

**USING TRANSFER OF DEVELOPMENT RIGHT  
FOR THE PRESERVATION OF THE  
AGRICULTURAL AREAS ON THE PERIPHERY  
OF IZMIR; TORBALI CASE**

**A Thesis Submitted to  
the Graduate School of Engineering and Sciences  
of Izmir Institute of Technology  
in Partial Fulfillment of the Requirements for the Degree of**

**MASTER OF SCIENCE  
in City Planning**

**by  
Hacer AKBUDAK**

**July 2022  
İZMİR**

## ACKNOWLEDGMENTS

First of all, I would like to thank Asst. Prof. Dr. Figen AKPINAR who believed that I will complete this process from the very beginning, guides me in every way, and makes me feel her knowledge and support by my side constantly. The greatest contribution to this work belongs to her.

Afterwards, I would like to thank Asst. Prof. Dr. Nicel SAYGIN and Assoc. Prof. Dr. Zeynel Abidin POLAT who accepted to be a member of the jury, evaluated my work with accuracy and guided me with their criticisms.

I would like to express my gratitude to Ali AKBAKIR, who has made great contributions to the data collection and mathematical method creation phase of the study. And also, I would like to thank Dr. Mehmet Ali ÇELİK for teaching an innovative method during the analysis phase.

Finally, I would like to express my gratitude to my family and friends for their constant support and friendship during my graduate program. And special thanks to Wafa Bassam Yousef ABUSAIF, Kuralay KADEKESKOVA, Bedriye ÇINAR, Edanur AKBUDAK, Shanaz BAYRAMDURDIVA, Ali KÖPRÜLÜ, Jetmir SELAMİ, Şüheda KÖSE and Aqsa AFZAL. Since they inspire me to finish this work. I dedicate it to them.

# ABSTRACT

## USING TRANSFER OF DEVELOPMENT RIGHT FOR THE PRESERVATION OF THE AGRICULTURAL AREAS ON THE PERIPHERY OF IZMIR; TORBALI CASE

Turkey has been experiencing rapid urbanization and urban expansion since the 1950s. With the processes of decentralization, the city is increasingly being brought into rural areas, building pressure is increasing, agricultural production and natural resources are being destroyed, and rural areas are increasingly fitted with urban uses (shopping, tourism, leisure activities, etc.). Rural areas in close proximity to urban areas are more vulnerable to development pressures and are at risk of being abolished or abandoned. On the other hand, with the enactment of the new regulations Transfer of Development Rights is entered Turkish Planning System as a new and innovative solutions. However, there has been any available application of the TDR yet. The study's objective is to assess the TDR's effectiveness as a tool for protecting agricultural land on the periphery of Izmir's large metropolitan area. Izmir's *Torbali* district was chosen as a case study regarding intensive agricultural activity. A bundle of techniques is used including a large survey analysis of the area. A hypothetical mathematical model was applied for assessing and transferring the market-base value for the agricultural land.

First, we carried out a series of analyses to determine the implications and repercussions of Turkish planning on agricultural land protection and how to define urban growth boundaries for farmland protection. Then, using the hypothetical TDR model, we calculated the value discrepancies between urban and rural areas in the study area, *Torbali-Muratbey* location. Finally, we reviewed and discussed the challenges concerning TDRs, as well as their applicability and potential in the Turkish Planning System.

**Keywords:** *Transfer of Development Rights (TDR), TDR for agricultural land's management, The TDR as a planning tool for farmland protection.*

## ÖZET

### İZMİR KENTİNİN ÇEPERİNDEKİ TARIM ALANLARININ KORUNMASINDA TAŞINMAZ HAKLARI TRANSFERİ KULLANIMI; TORBALI ÖRNEĞİ

Türkiye’ de 1950lerden bu yana hızlı bir kentleşme ve kentsel yayılma yaşanmaktadır. Merkezileşme süreçleriyle birlikte, kent giderek kırsal alanlara doğru genişlemekte, yapılaşma baskısı artmakta, tarımsal üretim / doğal kaynaklar yok olmakta ve kırsal alanlar yerini giderek kentsel kullanımlara (alışveriş, turizm, eğlence merkezleri, vb.) bırakmaktadır. Kentsel alanlara yakın olan kırsal alanlar, yapılaşma ve kentsel gelişme baskılarına karşı daha savunmasızdır, yok olma veya terk edilme riski altındadır. Öte yandan yeni düzenlemelerin de yürürlüğe girmesiyle İmar Hakkı Transferi, Türk Planlama Sistemine yeni bir planlama aracı ve yenilikçi bir çözüm önerisi olarak girmiştir. Ancak, İHT’ nin herhangi bir uygulama örneğine henüz rastlanılmamıştır. Dolayısıyla bu çalışmanın amacı, İzmir'in büyük metropol alanının çeperindeki tarım arazilerini korumaya yönelik bir araç olarak İHT' nin etkinliğini değerlendirmektir. İzmir' in Torbalı ilçesi, yoğun tarımsal faaliyetlerin gözlenmesi nedeniyle örnek çalışma alanı olarak seçilmiştir. Çalışmada, alanın detaylı mekansal analizlerini içeren bir dizi teknik kullanılmıştır. Ayrıca tarım arazileri için piyasa değerinin belirlenmesi ve aktarılması için varsayımsal bir matematiksel model uygulanmıştır.

İlk olarak Türk Planlama Sisteminin tarım arazilerinin korunması üzerindeki etkilerini, yansımalarını ve tarım arazilerinin korunmasına dair kentsel büyüme sınırlarının nasıl tanımlanacağını belirlemek için belirli analizler yapılmıştır. Daha sonra varsayımsal İHT modeli kullanılarak, çalışma alanı olan Torbalı-Muratbey lokasyonunda kentsel ve kırsal alanlar arasındaki arazi değerlerinin farkları hesaplanmıştır. Son olarak, İHT uygulamalarıyla ilgili yaşanabilecek zorlukların yanı sıra bunların Türk Planlama Sistemindeki uygulanabilirliği ve potansiyeli incelenip, tartışılmıştır.

**Anahtar Kelimeler:** *İmar Haklarının Transferi (İHT), tarım arazilerinin yönetimi için İHT, tarım arazilerinin korunması için bir planlama aracı olarak İHT.*

# TABLE OF CONTENTS

LIST OF FIGURES .....	vii
LIST OF TABLES .....	x
LIST OF ABBREVIATIONS .....	xi
CHAPTER 1. INTRODUCTION .....	1
1.1. Problem Definition.....	3
1.2. Aim of Study and Research Questions .....	3
1.3. Methodology .....	4
1.4. Structure of Study .....	8
CHAPTER 2. THEORETICAL FRAMEWORK .....	9
2.1. Principles, Guidelines, and Regulations for The Country's Planning System Regarding the Preservation of Agricultural Lands .....	9
2.2. Definition of Rural Lands / Villages and Related Legal Requirements in Turkey.....	17
2.3. Brief info about the Turkish Planning System.....	20
2.4. The Conversion of the Agricultural land into urban parcels in the Turkish Planning System .....	23
CHAPTER 3. LAND READJUSTMENT TOOLS IN TURKISH PLANNING CONTEXT .....	28
3.1. Expropriation ( <i>Kamulaştırma</i> ).....	28
3.2. Zoning ( <i>Bölgeleme</i> ) .....	30
3.3. Voluntary Arrangement ( <i>Gönüllü Düzenleme</i> ).....	30
3.4. Land and Parcel Arrangement – Implementation of Dough Rule ( <i>Hamur Kaidesi</i> ), Article 18 .....	31
3.5. ‘Y Condition’ Application (Special Concentration of Development Right) .....	36
3.6. Legal Background of TDR in Turkish Planning Regulation .....	38
CHAPTER 4. TRANSFER OF DEVELOPMENT RIGHTS: LITERATURE REVIEW .....	41
4.1. The Concept of TDR as a Tool of Planning .....	41
4.2. Historical Background of TDR .....	46
4.3. The functions and design of TDR Program .....	50
4.4. Potentials and Threats of TDR.....	52

4.5. TDR' s Success Factors .....	54
4.6. Some Selected Samples of TDR in Farmlands / Rural Areas.....	56
4.6.1. United States .....	56
4.6.1.1. Rice County, Minnesota.....	57
4.6.1.2. New Jersey Pinelands.....	58
4.6.1.3. Chesterfield Township, Burlington County, New Jersey ...	59
4.6.1.4. Montgomery County, Maryland .....	61
4.6.1.5. Florida .....	62
4.6.2. Selected Samples from the Europe .....	64
4.6.2.1. Netherlands .....	64
4.6.2.2. Italy .....	66
4.6.2.3. China .....	67
<b>CHAPTER 5. THE STUDY AREA TORBALI / MURATBEY NEIGHBORHOOD</b>	
<b>IN IZMIR .....</b>	<b>70</b>
5.1. Location and General Characteristic of Izmir.....	70
5.2. Location and General Characteristic of Torbalı District .....	82
5.2.1. Location of The Study Area / Muratbey Neighborhood .....	88
<b>CHAPTER 6. RESULTS AND DISCUSSIONS .....</b>	<b>94</b>
6.1. The TDR Model.....	94
6.1.1. Land Value Assessment for the Agricultural Land.....	94
6.1.2. Land Value Assessment for The Urban Land .....	98
<b>CHAPTER 7. CONCLUSION .....</b>	<b>105</b>
<b>REFERENCES .....</b>	<b>108</b>
<b>APPENDICES .....</b>	<b>120</b>
<b>APPENDIX A.....</b>	<b>120</b>
<b>APPENDIX B .....</b>	<b>132</b>
<b>APPENDIX C .....</b>	<b>141</b>
<b>APPENDIX D.....</b>	<b>145</b>

## LIST OF FIGURES

<b><u>Figure</u></b>	<b><u>Page</u></b>
Figure 1.1. Methodology of the study.....	7
Figure 2.1. Grading of agricultural use parcel and determination of exchange value ....	11
Figure 2.2. An example of an urban-rural transition area from Kastamonu.....	11
Figure 2.3. An example of agricultural land in the city periphery of Çukurova .....	12
Figure 2.4. Agricultural Lands in Turkey (TURKSTAT) .....	13
Figure 2.5. An example of construction contrary to use on an agricultural land in Ankara.....	14
Figure 2.6. Change of urban and rural populations in Turkey between 1927-2021 .....	17
Figure 2.7. A simple scheme of land and land regulations.....	24
Figure 2.8. Incompatible structures built on agricultural lands in Torbalı .....	25
Figure 2.9. Torbalı’s Agricultural Land-use Capability Map.....	26
Figure 3.1. The situation of Kayseri-Develi-Tombak Neighborhood before and after Expropriation (EA) .....	29
Figure 3.2. A sample of zoning parcellation map.....	32
Figure 3.3. A sample of zoning implementation plan.....	33
Figure 3.4. A sample of Article 18 Implemetation .....	34
Figure 3.5. The scheme of the production of a city plan .....	34
Figure 3.6. An example of a master plan with the 'Y condition' for Izmir Bornova district .....	37
Figure 4.1. Property rights of a land .....	42
Figure 4.2. Property rights those can be transferred .....	42
Figure 4.3. Sending and receiving areas with TDR .....	43
Figure 4.4. Sending and receiving area concepts.....	45
Figure 4.5. Grand Central Terminal TDR process by DougWoodruff.....	48
Figure 4.6. The grand central terminal before TDR .....	49
Figure 4.7. The grand central terminal after TDR .....	49
Figure 4.8. Transfer of Development Right (TDR) .....	50
Figure 4.9. A sample of Dual Zone Program.....	51
Figure 4.10. A sample of Single Zone Program .....	52
Figure 4.11. The New Jersey Pinelands, showing land use designations under the Pinelands Comprehensive Management Plan .....	59

<b><u>Figure</u></b>	<b><u>Page</u></b>
Figure 4.12. The Village Concept Plan of Chesterfield.....	60
Figure 4.13. The Chesterfield zoning ordinance includes standards for style, architectural details, building materials and color within the old receiving area.....	61
Figure 4.14. The Montgomery County Agricultural Preservation Plan .....	62
Figure 4.15. A cottage photo from Montgomery.....	62
Figure 4.16. Potential sending areas .....	65
Figure 4.17. Potential sending areas .....	66
Figure 4.18. TDR Policy in Chongqing Prefecture in China.....	68
Figure 5.1. Turkey’s location in the World .....	70
Figure 5.2. Izmir’s location in Turkey.....	71
Figure 5.3. Change of residential areas of Izmir province over the years .....	72
Figure 5.4. The urban sprawl and administrative borders of Izmir province have changed over the years.....	73
Figure 5.5. The settlement areas of the province of Izmir and the boundaries of the jurisdiction that change with the laws.....	74
Figure 5.6. The Urban Expansion of Izmir over the years .....	75
Figure 5.7. The Land Use Capability Anaylsis of Izmir.....	76
Figure 5.8. The Land Use Anaylsis of Izmir .....	77
Figure 5.9. Change of Agricultural lands of Izmir – hectares .....	78
Figure 5.10. Change of agricultural lands of Izmir and some selected districts.....	79
Figure 5.11. Izmir Land Use Status Map in 1984.....	80
Figure 5.12. Izmir Land Use Status Map in 2013.....	81
Figure 5.13. The location of Torbalı district in Izmir .....	83
Figure 5.14. Torbalı District 1/50000 scale Izmir Master plan Agricultural Lands Information Sheet .....	84
Figure 5.15. Population growth graph of Torbalı between 1965-2021 .....	85
Figure 5.16. Change of agricultural land in Torbalı between 1995-2021.....	86
Figure 5.17. Land use of Torbalı district between 1965 and 2001 .....	86
Figure 5.18. 1/25000 scale Torbalı Environmental Plan ( <i>Çevre Düzeni Planı</i> ).....	87
Figure 5.19. The location of Muratbey Neighborhood.....	88
Figure 5.20. Change in Torbalı and Muratbey settlements.....	89
Figure 5.21. The Settlement expansion of Muratbey neighborhood over the year.....	90



<b><u>Figure</u></b>	<b><u>Page</u></b>
Figure 5.22. Urban sprawl in Muratbey Neighborhood in the last 20 years.....	91
Figure 5.23. Torbalı District 1/5000 scale Master Plan Revision approved for 2017 ...	92
Figure 5.24. Torbalı District 1/5000 scale Master Plan Revision approved for 2019 ...	92
Figure 5.25. Muratbey district in 1/1000 scale master plan.....	93
Figure 6.1. The area where the real estate listings on Sahibinden.com were chosen .....	99
Figure 6.2. A building sample of valued by each floor .....	101
Figure 6.3. Urban area and zoning of agricultural lands .....	103
Figure 7.1. Location of TDR sending area .....	106

## LIST OF TABLES

<b><u>Table</u></b>	<b><u>Page</u></b>
Table 2.1. Definitions of rural settlement – village in accordance with Turkish Legislation .....	18
Table 2.2. Exceptional cases for the conversion of agricultural land into non-agricultural uses in Accord with the 5403 Regulation .....	24
Table 3.1. The advantages of Article 18 Implementation.....	36
Table 4.1. Reasons for applying TDR .....	46
Table 4.2. Potentials and Threats of the TDR.....	53
Table 4.3. The key issues, that have an impact on the effectiveness of TDR .....	55
Table 4.4. Some TDR applications with the purpose of farmland protection from USA.....	56
Table 4.5. Use of TDR's to Preserve Agricultural Land .....	57
Table 4.6. Florida's Rural TDR Programs .....	63
Table 4.7. Comparison of TDR Applications in America, Europe and Asia .....	69
Table 5.1. Amount of agricultural lands (hectares) of some selected districts of Izmir..	78
Table 6.1. Average agricultural product income and costs in Izmir .....	96
Table 6.2. Calculation Method of the Net Land Price .....	97
Table 6.3. Calculation Method of the Average Price of a Housing Unit.....	100
Table 6.4. Calculation Method of the Total Price of a Housing Unit.....	100
Table 6.5. The estimated amount of TDR removed from the sending area .....	104

## **LIST OF ABBREVIATIONS**

LPA: Land and Parcel Arrangement

TDR: Transfer of Development Rights

EA: Expropriation Arrangement

SCDR: The Spatial Concentration of Development Rights

U.S.: United States

LQT: Land Quotas Trading

# CHAPTER 1

## INTRODUCTION

In line with Global Western central liberalization, globalization and capital accumulation, the mode of production has been transformed, processes that decide on the spread of cities in space have changed as a result of technical advances in the fields of deregulation and communication, information technologies in the national economies. With the processes of decentralization, the city is increasingly being brought into rural areas, building pressure is increasing, agricultural production and natural resources are being destroyed, and rural areas are increasingly fitted with urban uses (shopping, tourism, leisure activities, etc.).

New waves of migration from rural areas to cities began after the 1980s, when big cities were affected by liberal economics and globalization (Akşit, 2006). Economic transformations, technological improvements, and organizational reforms are all fueled by the world's 80 percent urbanization (Leaf, 2016). This is the first time in the human history that a village or peasants as a way of life is fully urban (Delaney, 1999: 191). On the other hand, some say that these assessments should be handled with caution (Rakodi, 2002). It is underlined that disparities in definition in nations with huge populations, such as China and India, have a significant impact on global population. For example, administrative limit adjustments in China have resulted in 40 percent of the population being classified as urban (Rakodi 2002: 27; Öğdül, 2010). The phenomenon of total urbanization of the population on a global scale is the most basic development issue of the twenty-first century, with the rapid growth in the people living in urban areas and the continuation of rapid urbanization.

Cities are the primary spatial component of the major global transitions. Metropolitan city growth now differs from past century models focused on a single core, in which urban density decreased as distance from the center increased, therefore *designating an urban form* is highly problematic (Levent, 2018: 636 - 637). It's becoming more difficult to distinguish between the metropolitan city, the smaller city, the town, and the countryside, and traditional notions of center - periphery aren't helping (Tekeli, 2004: 74 - 75). Moreover, states favor a pro-market strategy as a result of globalization and articulation to the global economy, which introduces new emphasis on large buildings

blocks, large-scale public investments, and fragmentation on the city's outskirts. These changes have a huge impact on rural areas. Agriculture productivity is declining (*de-agrarianization*), agricultural-environmental assets are becoming more difficult to safeguard, and the relationship between rural and urban areas is changing dramatically due to the new communication technology and transit opportunities. As a result, rural areas in close proximity to metropolitan areas are adversely affected by this transformation, and Turkey is one of the countries that has been most impacted and has quickly abandoned its rural ties (Keyder and Yenal, 2013: 92).

With the winds of globalization and grounded changes, traditional land use planning has been criticized for its inability to deal with global phenomena and problems seen in major cities, and it has been brought to the planning agenda as a more flexible approach that welcomes more market-based solutions. Understanding these changes in planning, as well as developing policies, strategies, and new planning methodologies, is an unavoidable obligation. Traditional land use planning is designed to find a balance between conflicting uses and activity integration in order to make them economically viable. However, by its very nature, the same planning creates irreconcilable rent discrepancies between users by designating land allocation, which results in unintended externalities such as urban land increase or decline (Micelli, 2002; Alonso, 1960). As a result, innovative alternative approaches to overcoming externalities in the planning system, which traditional land use planning has long failed to address, must be introduced.

The key difference then would be the introduction of new instruments that use market forces to accomplish governmental policies rather than the old command-and-control approach of land-use planning (Micelli, 2002: 141). Real estate taxation, land readjustment, and the development of new real estate markets are just a few of the newly introduced and extensively discussed tools used in planning to address the inherited weaknesses of the discipline. These tools are flexible without being normative or obligatory, instead taking the form of complementary or persuasive measures (Turner et al., 1996: 188). One example of this search is the transfer of development rights (TDR).

TDR as a market-based tool is included in Turkey's legal framework, it is unclear how it would be implemented. This research was carried out to solve this problem and provide direction for future efforts. This study discusses the need and applicability of the TDR as an instrument for facilitating the problems posed by conservation activities in the agricultural areas of Izmir, *Torbali-Muratbey District*. by using a variety of techniques, the study investigates the difficulties associated with the conservation of the

agricultural land covered by the strict restrictions because of the highly economic agricultural return and the high capacity soil feature in the Turkish Planning System; it then makes a quantitative comparison of market values between agricultural areas's both economic value and rural value as a property and associated restriction of the development property rights, with the areas where the urban development rights granted to the Land Use Plan (development plan, *imar planı*). Therefore, the amount of "transferable rights" based on the market value comparison is determined taking into account the factors affecting the property's market values and standards.

A large survey analysis of the case area is conducted, which includes land-cover changes on both Izmir and Torbalı District, development plan decisions, and how they affected agricultural land protection and the growth pattern of the *Torbali-Muratbey* region in the Izmir Metropolitan area. Finally, in-depth interviews with authorities from various government agencies and property management employees are used to analyze market conditions and assessments. The physical characteristics of the location are also documented.

## **1.1. Problem Definition**

Migration from rural to urban regions has increased, particularly with the fast urbanization process that gained speed from the 1950s. The agricultural lands on the urban periphery faced the challenge of disappearing as a result of the unplanned urbanization experienced as a result of the lack of sufficient workforce for agricultural activities in the rural areas and the growth in the requirement for accommodation in the urban area. For the sustainability and conservation of agricultural areas, the laws and regulations put in place have not been sufficient. Planning for supply and usage in the past hasn't always been effective in preserving agricultural areas. Additionally, it is extremely challenging to safeguard agricultural regions in planning due to the recent globalization and liberalization processes, and the planning system is insufficient. Therefore, it is necessary to develop new, creative and effective solution proposals.

## **1.2. Aim of Study and Research Questions**

In place of insufficient legal rules and a lax planning system, this study seeks to ascertain the applicability of TDR for farmland protection, a fresh plan implementation

tool with a current and conclusive solution focus. As a case study area, Torbalı district of İzmir province's fertile agricultural lands adjacent to the settlement area was chosen as the experiment for the TDR model proposal of this study.

According to problem definition and aim of the study several research questions are determined:

- Whether the farmland areas are in process of steady decline?
- How effective the existing planning system's performance to protect agricultural land?
- What are the causes of Torbalı's declining agricultural land?
- What laws and rules have been created recently to preserve agricultural land?
- What is the role of TDR in protecting farmland?
- What lessons we can draw from the world's TDR implementations for the farmland preservation?
- How can TDR tool as a tool for planning effective for the farmland protection in our country?

### **1.3. Methodology**

This study, a field research conducted in the neighborhoods of Muratbey in İzmir's Torbalı district, serves as a model of TDR applications. Prior to developing the TDR application proposal, it is crucial to value the lands on the market and relatedly gather the necessary data. The study began with a request of data on the land use analysis, current plan, and master development plans of the Torbalı district from the İzmir Greater Area Municipality (*İzmir Büyükşehir Belediyesi*), Torbalı District Municipality (*Torbalı İlçe Belediyesi*) and Torbalı Cadastral Directorates (*Torbalı Kadastro Müdürlüğü*). Then, Torbalı's agricultural product patterns information and İzmir's annual agricultural product price was received from the İzmir Provincial Directorate of Agriculture (*İzmir İl Tarım Müdürlüğü*).

