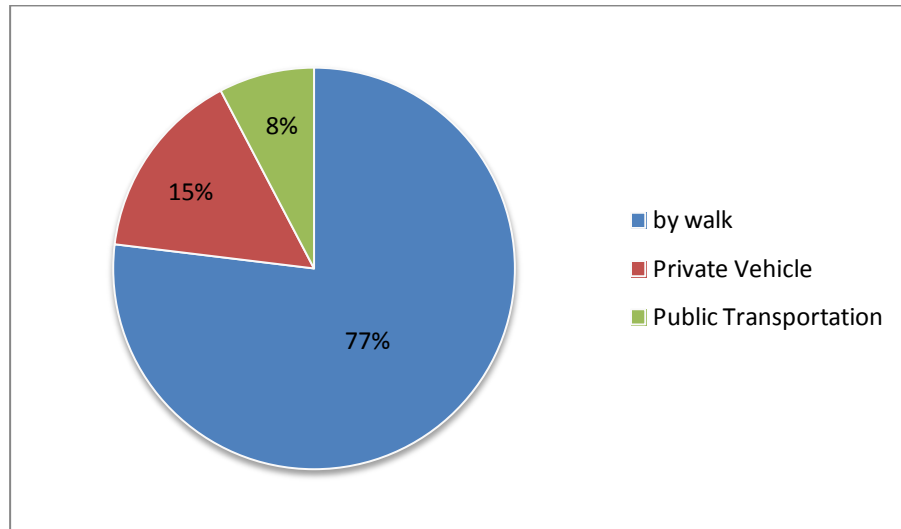


Graph 14. Frequency of garden visits, (n=13)

More than 75% of the interviewees come to the garden by foot. Nearly 15% of them prefer private vehicle and almost 8% by public transportation (Table 2) (Graph 15). This result was related to distance of the members' dwelling to the community garden. The interviewees who came to the garden by walk declared that they live in high density housing units in the vicinity of the garden.

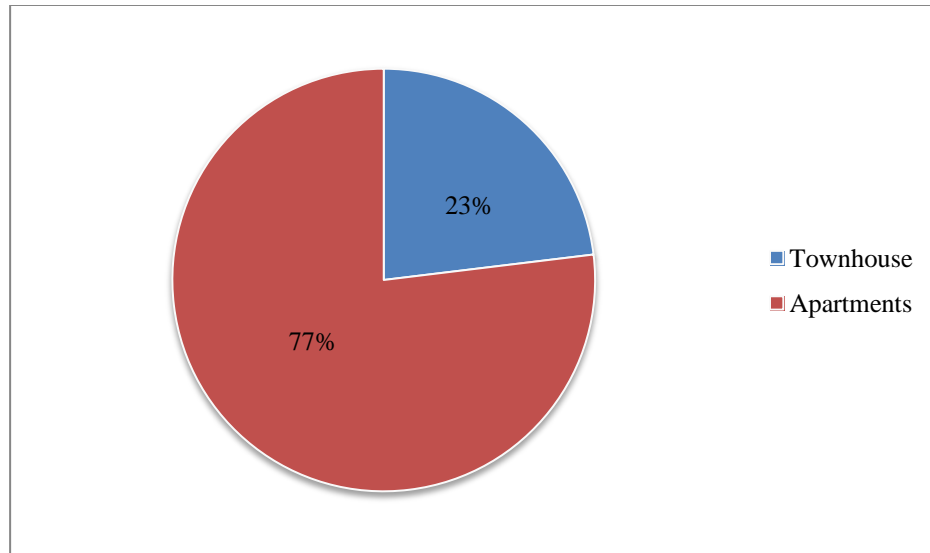
by foot	10
Private Vehicle	2
Public Transportation	1

Table 2. Transportation type, (n=13)



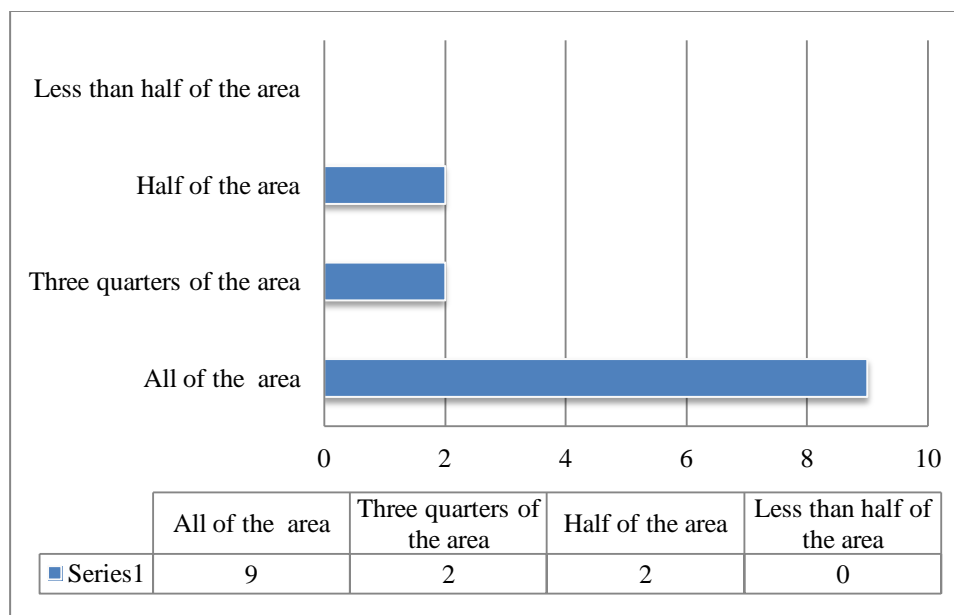
Graph 15. Transportation type of the interviewees in Bornova municipality community garden, (n=13)

Interviewees were asked about housing types. Nearly 77% of the gardeners lived in high density housing developments and 23% of them lived in townhouses (Graph 16). The reason for high demand of high density housing residents for a garden plot could be explained the fact that they have little or no space for gardening or other types of recreation.



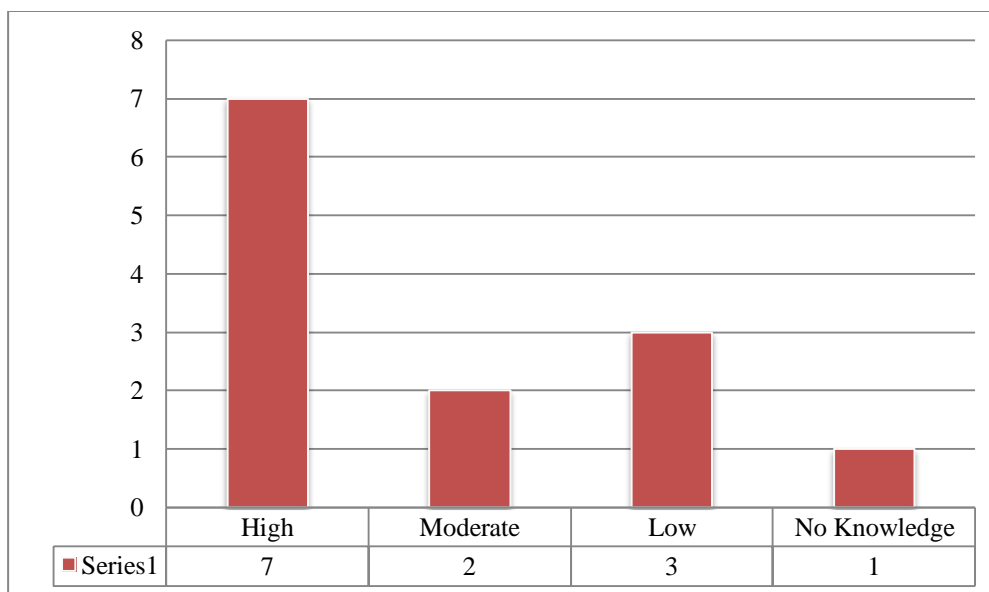
Graph 16. Housing type of the gardeners, (n=13)

The interviewees were asked about the amount of edible plants in their garden plots. Almost 70% of the gardeners dedicated all of their garden plots to edible plants. Approximately 15% of the interviewees used half of their garden plots and the other 15% dedicated three quarter of their garden plots to edible plants (Graph 17). None of the gardeners grew edible plants in less than half of the area. Also, most of the gardeners who dedicated all of their garden plots to edible plants had smaller garden plots compared with the other 30% of the gardeners. The amount of edible plants in each garden plot depended on the size of the garden plots in the community garden.



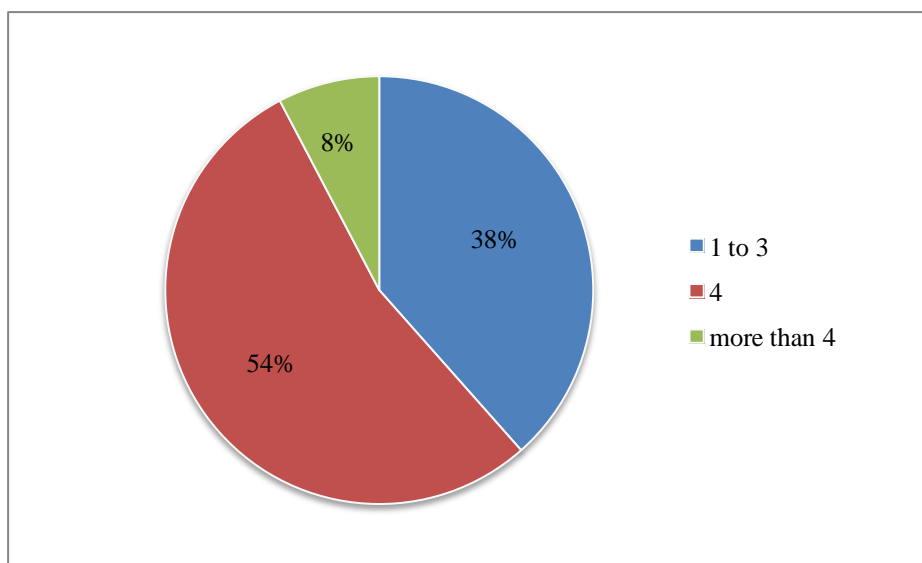
Graph 17. Amount of the edible plants in each garden plot, (n=13)

All of the interviewees declared that they only used their items as a food source in their houses. They don't sell them in the farmers market. Based on this answer, the question regarding the help of the items they have from their garden plots to their grocery bills answered as "high" by more than half of the interviewees, "moderate" by almost 15% of them and "low" by almost 20% them (Graph 18). Only one person had no knowledge because he was a new member of the community garden. In addition to this data, all of the gardeners who answered as "high" for this question dedicated their all of the garden plots for edible plants. These results illustrate that at least 75% of the gardeners have substantial economic benefits from the items they grow in Bornova municipality garden although they use only for home.