The second part of the study, referred to as "land value computation," was launched once the data collecting phase was finished. The value of agricultural land and urban property has been determined separately based on our assertion that there is a pricing and marketing differential between the two types of land. It has been organized to value these two various sorts of lands. Interviews with the "İzmir Greater Area

Municipality, Immovable Assets Valuation Unit (*İzmir Büyükşehir Belediyesi, Taşınmaz Varlıklar Değerleme Birimi*)” were conducted to determine the value of agricultural land. Based on the expert reports, a calculating technique named “Income Capitalization” was created. On the other side, it was decided to adopt the “Construction Right in Return for Flat” Method, which is often and currently employed in the Torbalı region, for the value of urban land. For this, both the expert reports and the opinions of the contractors and real estate agents in the Torbalı region were used.

The third part of the study's objectives was to apply the chosen approaches to the area and to develop a mathematical model. The net revenue of agricultural goods in the study region was first calculated using the income capitalization technique, and the real value of the land was then determined using a capitalization rate<sup>1</sup> that varies depending on the yield of the land. On the other hand, with the 'construction right in return for flat' method chosen for urban land, it is aimed to determine the prices of the houses for sale in the immediate vicinity of the study area and to take an average value. With this average value, a sample land valuation was carried out on a zoning parcel selected as an example.

In the last stage, it is aimed to complete the value calculations for agricultural and urban lands, to make a comparison between these two land types and to determine a comparison rate. To ensure consistency in the comparison, it is required to select an area from the master plan's border as a sample plot, and in particular, to determine the values of the land inside the zoning boundary and the agricultural land situated right outside of it. The price, product cost, and yield values of the agricultural products as well as the net return of the products were calculated in the earlier stage to be used in the method selected for the agricultural land, and the real sales price of the land was then calculated by dividing it by the capitalization rate. For the urban land valuation, the price per square meter was calculated by dividing the total value of the sample parcel at the border of the master plan, using the flat for flat method, by the flat for flat index and dividing by the cash payment index, and by the land area. This result shows the property's value as a zoning parcel, however the zoning parcel needs to be transformed into a cadastral parcel in order to be compared to the agricultural land. Returning the *DOP rate*<sup>2</sup> deduction used

---

<sup>1</sup> The capitalization rate is determined according to agricultural land's productivity. In this term, it is used four percent (4 percent) for irrigated and fertile land, five percent (5 percent) for medium fertile lands, 6 percent (6 percent) for low productive lands.

<sup>2</sup> DOP is the rate of *share of regulation partnership* in literal translation.



in the zoning parcels is how the uninterrupted value for this is generated. Both the cadastral square meter price of the urban land and the cadastral square meter price of the rural land are determined when this process is complete. The fundamental component of the TDR application is the “**TDR transfer rate**” which is calculated as the value gained by dividing these two land prices.

The study area, the Muratbey neighborhood of Torbalı district, is the best sample area since it has both significant agricultural production and urban activity together. Construction activities and increasing house demand have recently drawn to Torbalı, endangering agricultural production. This is why the Torbalı – Muratbey neighbourhood was chosen for the TDR modelling.

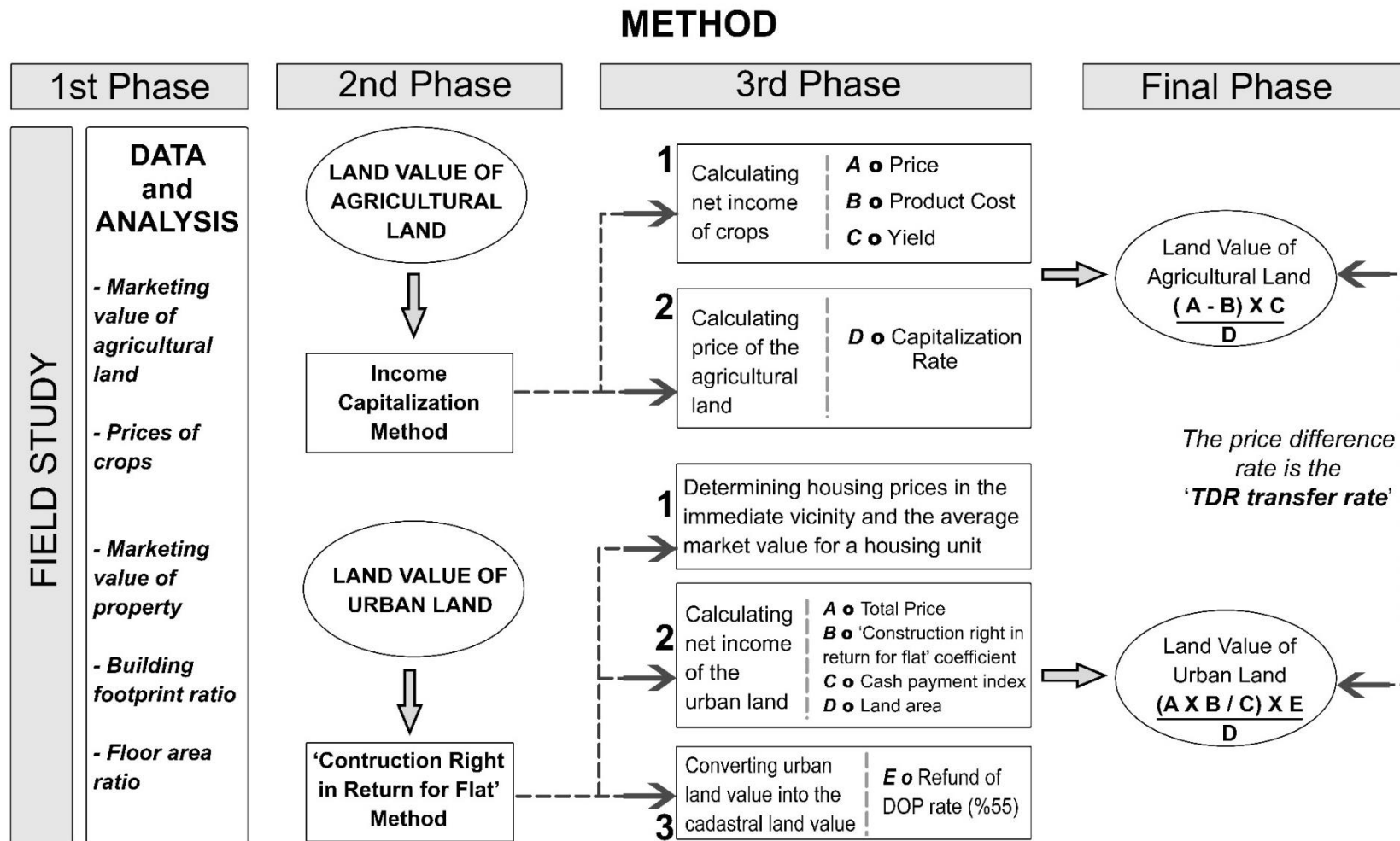


Figure 1.1. Methodology of the study

## 1.4. Structure of Study

The study consists of seven main parts, including literature review and field study. While the first four main chapters mostly use the literature (academic studies, articles, reports, symposiums, etc.), the latter three chapters include the study area, analyzes and results on the TDR model. If we talk about the details of the sections respectively,

In the first part, the introduction part, the problem of the study, research questions, the purpose and method of the study are mentioned.

In the second part, the theoretical aspect of the concept of conservation in planning, the Turkish planning system and the details of the protection of agricultural lands are given.

In the next part, it is mentioned what the conservation practices are together with the plan implementation tools in Turkey. And the most important of these application tools and the details of what the TDR application tool we focus on is and how it is applied, are in the next section. On the other hand, examples of TDR applied in the world are also included in this section.

In the fifth chapter, which we have customized as a field study, the reasons for the introduction of the Izmir/Torbalı district chosen for the TDR model and its selection as an example are mentioned in detail. In addition, in this section, land valuation method applications related to the study area are also included in detail.

Finally, in the sixth and seventh chapters, it is aimed to complete the study by including the analysis and mathematical models for the TDR model proposal as the final product, discussing the results, and then making general evaluations and inferences.

## CHAPTER 2

### THEORETICAL FRAMEWORK

In order to maintain soil continuity and prevent disruptions in food supply, the agricultural areas must be protected. Therefore, in this section, the practices to protect agricultural lands and the legal regulations in the Turkish Planning System are evaluated. Furthermore, the process through which agricultural land was converted into urban area as a result of urban sprawl is highlighted.

#### **2.1. Principles, Guidelines, and Regulations for The Country's Planning System Regarding the Preservation of Agricultural Lands**

The population growth observed throughout the world has increased both the demand for agricultural products in the basic food sector and the demand for land and housing, which are necessary to meet the need for shelter (Karakayacı, 2010:49). Population growth has primarily brought up the possibility of hunger in countries (Ekinçi and Sayılı, 2010). Today, due to the increasing population and limited resource use, the number of countries and people struggling with famine is quite high, and it is thought that this number will increase over the years. Therefore, food production is of great importance. Therefore, the value of agricultural products, which form the basis of the food sector, has increased considerably in the famine process (Yağcı, 2014). One of the main factors of food production is soil. The protection of agricultural lands is directly related to ensuring its continuity in the soil and ensuring food production (Ekinçi and Sayılı, 2010).

In our country, activities such as settlement, shelter and agriculture are allowed according to the land use capability. All lands on earth used for various activities consist of 8 classes (I., II., III., IV., V., VI., VII., VIII.). I., II., III. and IV. The lands belonging to the class are the most fertile lands for agriculture (Karakayacı, 2010:50). Especially I and II. The lands belonging to the class are defined as fertile and non-renewable agricultural lands. The use of fertile agricultural lands outside of agricultural activities should be strictly prohibited. Because while the use of fertile agricultural lands for

purposes other than their purpose may provide short-term financial gain, the negative effects that will be experienced in the long term are irreversible (Yağcı, 2014). As a result of the misuse of these fertile lands, agricultural activities cannot be continued and it is not possible to renew the agricultural soil. Some plants can be grown by making human interventions in V., VI., VII. class lands. And finally, VIII. Class lands are known as lands unsuitable for agriculture or forestry (Karakayacı, 2010:50).

Not only are plants cultivated for food requirements placed in soil, but many different species of animals need soil home. It contains a sizable ecology all to itself. Therefore, it is incorrect to think of agriculture and animal husbandry as separate fields. In addition, the two primary economic sectors in our nation are agriculture and animal husbandry. According to a comprehensive definition provided by literature, agriculture is described as a place where animals may live and be fed, and where plant products are acquired by cultivating the land (Karakuş et al., 2019). Even if the development of this ecosystem in the soil takes several years, it is nearly hard to repair it in the event of any potential damage. The people of the nation is immediately impacted by a potential issue in the agriculture sector in terms of both job and food. Agricultural lands misuse results in permanent harm. Concerns including hunger, unemployment, loss of ecological balance, and decline in biological diversity are at the top of this list (Karakuş et al., 2019; Yağcı, 2014; Akseki and Meşhur, 2013; Topçu, 2012). The preservation and protection of such a sensitive natural resource is equally crucial.

The need for housing has expanded concurrently with the fast development in population, which has boosted both the demand for food and accommodation. The region, which is on the outskirts of the city and is referred as as the "transition zone between rural-urban regions," has seen a growth in structure as a result of the city centers being filled. In the region between rural and urban areas where agricultural lands predominate, there is demand from building. With the change of type, which is one of the legal rights provided to agricultural land, it becomes a "land", and this change raises the land's worth (Gökkür, 2020). The land is transformed into land in order to become suitable for construction and turns into a rent commodity.

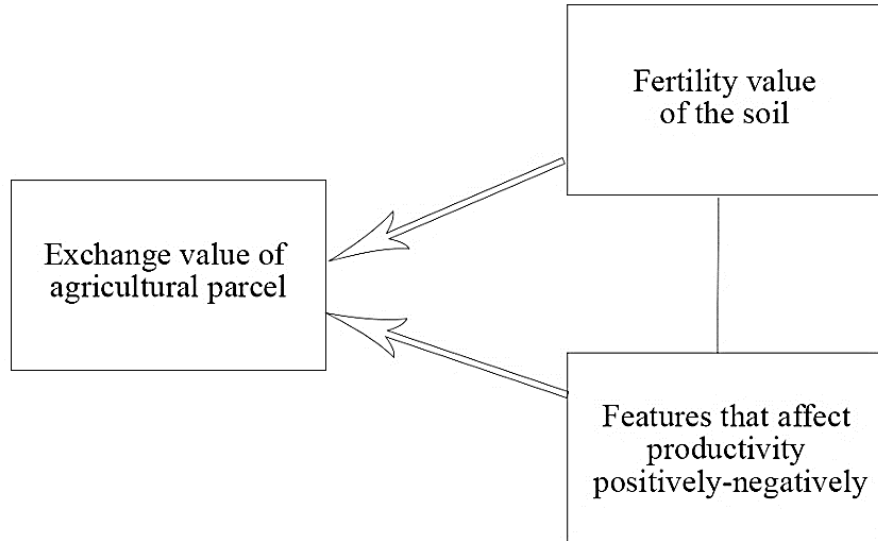


Figure 2. 1. Grading of agricultural use parcel and determination of exchange value

(Source: Demirel, 1999:68)



Figure 2.2. An example of an urban-rural transition area from Kastamonu

(Source: Web 1)

In several nations, the implementation of specific legislative rules has begun in order to safeguard and even revitalise the agricultural sector, whose significance has long been recognized on a global scale. In many nations, protecting agricultural regions is a top concern, and rules for preservation have been created. It is strictly forbidden to exploit fertile soils that have been categorized based on agricultural production for anything outside farming (Kılıç, 2008). In our nation, the necessity to safeguard agricultural areas only became apparent in the 1950s. The development in urbanization and industrialisation at the period was the main factor causing this requirement. The risk of extinction increased with this growth, particularly in agricultural regions on the outskirts of cities.

Research and analysis have shown that Turkey's agricultural lands are becoming increasingly scattered and fragmented every year, making it difficult for agricultural firms to operate effectively. Economic concerns force unproductive agricultural firms to rent or sell a portion of their property, thus fragmenting the uses of the land (Ekinçi and Sayılı, 2010; Almus, 1999). That is why, soil preservation policies must be created, and quick action must be taken to prevent the exploitation of agricultural areas.



Figure 2.3. An example of agricultural land in the city periphery of Çukurova

(Source: Web 2)

By their ideal definition, conservation legislation, planning, and environmental impact assessments are significant instruments that help to safeguard natural values by directing land use choices. Even if all three of these vehicles are present in our nation, the

degradation of natural values is becoming a bigger issue every day. Agricultural regions are among the most significant natural resources of nation states, their value growing daily in the context of a changing global environment. Averaging 1.8 million decares of agricultural land are lost each year in our nation, which has been stressed to have significant potential in this area (Özügül, 2010).

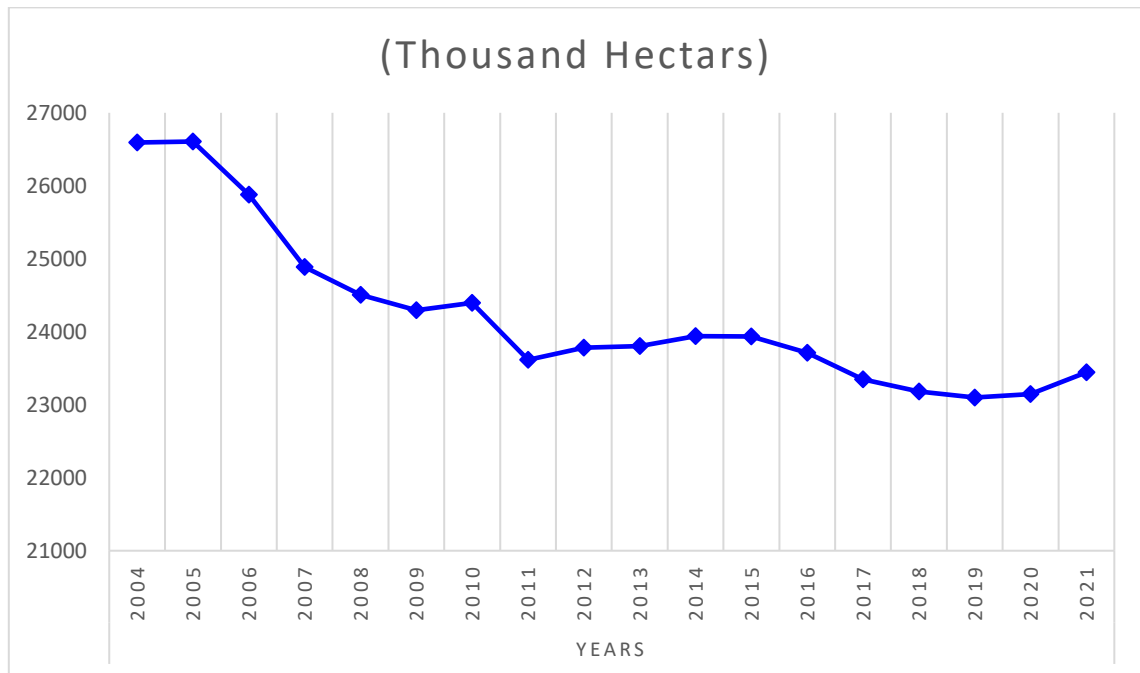


Figure 2.4. Agricultural Lands in Turkey (TURKSTAT)

In the literature, the factors that cause soil problems are classified into 4 groups. These are respectively;

- improper land use,
- failure to take protective measures,
- free herd grazing,
- legal and administrative deficiencies (Özdemir, 1995).

Agricultural areas are protected by laws that have been created. However, the shortcomings in the legislation and the incompleteness of these laws lead to numerous failures in actual practice. Residential areas, businesses, and tourist attractions are being developed on agricultural fields more often since the conservation rules are ineffective and inconsistent. Agricultural fields have suffered irreparable harm as a result of this condition (Ekinci and Sayılı, 2010; Gün, 2001).





Figure 2.5. An example of construction contrary to use on an agricultural land in Ankara

(Source: Web 3)

It has been suggested that "land-based planning" should be done in the areas where livestock and agricultural operations are conducted. Both the Law No. 5403 on Soil Conservation and Land Use and the Pasture Law No. 4342 reference land-based planning, which originally became prominent in forestry. The widespread exploitation of these resources, however, is a result of the material worries that economic policies have created, and the lands needed for housing, industry, construction, and infrastructure services have been acquired through converting pasture and agricultural fields (Çağlar, 2015:23).

In our country, the law dated 03.07.2005 and numbered 5403, on soil protection and land use, *'protects and develops the soil, classifies agricultural lands, determines the minimum agricultural land and agricultural land size with sufficient income and prevents its divisions, ensures that agricultural land and agricultural lands with sufficient income are environmentally sustainable'*<sup>3</sup> It entered into force with the aim of determining the procedures and principles that will ensure its planned use in accordance with the development principle. In Article 13 of the Law, an explanation is given regarding the misuse of agricultural lands. Accordingly, *'absolute agricultural lands, special crop lands, planted agricultural lands and irrigated agricultural lands cannot be used for*

---

<sup>3</sup> Law No. 5403, Article 1, Amended: 30/4/2014-6537/1 art.

*purposes other than agricultural production. However, provided that there is no alternative area and the Board deems it appropriate; (RG. 03.07.2005/25880)*

- a) Strategic needs for defense,*
- b) The need for temporary settlement after a natural disaster,*
- c) Oil and natural gas exploration and operation activities,*
- ç) Mining activities for which a public benefit decision has been taken by the relevant ministry,*
- d) Plans and investments for which a public benefit decision has been taken by the Ministries,*
- e) Investments in road infrastructure and superstructure activities by considering the public interest,*
- f) Upon the request of the Energy Market Regulatory Authority, investments related to the use of renewable energy resource areas in accordance with the Electricity Market Law dated 20/2/2001 and numbered 4628,*
- g) Geothermal-sourced technological greenhouse investments may be authorized by the Ministry, provided that soil protection projects are complied with, requests for misuse of these lands.'*

The conservation of the soil and preventing soil loss should be one of the goals regardless of the purpose of land use and the investment to be made in the land, according to the Soil Conservation and Land Use Law No. 5403. Plans for land use, agricultural land use, and programs to safeguard soil should all be supported by one another and executed afterwards (Karakayacı, 2010: 50). Additionally, it was required to transfer the agricultural land to the land processor in order to promote the continuity and efficiency of agricultural operations, which was the goal of the legal concept of "competent heir (*ehil mirasçı*)" The adjacent neighbors of the property are given priority legal rights and the ability to sue the nearby neighbor in any sale transaction in order to avoid the fragmentation of the agricultural areas specified in the law (Gökkür, 2020). Another significant phrase in the law states that absolute agricultural lands, special crop fields, planted agricultural lands, and irrigated agricultural lands cannot be awarded non-agricultural land use rights. In other agricultural lands, interventions are allowed for non-agricultural uses with the Ministry and Governor's Office's approval.

It's critical to accurately assess agricultural properties so that they may be used for the intended purpose. According to soil capabilities and land use plans, land should be appraised (Gökkür, 2020; Saykılı et al., 2017). The quick building of agricultural lands

for the industrial and tourist sector is one of the primary causes of the decline in agricultural regions in our nation and throughout the world. Since it is well known that these industries generate better returns than the agriculture industry, agricultural property owners prioritize financial gains. Alternative solutions that will boost the economic return in the agricultural sector should be created in the context of a free market as this phenomena cannot be altered by laws that contain restrictions to preserve agricultural lands (Gökkür, 2020; Sönmez, 2018).

Currently, a wide range of non-agricultural uses are carried out on agricultural land. To develop residential neighborhoods, industrial areas, public infrastructure, and investments, it is most frequently employed. Rapid population increase has been accompanied by equally quick building. New housing areas had to be built in order to accommodate the demand for shelter, and from the city's center out to its edges, there was a lot of development. The strain on agricultural areas has increased as a result of the majority of them being near the city's periphery, leading to their loss. Land use issues are a result of urban sprawl. Consequently, the class capacity of the property should be considered while determining the land use goals, and plans should be made accordingly. Another illustration is the fact that agricultural productivity is hampered and the land cannot be renewed for agricultural use when it is exploited for industrial purposes. By contaminating the air, water, and soil, harmful wastes produced as a result of industrial activity also contribute to the breakdown of the ecological equilibrium. The establishment of residential and industrial sectors on agricultural lands makes it necessary to provide infrastructural services to these regions for the benefit of the general population. Thus, there are agricultural areas, roads, power lines, water, and electricity. Basic necessities, or infrastructure services, are also mentioned.

Therefore, misusing non-renewable agricultural lands causes permanent issues for the agricultural industry. Land capacity should be considered when developing plans and initiatives for land use, particularly those involving agricultural areas, and decisions should be made appropriately. It is crucial that urbanization strategies and agriculture policies interact and complement one another.

## 2.2. Definition of Rural Lands / Villages and Related Legal Requirements in Turkey

Turkey has been experiencing rapid urbanization and urban expansion since the 1950s. With the processes of decentralization, the city is increasingly being brought into rural areas. Building pressure is increasing, agricultural production and natural resources are being destroyed. Rural areas are increasingly fitted with urban uses (buildings, shopping, tourism, leisure activities, etc.). Rural areas in close proximity to urban areas are more vulnerable to development pressures and are at risk of being abolished or abandoned.

Rural settlements in our country are geographically agricultural areas, forests, etc. they are areas close to places, with scattered settlements, established on high and sloping areas and small in terms of population. The scattered settlements of the villages make it difficult to provide social, cultural and infrastructure services and affect the quality of life. Especially the young population migrates from the villages due to their quality of life and job opportunities. This situation, on the other hand, causes a decrease in the number of employees dealing with agriculture and animal husbandry, negatively affecting rural development and food security.

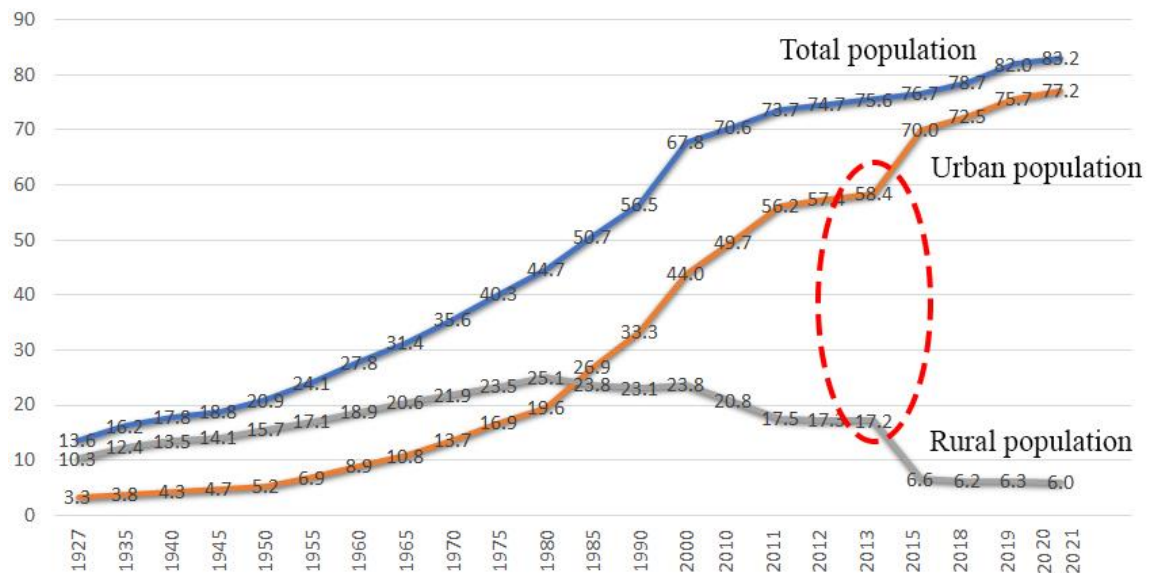


Figure 2.6. Change of urban and rural populations in Turkey between 1927-2021

(Source: TURKSTAT)

According to the Figure 2.6, while the rural population increases over the years, the urban population decreases. Especially after the 80s, there was migration to the city and the population increased. However, the striking distinction occurred in 2013. Due to the Metropolitan Law No. 6360 that was enacted that year, there is a significant disparity in population between rural and urban areas in 2013. All villages' rural character was destroyed by the ordinance, which transformed them into urban neighborhoods of the central metropolitan city.

Due to the variety of their physical traits and defining criteria, rural regions, or villages, do not have a single description. Its differences from urban settlements, economic roles, administrative structures, and population features are taken into consideration while defining it. In official definitions of rural communities and associated laws, population is regarded as the primary component, and several definitions are contained in various pieces of legislation (Table 2.1).

Table 2.1. Definitions of rural settlement – village in accordance with Turkish Legislation

<b>Rural Statistical Definitions in Turkey (F. Akpınar, 2022)</b>	
<b>Village Law (no. 442)1942</b>	<b>Population less than 2000</b> is considered as <b>rural settlement, village (köy)</b>
<b>Village Inventory (1997)</b>	<ul style="list-style-type: none"> <li>Without any population criteria all the settlements which have administratively village municipality, village status, <i>bucak</i></li> </ul>
<b>Population Census (2000) of TIS</b>	<ul style="list-style-type: none"> <li>Urban population: Cities, Province centers, and all settlements containing municipality boundary considered as “urban”</li> <li>Rural Population: <b>Population lives in Villages, bucaks considered as “rural population”</b></li> </ul>
<b>8<sup>th</sup> Five Years National Development Plan (2001)</b>	<ul style="list-style-type: none"> <li>Population above 20.000 and over considered as “urban”</li> <li><b>Population below 20.000</b> considered as “<b>rural</b>”</li> </ul>
<b>In accord with the General Agricultural Census with the use of “General Village INFO Survey 2001 In accord with the Agricultural Enterprise Survey</b>	<ul style="list-style-type: none"> <li>All the settlements which has <b>population below 25.000</b> population considered as “rural settlement, village (<i>köy</i>)”</li> <li>All the settlements, province centers which has <b>population below 5.000</b> considered as “rural settlement, village (<i>köy</i>)”</li> </ul>
<b>Household Labour Survey of TIS</b>	<ul style="list-style-type: none"> <li>All the settlements which has <b>population below 20.000</b> considered as rural settlement</li> </ul>
<b>Population and Health Survey of TIS (2003)</b>	<ul style="list-style-type: none"> <li>All the settlement which has <b>population less than 10.000 considered as rural areas</b> without taking into account administrative boundaries</li> </ul>
<b>Municipality Law (Law no. 5393, 2004)</b>	<ul style="list-style-type: none"> <li><b>The minimum population</b> to constitute <i>a municipal administration</i> is <b>5000 and over</b></li> <li>The villages who want to constitute a municipality has to come together to form a population 5000 and over (there is also a determined longitude to form a municipality)</li> </ul>

**Cont. on the next page**

**Cont. of Table 2.1.**

<b>National Rural Development Strategy (2006)</b>	<ul style="list-style-type: none"><li>• Urban settlements which is of population more than 20.000 and over</li><li>• All the settlements which is of <b>population less than 20.000</b> considered as <b>rural areas</b></li></ul>
<b>9<sup>th</sup> National Development Plan (2006)</b>	<ul style="list-style-type: none"><li>• Urban settlements which is of population more than 20.000 and over</li><li>• All the settlements which is of <b>population less than 20.000</b> considered as <b>rural areas</b></li></ul>
<b>10<sup>th</sup> National Development Plan (2011)</b>	<ul style="list-style-type: none"><li>• Urban settlements which is of population more than 20.000 and over</li><li>• All the settlements which is of <b>population less than 20.000</b> considered as <b>rural areas</b></li></ul>
<b>For the Legislation of the Traditional Land use Planning</b>	<ul style="list-style-type: none"><li>• Settlements included municipal area boundary considered urban and the others are rural areas. areas which are not included in the municipal boundary defined as rural area whereas settlements included in these areas rural settlements (villages)</li></ul>

There are two basic legislations, namely the Zoning Law No. 3194 and the Unplanned Areas Zoning Regulation, which regulate planning and construction in rural settlement areas. The purpose of this regulation is stated in its 1st article as '*to ensure that the constructions within and outside the borders of the municipality and the adjacent areas and in the areas without a master plan (Additional phrase: RG-11/7/2021-31538<sup>4</sup>) are formed in accordance with the science, health and environmental conditions*', has been done. In the 19th and 20th articles of the regulation, detailed information is given about the depth and height of the buildings that can be built in rural settlements. According to this; it is allowed to be constructed in such a way that the depth of the building to be built is 40 meters at the most and the floor area of the building does not exceed 40percent of the number of floors. On the other hand, the height of the building should not exceed 9.50 meters (3 floors).

In the 27th article of the Zoning Law (*İmar Kanunu*) and the 57th article<sup>5</sup> of the Unplanned Areas Zoning Regulation (*Plansız Alanlar İmar Yönetmeliği*), the exception of being able to be built without a license for the structures to be built in the village

---

<sup>4</sup> (Amended phrase: RG-11/7/2021-31538) It is applied within the settled area boundaries of municipalities that do not have a master plan and/or have a population of less than 10 000 according to the last census.

<sup>5</sup> Unplanned areas zoning regulation, Building permit works, Article 57, (Amended first paragraph: RG-11/7/2021-31538). According to this; Except for the municipality and adjacent areas, a construction and occupancy permit is not required for the buildings that are registered to the village population and that are to be built by the permanent residents of the village in the settled areas of the village, however, the building must comply with the science and health rules and permission must be obtained from the headman.

settlements has been introduced. On the other hand, it is foreseen that some administrative sanctions will be applied to the owners of these buildings by defining the buildings that are **contrary to the regulation** (*aykırı yapılar*)<sup>6</sup>. According to this; it is regulated in Articles 32 and 42 of the Zoning Law and Article 184 of the Turkish Penal Code No. 5237 under the heading "Crimes Against the Environment". In the 32nd article of the Zoning Law, the **penalty for demolition** is stipulated, in the 42nd article a **zoning fine** and in the 184th article of the Turkish Penal Code a **prison sentence** is foreseen. However, administrative sanctions are not limited to these. Sealing of the building, cancellation of the building permit and occupancy permit, and non-utilization of public services and facilities are also among the administrative sanctions specific to the development (Web 4).

### 2.3. Brief info about the Turkish Planning System

Conventional land use planning and zoning are the most prevalent tools used in traditional planning to regulate urban development. The essence of the management of the urban development is the separation of conflicting functions (zoning) in design and the transportation network built between these activities. Building Permits distributed are granted or rejected based on whether they are compatible with the rules of the regions defined in the plan. In this way, undesirable development is controlled and blocked, but the development is not ensured in the suitable place and form (Albrechts, 2008). The fundamental problem in traditional land-use planning is that the zones grow complex by changing after they are first created and becoming complex, and by substituting functions in response to property owners' requests. All of these issues are related to the ineffective use of land management (Talen, 2013).

---

<sup>6</sup> (Amended: OG-2/9/1999-23804) Structure in violation of the zoning legislation: (Amended phrase: OG-11/7/2021-31538) Constructions started without notification to the headman's office are unlicensed, contrary to the license and its annexes, science and health rules. Buildings that do not comply with the provisions of the legislation at the time they were built, and neighboring parcels, roads, public services and facilities on issues such as floor layout, floor area, neighbor distances, front line, building depth and similar (Amended expression: OG-11/7/2021-31538) These are the structures that encroach on the areas reserved for construction purposes or are built in places where construction is prohibited.

In the Turkish Planning lack of integrated planning approaches since 1980s is the well-known fact; however, the idea of planning can never be rejected. Although the Turkish planning system has not been new, extended till the late Ottoman Era, however, today the planning is in deep crisis, fragmented, chaotic and far from being preparation for the future. Planning under these conditions causes anguish and frustration amongst planners in the neoliberal era (Eraydın and Taşan-Kok, 2013: 229). This may be the main reasons why market-based tools like TDR can not even offer planning professionals a place to debate. Hence, the main objective of this study is to demonstrate the potential that TDR offers as a planning tool and as an efficient way of incorporating urban growth energy into planning while preserving and contributing to urban resilience, preservation of the farmland area and environmental, i.e. better policy outcomes, in terms of efficiency and equity.

The conventional land-use planning is conducted and regulated by the Law no. 3194 i.e. Reconstruction Law coming into effect in 1985 and related regulations in Turkey. The Reconstruction Law is responsible for the land-use management and also draw the spatial structure as overall shape i.e. urban macroform of the metropolitan cities in general (Ataöv and Osmay, 2007).

This model is meant to control land-use and land-use changes at local level. In the model urban growth is controlled through Urban Development Plans (imar planı). The planning powers were transferred to municipalities with the enactment of the Reconstruction Law and the resources transferred to the municipalities were increased. In almost all major cities, comprehensive planning and zoning have been started. The approval authority for local physical plans was transferred from central administrations to municipalities which began to make frequent use of plan changes which can be taken as a form of deregulation.

As Turkey has opened to the world order and transitioned to the global economy, the intense commodification of the housing and land market have resulted in a construction boom and never-ending construction facilities in Turkish cities. The socio-spatial configuration of the big cities including Izmir has impacted most of these developments. The rapid commodification of land resulted in speculative construction activities and a drastic rise in housing prices which gave way to the construction boom (Erol, 2019: 738) eventually resulted in the rise of the land and property prices. Many forms of deregulation with the Reconstruction Law were provided in the planning system in order to ease the massive construction activity or circumvent the bureaucratic process



of planning. For example, a form of deregulation for obtaining planning powers is very common provided to various central government ministries with their sectoral priorities or special plan planning powers (Balaban 2012; Eraydin 2012). For these reasons' agricultural areas in close proximity to major cities are vulnerable to conversion, placing agricultural production at threat.

Between 1960-1990 the implementations of the conventional land-use plans are of the large density increases that were not so commonly enforced that the urban fabric was developed in accordance with the "regional floor layout" plan. In conjunction with the neoliberal transition, development changes in response to the rise in density should not be matched with the required increase in public services that has begun and spread through broad urban regions. Especially in 2000s the super high-rise structures has become dominant figures of the city scape and with the ease of related changes in planning legislation and in planning to control of the high-rise construction has getting more and more difficult task in the Nation. Today, however, the density rises, many times followed by peculiar legal applications, in a very unregulated manner (Cavusoglu, 2014).

The connection between planning system and real-estate sector before the 1980s had depended upon the purchase of the both rural and urban land in the market, but this has changed with the globalized era and there has increased substantial studies revealed the powerful real-estate institutions or companies manage and manipulate the land market in urban sphere to a varying degree to all over the world (Tiesdell and Allmendinger, 2005). Negative effect of the world-wide globalization, privatization has brought substantial impact to the planning in general. Turkish case represents both the global restructuring which took place on a planetary scale, however bears also internal characteristics. Practices in the Turkish case should not be confused with worldwide examples as applications that go beyond market or global logic were already developed. While not all groups in society opposed all these implementations and the matters were also referred to the public court very common. However, it is needlessly to say that the problems brought by globalization and its local translation and interpretation have not promoted a kind of awareness on part of governments, society and citizens of the need for innovation in social policy and land management. After a break in centralized and integrated approaches in planning a new and approach has to redevelop and revise which recovers the institutional and managerial framework of planning.

## 2.4. The Conversion of the Agricultural land into urban parcels in the Turkish Planning System

In Turkish Planning system, converting cadastral land into Urban Parcel (Land), is only possible with the implementing the Urban Development Plan which was specified in zoning bylaws. The local administrators are responsible to provide substantial number of urban parcels and areas for the population's future demand for development under the Article 18 of the Zoning Law No. 3194.

The amount of potential development land (or urban parcels) should not be less than the number of construction licenses issued the previous year. Known as the colloquial "dough rule" (*hamur kaidesi*, Article 18<sup>7</sup>) regulation application in the Turkish Planning system, after the required land readjustment, up to 45 percent of the land should be reserved for public use for the reciprocity of the anticipated (expected) increase in land value. The public land then is used for education, health, and green areas which necessitate those populations living in the residential areas. In this application, the assessment procedures are based solely on the size of the land parcels<sup>8</sup>. This can be considered as a private property public control mechanism by laws.

Another regulation related to the conversion of agricultural land into urban lots is the "Land and Land Use Law"<sup>9</sup>. In accord with the bylaws and related regulations, agricultural land is categorized under various statuses with regard the soil classification and agricultural potential. As per ordinances and standards, agricultural land is defined as "absolute agricultural land", "special cropland", "marginal crop land", and "planted land", depending on land classification and agricultural potential. Furthermore, "watery agricultural land" is defined as agricultural lands irrigated by necessary infrastructure by the Ministry of Agriculture and Forest. The rest of the agriculture fields (which aren't irrigated) is dependent on climatic factors like rainfall. Farmlands classified as watery land, without a doubt, are regarded to produce the highest value of crops.

---

<sup>7</sup> It is a regulation on land land regulation principles to be established in accordance with Article 18 of the Zoning Law (R.G. 02.11.1985 / 18916).

<sup>8</sup> The other parameters such as location, conservation status, and volumetric consideration do not constitute part of the value assessment.

<sup>9</sup> Law No.5403, "Land and Land Use Law" (R.G. 19/7/2005-5403).

Article 13 of the “Land and Land Use” Act regulates the use of agricultural lands for purposes other than agricultural production. It states that “watery agricultural land”, “special product lands”, and “planted agricultural land” *will not be employed for purposes other than agricultural production (Agricultural Lands Used for Non-Agricultural Purposes, Article 13<sup>10</sup>)*. However, the Ordinance includes various deregulations and exceptional circumstances that allow agricultural areas to be opened up to non-agricultural activity under certain conditions. If the central and local administrators are unable to find substitute land for the designated land uses, the Ordinance can allow agricultural property to be used for non-agricultural purposes (Table 2.2).

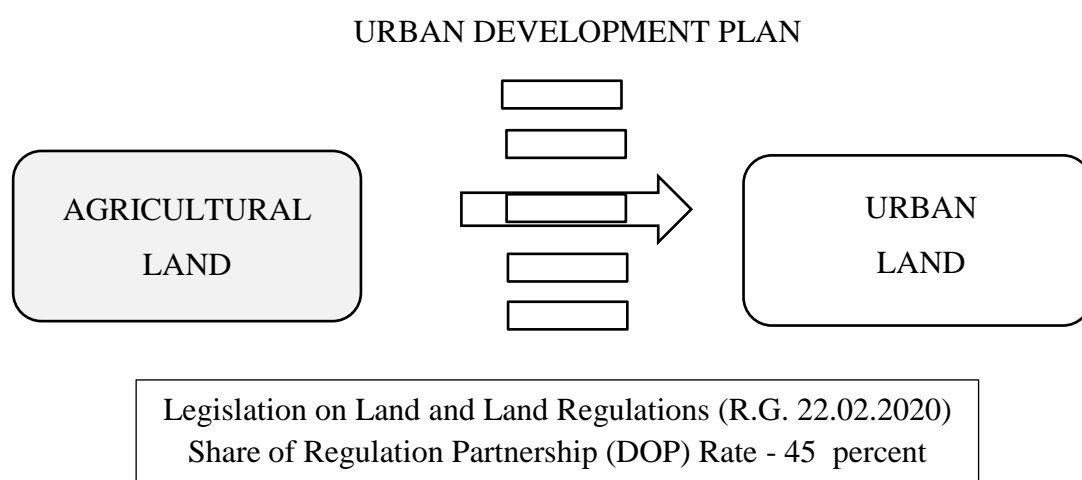


Figure 2.7. A simple scheme of land and land regulations

Table 2.2. Exceptional cases for the conversion of agricultural land into non-agricultural uses in Accord with the 5403 Regulation

1.	Strategic need for defense
2.	Temporary Settlement Requirement after Natural Disaster
3.	Petroleum and Natural Gas Search and Operation Activities
4.	Mining activities
5.	(Public interest) Road infrastructure-upper building activities
6.	Energy source areas
7.	Geothermal-based technological greenhouse investments.

<sup>10</sup> Law No.5403, “Land and Land Use Law” (R.G. 31/1/2007-5403).

Although the Ordinance establishes a strict conservation status for agricultural land, it also allows for some flexibility, such as the transformation of agricultural lands into urban land with a “appropriate” view obtained from The Local Municipal Administration and The Provincial Directorate of Agriculture<sup>11</sup> in the administration of the city’s metropolitan areas to transform cadastral parcels (agricultural field, vineyard, garden, etc.) that are not directly included in the local development plan’s limit. Furthermore, illegal constructions on agricultural fields that authorities seem unable to manage or condone are indeed widespread (Figure 2.8).



Figure 2.8. Incompatible structures built on agricultural lands in Torbalı

(Source: Web 5)

<sup>11</sup> Provincial directorate of the Ministry of Agriculture and Forest (*Tarım ve Hayvancılık İl Müdürlüğü*).

Traditional land use planning is also known to be ineffective in the face of illegal developments spreading quickly over agricultural lands near urban limits and incapable of demonstrating the necessary control; on the contrary, authorities may have approved practices that make it difficult to protect agricultural land with Development Plan zoning decisions.

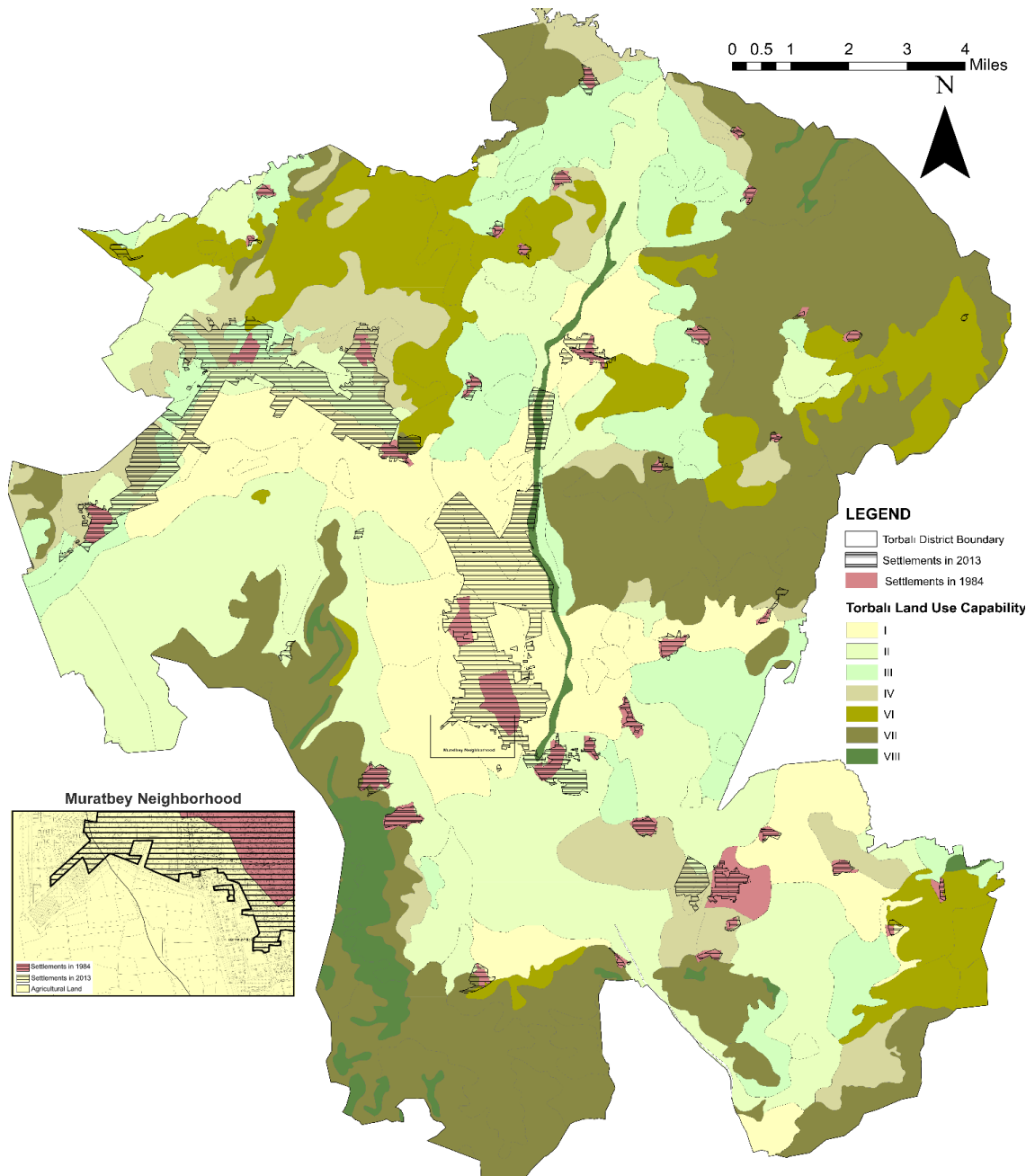


Figure 2.9. Torbalı's Agricultural Land-use Capability Map

(Izmir Special Province Administration, 2013)

As a result, public lands in general and agricultural land in particular can be easily sell out private people, real estate agencies, organization, or even transfer in Turkish case. The maps and statistics of the agricultural land exchange in Izmir and Torbalı show that agricultural areas have been substantially changed and covered with diverse urban purposes by years (Figure 2.9). Izmir’s agricultural land has decreased by 15.25 percent since 1995 and Torbalı’s agricultural land decreased by 25,57 percent from 1995 to 2015 (TURKSTAT, 2022).