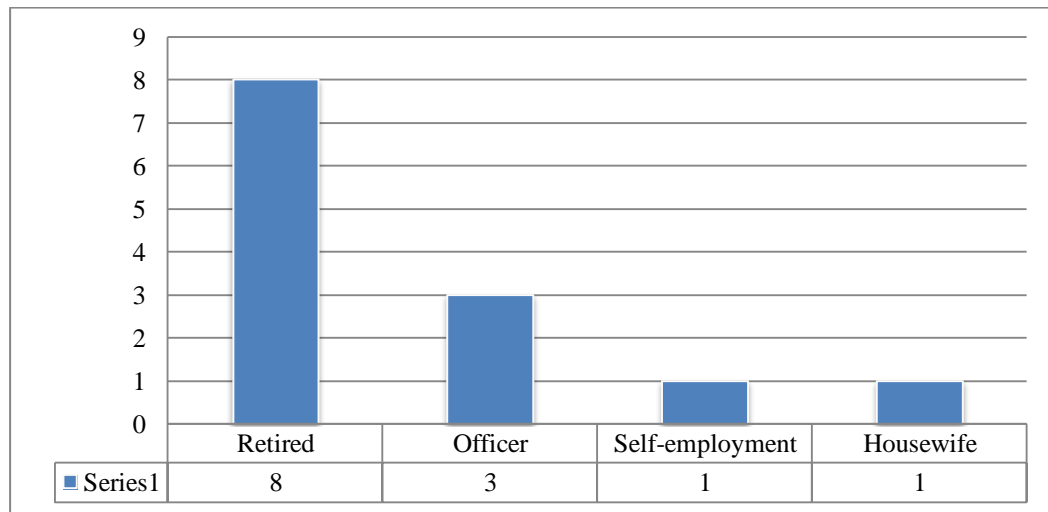
Graph 18. Benefits to the grocery bills, (n=13)

Almost 40% of the interviewees had 1 to 3 household members and more than 50% of them had 4 household members. Only one interviewee had more than 4 household members (Graph 19). According to the cross evaluation between household members and benefits to the grocery bills results, 75% of the interviewees who had 1 to 3 members in the household evaluated the help of the items to the grocery bills as “high”.



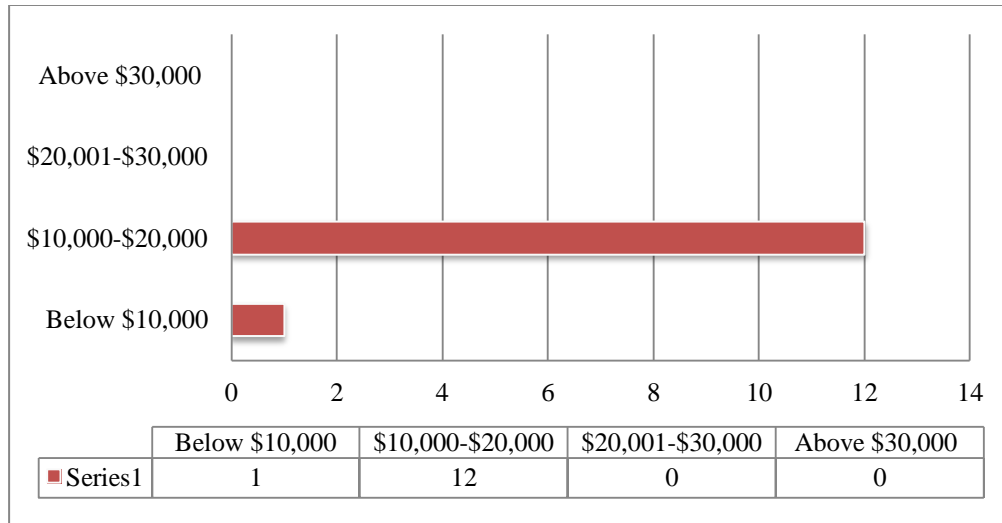
Graph 19. Members in the Household, (n=13)

The occupations of the Bornova community garden members contain more than 60% retired, 30% employed and less than 8% unemployed (Graph 20). During the open discussion, retired and unemployed members asserted that they usually spent almost half of the day in the community garden depending on weather conditions. Employed members of the garden usually spent 1 or 2 hours during the week and a large part of the weekend.



Graph 20. Occupation of the gardeners, (n=13)

Annual household income of the gardeners was generally between \$10,000-\$20,000. Only one interviewee answered this question as “below \$10,000” (Graph 13). This data shows that the members of the community garden were at the same economic level. When the data compared to Turkey’s (\$10,000) and Izmir’s annual household income (\$21,000), although interviewees were below Izmir’s average for annual household income level, they were at Turkey’s average.



Graph 21. Household income of the gardeners, (n=13)

4.4. Data Collection and Interviews in Buca Golet Community Garden

4.4.1. Observations and Site Analysis in Buca Golet Community Garden

Buca Golet Community Garden was founded by Buca Municipality in 1999 in Buca Golet recreation area, southeast of Buca and Izmir (Figure 27). It is near the Izmir-Aydin highway and Dokuz Eylul University campus.



Figure 27. An axonometric image of Buca Golet community garden¹⁰⁵

¹⁰⁵ Google Earth, 2014

Buca Golet recreation area covers an area of 140 thousand square meters and it is operated by a foundation established by Buca Municipality. It contains an amphitheater with 3,500-seat, terraces, a picnic area, a community garden, an animal farm and children's play units along with 30 thousand square meter artificial lake. Buca Golet recreation area's distance to Buca downtown is about 8 kilometers. It takes fifteen minutes by private vehicle and almost half an hour by public transportation.

The Buca Golet community garden was planned as part of a group of activity spaces. It consists of 66 garden plots and each of the garden plots has its own fence and numbered door (Figure 28 and 29). Although each garden plot is almost 100 square meters, there may be subtle changes in terms of their size. Total area of the community garden is 2 acres. Six facility rooms serve the gardeners as restrooms and tool rooms (Figure 30). Almost all of the gardeners' individual plots contain a shed (Figure 31). Members of the community garden treats their garden plots and shed like a vacation house so that most of them decorated the sheds with a small counter, a sink, a refrigerator, a couple of sofas and some chairs (Figure 32 and 33). Although various types of sheds were built by the gardeners, their size should be the same according to the garden policy (Figure 34 and 35). In terms of social/common place in the community garden, two gazebos were established but their current condition with lack of maintenance was not suitable for use by the community garden members (Figure 36).



Figure 28. The entrance of Buca Golet community garden



Figure 29. A path which connects the garden plots to each other and one of the garden plots in Buca Golet community garden



Figure 30. Facility rooms in Buca Golet community garden

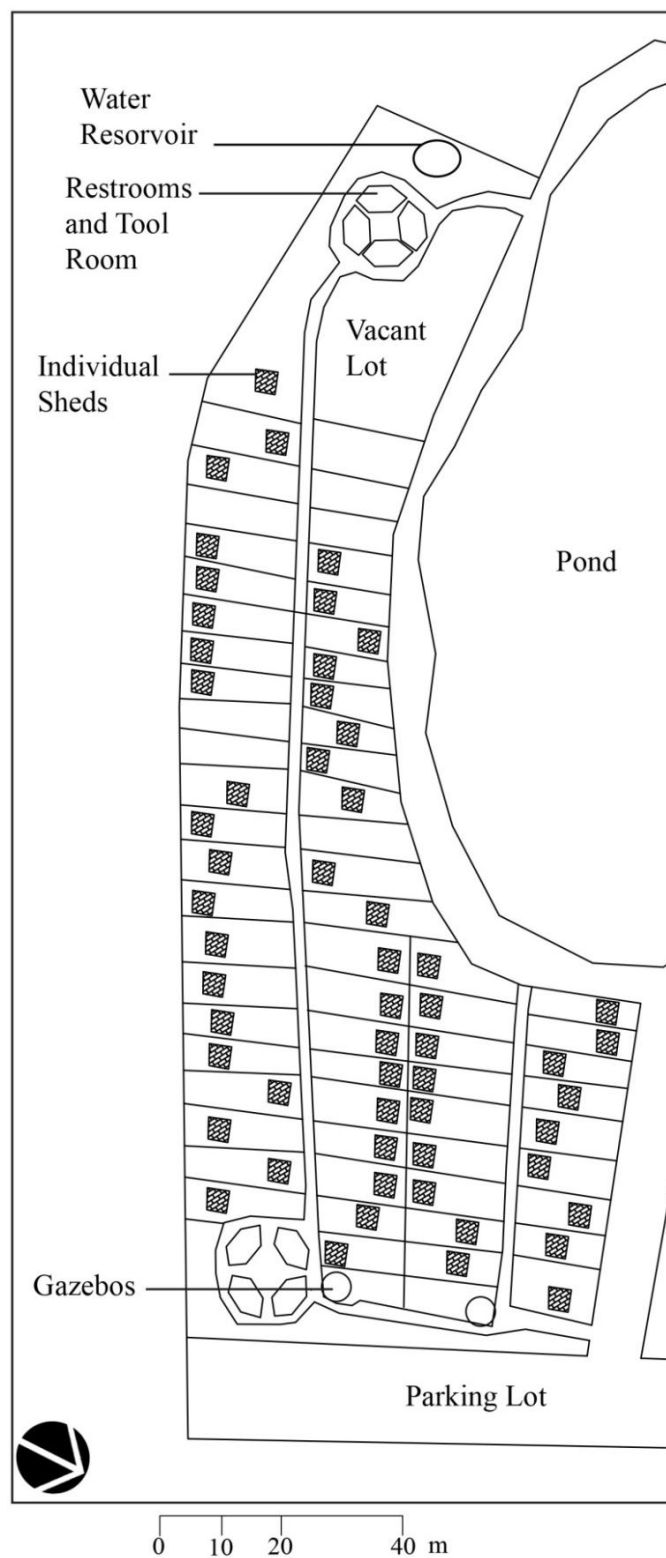


Figure 31. Plan drawing of Buca Golet community garden¹⁰⁶

¹⁰⁶ The base map was obtained from Google Earth, 2014.