Another major concern is the populist policy of amnesty laws and normalization of illegal developments. The most important regulation, which recently reorganized the zoning rights and caused confusion in the venue and on the legal plane, was enacted by law no. 7143<sup>12</sup> under the name of “zoning peace” despite being a zoning amnesty (2018). The most comprehensive of the zoning amnesty slated for Turkey’s urbanization date came into force ahead of local elections on June 24, 2018. This does not contradict the nation's populist policy characteristics. With this law, amnesty has been introduced to almost all illegal structures.

Amnesty laws is not particularistic rearrangements of the development rights heavily related with the Turkish politics popular character, however, this rearrangement of the amnesty under the rubric of “peace” was the most extensive one and has been introduced to almost all illegal structures by paying a fee. To summarize, the idea that “the state forgives one day anyway” has become internalized in large parts of society, resulting in an increase in illegal construction and rendering the regulatory and control mechanisms of planning obsolete.

As a result, our findings reveal that traditional land-use planning and execution by local authorities has significant flaws and limitations when it comes to protecting rural regions and regulating urban expansion in a sustainable manner. Traditional planning methods have a number of shortcomings when it comes to managing externalities and guaranteeing social equity in development rights allocation. The need for structural rehabilitation is urgent, and it is hard to include new tools like TDR as a supplementary and corrective strategy for long-term sustainability within such a planning framework. However, as planners, we want to believe in more active and socially accepted planning with the space that history has created and the trickle-down impact of international policy applications (Amponsah et. al., 2022).

---

<sup>12</sup> Amnesty Law, No: 7143. The name of the Law is “Development peace” (R.G. 18.05.2018 / 30425)

## CHAPTER 3

### LAND READJUSTMENT TOOLS IN TURKISH PLANNING CONTEXT

Along with the planning tools frequently used in planning legislation, such as expropriation, zoning, voluntary arrangement, land and parcel arrangement and etc. In this section, it is also explained the "Y application," which is infrequent but established to solve a significant planning problem. This application has only used in Izmir's Municipalities in planning system to solve and respond to the property owners' lost of development rights. Additionally, the reasons for using these tools for plan implementation, their preferences, and the challenges they face are all addressed. Finally, the applications and legal regulations in the Turkish Planning System, which are used like TDR, are mentioned.

#### 3.1. Expropriation (*Kamulaştırma*)

The Turkish Language Association defines expropriation as the taking of an immovable by public legal authorities at the specified fair value and transferring it to owned by the public in order to carry out a public interest activity. Expropriation<sup>13</sup> is the term for acquiring public property without the owner's consent in order to provide public services, if the cost of private property is upfront and revealed. Expropriation, in this context, is a procedure that limits or abolishes the right to property, and the public interest takes precedence over the personal profit (Türk, 2004). Two factors are used to determine the landowner's entitlement to compensation. As a result, it is not favoured owing to a lack of funding. The price will be established by taking into account the kind, surface, and other characteristics of the property, which is based on establishing the value of a property and is delivered as a report (Akcesme, 2006). The first need is the measurement of objective or legal costs. As a result, the quantity of the provision is decided by

---

<sup>13</sup> In Turkish legislation, Expropriation Law No. 2942 was adopted on 4/11/1983.

legislation, in accordance with the public interest, and according to the level of public power. According to the subjective pricing criteria, the owner must get the full market price. The market pricing (*rayiç bedel*) criteria lays a severe load on public entities and makes it challenging to carry out urban planning owing to financial shortages.

When calculating value, the contract administration and the property owner agreement on the purchase price. Expropriation can be recognized by the fact that the property is not handled with the owner's agreement, and it is occasionally judged by the fact that a lower price is set in accordance with market circumstances. Therefore, achieving the goal of conservation can take a while.



Figure 3.1. The situation of Kayseri-Develi-Tombak Neighborhood before and after Expropriation (EA) (Source: Boztoprak et. al., 2016)



### **3.2. Zoning (*Bölgeleme*)**

Although the concept of planning has a wider scope than zoning, zoning practices are carried out with master development plans in Turkey. Zoning is the primary way of the controlling the construction and usage purposes of the buildings in a particular region and the evaluation of vacant lands. Consequently, zoning has taken on the task of providing that the property is used in the most efficient way and that the master plan's intended actions are carried out (Dündar, 2010).

The region that has to be zoned is often subdivided into residential, business, and industrial zones. These territories can also be separated even more within themselves. Zoning and planning terms are occasionally used interchangeably, it has been observed. However, the definitions of these two names varies. Compared to the idea of zoning, planning has a broader and more comprehensive meaning. Zoning is one of the implementation tools of the plan (Dündar, 2010).

The demands of the society in the future should be considered in order to get the intended benefits from zoning operations. As a restriction on the private property right, zoning is defined as the partition of a certain area, land, or building into divisions in accordance with the purposes for their use and development (Dündar, 2010).

This restriction is based on the proposed use of the property and how closely it relates to the plan's characteristics. The areas affected by these constraints, which we might refer to as “zoning restrictions”, are as follows, according to Isbir and Acma (2005):

- The building's height, number of storeys, dimensions, and additions
- The maximum quantity of land that will be used to construct the building and any attached structures the size of the garden, plot, and other locations
- The gap between the roadway and other structures that must be left
- Building in certain locations based on its usage and purpose.

### **3.3. Voluntary Arrangement (*Gönüllü Düzenleme*)**

Based on the landowner or investors, voluntary agreements maintain the coherence between municipal plans and cadastral parcels. There are two approaches to acquire urban areas for public use. The first approach entails the acquisition of the local plans' designated public service zones with the landlords' or investors' consent. Hospitals,

municipal service zones, and other official service areas need expropriation, nevertheless. While urban areas are developed in accordance with municipal plans and with the necessary procedures, if there is any residual land on the parcel, it is either joined with the next parcel or is expected to be processed together with it. Expropriation or land arrangement is necessary if the entire cadastral parcel is to be designated as a public service area (Dündar, 2010).

In the second voluntary technique, the parcel borders are changed at the request of the landowners if one or more cadastral parcels do not have an appropriate form. The landowners must, however, reach a consensus among themselves in order for this technique to be put into practice (Yormanlıoğlu, 1996). Following this procedure, public service zones are established in line with regional objectives. It is also possible to combine the two forms of voluntary control (Türk, 2004).

In summary, without using public land agreements, it is the conversion of cadastral lots into urban portions for the benefit of the general public. These areas are separated into public-use areas including parks, parking lots, playgrounds, green spaces, roads, and school zones (Türk, 2005). Due to the quick response and fulfillment of the landowner's desire, it is chosen over the land and parcel arrangement strategy.

### **3.4. Land and Parcel Arrangement – Implementation of Dough Rule (*Hamur Kaidesi*), Article 18**

It is a procedure for redistribution to previous immovable owners after its establishment. Land and land arrangement, execution of a settlement plan independent of the ownership status of the moveable consolidation of public service areas needed by the plan (Keles, 1998). A more precise definition of the method would be to transform cadastral parcels with or without buildings that are unsuitable for construction within the master plan's boundaries into ones that are suitable for structuring in accordance with the usage and density guidelines specified by the master plans (Ersoy, 2000). Following the Second World War, similar arrangements began to be used extensively in urban areas, where the first agricultural applications were produced in an effort to combine tiny plots of land that are unusable for farming (Türk and Ünal, 2011).

**Zoning parcellation map (*İmar Parselasyon Haritası*):** Buildings are built on the zoning parcels created by considering the principles given in the master plans, the

plan conditions and the zoning regulations. The plots shown with the dashed line in the example in Figure 3.2 represent the cadastral plots before the application. After the implementation, new zoning parcels were created from these parcels, and the current building block and parcel numbers were given.

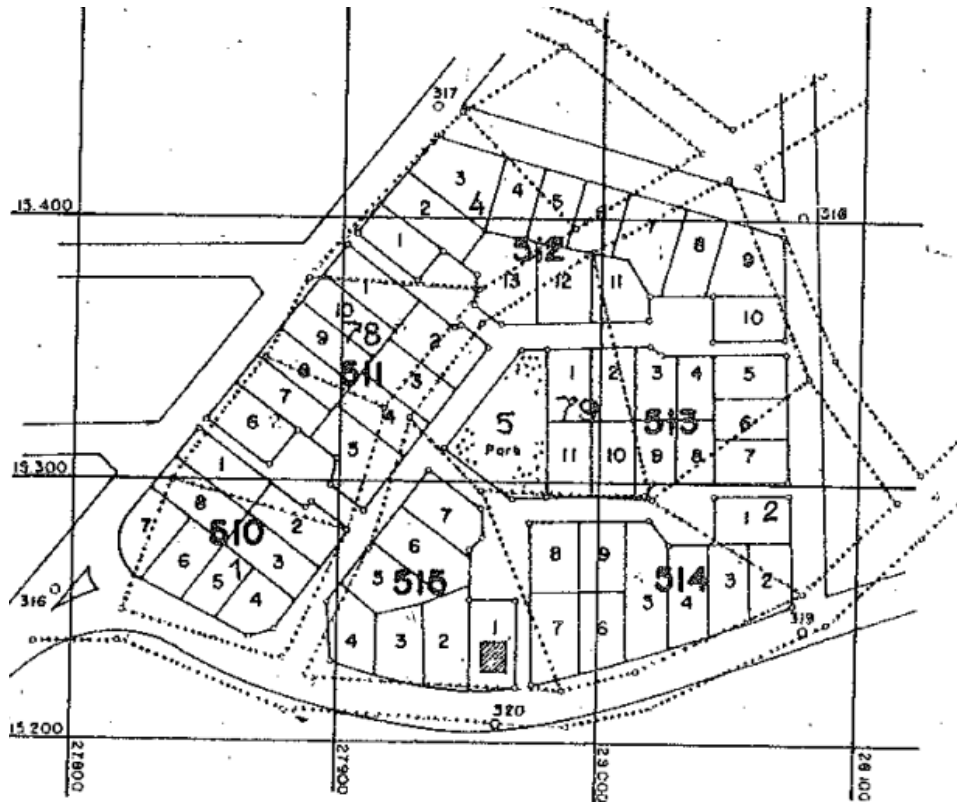


Figure 3.2. A sample of zoning parcellation map

(Source: Songu et al., 2009)

**Master implementation plan (*İmar Uygulama Planı*):** These are the plans that are drawn on city or town maps with cadastral status, if any, according to master plan principles, and show the building blocks of various regions, their construction regulations, roads and other necessary information for implementation.

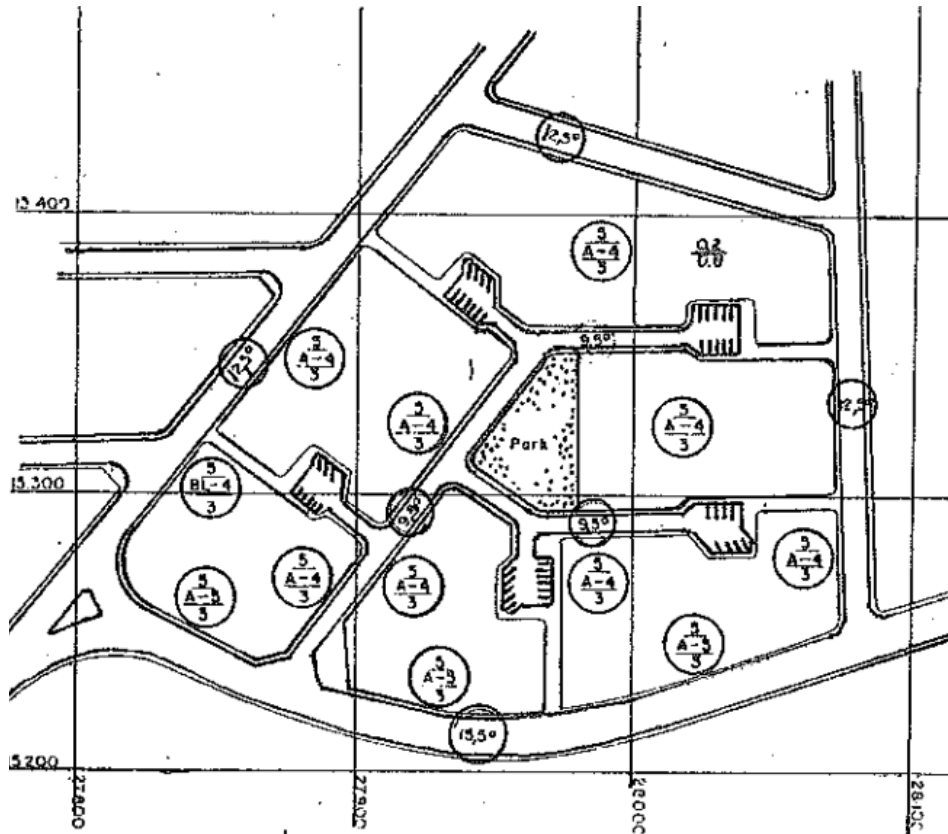


Figure 3.3. A sample of master implementation plan

(Source: Songu et al., 2009)

Since city planning was became legal in the 1800s, the LPA has been a tool in urban planning. The Zoning Law No. 3194 defines it as the procedure of distributing zoning areas to movable owners after selecting which areas should be allocated to the public in the master plan. Up to 45 percent (DOP rate)<sup>14</sup> of the land and lot rules may be obtained free of charge in accordance with Article 18 of Zoning Law No. 3194<sup>15</sup> and

<sup>14</sup> According to the definitions in article 4 and paragraph 3 of the zoning legislation; Regulatory partnership share (DOP), in return for obtaining the public service and public service areas necessary for the residents of the regulation area and the region to continue their urban activities and/or in return for the value increases due to the regulation; It is the amount that can be deducted up to forty-five percent (45 percent) from the area of land and plots subject to regulation before the regulation, according to the usage decisions in the master plan. Regulatory partnership share refers to the public space that is needed by the regulated places and the residents of the region and that can be used by everyone, and cannot be used for any function other than the common use of the people living in the region.

<sup>15</sup> The purpose of this regulation, which is referred to as land and land arrangement; It is to clarify where and how the land and land arrangement to be made according to the Zoning Law dated 3/5/1985 and

Article 7 of the Implementing Regulation (For use in roads, squares, parks, green areas, mosques, police stations where a master plan is needed). In contrast to expropriation, the rights of property owners remain intact. Application of the approach may be summed up as the distribution of the remaining area to real estate owners following the reservation of the common spaces for areas meant for public use from the total area of the parcels entering the regulatory area. (Guzle, 2019; Dündar, 2010).

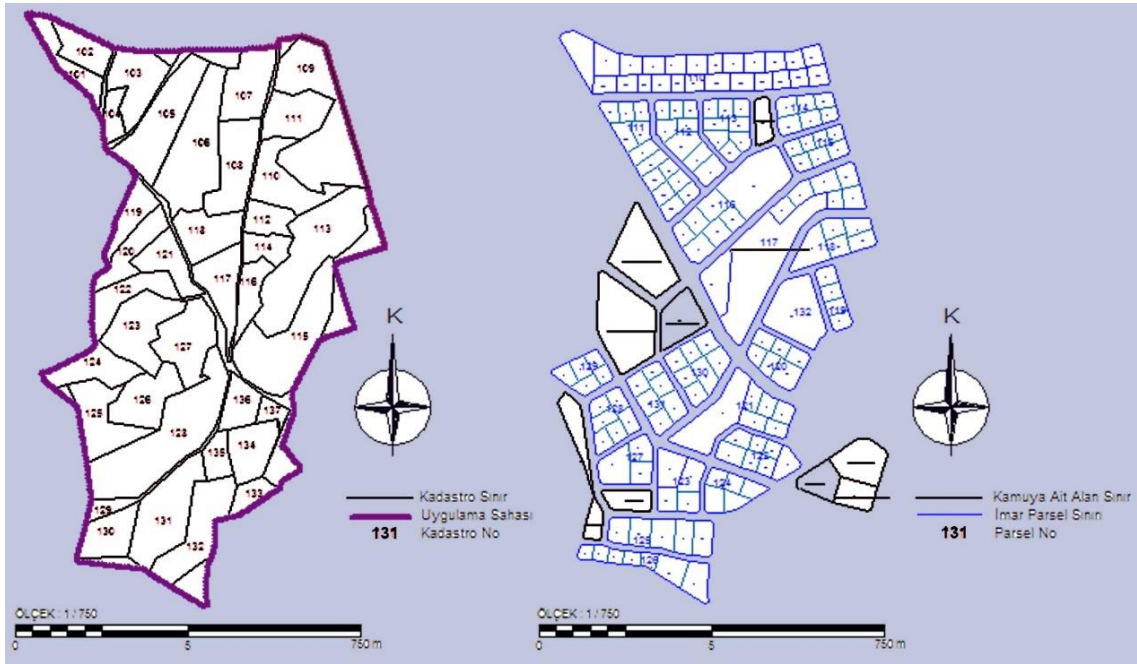


Figure 3.4. A sample of Article 18 Implementation

(Source: Yalpir and Ekiz, 2017)

In the Figure 3.4, there are maps of the study area before and after the application of the 18th item. Accordingly, while the cadastral parcels were more scattered, irregular and disproportionate on the map before the implementation, new parcels were created proportionally after the implementation as well as in public areas such as parks and schools. It is a substitute to expropriation since it is a method of self-financing to create urban lands and satisfy operational needs, enable modifications to cadastral structures with irregular shapes and fragments, and have the potential to organize and consolidate regions. The instrument is preferred as an alternative to governmental expropriation in

---

numbered 3194 and other related concepts and issues. After the last regulation, it was published in the Official Gazette on 22/02/2020.

addition to its beneficial features. Restriction of ownership rights for the benefit of the general welfare (Guzle, 2019).

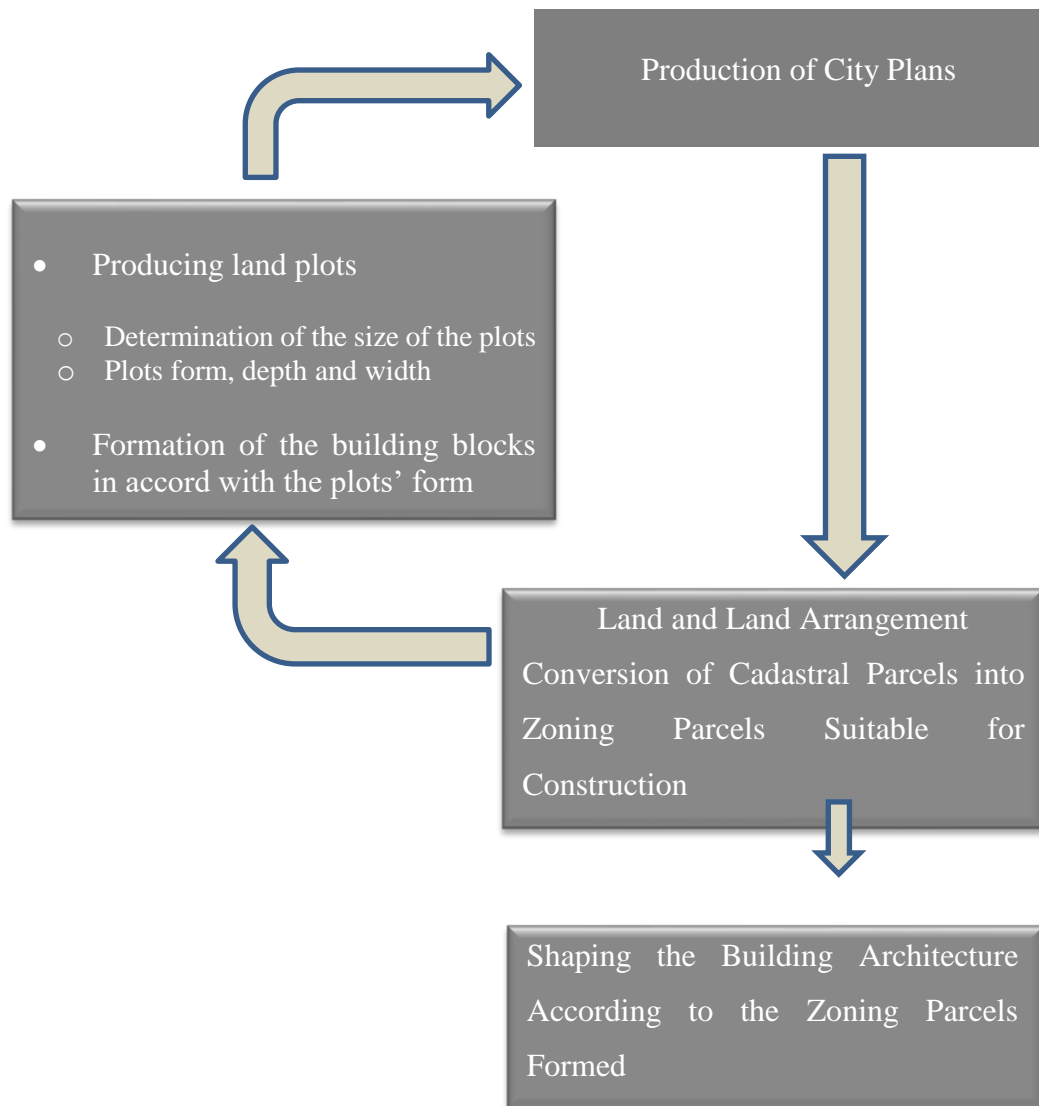


Figure 3.5. The scheme of the production of the city plan

(Source: Meşhur, 2008)

The justification for the transfer of the development right is based on the idea of "value assessment." Similar reasoning is emphasized in the Turkish planning system's "dough rule" (*hamur kaidesi*, Article 18), a private property public form of control that states that "after the needed land rearrangement, up to 45 percent should be designated for public use for the interdependence of the expected increase in land value. The

evaluation methods used in this application are determined by the size of the individual land parcels. Other factors including location, conservation status, and volumetric consideration are often excluded from value assessments. The definition of "value" in our nation and the clear definition of its characteristics are essential for TDR applications.