Figure 32. A shed structure example from a garden plot in Buca Golet community garden



Figure 33. Interior of the shed structure



Figure 34. Different shed structure examples from garden plots in Buca Golet community garden



Figure 35. Different shed structure examples from garden plots in Buca Golet community garden



Figure 36. Current condition of gazebo as a social/common place in Buca Golet community garden

Buca Golet community garden allows its members to grow a great variety of plants (Figure 37 and 38). According to observations in the community garden, popular plant selections are tomatoes, cucumbers, peppers, eggplants and squashes (Figure 39 and 40). Most of the garden plots contain fruit trees and seasonal flowers. Also, some gardeners set some part of the garden plot aside for lawn. Gardeners design their garden plots with ornamental plants as much as edible plants (Figure 41 and 42).



Figure 37. A garden plot in Buca Golet community garden



Figure 38. A garden plot in Buca Golet community garden



Figure 39. Examples of plant selections from two different garden plots in Buca Golet community garden



Figure 40. Examples of plant selections from two different garden plots in Buca Golet community garden



Figure 41. Use of grass and ornamental plants in the garden plots in Buca Golet community garden



Figure 42. Use of grass and ornamental plants in the garden plots in Buca Golet community garden

The gardeners usually prefer to come to the community garden with other family members. Since they are so many retirees, they usually come to the community garden every day and bring their children, grandchildren or/and spouses (Figure 43 and 44). The community garden is used by the members like a multigenerational meeting place.

Buca Golet community garden was built by Buca municipality. Recently, it has been managed by a private organization with Buca municipality support. There is a director of the garden who collects garden plot rents and a manager who is responsible to keep clean and safe for the community garden. This person also helps the members improve and maintain their garden plots properly.



Figure 43. The members and their garden plots in Buca Golet community garden

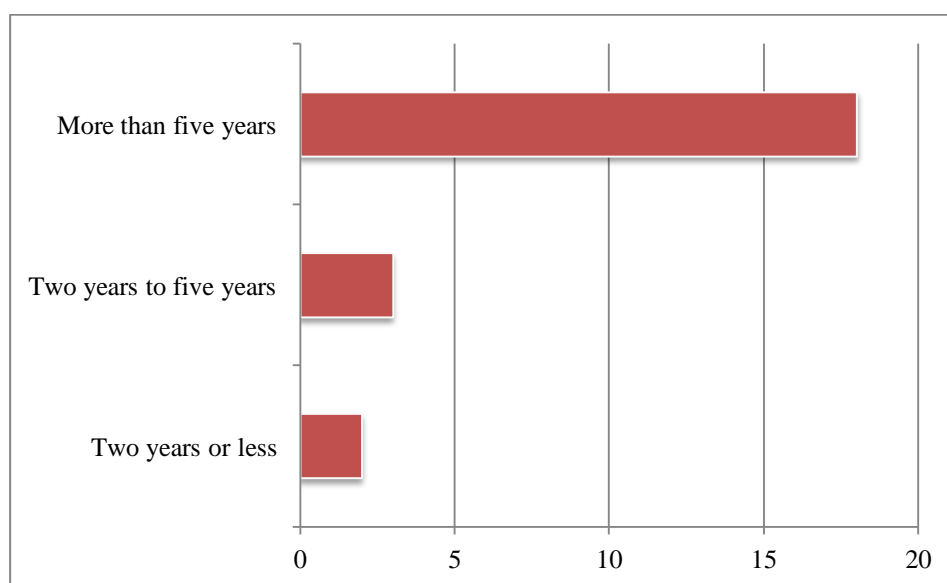


Figure 44. The members and their garden plots in Buca Golet community garden

4.4.2. Interviews with Gardeners in Buca Golet Community Garden

Visits to Buca Golet community garden and interviews with the members were carried out during the summer of 2013, and a total of 23 gardeners responded to the standard questionnaire open discussions. In order to gather a wide range of participants, interviews were carried out at a range of times and days of the week. Information obtained in field-work was organized under two headings: (1) social characteristics of the users (permanence in the plot, work hours, purpose of the food production, labor situation and personal motivations); and (2) Physical characteristics of the individual plots (size, number and area occupied by the built parts or sheds, type and material of the fences, species grown, irrigation system, and incorporation of other features, access).

Duration of the garden membership ranges between two to ten years. The duration of the garden membership was divided into three categories: “two years or less”, “two to five years” and “more than five years”. More than 75% of the interviewees had been in the community garden for more than five years. Almost 13% of them had been the member of the community garden for two years to five years and almost 9% of the gardeners had been in the garden for two years or less (Graph. 22). Most of the interviewees had been a member of the community garden since the garden was established in 1999.

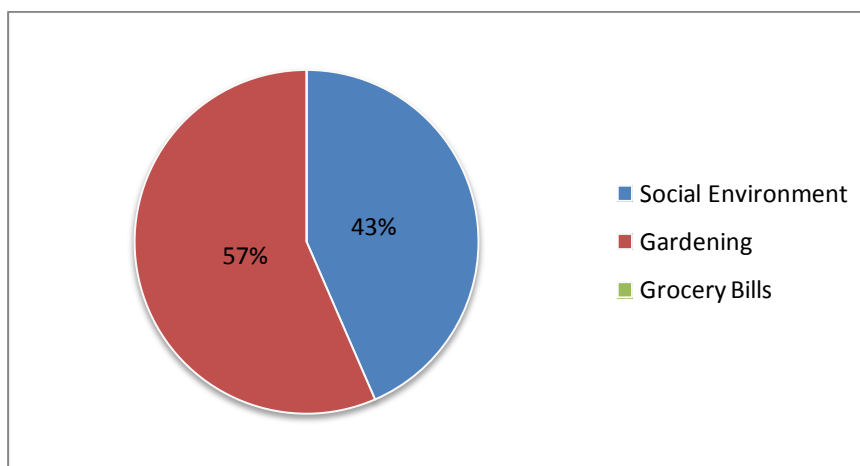


Graph 22. Duration of Garden Membership (n=23)

The interviewees ranked their initial motivations for being involved in the community garden from 1 being unimportant to 3 being very important. About 57% of the members who were interviewed considered that gardening was very important, 43 % of the interviewees thought the social environment was important for being involved in the community garden. All of the interviewees agreed that the economic aspect was unimportant for them (Table 3) (graph. 23).

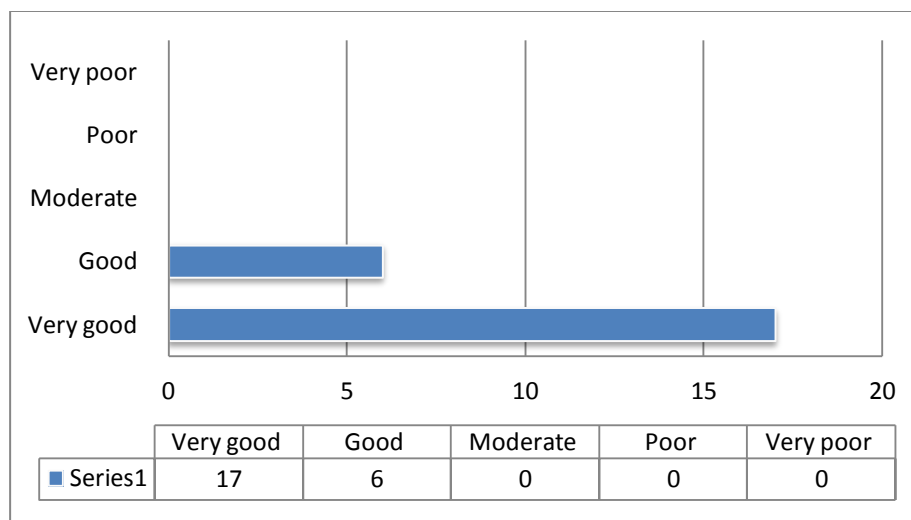
Initial Motivations	Social Environment	Gardening	Grocery Bills
Very important	10	13	0
Medium	13	10	0
Unimportant	0	0	23

Table 3. Initial Motivations of the gardeners for community gardening (n=23)