Table 3.1. The advantages of Article 18 Implementation

(Source: Meşhur, 2008)

<p><b>Implementing Administrations</b></p>	<ul style="list-style-type: none"> <li>- The ability to create free of charge public use areas foreseen in the plans with the share taken from the immovables (with the DOP rate).</li> <li>- Implementation of plans holistically</li> <li>- Ensuring the establishment of the supply-demand balance in the land market of the urban lands produced</li> <li>- Preventing the occurrence of land speculation</li> </ul>
<p><b>Property Owners</b></p>	<ul style="list-style-type: none"> <li>- Conversion of cadastral property into urban lands suitable for construction with a significant increase in value</li> <li>- Ensuring the continuity of property rights</li> </ul>
<p><b>Public</b></p>	<ul style="list-style-type: none"> <li>- Fair participation in the formation of public areas foreseen in the plans.</li> </ul>

### 3.5. ‘Y Condition’ Application (Special Concentration of Development Right)

The local officials are aware of the application Y, which has only been used in Izmir Master plans and has no recorded sources in the literature. The officers of the Immovable Valuation Unit (*Taşınmaz Değerler Birimi*) of the Izmir Greater Area Municipality provided information on this application, which was recorded in this research.

This practice, which is called the 'Y condition' in the master plan, emerged out of necessity and is a very uncommon practice. When cadastral parcels are converted into

zoning parcels pursuant to Article 18<sup>16</sup> of the Zoning Law No. 3194, a deduction called regulation partnership share (DOP) is made at a maximum rate of 45 percent. DOP is the share transferred from the cadastral parcel to the public property (such as road, park, garden, etc. that the region needs) free of charge for the purpose of creating all public services.

In some zoning applications, the fact that the cadastral parcel is too large obliges this arrangement to be cut more than the partnership share. However, since no more than 45 percent deduction can be made legally, the owner has a smaller square meter parcel than other parcels. In order to eliminate this grievance, the 'Y condition' in the master plan, based on the cadastral parcel area, is given the right to construct a higher building than the other parcel.



Figure 3.6. An example of a master plan with the 'Y condition' for Izmir Bornova district

(Source: Izmir Greater Area Municipality, Immovable Valuation Unit)

<sup>16</sup> (Amended clause: 4/7/2019-7181/9 art.)



If we look at the master plan example in Figure 3.6, while the building floor height given in the zoning building blocks in the example is 4 floors under normal conditions, the building height is given as 12 floors in the plots where the Y condition is applied. The cadastral parcel size of the owner is greater than the size of the zoning parcel given in the plan. However, the fact that the square meter of the land was low after the master plan resulted in it having the right to develop higher floors.

### **3.6. Legal Background of TDR in Turkish Planning Regulation**

TDR applications, which first appeared in the USA at the beginning of the 20th century and then spread to other nations, are used for a variety of things, including resolving complaints. The first documented TDR use was made in New York in 1916 when a historic building transferred the air right directly to the nearby skyscrapers, preserving its architectural integrity for all time. Both outside of the United States and in other nations, similar reflections have started to take place (Aksoy et al., 2019).

TDR has gained recognition in the Turkish legal system as well, however there is no application guideline or model application in Turkey. As a result, alternatives to TDR such as comparable applications and legislative requirements are implemented. To mention them briefly,

#### ***Law No. 6306 on Transformation of Areas Under Disaster Risk<sup>17</sup>;***

According to the agreement, it is regulated that housing certificates, the procedures and principles of which are determined by the Ministry of Environment and Urbanization (*Çevre ve Şehircilik Bakanlığı*), can be given to the owners of the buildings that have been evacuated, demolished or expropriated, and to those who have resided or had a workplace in these buildings for at least one year as a tenant or limited real right holder, even if they are not owners (Art.6/3).

In the fourth part of the law, the valuation and entitlement in the field of application are explained. In the 13th article of this section, it is stated that *'if there is a receivable from the relevant institution, the amount subject to this receivable; based on*

---

<sup>17</sup> In Turkish legislation it knows as '6306 sayılı Afet Riski Altındaki Alanların Dönüştürülmesi Hakkında Kanun'

*the agreement to be made between the parties', the transfer of the development right is mentioned with the phrase 'can be paid in cash or by giving from the immovables of the relevant institution that are not allocated for public service or by transferring the development right to another area'.*

***Decree Law No. 644 on the Organization and Duties of the Ministry of Environment and Urbanization<sup>18</sup>;***

The task of determining the transformation, renewal and transfer areas and executing the works and transactions related to the transfer of development rights are stated among the duties of the General Directorate of Infrastructure and Urban Transformation Services (*Altyapı ve Kentsel Dönüşüm Hizmetleri Genel Müdürlüğü*) (Article 11/1/d). Developing urban transformation, renewal and transfer areas and transferring development rights in these areas are among the duties of the General Directorate of Spatial Planning (*Mekânsal Planlama Genel Müdürlüğü*) (Article 7/1/e).

***Law No. 2863 on the Protection of Cultural and Natural Assets<sup>19</sup>;***

It has been accepted that the development rights can be transferred. Municipalities within adjacent areas, governorships outside, are authorized to transfer the zoning rights of the regions with restricted zoning rights to other areas open to construction, which are reserved as transfer areas (Art. 17/c). If it is not possible to determine the transfer area within the borders of the municipality where the restricted rights are located, the relevant administrations are authorized to carry out a joint program (Art. 17/c/7).

It is accepted that zoning rights can be tied to securities. Relevant administrations (Art. 17/c/3) are authorized to issue documents that will ensure the exercise of the transferred development rights and convert this right into bearer securities, and İlbank is authorized to issue securities, to issue securities, to approve handover transactions, and to establish and audit the database (Art. 17/3).

---

<sup>18</sup> In Turkish legislation it knows as '644 sayılı Çevre ve Şehircilik Bakanlığının Teşkilat ve Görevleri Hakkında Kanun Hükmünde Kararname'

<sup>19</sup> In Turkish legislation it knows as '2863 sayılı Kültür ve Tabiat Varlıklarını Koruma Kanunu'

The transfer of development rights is regulated as an expropriation method. In the regulation, it is stated that if the owner does not have a protectable right to restructuring in the parcel subject to the transfer, the ownership of the relevant real estate will be transferred to the administration, and if it remains, the right of restructuring will be transferred partially. In this case, the ownership of the owner in the restricted area will continue (Art. 17c/4,5).

Some financial obligations have been imposed on the owner of the building whose development rights have been transferred. If the right subject to the transfer is on the registered immovable cultural property, the owner is obliged to carry out the necessary maintenance, repair and restoration work for the protection and survival of this property (Art. 17/6).

***Expropriation Law No. 2942<sup>20</sup>;***

In the relevant regulation, the transfer of development rights is regulated as a compromise method. The barter of the immovable belonging to the administration has been regulated as a compromise or exchange method, stating that, in addition to granting limited real rights on the immovable belonging to the administration, it can be given by using the zoning right in another place within the framework of the zoning legislation (temporary 6/2). In addition, it has been regulated that the transfer can be applied for the payments made based on the finalized court decisions (temporary 6/8).

Although TDR has been mentioned in the relevant laws and decree laws for years, the TDR regulation expressed in the law has not been prepared. In addition, there is no information about how TDR will be applied in both the literature and legal regulations. According to the information and researches accessed, it has not been implemented in Turkey yet, and even if it has been implemented, the relevant official records could not be reached. (Konbul and Yanalak, 2022; Mataracı et al., 2017)

---

<sup>20</sup> In Turkish legislation it knows as ‘2942 sayılı Kamulaştırma Kanunu’

## **CHAPTER 4**

### **TRANSFER OF DEVELOPMENT RIGHTS: LITERATURE REVIEW**

Transfer of development right is frequently considered as a tool for carrying out development strategies. The primary objectives of TDR have been to encourage the preservation of farms and natural habitats, to solve regularly occurring constitutional difficulties (particularly in the USA) in traditional forms of planning, and to allow for greater flexibility in the execution of development plans. Reduced governmental expenditures is another goal (especially in Europe). Other possible advantages (equity and efficiency) in this situation were viewed as incidental or just as accessories (Chiodelli and Moroni, 2016). The concept, historical background, function, and design of TDR, as well as its potential and threats, key success characteristics, and a few specific American and European practices, have all been explained and illustrated in this section.

#### **4.1. The Concept of TDR as a Tool of Planning**

The development right of a parcel is the difference between the "current use" of that parcel and the "potential use" permitted by law (Pizor, 1986: 203). Typically, development rights are specific, referring to a certain property and only being applicable on that lot. The ability to transfer and use TDR in other locations sets it apart from permanent zoning rights. Land ownership is viewed as a "bundle of rights" in the context of TDR (Chiodelli and Moroni, 2016).

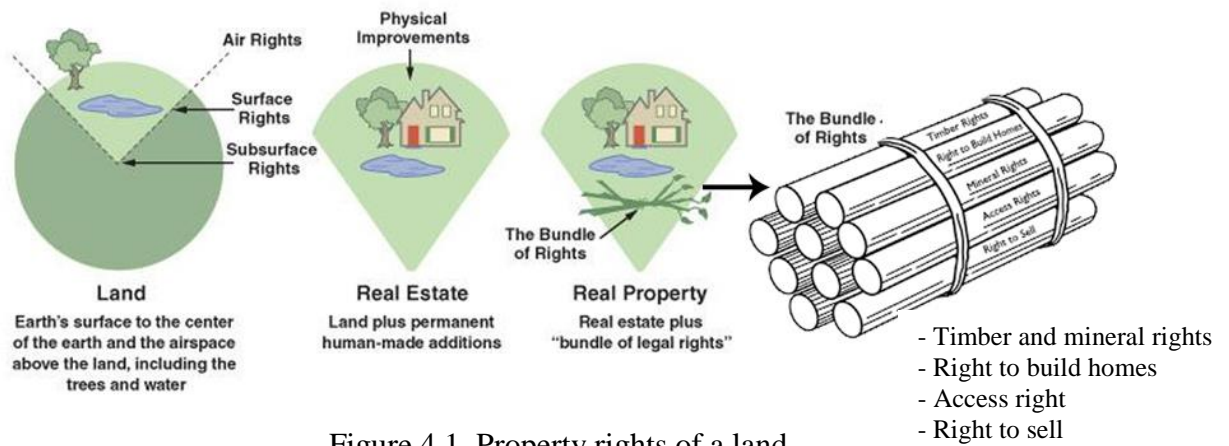


Figure 4.1. Property rights of a land

(Source: Adapted from Chiodelli and Moroni, 2016)

TDR enables the transfer of just the "development right" and not the entire "bundle of rights" that the real estate owns. The author claims that using TDR only redistributes development, not intensifies it. And it eliminates the all-or-no-use of development right (Chiodelli and Moroni, 2016).

Two fundamental pillars, one related to property another to protection support the transfer of development rights. From a property perspective, it compensates property owners for their limited rights; from a protection perspective, it prevents development in areas that need to be conserved and provides the transfer and continuation of those areas to future generations. By controlling it carefully, it also seeks to guide growth into a suitable development area. Development rights are rights that may be purchased and sold separately from property rights, offering economic worth and portability to another area (Mengilli-Işıldak, 2012).

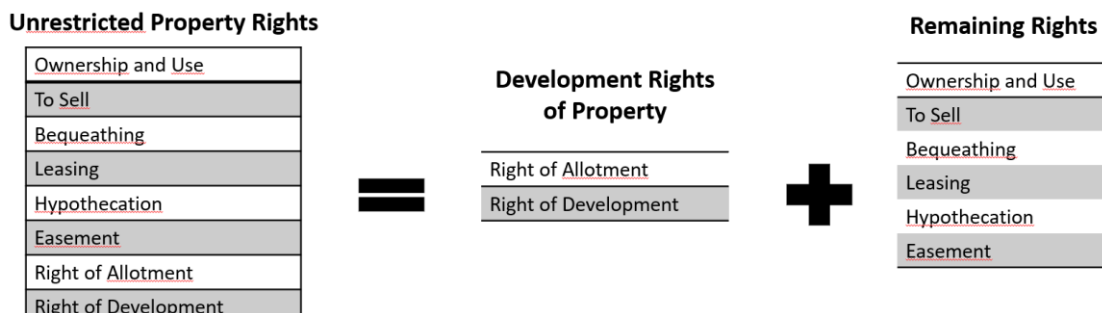


Figure 4.2. Property rights those can be transferred

(Source: Adapted from Mengilli-Işıldak, 2012)

TDR is a sort of transfer and purchase of development rights from places where urban expansion is limited for certain reasons, including the conservation of agriculture or nature conservation, etc., to the areas with high development rights (Tavares, 2003; Nelson et al., 2013). To transfer development rights from protected areas to development areas, TDR is a planning tool, management model, and market-based management mechanism (Hin Li and Gan, 2013: 19). It is a highly practical and successful way to make urban development strategies easier to implement, and it encourages the expansion of regions designated as new growth zones (Aken et al., 2008; McConnell et al., 2007). TDR minimizes pressure from speculators to direct urban growth away from protected areas and into development zones while enabling broader and more effective protection. It also allows for the fulfillment of the principle of “equal distribution of the development rights” i.e. *social justice* by compensating for the restricted rights of immovable property (Mengilli-Işıldak, 2012; Curtis et al., 2008). According to Pruetz (2003), TDR is an application tool which encourages the *voluntary* transfer of property rights to the areas of the communities to be protected. It is an active application tool that transfers development rights to the host area (i.e. growth area) where development is demanded in order to reduce development pressure on the areas under tight restrictions.

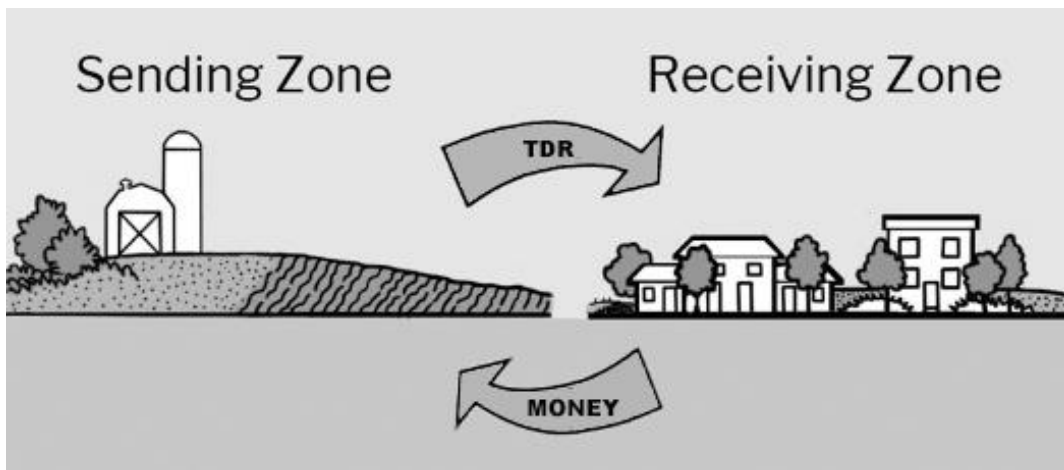


Figure 4.3. Sending and receiving areas with TDR

(Adapted from Chester County Planning Commission, 2022)

Additionally, by balancing profits and losses, it offers significant convenience in circumstances when public resources are insufficient to cover the expenses of

limitations or where just the property owner is required to pay for protection, assuring the continuity and effectiveness of safeguarding (Messer, 2007: 51). TDR programs may provide both flexibility against the strict protection rules of the nature protection areas and disaster-risk areas, farmland and heritage areas and, a systematic tool to help authorities achieve comprehensive long-term environmental and economic goals (Machemer and Kaplowitz 2002: 773). TDR programs allow central or local authorities to take preventive measures without incurring any additional costs in regions or settlements that cannot be opened to development or have fewer zoning powers. When we check the concept according to sustainability it makes sure the protection and preservation of nature and farmland areas by guiding the stress of growth in other areas that need to be built by efficiently allocating public resources; i.e. planning and empowering people living in heritage areas.

The TDR's crucial premise is that only the right to develop urban property may be sold or transferred; urban land itself cannot. After selling their development rights, urban landowners can still utilize their property. For instance, the landowner may continue to live in, use, or cultivate land-based agriculture even after the development rights to a listed structure or agricultural land have been sold (Akcesme, 2006). Any landowner has direct constitutional authority over his or her immovable property. By transferring their rights to the receiving areas, TDR enables property owners to completely or partially surrender their property rights (building, acquisition, rent, use, or limitation of other land use) in exchange for payment (Nelson et al., 2013).

Regarding the model's historical evolution and the time that it first started to be used, there are several viewpoints. Due to strict urban planning, skyscrapers began to appear in 1916, initially in New York, where they limited the height of buildings and prohibited the development of housing and employment facilities by preventing neighboring properties from exploiting the sky (Hanly-Forde et al., 2014). Property owners were able to sell their rights to exploit the height restriction in other lots if they had not yet reached it on the neighboring plot. With the adoption of the "Cultural Property Protection Act" in 1968, the model reappeared in New York City. (Yamak 2006), which permitted the transfer of the development rights of property owners not based on the lot or the adjacent plot, but throughout the city. In the 1980s, the TDR was widely publicized in the USA (Pruetz 2003). In reality, many TDRs initiatives in the United States are focused on agriculture protection or natural areas.

The TDR program has four basic components (Machemer and Kaplowitz, 2002: 775). The first is the sending region, which is where the immovable must be preserved (*sending area*) and the second is the regions to be developed (*receiving area*) (Figure 4.4).

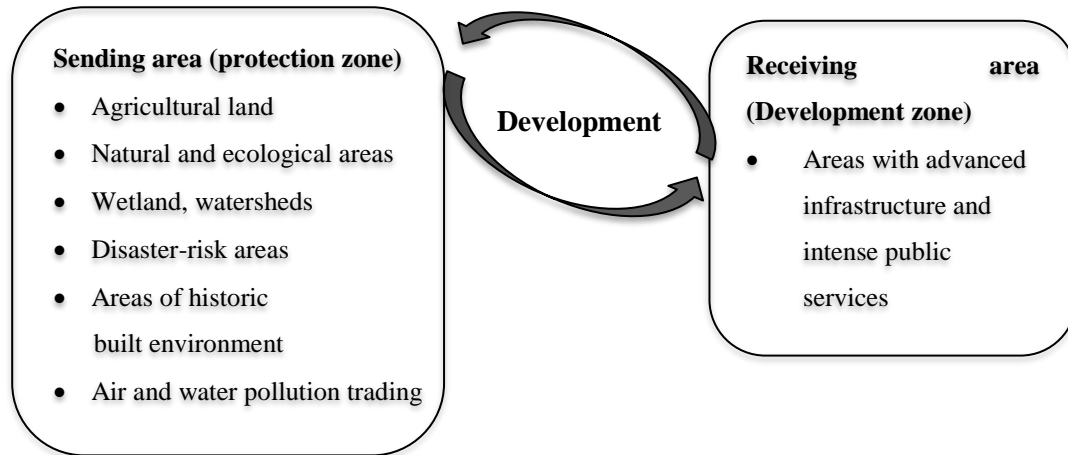


Figure 4.4. Sending and receiving area concepts

(Source: Guzle and Akpınar, 2019)

While TDR is meant to safeguard equal distribution of the development rights, it means different things to different people. Immovable property owners, for example, can profit by selling their rights and simultaneously selling or transferring their rights to another buyer on the market. Developers, on the other side, can purchase more immovable rights and profit from the plan's increased density. The planning offices, as a prominent player, reaped numerous benefits from the use of TDR. By implementing buffer zones, green belts or limiting development densities, local governments can redirect urban development to areas where they want to expand while reducing development pressure on protected areas.

TDR may be transferred in two ways under the Law, depending on the nature of the property under protection status: partially or totally. The property ownership of the immovable property (i.e. watery agricultural land and high capacity soil) is maintained in partial transfers. In this instance, however, the property owner is required to do continuation of the agricultural production for the land's protection in terms of the protocol to be signed with the relevant administration (Güzle, 2019). The property rights



of the immovable property change with all of its elements in the case of a full transfer of development rights, and the immovable property is wholly owned by the public. In this instance, the landowner receives a certificate confirming his development rights, and his ownership is transferred to the public.

Reselling a property that has been transferred to the general public is prohibited by law. In other words, a property owner who has lost his or her development rights certificate; (1) use the property, (2) benefit the production fruit, (3) possess, sell, rent, bequeath, mortgage, or just *use* his/her property (Mengilli-Işıldak, 2012: 98). Despite the fact that the Law makes no provision for the design and determination of receiving areas, the area to be transferred is first selected from the relevant municipal boundaries, and if there is no room for a receiving area, it is expected to be used in other areas determined through joint programs with other public institutions (Güzle, 2019).

Table 4.1. Reasons for applying TDR

(Source: Adapted from Güzle, 2019; Göksu, 2000)

<b>Sending region</b>	<ul style="list-style-type: none"> <li>• Protection of the sending area (heritage preservation, farmland protection, natural areas protection etc.)</li> </ul>
	<ul style="list-style-type: none"> <li>• Protection of the seller's interest</li> <li>• Alternative to those whose right to develop their property is restricted granting a right to development</li> </ul>
<b>Receiving Region</b>	<ul style="list-style-type: none"> <li>• Development of the receiving region</li> <li>• In line with the plan objectives of the receiving region development</li> </ul>
<b>Public</b>	<ul style="list-style-type: none"> <li>• Establishing and sustaining the conservation-use balance</li> </ul>
	<ul style="list-style-type: none"> <li>• Regulation of land for public use</li> </ul>
	<ul style="list-style-type: none"> <li>• Ensuring social justice</li> <li>• The state does not spend budget for these transactions</li> </ul>

## 4.2. Historical Background of TDR

It is unknown when the TDR model initially debuted historically; the earliest models were spotted in America. Various authors' viewpoints have surfaced in the literature on the topic. According to some authors, the establishment of a floor height

restriction in New York City in 1916 is what gave rise to the so-called right of air distinction between skyscrapers and low-rise buildings situated in their adjacent parcels because it forbade property owners from taking advantage of the sky. By raising the air right to a marketable level and moving it to another location, it aims to end the concerns. This practice states that TDR initially became popular in 1916 (Giordano, 1987; Hanly-Forde, 1994).

On the other hand, another part thinks that TDR started in New York with the Cultural Heritage Protection Act of 1968. By law, the transfer only allows property owners to transfer restricted height rights between adjacent parcels (Yamak, 2006). According to general opinion, TDR emerged in 1960s with aim of protecting historical heritage. First operations are observed in U.S. to provide obtaining affordable homes and preserving natural resources as well (Linkous, 2016; Nelson et al., 2012; McConnell and Walls, 2009; Pruetz, 2003; Jonhston and Madison, 1997).

More than 20 TDR applications were introduced in 11 states throughout the 1970s. The development of the transportation system in Cupertino, California, has been carried out using the TDR program, which offers flexibility in the field of development. As part of the crop protection program, applied to farmers in Calvert County, Maryland. In the 1980s, more than 60 TDR applications were presented in 19 states. There were 21 TDR applications from only California. The preservation of 40.000 hectares of agricultural land has been effectively established in Montgomery County, Maryland. A million hectares of the New Jersey Pinelands were transferred under the TDR program in the state of New Jersey, and as of August 2001, 31465 hectares of that area were under protection. Since then, Denver, Colorado; Seattle, Washington; and San Francisco have all implemented several effective historic preservation initiatives. More than 40 TDR applications were introduced in 13 states throughout the 1990s. New TDR projects were still being deployed throughout the 2000s (Dündar, 2010).

In the 2000s, the TDR model, which is popular primarily in America, expanded to Europe and then, from there, to Asia. When the concept "TDR application" is used, the first application that comes to mind is the one completed in New York's Grand Central Terminal.

# Grand Central Terminal

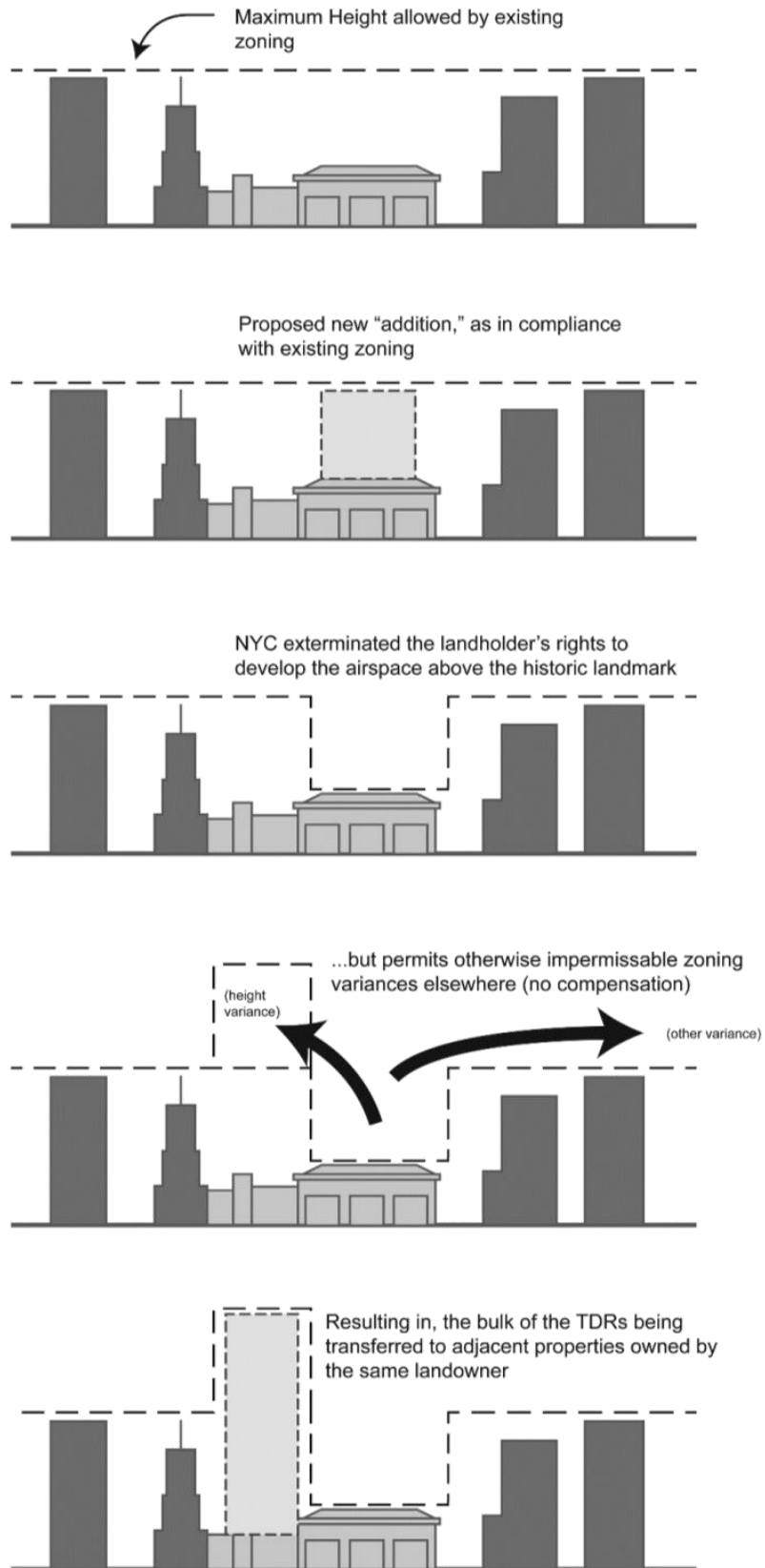


Figure 4.5. Grand Central Terminal TDR process by Doug Woodruff.

It was asked to construct an office tower by ascending to the historic Grand Central Terminal, similar to the skyscrapers in its surrounding and neighboring properties, one year after the Landmarks Preservation Ordinance was put into effect in 1968. The recognized law, however, resulted in the rejection of this request and the transfer of the historical building's rights to the tower on the next property. The largest historical terminal in the world has been permanently preserved in this fashion. After this application, approximately 12 historical buildings in New York after the 2000s were wanted to be converted for similar reasons, but permanent protection was achieved with the TDR application (Dündar, 2010; Pruetz, 2003).



Figure 4.6. The grand central terminal before TDR

(Source: Web 6)



Figure 4.7. The grand central terminal after TDR

(Source: Web 6)

### 4.3. The functions and design of TDR Program

TDR is a program that provides growth management which combination of growth and preservation at the same time. TDR has spatial goals that include both economic and political dimensions. With TDR programs, the development rights could have been bought and sold on the private market and as a result of it, environmental areas, agricultural lands could have been protected without response on taxes or debts.

After first TDR implementations, a new TDR generation appeared that more private capital oriented. By the time the TDR was completed, the focus had switched from publicly-funded, regulated, and bureaucratic planning methods to incentive-driven, entrepreneurial placemaking methods (Linkous, 2016).

The theory for using market-based tools in natural resource policy is built upon by the TDR idea. It is possible to measure TDR's performance by number of the protected area (Linkous, 2016). Normally TDR is mix of development and conversation but the conversation part can be priority for rural areas. TDR consists three fundamental functions those redistributing development rights, offsetting of property right restrictions and leveraging private dollars for resource protection (Nelson et al., 2013).

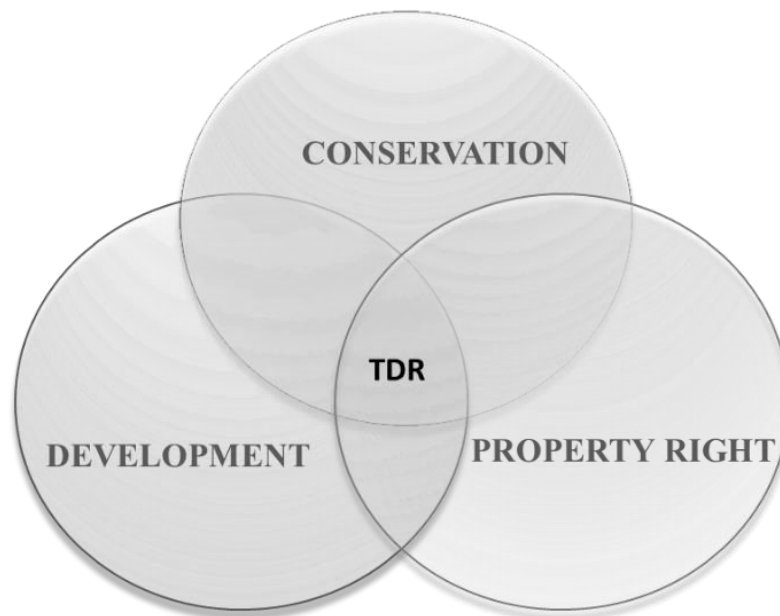


Figure 4.8. The basic factors of Transfer of Development Right (TDR)

(Source: Chan and Hou, 2014; quoted from Guzle et al., 2020)

In the literature review it is appeared that TDR program design features developed in five essential groups. First is the designing of sending regions which lands from developments rights can be transferred. Second is the designing of receiving regions which lands got additional density with transferred development rights. The other one is the TDR allocation rate which number of TDRs that landowners in sending areas are permitted to sell. Another one is the density gain in receiving regions that TDRs allow for more density over the baseline. The last one is the quantity of TDRs needed for an extra dwelling unit under the TDR requirement in receiving regions (McConnell et al., 2007).

According to Johnston and Madison research, TDR can be designed in two programs that calls 'dual zone' and 'single zone' programs. In dual zone programs, sending and receiving areas identified seperated and based on zoning (2007).

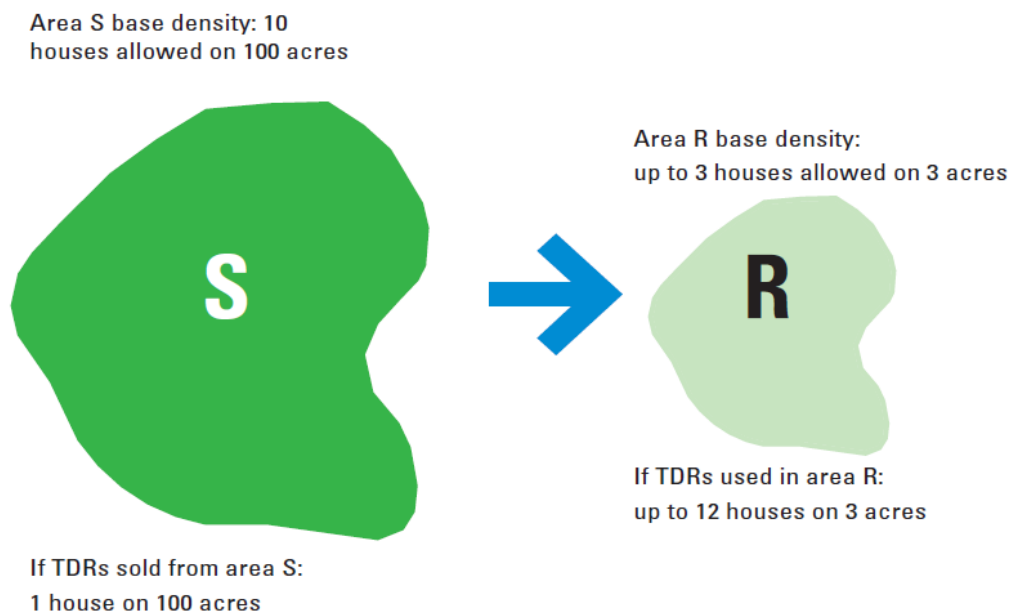


Figure 4.9. A sample of Dual Zone Program

(Source: McConnell et al., 2007)

Single zone programs allow TDR between parcels. The single zone can sometimes cause problems in the protection areas. Because an increase in density in a parcel may cause a rent problem. The maximum quantity of TDR credits that a sending region may sell is known as the TDR Allocation Rate. The whole quantity of TDR credits allocated must be taken into consideration. Landowners won't sell credits if there are too many transferable rights available from sending areas since they will be undervalued (Johnston and Madison, 2007).

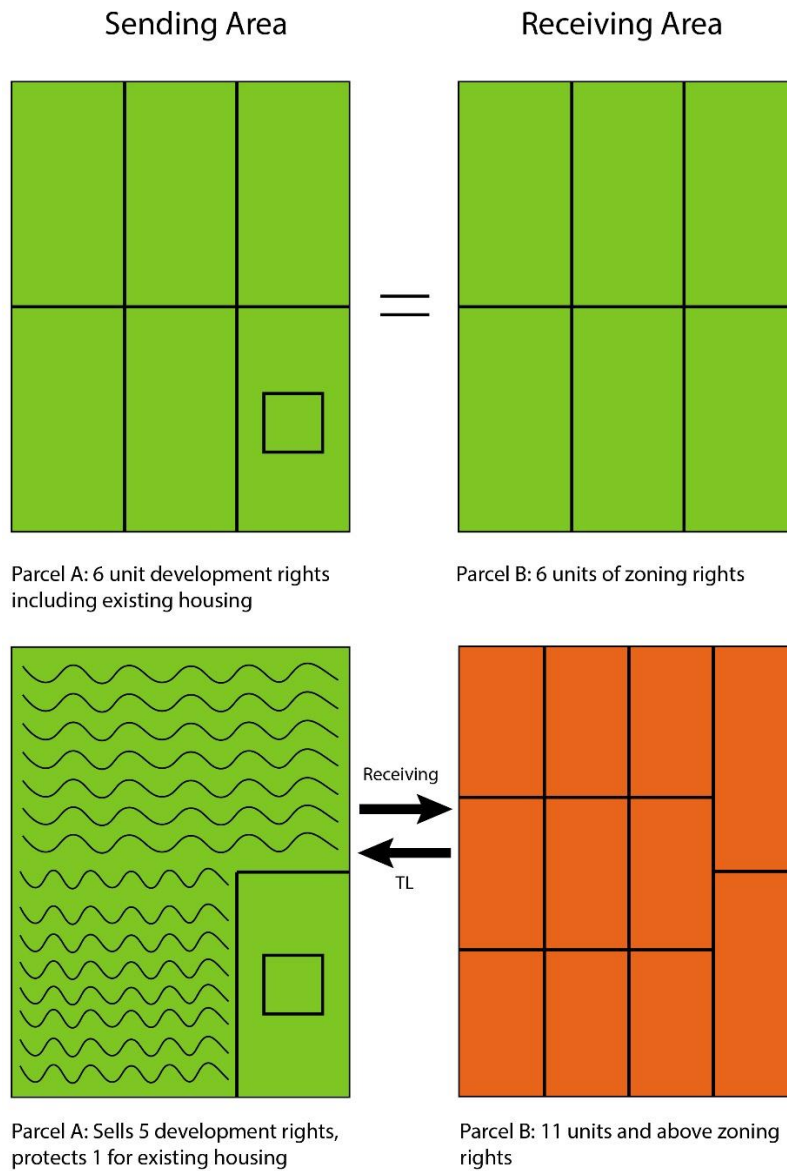


Figure 4.10. A sample of Single Zone Program

(Source: Mengilli-Işıldak, 2012)

#### 4.4. Potentials and Threats of TDR

Under this heading of the study, TDR's potentials and threats are revealed in terms of cost, management, justice/equity, urban development and effectiveness in the conservation. Detailed explanations for each factor are given in Table 4.2.

Table 4.2. Potentials and Threats of the TDR

	Cost	Management	Justice/Equity	Urban Development	Effectiveness in the Conservation
Potentials	A financial incentive tool for sending and receiving areas	Strengthens the relationship between real estate and finance sector	The voluntary participation of landowners in the sending area and investors in the receiving area is <i>essential</i> in the TDR application	By transferring the development rights in the sending areas to the new urban development regions, the development of the recipient areas can be achieved in accordance with the land-use planning and zoning rules	The sustainability of the site as a conservation area is ensured by transferring the restriction of the construction ban on the right of development in the sending area to receiving area
	Expropriation costs are reduced by applying the model	As the program implementation process is followed, negative situations can be intervened immediately	Allows relief for the low-income groups who suffers from the conservation restrictions	Improves the quality of construction and thus eliminates the risk of a disaster	Reducing the building pressure on the protected areas by directing the pressure in the sending areas to the urban development area
		There is a need for strong administrative, technical and managerial capacity to design and implement the model so that capacity is eventually increased		Developing the new residential settlement in the recipient area increases employment opportunities	High building and construction density can indirectly encourage sustainability and safeguarding in the conservation area
				Rights can be transferred to areas where there is a high concentration of private and public services and advanced infrastructure facilities	
Threats		<b>TDR requires more expert team and effort in implementation and management according to other planning tools</b>	<b>The same success cannot be achieved in every different application of the TDR program.</b>	<b>Concentration in the recipient (receiving) area can cause environmental problems and disruption of municipal services</b>	<b>The threat that the model may display a speculative tendency when left to market conditions and that its primary objective may deviate from protection</b>
			<b>The process takes a long time due to contextual differences in the detection and valuation of immovables in the sending areas</b>		



## 4.5. TDR' s Success Factors

In this section, the factors that have been found in 20 different publications in the literature and that are thought to be necessary for a TDR program to be successful are mentioned. These factors were collected by Pruetz and Standridge and classified in 10 stages (2008);

### *Factor 1: Demand for Bonus Development*

For TDR to work, the extra density that developers get when they buy TDRs must be something they actually want. Due to the fact that each of the top 20 projects has shown sufficient demand to conserve a sizable amount of land, they all by definition display this trait.

### *Factor 2: Customized Receiving Areas for the Community*

The receiving regions must be adjusted to fit the community's geographical, political, and economic qualities.

### *Factor 3: Strict Regulations for Sending-Area Development*

When growth in the sending zone is less desired owing to challenging terrain, isolation, an insufficient infrastructure, and other factors, landowners should simply be more inclined to embrace TDR.

### *Factor 4: Limited or nonexistent TDR alternatives for further development*

Since the community offers developers opportunities for further development without having to submit to TDR requirements, many of the 191 TDR initiatives in our dataset have failed to save much area, if any land at all.

### *Factor 5. Market Incentives: Transfer Ratios and Conversion Factors*

Many TDR plans have a one-to-one transfer ratio, which states that one bonus housing unit is permitted at a receiving site for every dwelling unit that is prohibited at a sending site.

### *Factor 6: Ensuring Developers Can Utilize TDR*

Some TDR programs fail because their creators are unsure if they would receive bonus density when selecting the TDR option.

### *Factor 7: Significant Public Support for Preservation*

### *Factor 8: Simplicity*

In most of the related published article identified program simplicity as a key element in its effectiveness. The ease of implementation of a program aids in gaining

support from the wide range of prospective supporters, including landowners, developers, preservationists, homeowner associations, the general public, and political officials.

*Factor 9: TDR Promotion and Facilitation*

Developers and landowners must be aware of the TDR option, how it operates, and how it may benefit them if TDR initiatives are to be successful. As elected officials are frequently asked to give exceptions to TDR standards, which, if granted, might eventually render a program useless, the general public should also be continually informed of the advantages of TDR programs.

*Factor 10: A TDR Bank*

A TDR bank is a business that has received consent from the neighborhood to buy, hold, and resell TDRs (Pruetz and Standridge, 2008).

On the other hand, from the literature, Hou et al. (2018) identified 10 significant problems that affect the efficacy of TDR. They contend that in order to be considered appropriate in the context of minimizing the size of the specified building zones, alternative ways to compensation, such as sharing techniques and the SCDR (the spatial concentration of development rights) instrument, should permit resolving these crucial difficulties (Klaus, 2020).

Table 4.3. The key issues, that have an impact on the effectiveness of TDR

(Source: Klaus, 2020; Hou et al., 2018)

1.	Existence of a solid political and legal foundation
2.	There is no local opposition to urban redevelopment.
3.	The availability of policy tools that enable the public authority to discuss and enact zoning adjustments
4.	Reliability of land-use regulation procedures
5.	Exchange of equivalent value
6.	To make the program appealing, improve the transfer ratio, set a reasonable TDR price, and boost the program's density.
7.	Low cost per transaction
8.	Maintenance of the receiving site's environmental quality
9.	Treating landowners fairly (a social justice problem)
10.	Sense of place: a close bond between local performers and their surroundings.

## 4.6. Some Selected Samples of TDR in Farmlands / Rural Areas

After the first TDR applications were made in the USA in the 1960s to protect historical values, this practice spread throughout the country. With the aim of preserving historical values, new practices have emerged to protect agricultural lands, rural areas and other environmental lands in need of protection.

In this section, TDR programs that have been implemented in America, Europe and Asia in order to protect rural areas and agricultural lands are included. After the applications in Minnesota, New Jersey, Montgomery and Florida, new applications were made in the Netherlands, Italy and China for the same purpose.

### 4.6.1. United States

Since the emergence of the TDR model, 191 models have been implemented in the USA, according to 2009 data. The purposes of using the TDR model may be different. The following table shows the 10 Most Space-saving Programs in the United States (Mengilli-Işıldak, 2012).

Table 4.4. Some TDR applications with the purpose of farmland protection from USA  
(Source: Adapted from Mengilli-Işıldak, 2012)

<b>Program Location</b>	<b>Year</b>	<b>Protected area (acre)</b>	<b>Purpose</b>
Snohomish, WA	2004	-	Agricultural land, resource fields, protecting open spaces
King, WA	1998	91500	Rural resources, protecting public lands
Montgomery, MD	1980	51830	Protecting farmland
New Jersey Pinelands, NJ	1981	55905	Preserving pine forests

Table 4.5. Use of TDR's to Preserve Agricultural Land

(Source: Mabbs-Zeno, 1981)

<b>Location of TDR program</b>	<b>Preservation goal</b>
Birmingham, PA	agricultural land
Buckingham, PA	"
Calvert County, MD	"
Chesterfield, NJ	"
Eden, NY	"
Hillsborough, NJ	"
Kennett, PA	"
Montgomery County, MD	"
Southampton, NY	"
Sunderland, MA	"
Upper Makefield, PA	"
Winsor, CT	"
Illinois	historical landmarks
Montgomery County, MD	"
New York, NY	"
Washington, DC	"
Collier County, FL	freshwater wetlands
Columbus, OH	floodlands
Los Angeles, CA	urban environment
St. George, VT	open space
St. Petersburg, FL	freshwater wetlands
San Francisco, CA	urban environment
Scottsdale, AZ	hillsides

#### **4.6.1.1. Rice County, Minnesota**

In the district, it was decided to implement the TDR in 2004 due to the fact that the distance between the city and the rural area is gradually decreasing. The main purpose of TDR application are;

- To protect agricultural lands
- To direct the development of zoning to the places where the existing public services are available.

TDR also helps protect the wetlands around the lakes and their steep slopes, which are found in large numbers in the county (Nelson et al., 2013).