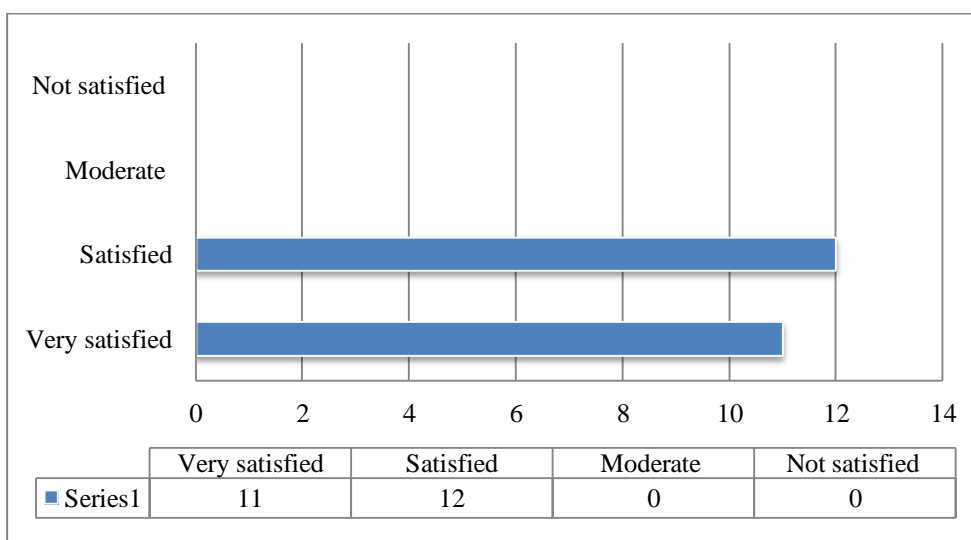
Graph 23. Initial Motivations of the gardeners for community gardening (n=23)

The gardeners evaluated the social or community atmosphere in the community garden with multiple choice answers. Almost 74% of the interviewees answered this question as “very good” and about 26% of them responded as “good” (Graph 24). None of the interviewees chose the other alternatives such as “moderate”, “poor” and “very poor”.



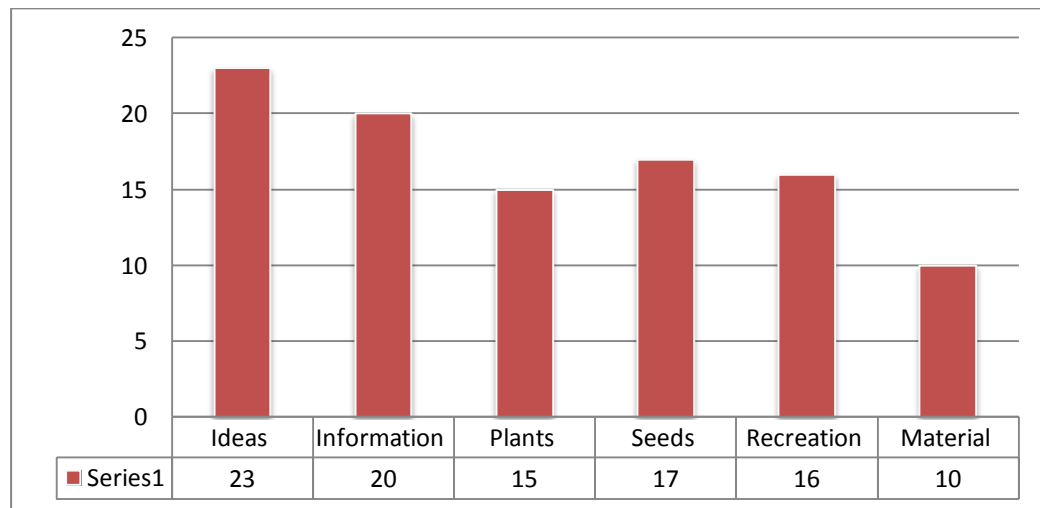
Graph 24. The social or community atmosphere description of the gardeners (n=23)

Satisfaction of the gardeners in terms of sharing and cooperation included the alternatives in the answers such as “very satisfied”, “satisfied”, “moderate” and “not satisfied”. Almost 53% of the interviewees responded as “satisfied” and 47% of them considered their situation as “satisfied” in terms of sharing and cooperation satisfaction in the community garden (Graph. 25). None of the interviewees chose both of the alternatives: “moderate” and “not satisfied”.



Graph 25. Satisfaction of gardeners in terms of sharing and cooperation (n=23)

In terms of forms of dialogue and exchange between gardeners, the interviewees were allowed to choose multiple answers. All of interviewees selected the “ideas” option as common form of a dialogue or exchange. The “material” option was the least common form of a dialogue or exchange between gardeners (Graph 26).

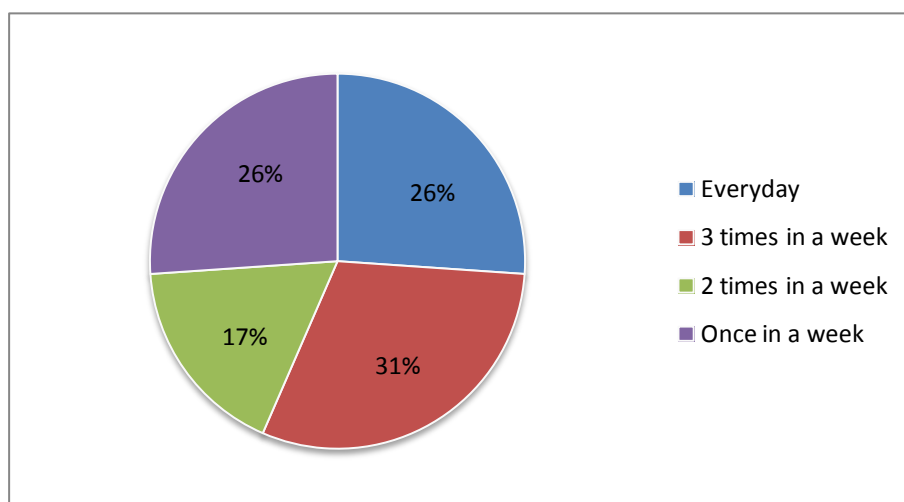


Graph 26. Forms of Dialogue and exchange between gardeners (n=23)

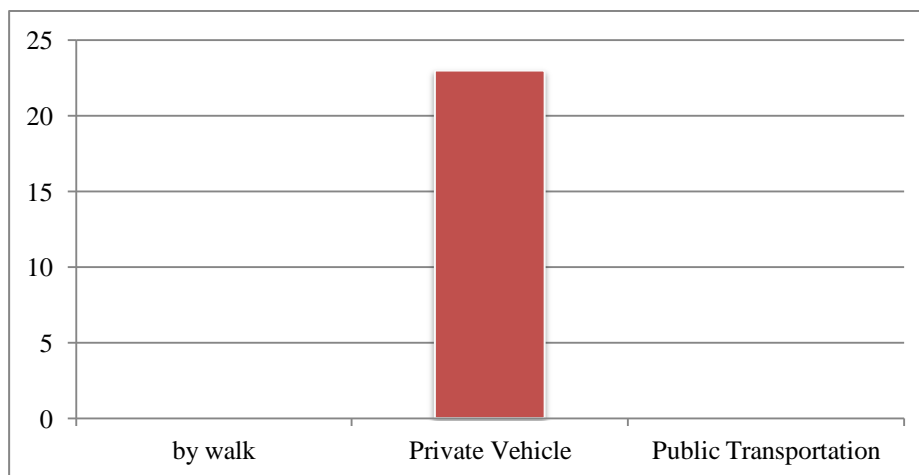
In terms of frequency of garden visits, 26% of the interviewees visited their garden plot every day, just about 31% of them visited three times in a week, almost 17% of them visited two times in a week, and 26% of the gardeners visited once in a week (Table 4) (Graph 27). This data can be explained when the gardener’s dwelling distance to the community garden and the transportation types were considered. All of the members who attended to the interview declared that they came to the garden by private vehicle (Graph 28). Distance of the garden to the main highway intersections in Izmir was presented as a main reason to choose this garden by private vehicle users. Another reason was that the garden was located far from the housing development sites and public transportation opportunities to the community garden were limited. As a result, accessibility to the community garden affected the frequency of garden visits.

Everyday	6
3 times in a week	7
2 times in a week	4
Once in a week	6

Table 4. Frequency of garden visits (n=23)

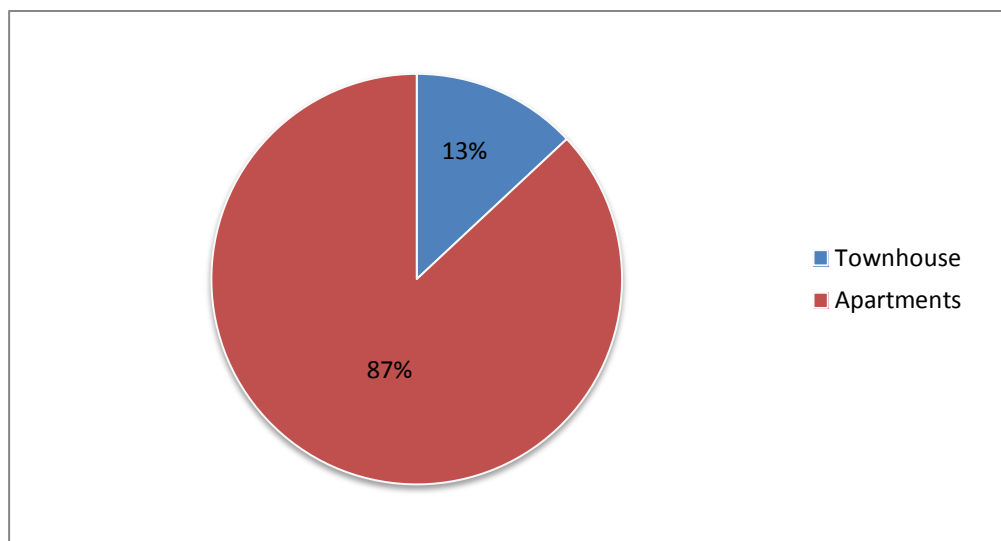


Graph 27. Frequency of garden visits (n=23)



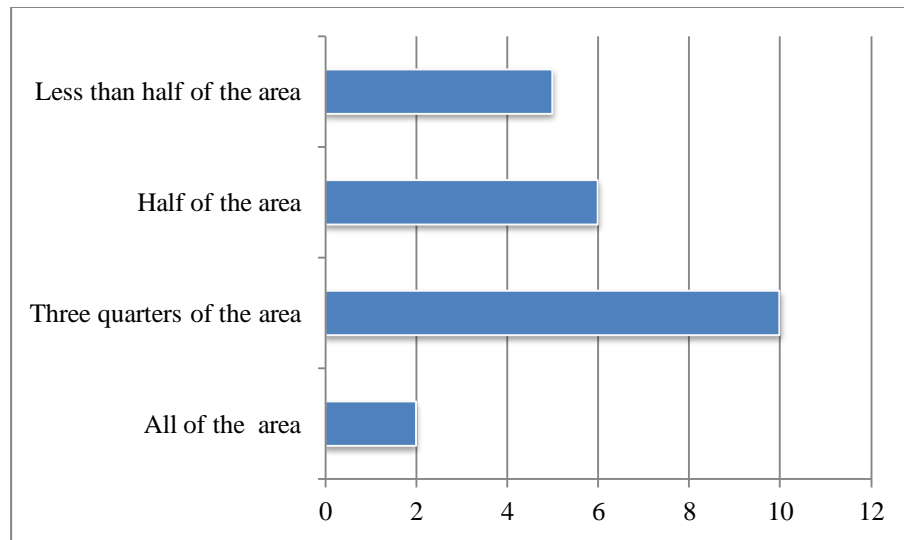
Graph 28. Transportation type (n=23)

The question about housing types of the gardeners was asked to the interviewees. More than 85% of the interviewees lived in high density housing developments (Graph 29). The reason for the high demand of garden plots in the community garden by high density housing residents can be explained by the lack of space for gardening or other types of recreation around their homes.



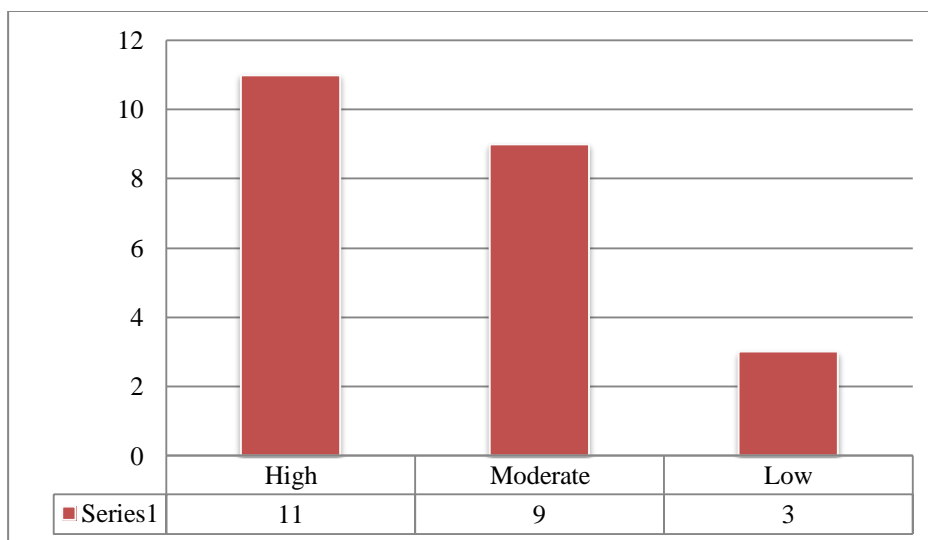
Graph 29. Housing type of the gardeners (n=23)

Almost 45% of the gardeners dedicated three quarters of their garden plots to edible plants. Less than 10% of the interviewees used all of their garden plots and around 25% of them dedicated half of their garden plots to edible plants. Nearly 20% of the gardeners grew edible plant in less than half of the plot area (Graph 30). These results can be related to the relatively large garden plots in the garden. Because each garden plot is about 100 square meters, the gardeners design their plots like a home garden and use flowers, fruit trees and vegetables as their design materials. So, growing edible plants for food covers half or less than half of each garden plot for nearly 55% of the gardeners.



Graph 30. Amount of the edible plants in each garden plot (n=23)

Based on the question about what the gardeners do with the items from their garden plots, all of the interviewees declared that they used them as a food source in their houses and do not sell them in the farmers market. Depending on this answer, the question about the help of the items they have from their garden plots to their grocery bills included answers: “high” for almost 47% of the gardeners, “moderate” for nearly 40% of the gardeners and “low” for about 13% of the gardeners (Graph 31). In addition to this data, 85% of the gardeners who responded as “low” for this question dedicated their less than half of the garden plots for inedible plants. Other 15% of the gardeners in this group grew edible plants in three quarters of their garden plots. However, their items from the garden plots did not help their grocery bills, most likely, because all of them had 4 or more than 4 household members. So, the amount of edible plants in the garden plot and members in the household were the factors that affected on the economic benefit from the garden plot.

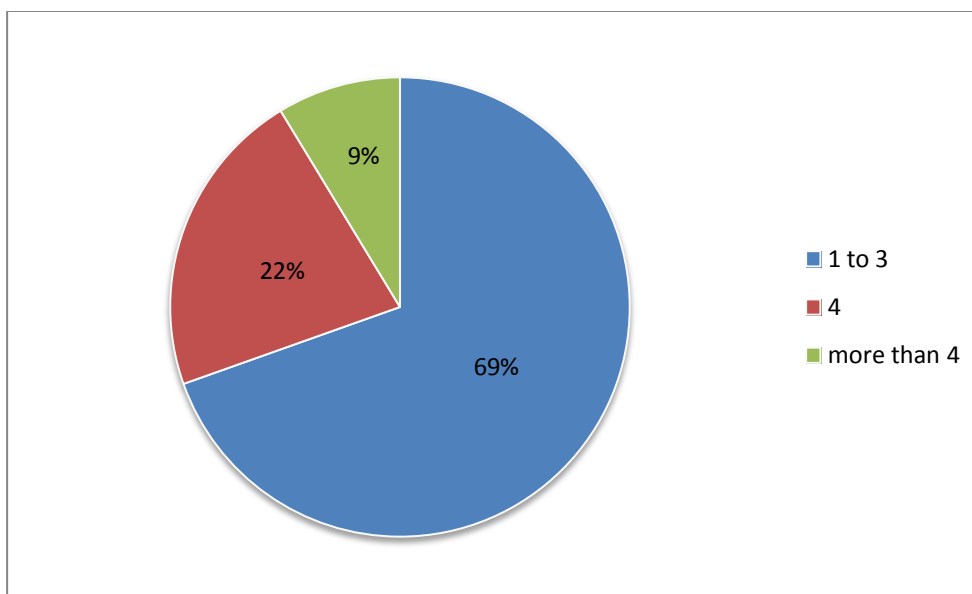


Graph 31. Benefits to the grocery bills (n=23)

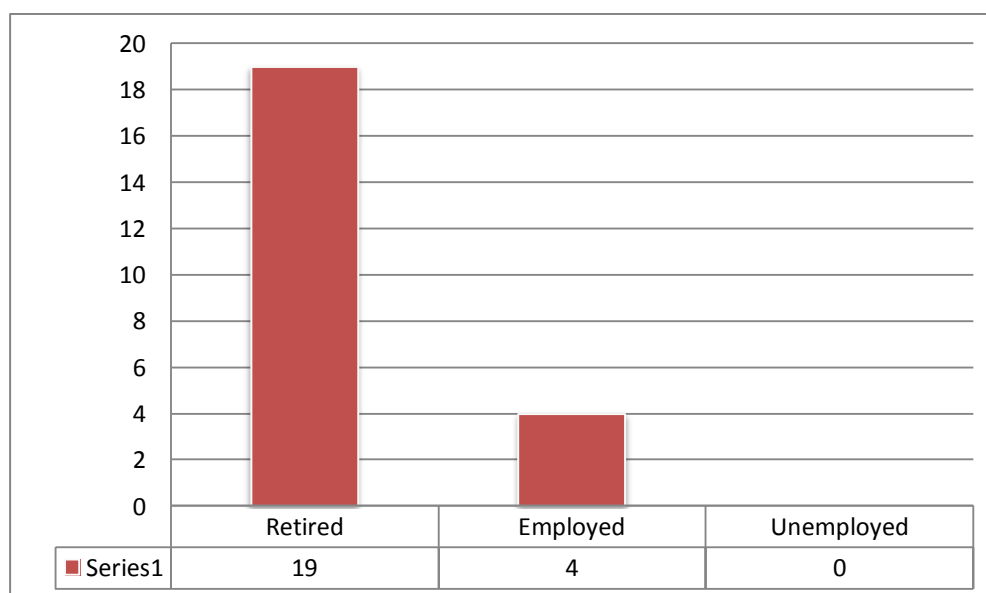
Almost 70% of the interviewees had 1 to 3 household members and about 21% of them had 4 household members. Only 9% of the interviewees had more than 4 household members (Table 5) (Graph 32). This data is parallel with the results of the occupation of gardeners because more than 80% of the members in the garden were retired (Graph 33) and most of them had 1-3 household members.