#### **4.6.1.2. New Jersey Pinelands**

Between Philadelphia and Atlantic City, a million acres of forests, farmland, and cedar swamps make up the New Jersey Pinelands. State and federal legislation to protect the Pinelands was motivated in the 1970s by expansion brought on by the construction of retirement communities and second homes, as well as the advent of gambling casinos in Atlantic City. The broadest and most intricate transfer of development rights scheme ever attempted was made possible by the Pinelands Comprehensive Management Plan. One credit per 39 acres was chosen as the basic allotment for the preservation area. Farmland owners earned twice as many credits (two per 39 acres), since they were seen to be more valuable than woods. In approved regional growth districts, each credit permitted the construction of four residential housing units (Pizor, 1986).

A total of around 6,500 credits, or 26,000 homes, were produced. As long as they remain within the seven-county Pinelands Commission authority, credits can be developed or sold. Credits can be transferred across municipal and county lines (Pizor, 1986).

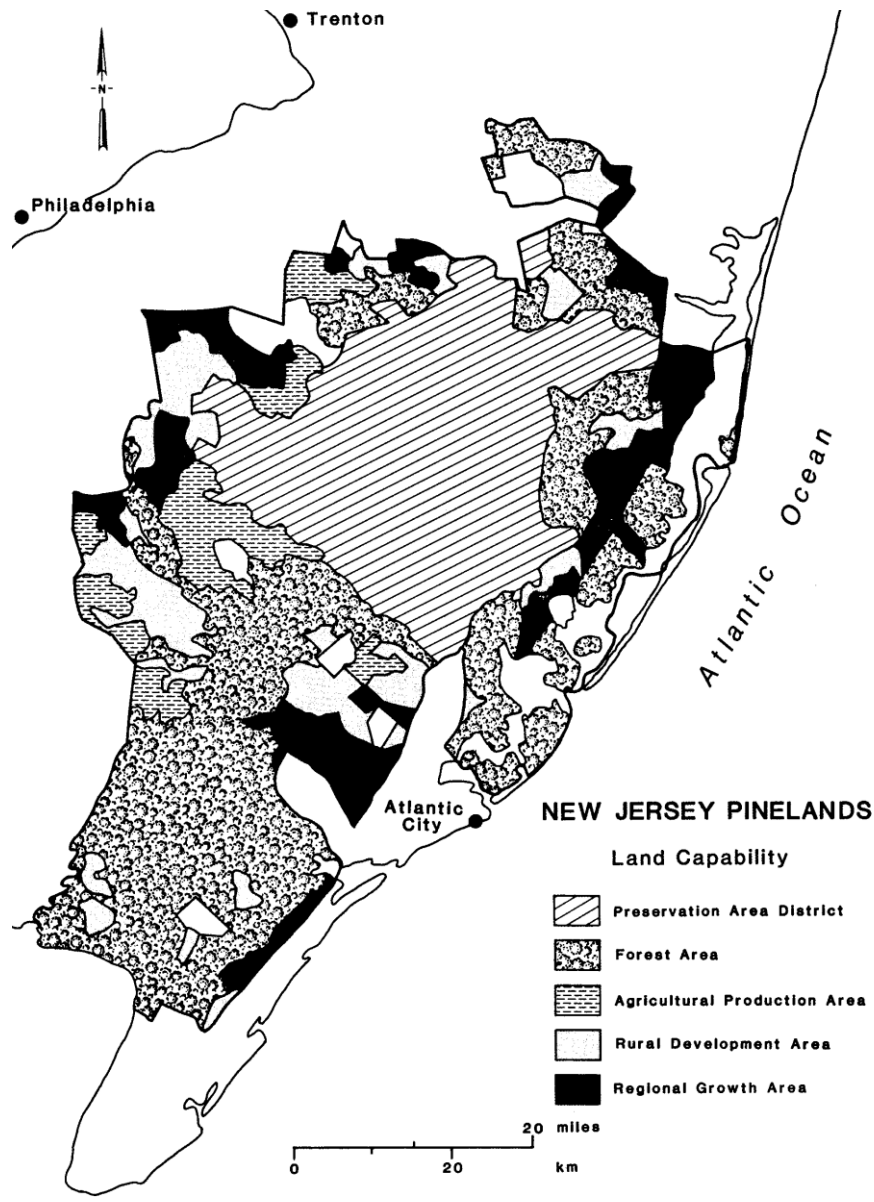


Figure 4.11. The New Jersey Pinelands, showing land use designations under the Pinelands Comprehensive Management Plan  
(Source: Pizor, 1986)

#### 4.6.1.3. Chesterfield Township, Burlington County, New Jersey

Chesterfield is a rural area with a high concentration of horse farms and farmland. Therefore, it was wanted to apply TDR in order to protect agricultural areas. It was requested that the zoning rights of the 7500-acre sending area around the town be transferred to a new 560-decare center located in the Old York Village (receiving areas). When the TDR implementation was completed, approximately 1200 residential units,

30,000 m<sup>2</sup> commercial development area and a new training facility were built in the receiving areas. In addition, thanks to the rights transferred from the sending area, approximately 6000 decares of agricultural land has been permanently protected from development or construction (Nelson et al., 2013).

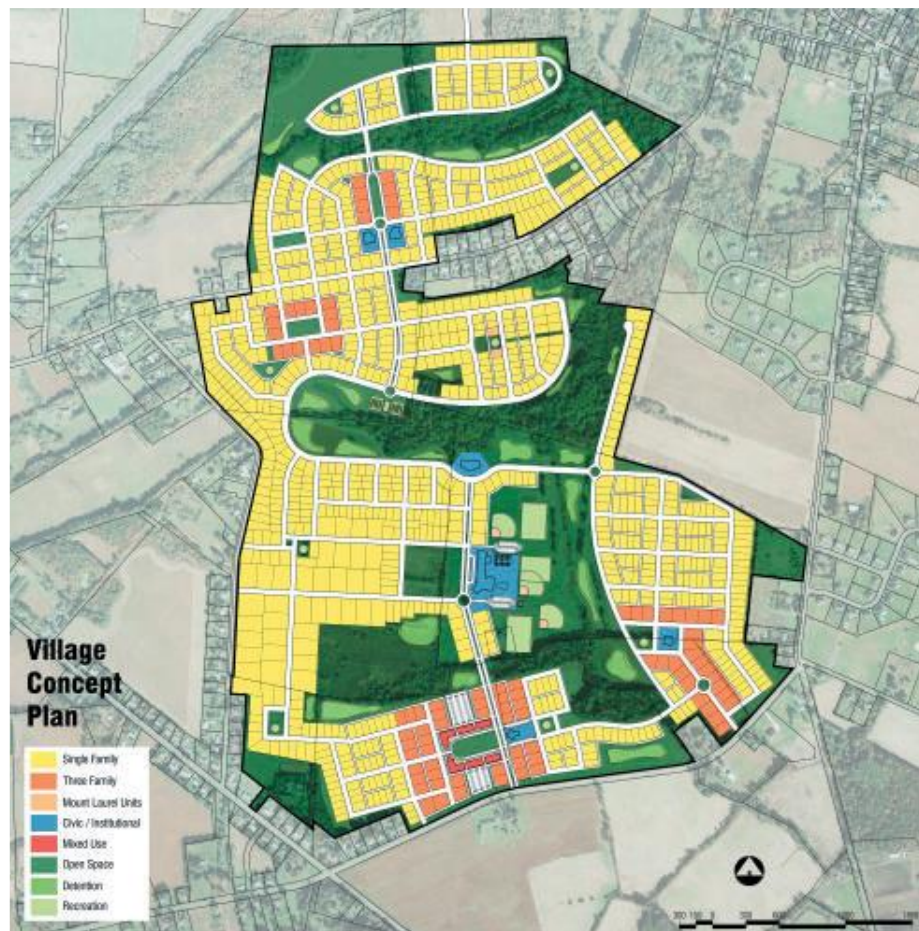


Figure 4.12. The Village Concept Plan of Chesterfield

(Source: Nelson et al., 2013; Web 7)

The Chesterfield TDR Village Concept Plan is an example of neo-traditional design that promotes biking and walking, includes dedicated open space, and provides connectivity to the existing street system.



Figure 4.13. The Chesterfield zoning ordinance includes standards for style, architectural details, building materials and color within the old receiving area (Source: Nelson et al., 2013; Photo by Rick Pruetz)

#### **4.6.1.4. Montgomery County, Maryland**

It is a county in the north of Washington DC with a population of approximately 1 million people (2010). In the district, which is under the pressure of intense development and construction, approximately 12,000 acres of agricultural land was lost due to this pressure in previous years. With the implemented TDR program, 52,000 acres of agricultural reserve area was preserved in the district, and with this protection plan, it became the most successful and well-known example of TDR at the national level (Nelson et al., 2013).



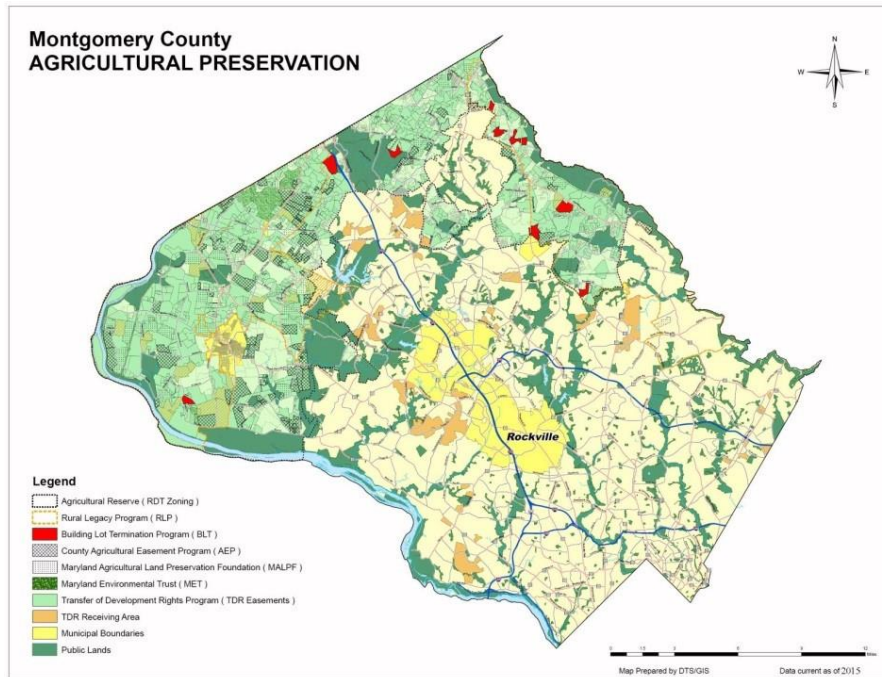


Figure 4.14. The Montgomery County Agricultural Preservation Plan

(Source: Web 8)



Figure 4.15. A cottage photo from Montgomery

(Source: Web 9)

#### 4.6.1.5. Florida

Florida enacted the first rural TDR in 1997. Rural TDR suggest combining conservation with compact settlements as an alternative to low-density rural zoning. Rural areas are under pressure to grow, local governments are interested in promoting smart growth and preventing sprawl, and there is a new state planning paradigm that emphasizes

property rights and flexible development processes. These factors all contribute to the emergence of rural TDR programs (Linkous, 2016).

Table 4.6. TDR Implementations in Florida Rural Areas

(Source: Linkous, 2016)

County	Program	Year of adoption	Number of acres	Landownership characteristics
Collier	Rural Land Stewardship Area	2003	195,846	One individual landowner and five corporations own 168,800 acres
Collier	Rural Fringe Mixed Use	2004	72,484	5,720 landowners
Highlands	Sustainable Communities Overlay	2011	50,000	Initially applied to county's two largest landholdings; currently applies to one: Blue Head Ranch
Orange	Horizons West	1995 (Horizon west framework adopted in comprehensive plan); 1997 (TDR ordinance)	23,000	Approximately 40 landowners made up Horizons West, Inc. Landowners organization
Sarasota	Sarasota 2050	2002	83,500	Multiple landowners, but five major landholdings make up receiving areas
St Lucie	Rural Land Stewardship Area	2006	22,384	Two landowners
St. Lucie	Western Lands	Accepted but not adopted	196,000	Multiple landownership with 3385 parcels
Volusia	Farmton Local Plan	2011	47,000 acres in Volusia (development plan also includes 12,000 acres in Brevard County)	One landowner

The rural TDR operations in Florida are distinctive from others. Same buyers and sellers are involved in this operation. Because development rights are often traded

than shifted spatially. As a result, the research reveals that a market is at the core of the theoretical market function of TDR. While Florida's rural TDR programs largely employ TDR as an incentive, they also diminish this role.

The broad shift from regulatory to market-based planning practices is reflected in Florida's rural TDR operations. There are three key takeaways from it. To start, Florida's rural TDR programs primarily serve as incentives. TDR is utilized to compensate landowners for implementing alternative development scenarios rather than to create a market. Second, rather than emphasizing land conservation, Florida's rural TDR initiatives focus significantly more on land development. Florida's rural TDR draws attention to the ways TDR might improve development possibilities even though it is typically thought of as a tool for land preservation.

#### **4.6.2. Selected Samples from the Europe**

In this section, it has been considered the TDR implementations in the Netherlands and Italy from Europe. Despite limited implementation guidelines and constraints, the case is regarded as among the TDR model's successful applications.

##### **4.6.2.1. Netherlands**

At the 1990s, the European Union's adoption of emission limitations served to strengthen the shift in public opinion toward the cattle industry. The Dutch government chose to scale back on raising livestock. Farmers were able to suspend their economic operations because to a consequent "forestall" rule that allowed them to buy their dung quota as well as animal and environmental rights. Even though it would have been ethically advantageous from a spatial standpoint to stop raising animals in ecologically sensitive regions, no prioritization was done. The result was vacant stables all over the countryside. The regional governments created the Space for Space strategy because they were concerned about the unintended reuse of agricultural structures and wished to turn agricultural sector land into rural landscape (Janssen-Jansen, 2008: 195).

The suggestion that the state authorities should permit the construction of luxury homes on sizable lots (with a maximum of 6500 units) in order to fund the destruction of the stables received approval from the federal government. Through this scheme, farmers

might get a financial incentive in addition to the one offered by the forestall rule to stop their commercial operations, hastening the decrease of nitrate emissions. At the same time, empty stables that were viewed as unattractive and may have been utilized for unpleasant activities, such as those connected with, for example, car dealerships and parking lots for caravans or recreational vehicles, were removed from the landscape. The quality of the rural regions was expected to rise as a result (Janssen-Jansen, 2008: 195).

This implementation is applied in the Brabant city of Netherlands. The costly residences or villas must blend seamlessly with the neighborhood. The surface area planned for the villas will often be less than 10 percent of the surface area of the stables that were demolished (Janssen-Jansen, 2008; Mulders, 2003: 25). And the determination of potential sending and receiving areas are shown in below figures.

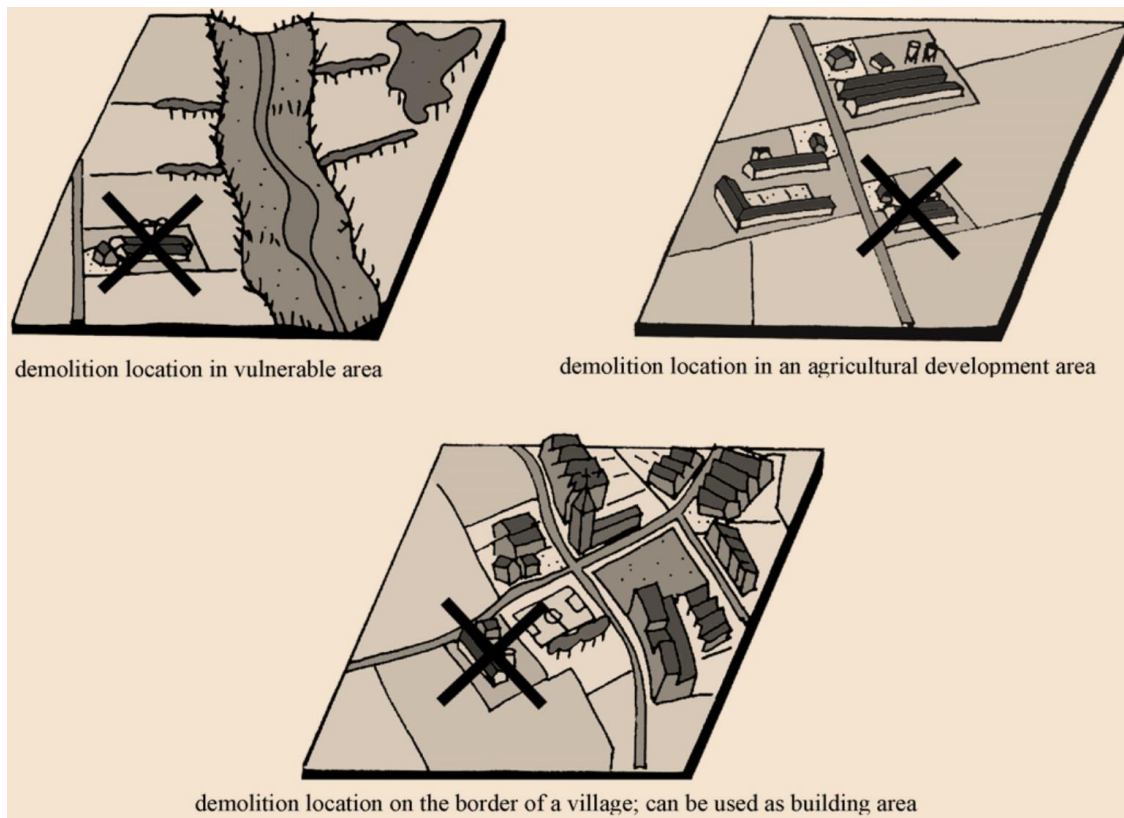


Figure 4.16. Potential sending areas

(Source: Janssen-Jansen, 2008; Mulders, 2003)

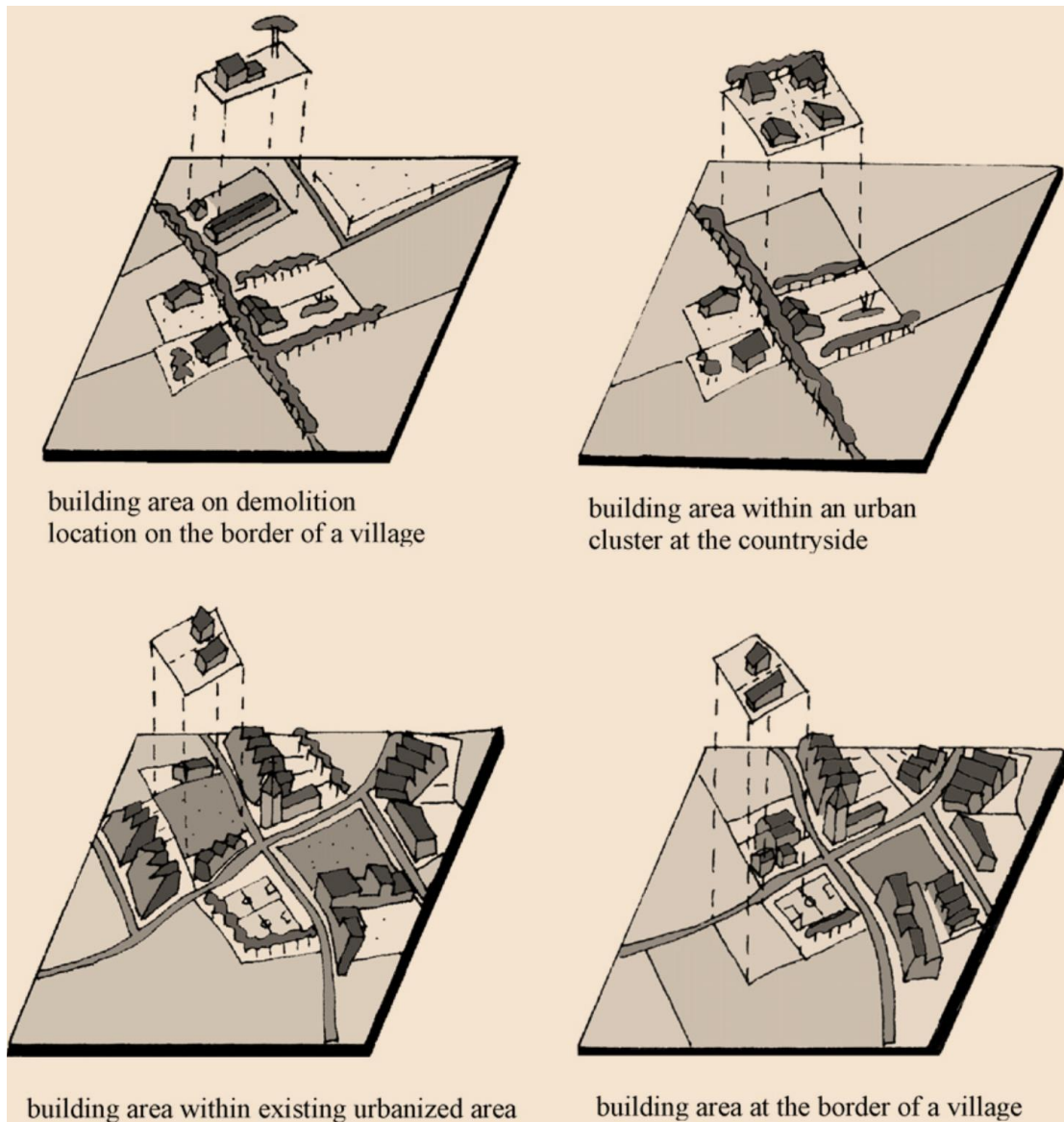


Figure 4.17. Potential sending areas

(Source: Janssen-Jansen, 2008; Mulders, 2003)

#### 4.6.2.2. Italy

The transfer of development rights has spread very fast during the past 20 years in Italy. In several instances, a particular type of transfer of development rights -referred to as "localized-TDR" here- has been used in Italy. This is a straightforward and unambitious type in which just a few contiguous properties and a limited number of landowners are involved; development rights are only transferred geographically rather than exchanged. A more intricate, ambitious, and sophisticated form of the transfer of

development rights, comparable to many TDR schemes in the USA, has begun to be implemented in some areas of Italy, even though at a slower rate (Falco and Chiodelli, 2018: 387; Colavitti and Serra, 2018; Micelli, 2002). The term "generalized-TDR" refers to a situation in which a larger number of places and landowners are involved and a true market for development rights emerges. From this perspective, the Lombardy region's situation is informative. Out of the 12 provincial capitals now, 9 are putting a generalized-TDR program into practice. In reality, the widespread transfer of development rights enables land use planning to sidestep a number of common problems faced by Italian planning, including the expiration of land use limits imposed by planning and financial challenges in purchasing sites for public services and amenities. These emphasize the potential of the idea of transferable development rights, which may adapt to various institutional contexts and aid in the resolution of certain issues pertaining to conventional forms of planning (Falco and Chiodelli, 2018: 387).