1 to 3	16
4	5
More than 4	2

Table 5. Members in the Household (n=23)



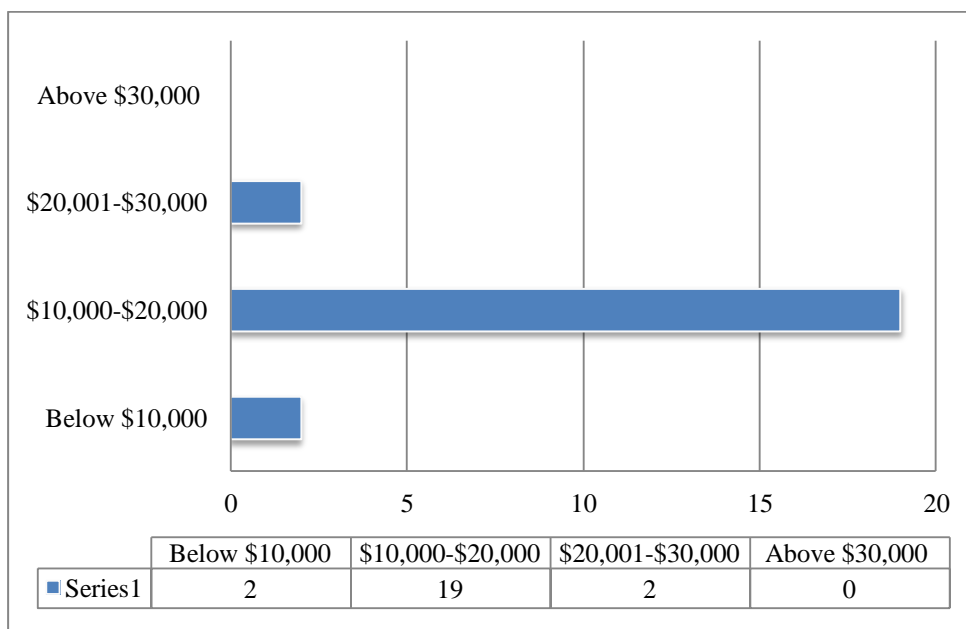
Graph 32. Members in the Household (n=23)



Graph 33. Occupation of the gardeners (n=23)

Household income for the gardeners in the garden was divided into three ranges: ‘above \$30,000’, ‘\$20,001-\$30,000’, ‘\$10,000-\$20,000’ and ‘below \$10,000’. Both “below \$10,000” and “\$20,000- \$30,000” annual incomes were selected for each by 8.7% of the interviewees. Almost 83% of them informed that their household income is “\$10,000-\$20,000” (Graph 34). These results illustrate that most of the gardeners are at

the similar economic level in the garden. Like Bornova community garden, Buca community garden showed a similar annual household income average with the country (\$10,000).



Graph 34. Household income of the gardeners (n=23)

5. Discussion of Findings & Conclusion

5.1. Findings on the Roles of Community Gardens in Sustainable Urban

Development of Izmir in the Examples of Bornova and Buca Community Gardens

Site observations and interviews in Bornova municipality and Buca Golet community gardens show that these community gardens were built in different community garden styles. While Buca Golet community garden shows more similar design characteristics to the typical community gardens (hobby gardens) in Turkey, Bornova municipality community garden design illustrates a new movement for Turkish community gardens. The findings from observations and interviews will be discussed in terms of the gardens' contribution to the member's social, recreational and economic welfare.

Bornova municipality community garden provides more garden plots in a smaller area. This allows for more people to derive benefit from the garden. In addition, the members of the garden were selected from local residents. In other words, the garden serves the local community in Bornova. Because all of the members live within a close distance to the community garden, they visit more often. Facility rooms and gazebos in the community garden are common and they enhance the social relationships of the members. For instance, the members and their families often meet with others in the gazebos for barbecue parties on weekends. They present their plants from their garden plots to other members and sometimes they arrange small competitions as to the quality of their produces from the garden plots. Most of the members in the garden first met in the community garden and have continued their friendship outside of the garden.

Interview results support that the garden members are satisfied in terms of social expectations.

Bornova Municipality Community Garden members usually grow only edible plants in their plots. Although most of the members declare that they participated in the community garden in order to strengthen their social relationship with other people, open discussions and survey results indicate they also had substantial economic benefits from the produce they grew in their plots. In addition, many of them declare that they share their extra produce with their family members and friends. Accordingly, the garden has economic benefits for the members directly and others indirectly.

Retirees comprise a large part of the members in Bornova municipality community garden. According to the observations and interview results, they almost come to the community garden almost every day and spend at least half of the day in the garden, usually with their grandkids. During the open discussion, a retired member of the community garden said “Along with providing healthier and fresh food for my grandchildren, I am happy to say my grandchildren are learning how to grow a plant, how to produce.” Most of the retirees agree that the hours they spent in the community garden are most valuable hours during the day. Employed members in the garden visit less than retired members. However, they visit their garden plots almost every day or three times in a week after work. Many of them state that the gardening activity decreases their stress level and enables mental relaxation. Therefore, the garden substantially fulfills its members’ recreational expectations.

Although there was no person assigned as a manager and official code or rule in the garden, a senior couple is accepted as the unofficial managers and the gardeners have

their own community codes. I would like to share an anecdote from my site visit notes in order to highlight the idea: *A senior couple welcomed me when I stepped up to the community garden. They started to ask questions very kindly to learn the purpose of my visit right after we greeted each other. When they were convinced with my answers, they introduced me to everyone in the garden and helped me to contact other gardeners. After I talked to other members of the community garden, I realized that all of them accepted this couple as unofficial managers and they were the first people to consult about anything in the community garden.*

Buca Golet community garden is located 5 kilometers away from closest residential area. It is surrounded by the most commonly used highway of Izmir and its intersections. This is one of the main factors that determine the user group and frequency of visits in the community garden. Buca Golet community garden has not only to the local community in Buca, it also has others from any district in Izmir. Because some of the members come from a comparatively longer distance than other members to the community garden, usually by their private car, frequency of the garden visits shows diversity considering the distance from their house to the community garden. When members visit the garden, they spend more time in their plots than Bornova community garden members.

The Buca community garden shows similar characteristics to traditional community garden style in Turkey (See Chapter 2). The size of the garden plots is quite large when compared to Bornova community garden. The size influences user behavior, social expectations and plant type in the community garden. The sheds in each plot look like small-scale houses both from outside and inside. In fact, some of the members

mentioned that they designed their garden plots and sheds like a vacation house. Each garden plot is surrounded with the metal chain fence and all of them have entrance doors with a lock. The garden plot owners can spend their whole time in their garden plots usually without seeing any other gardener because the garden plots were designed as private spaces. Retirees comprise most part of the members. They usually bring their family members a minimum of once in a week and spend all day when they visit the garden. The community garden mainly serves as a multigenerational meeting place and fortifies family bonds. In terms of the social relationship with other members in the community garden, they stated that they know most of the members in the community garden but have a closer friendship with only some of them, usually next door neighbors.

The interview results point out that members are satisfied with sharing and cooperating in the community garden. Therefore, although they have less common spaces and fences in the plots that exclude them from other gardeners, high level of satisfaction in the social relationship of members can be explained with low or medium social expectations of the members from the garden.

The Buca Golet community garden members devote only a part of their garden plots to edible plants. They grow ornamental flowers, trees and grass beside edible plants. However, they have substantial economic support from their produces according to the interview results. The community garden has a manager who helps gardeners with seeds, tools and gardening information. He is responsible for the maintenance of the common places.

Both Bornova municipality and Buca Golet community gardens illustrate that the community gardens essentially fulfill the social, recreational and economic expectations

of their members. Considering most of the interviewees responded that social environment is their initial motivation to attend the community garden in the interview, both of the community gardens provide the social enhancement opportunities for the members according to the response to social environment and community atmosphere questions. Gardening as a recreational activity is the initial motivation for some of the interviewees especially in Buca community garden. Some of the interviewees stated that gardening is very important because they migrated to Izmir from rural areas of Turkey and gardening reminds them their hometowns. In addition, they have an opportunity to escape from the stress of their daily life in urban areas. Retirees in the community gardens agreed that gardening helps them to use their time for a valuable purpose (such as having fresh and organic foods for their kids, grandkids and friends) and improve their physical health (they believe that walking the community garden from their house and their physical movements in the community garden provide them more physical activity than they normally have). Even though none of the interviewees in both Bornova municipality and Buca Golet community gardens have economic reasons as the initial motivation to participate in the community garden, most of them are delightful to receive economic benefits from the produce that they grow in the garden.

Buca and Bornova community gardens have some opportunities and challenges for the community in Izmir in terms of its design characteristics, social functions, and location. The following table illustrates opportunities and challenges that both community gardens provide for its members (Table 1).

	Buca Community Garden	Bornova Community Garden
Challenges	<ul style="list-style-type: none"> • It has less edible plants in larger plots. 	<ul style="list-style-type: none"> • It has more edible plants in smaller plots.
		
Opportunities	<ul style="list-style-type: none"> • It has wider plant opportunities for gardening activity. 	<ul style="list-style-type: none"> • It has easier access to fresh food with more economic benefits.
Challenges	<ul style="list-style-type: none"> • It provides more private spaces with sheds in the garden plots. 	<ul style="list-style-type: none"> • It provides more common/social spaces and sharing environment.
		
Opportunities	<ul style="list-style-type: none"> • Garden plots as vacation houses are preferred especially for the retired community. • It provides meeting places for 	<ul style="list-style-type: none"> • Garden plots provide green areas in high density development areas. • It assures meeting places for



	multigenerational family members.	the local community.
Challenges	<ul style="list-style-type: none"> It serves for all residents in Izmir. 	<ul style="list-style-type: none"> It serves only for the local community in the neighborhood.
		
Opportunities	<ul style="list-style-type: none"> It provides an opportunity for city dwellers that look for only recreation. 	<ul style="list-style-type: none"> It provides an opportunity for the local communities in districts of Izmir to fortify social connections in the neighborhood with economic and recreational benefits.

Table 6. Challenges and opportunities of Bornova municipality and Buca Golet community gardens

5.2. Conceptual Community Garden Network in Izmir

Community gardens are the most frequent examples of urban agriculture in Turkey. Local municipalities are especially interested in community garden establishments. Because of the deficiency in urban agriculture-related planning strategies at the regional or country level from centralized government authorities, community garden movements remain at the local level by the efforts of local authorities in Turkey. When Izmir Metropolitan Area is considered in terms of organizational structure of

Izmir, it is possible to see that local municipalities are active in establishing and developing community gardens like the rest of the country.

The Izmir Metropolitan area is almost fully urbanized with industry and services in its 11 metropolitan districts. The industrialization process started in the 1950s and caused over migration to the city from rural areas of Turkey. Then, squatter houses and high rise apartments began to appear in many districts of the city to meet the housing demand of immigrants. This caused abrupt and irregular urbanization of the city with some social (like decrease in neighborhood relationships), economic (like aging trend in the population and accordingly the potential of elderly population for the city economy) and environmental issues (like paucity of green spaces for each person in the city). In addition, considering that agriculture has been an important part of the economy for centuries, Izmir's agricultural potential cannot be ignored.

The Bornova and Buca community gardens were evaluated as case study sites because they have different physical and social characteristics that may address some of the social, economic and environmental issues in Izmir. The data that was collected from observations and interviews on the sites was used to determine two different typologies (Figure 45). These typologies were illustrated to address the hypothesis, the use of community gardens as a tool for sustainable urban development may have a potential to relieve social, economic and environmental issues due to rapid and unplanned urbanization in the Izmir Metropolitan Area.

The first community garden typology was produced in light of Buca Golet Community Garden. Buca community garden has a traditional "hobby garden" style with larger garden plots, individual sheds. It focuses recreation with gardening for the

members in their private excluded garden plots. Almost all members of the garden live in a far distance (Figure 46). The diagram illustrates the members who live in Buca, also many members of the garden live in other districts in Izmir. Easy access from the highway to the Buca garden attracts people from other districts. This typology can be an option for those who want to use their garden plots like a vacation house or backyard extension (Figure 47). City-scale community garden model in Izmir aims to provide community gardens with easy access points from highways for people who are more interested in gardening than social interactions in the neighborhood.

The second community garden type was produced in light of Bornova municipality garden's physical and social characteristics. The garden is comprised of local communities in the neighborhood (Figure 48). This garden illustrates more recent type of community garden establishment in Turkey. In this context, second type of community garden can be applied for some neighborhoods of Bornova and other metropolitan districts in Izmir. This type aims to fortify neighborhood connections and community structure with food producing targets (Figure 49).

5.3. Conclusion

In conclusion, the process of working on this thesis has expanded my knowledge of community gardens in Turkey, and by extension, I have learned more about the role and issues important to urban agriculture in developing countries. This study can assist future community garden establishments in Turkey not only by providing an example of how the sustainable urban development can be promoted by community gardens in Izmir, but also by providing literature review and site background.

The literature review contributes in understanding some key questions that generate the hypothesis of this research, namely that: community gardens may have potential for sustainable urban development in Izmir. The literature review on the social role of community gardens for linking different communities and the situation of urban agriculture in developing countries were directly related to the findings from my study sites. For example, Bornova community garden members have a meeting place which promotes social connections in terms of the creation of community. Although there is no particular meeting place provided in Buca community garden, the gardeners' well-developed neighborhood relationship illustrates that members from different socio-economic and socio-cultural background meet around a common interest in nature, food and community.

Interviews illustrate that community gardens also have a positive effect by providing a bond between both family members as well as with other gardeners. The findings at my study sites indicate that community gardens provide social and cultural sustainability. In the same way, when we consider socio-economic level of these community garden members (especially in the Bornova community garden), it is important to recognize that community gardens' members provide a significant amount of savings from their grocery bills. This indicates that community gardens also have a potential for economic sustainability for Izmir.

Research about planning and policy strategies for urban agriculture in Turkey aided in understanding of the institutional and governmental context of my study site. Because local municipalities have the power to change and add certain land use decisions in their service area, they can build a community garden without permission or approval

of any other governmental institution in the city. The government ceases to neglect future regional planning for the development of community gardens. For instance, while Buca municipality continues to have the same amount of community gardens, Bornova municipality recently decided to build a few more community gardens in their service area. In the future, it is possible to recognize that this situation may result in unequal opportunities for the residents of different districts in Izmir.

The conceptual community garden network diagrams illustrate how community gardens could be more effective for the residents of Izmir in light of the background research, interviews and observations done for the study sites (Figure 45). This approach may be useful for landscape architects and designers seeking to understand spatial relationships and larger spatial issues associated with community gardens.

While this process was fruitful, it also had some limitations. It is important to note that the observations and interviews at the sites occurred within a limited time. Therefore, these are not strict typologies and guidelines for the future community gardens in Izmir. The previous research on community gardens in Turkey was limited to only some academic papers. Because of this reason, it was difficult to find a study to compare my findings from my study sites.

Nevertheless, I believe that this study provides some preliminary results that will be useful to future research on community gardens in Turkey. For my future research, this study reveals further questions, namely: What is the role of urban planners to promote development of community gardens at the local and city scale level in Turkey? What are the responsibilities of Turkish federal and local authorities in the process of decision-making? How are planners effective in community garden planning in federal

and local authorities? This direction of research seeks to understand the political and administrative considerations in promoting community gardens. This perspective is necessary to support the development of urban agriculture that addresses food access, economic, social, cultural and other concerns in developing countries.

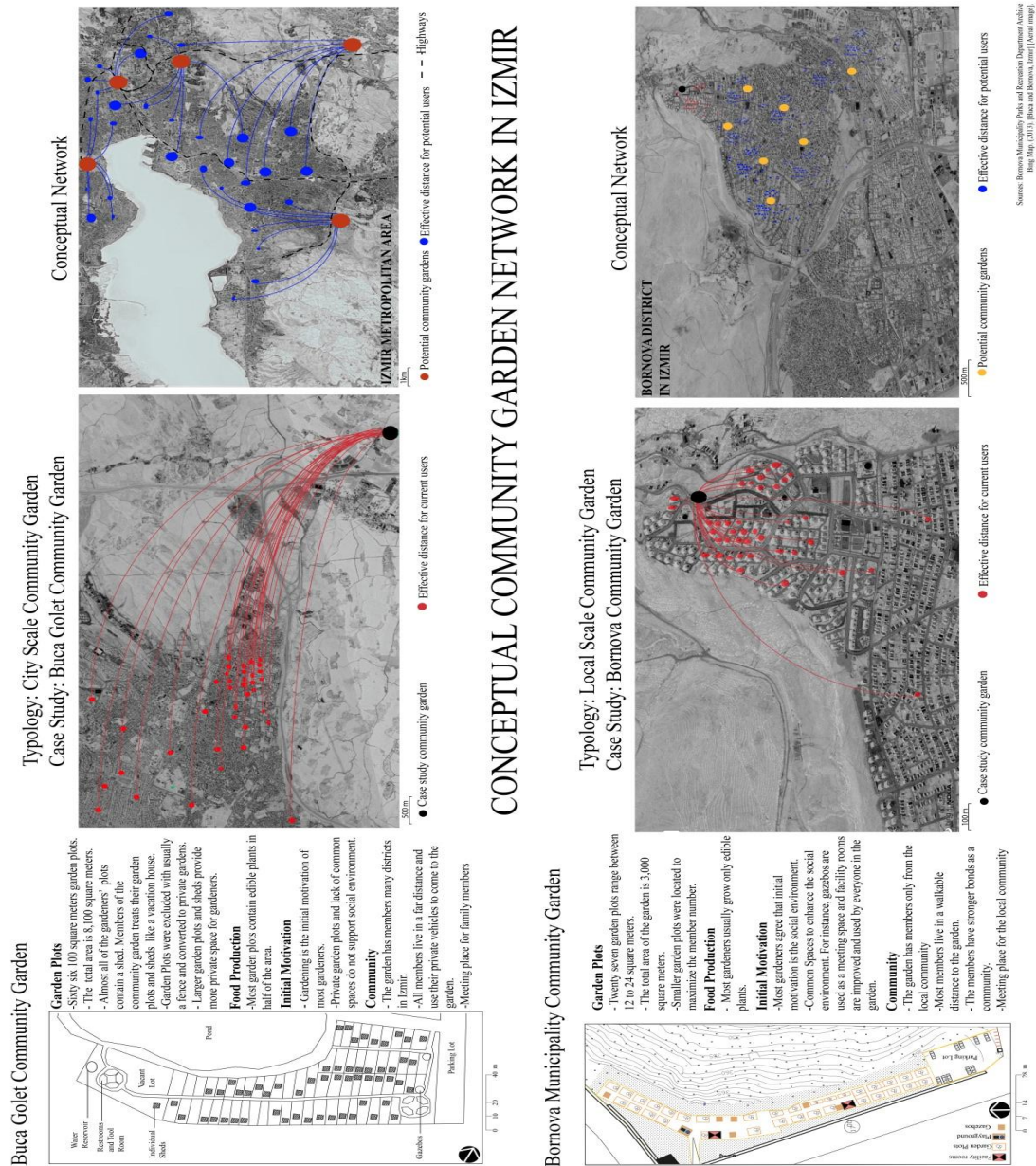


Figure 45. Conceptual community garden network in Izmir

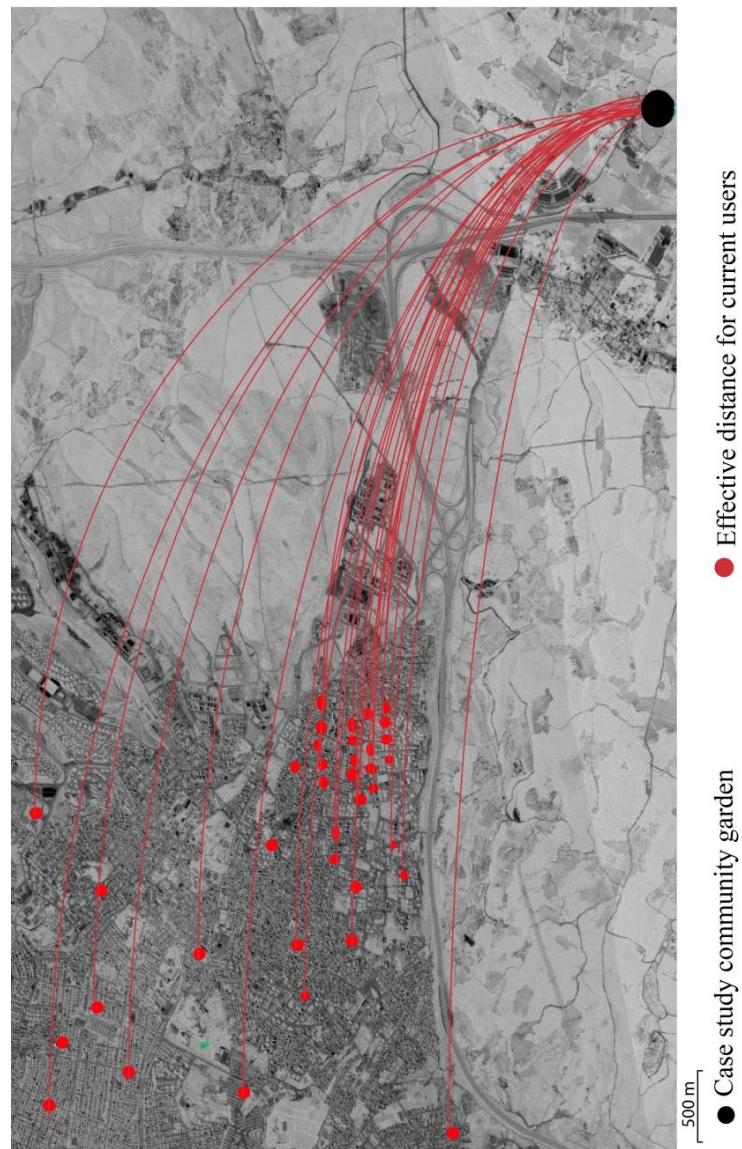


Figure 46. Buca Golet community garden effective distance for current users

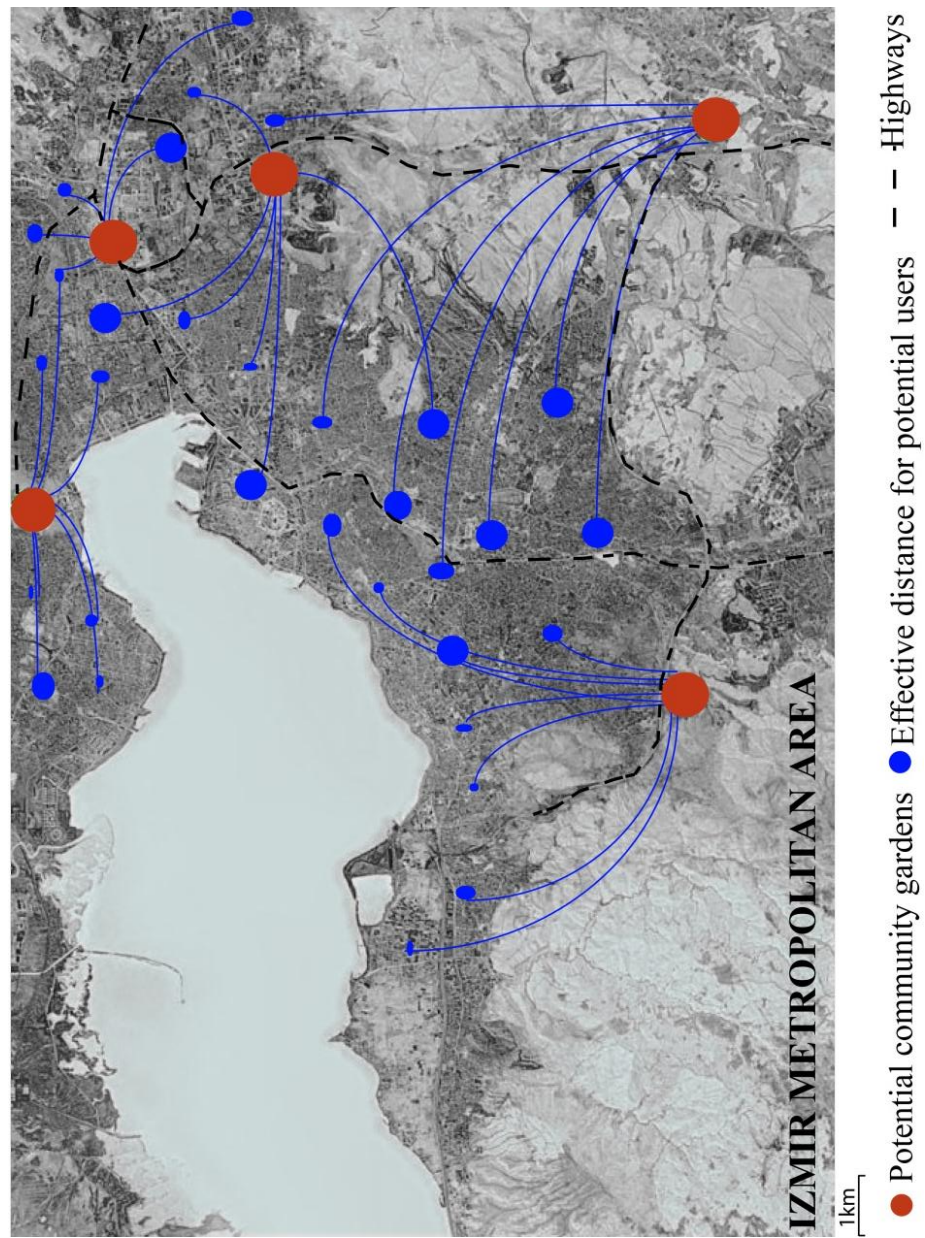


Figure 47. Conceptual Network for the typology of Buca Golet community garden



Figure 48. Bornova municipality community garden effective distance for current users

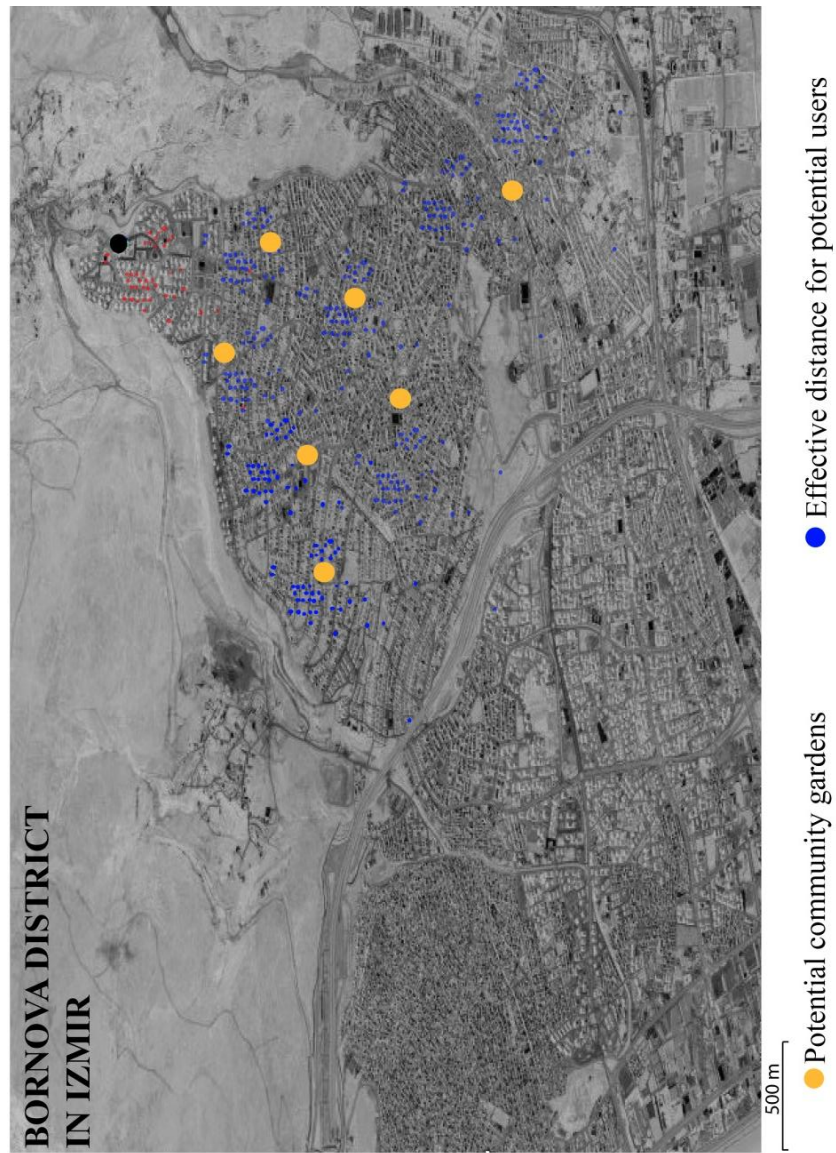


Figure 49. Conceptual Network for the typology of Buca Golet community garden

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