TDR is effectively used in a few Italian towns. First, there is the instance of Cremona, a town in the southern, rural portion of the area, which was able to function during a "ordinary" period since a generalized transfer of development rights was established in 2002, before the crisis started. The Cremona TDR program functioned smoothly and effectively, a number of development rights were transferred, and the Municipality was able to acquire a significant number of locations for public amenities and services. The Milano case is the second. In 2014, the transfer of development rights went into effect. However, the TDR program has been able to function due to Milan's real estate market's relative strength and obvious evidence of recovery from the crisis (Falco and Chiodelli, 2018: 387).

#### **4.6.2.3. China**

The Chongqing prefecture government has been experimenting with its first TDR program since 2008—the LQT (Land quotas trading) program—to protect restricted farmland and enhance land use efficiency. The Chongqing Country Land Exchange (CCLE) platform, a prefecture-scaled land quota trading market, was created as part of the LQT initiative at the end of 2008. After converting their unused construction land into qualified farmland, rural villages (especially those "hollow villages" with a significant amount of households that have migrated to urban areas) are permitted to register their

corresponding quota of land development rights on the CCLE platform for trade within the entire prefecture. Through the CCLE platform, rural households in the sending areas are rewarded. Real estate developers (or other lawful developing organizations) might buy these development rights through the CCLE network and utilize them to further buy the urban land development rights in regions with higher demand for building land (often referred to as receiving areas) (Wang et al., 2020:3).

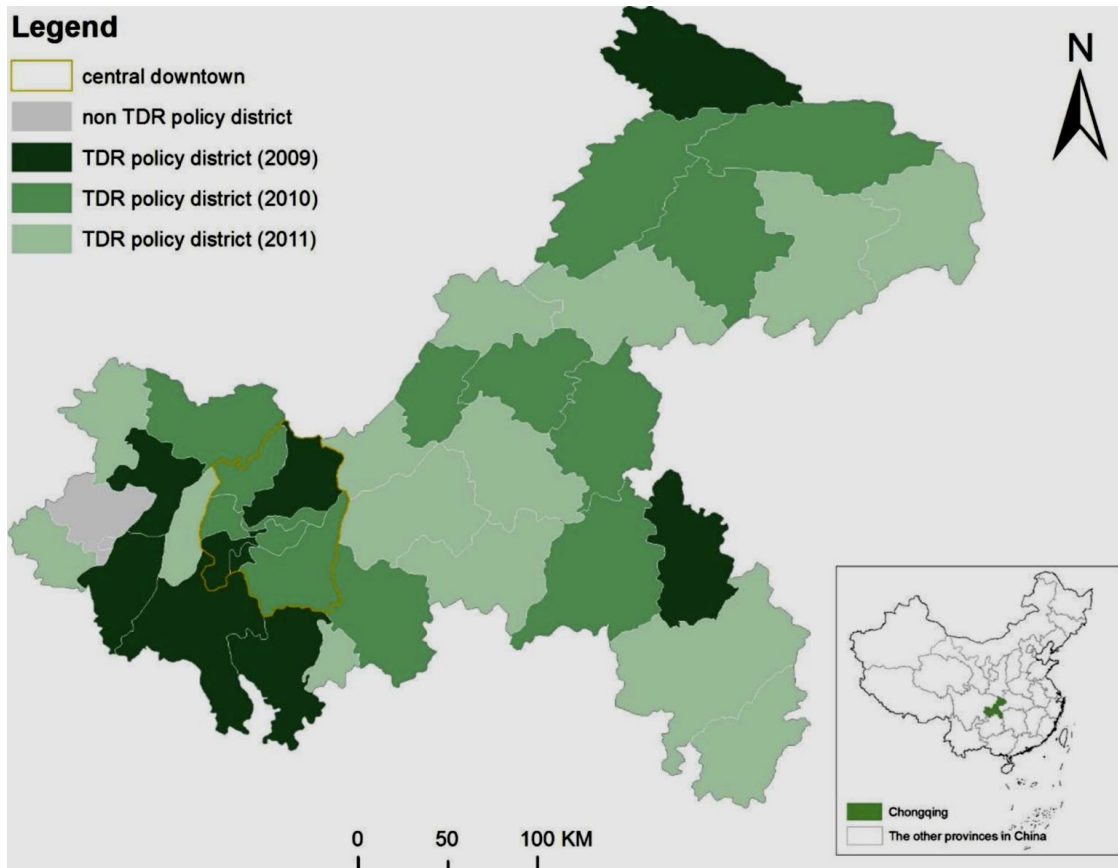


Figure 4.18. TDR Policy in Chongqing Prefecture in China

(Source: Wang et al., 2020: 5)

Table 4.7. Comparison of TDR Applications in America, Europe and Asia

(Source: Adapted from Dündar, 2010: 76).

	<b>America</b>	<b>Europe</b>	<b>Asia</b>
<b>Historical development</b>	<ul style="list-style-type: none"> <li>- In 1916, the city of New York, with its first comprehensive zoning planning, imposed a height limit against skyscrapers, especially since it prevented the surrounding properties from benefiting from the sky, and it also prohibited the construction of factories and residences in areas with workplaces.</li> <li>- Thus, the practice appeared for the first time in America. With the Cultural Heritage Protection Act of 1968, it has not been used in the following way. Today, hundreds of applications are available and is used by local governments and continues to be implemented.</li> </ul>	<ul style="list-style-type: none"> <li>- It is a method that started to be used after the 1990s.</li> <li>- The preference of command and control (central) based regulations instead of market-based solutions in Europe delayed the use of TDR.</li> </ul>	<ul style="list-style-type: none"> <li>- TDR has emerged as an innovative application in Asia after the examples of America and Europe.</li> <li>- Regulations regarding the TDR application is still in progress.</li> </ul>
<b>Scope of application</b>	<ul style="list-style-type: none"> <li>- Environmental protection areas, historical areas, urban transformation areas and areas whose structural character should be protected, especially agricultural areas.</li> </ul>	<ul style="list-style-type: none"> <li>- Fertile agricultural lands, habitat areas, characteristic areas and conversion areas such as environmentally sensitive areas and historical buildings.</li> </ul>	<ul style="list-style-type: none"> <li>- It is a tool used in land acquisition for public purposes as well as the protection of cultural and historical sites.</li> <li>- In recent applications, it has also come to the fore in order to protect agricultural lands.</li> </ul>
<b>Conclusion</b>	<ul style="list-style-type: none"> <li>- With the TDR program, which has been intensively applied throughout the country since the 1960s, many environmental values, especially agricultural areas, and historical-cultural structures have been taken under protection.</li> </ul>	<ul style="list-style-type: none"> <li>- After America's successful TDR samples, TDR became popular in Europe and it has been used by authorities to protect environmental values, farmlands and historical structures.</li> </ul>	<ul style="list-style-type: none"> <li>- When we look at it in terms of usage, it is seen that it is used to prevent land acquisition and speculative purposes as well as protection.</li> <li>- Regulations regarding TDR are a new research topic and are being developed.</li> </ul>



## CHAPTER 5

### THE STUDY AREA, TORBALI / MURATBEY NEIGHBORHOOD IN IZMIR

This chapter begins with the geographical location and general characteristics of the study area. First of all, the policy of expanding the Izmir city periphery with legal regulations has been discussed. Afterwards, it was examined how the agricultural lands in the whole of Izmir changed as a result of urban expansion. Finally, it is mentioned how the spatial spread is observed on the agricultural lands of Torbalı and Muratbey neighborhoods selected as the study area.

#### 5.1. Location and General Characteristic of Izmir

Turkey is a peninsular nation with four seas as its borders. As a link between the Asian and European continents, it has a rich cultural and historical legacy. It is where crucial commerce and transportation lines intersect. Its agricultural grounds are relatively extensive and fertile because of its water supplies. Turkey has a total size of 783,356 km<sup>2</sup> and a population of 84,680,273 people (TURKSTAT 2021 data).

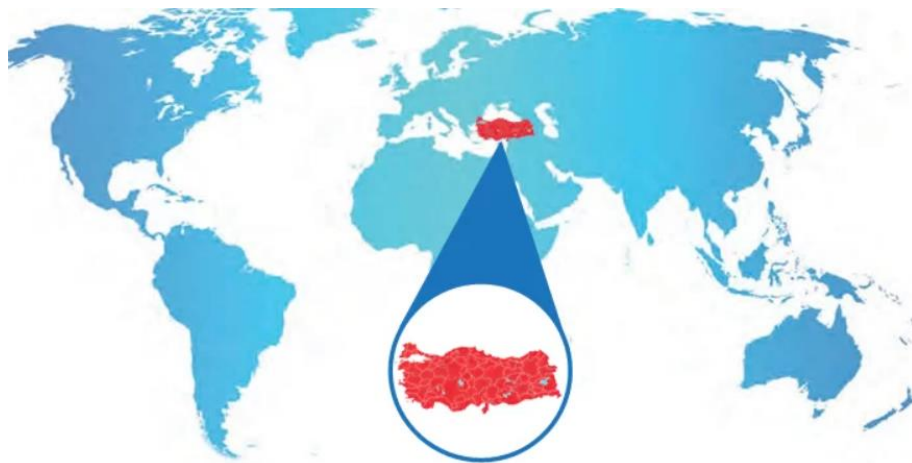


Figure 5.1. Turkey's location in the World

(Source: Web 10)

Izmir, in Turkey's Aegean area, is the third-largest city by population and has been home to several civilizations for centuries (Figure 19). It may be said to be a pioneer in several fields, including tourism, trade, manufacturing, and agriculture, due to its proximity to the sea and its climatic circumstances. With a population of 4,425,789 (TURKSTAT 2021 data) and an area of around 11,891 km<sup>2</sup>, Izmir is contained to 30 districts.



Figure 5.2. Izmir's location in Turkey

### 5.1.1. Change of Izmir's Urban Periphery

Izmir had a rapid migration movement after 1950, just as other Turkish metropolises. As a result of it, Izmir's population grew quickly, although it was also noted that the city was expanding in terms of size. Neoliberal policies in the 1990s led to Izmir City becoming a metropolitan city. A spread from the city center to the suburbs was seen at the beginning of the 2000s, associated with the development of suburban villages on the outskirts of the city. The city center border was extended, particularly with the revision made with the Metropolitan Law No. 5216 established in 2004 (Figure 5.3).

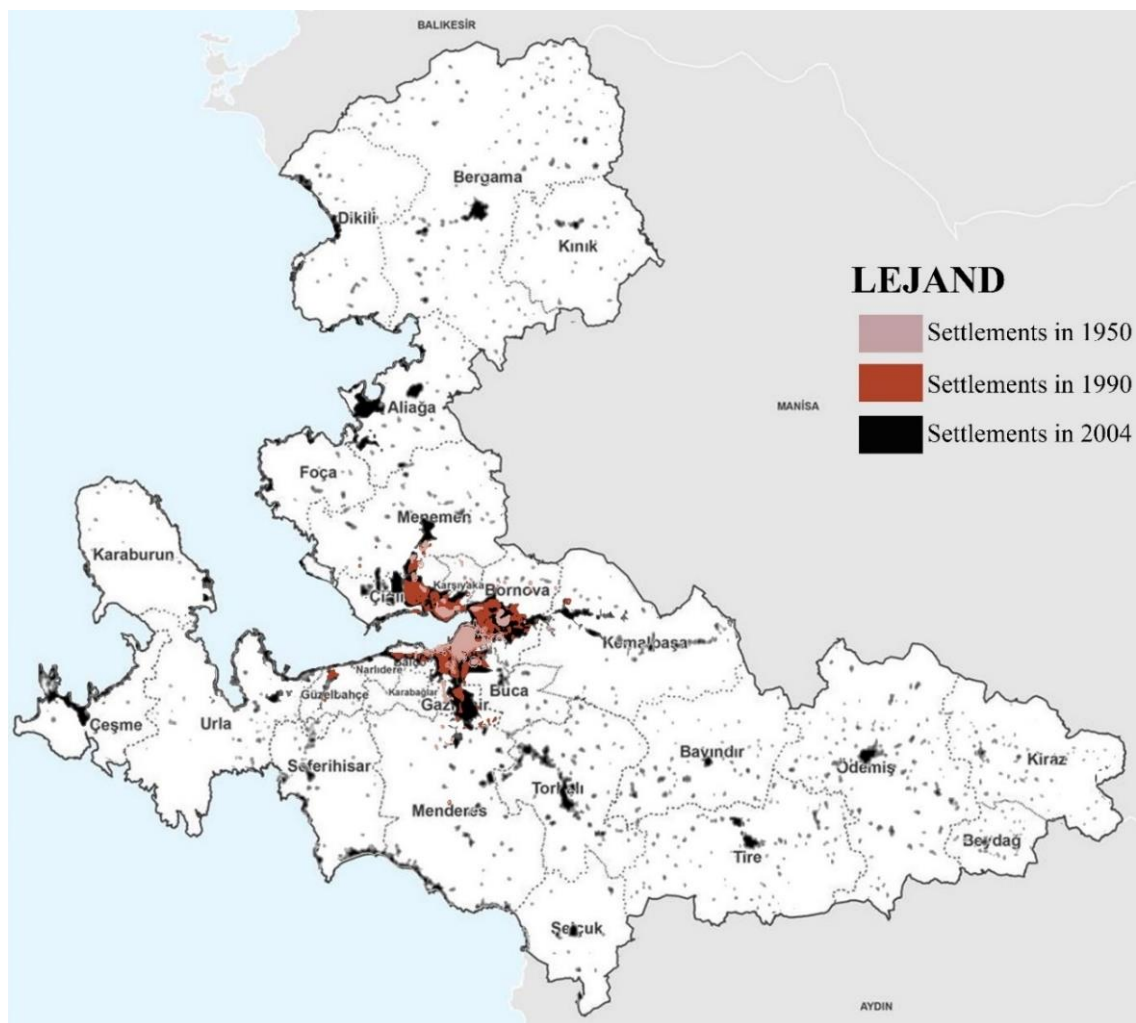


Figure 5.3. Change of residential areas of Izmir province over the years

After the 1950s, the city's expanding diameter reached **4.5 km**. It was transformed into an urban metropolis in the 1990s with the construction of transportation networks, and the urban growth diameter reached **35 km**. The diameter of this spread was

encouraged to surpass the **50 km** limit in 2004 by Law No. 5216. Finally, with the enactment of Law 6360 in 2013, this incentive was extended to the **full provincial border** (Figure 5.4).



Figure 5.4. The urban sprawl and administrative borders of Izmir province have changed over the years

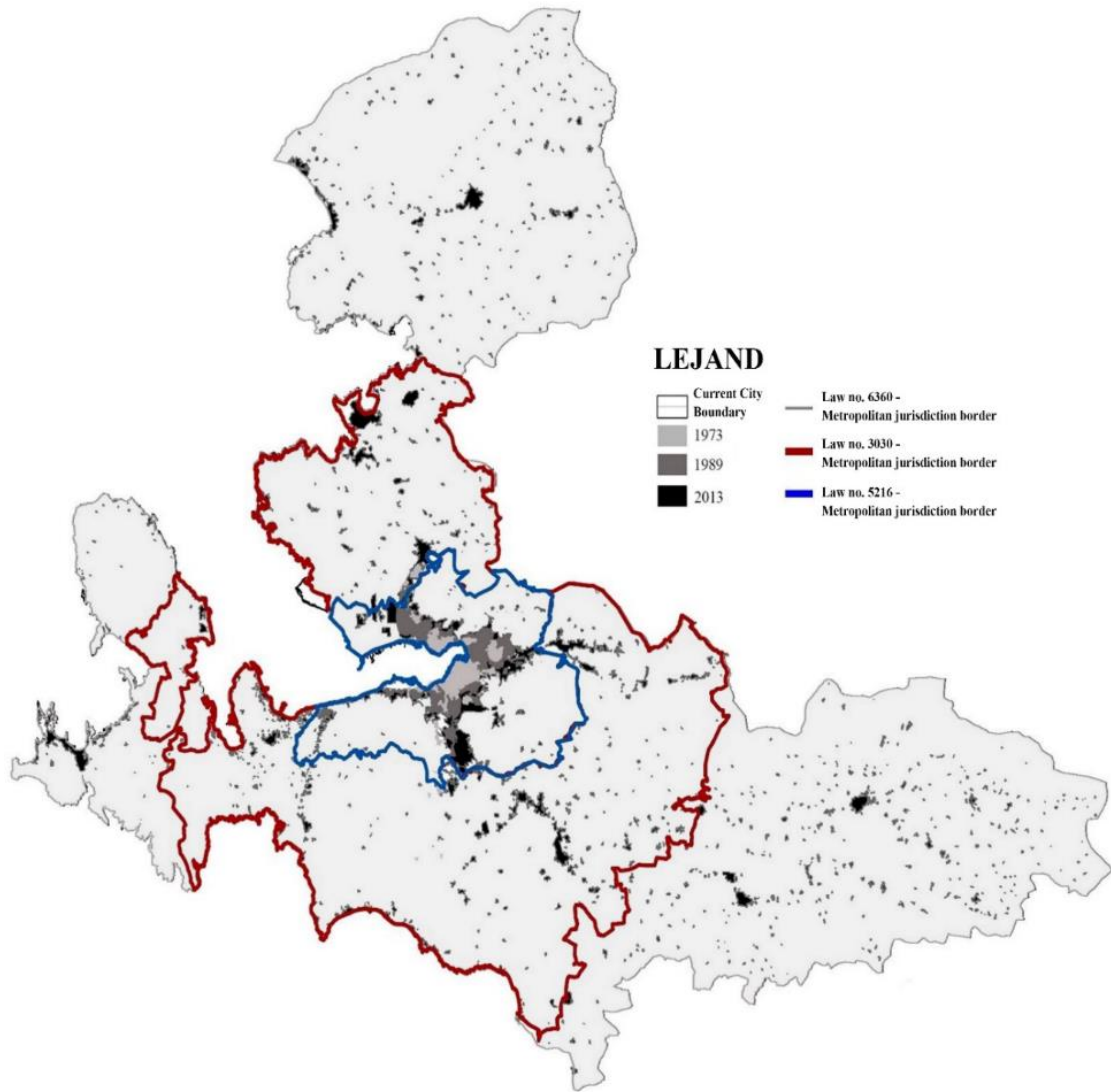


Figure 5.5. The settlement areas of the province of Izmir and the boundaries of the jurisdiction that change with the laws

Konak, Alsancak, and Güzelyalı districts were known as Izmir's center districts prior to the 1920s, while Karşıyaka was referred to as the sub-centre. With the subsequent population exchange, numerous immigrants began to settle across the entire city, particularly in Buca and Bornova. Infrastructure facilities were built based on the population estimates at the time. But following the population exchange there was a lot more movement than predicted, leading to unplanned settlements in the city and, as a result, expansion and spread throughout the city (Erdem, 2019; Karadağ, 2015).

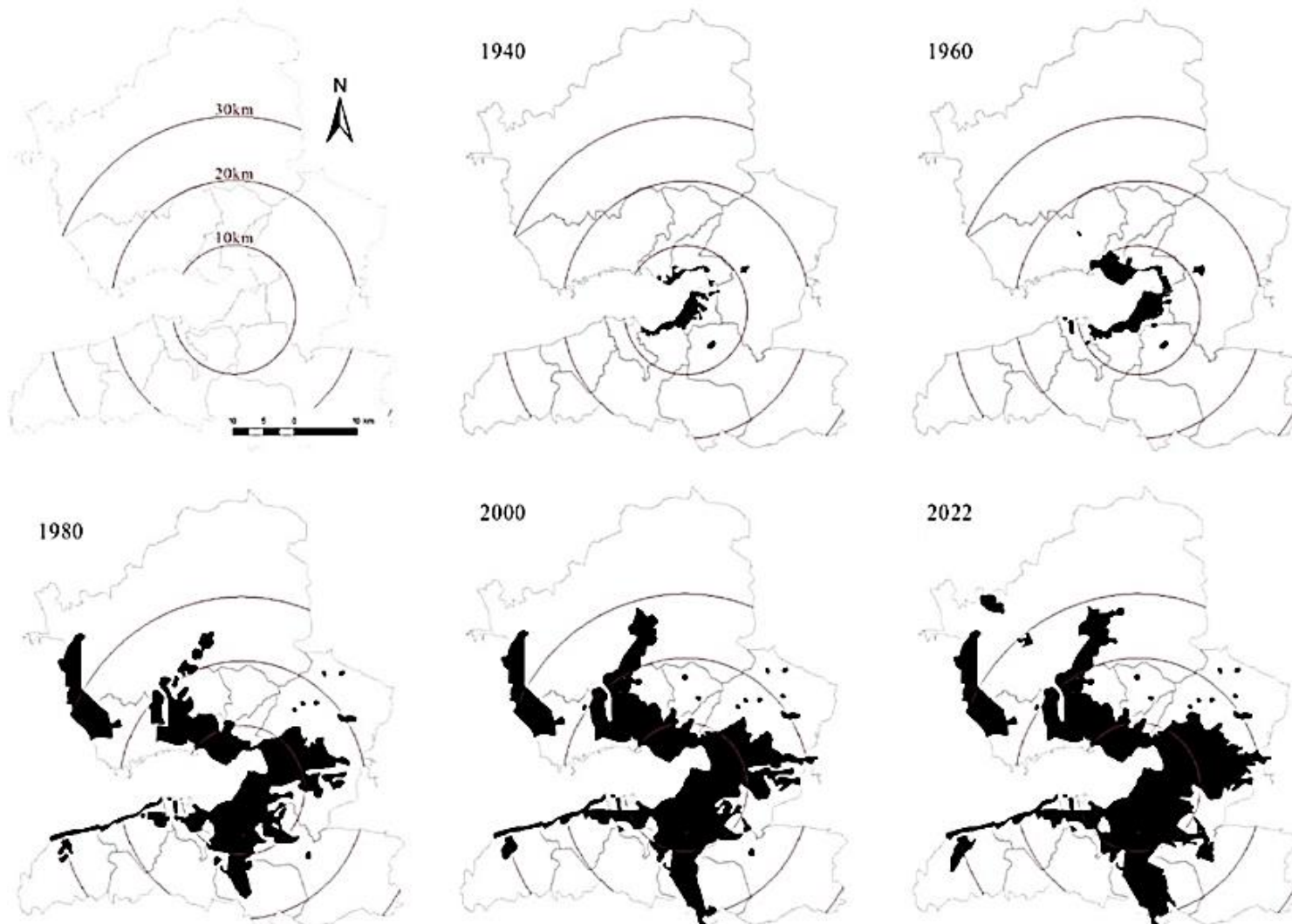


Figure 5.6. The Urban Expansion of Izmir over the years (Adapted from Erdem, 2019)

### 5.1.2. Change of Agricultural Lands in Izmir

Izmir, which has a large amount of agricultural area, had various issues as a result of policies promoting immigration, population expansion, and urbanization. Although it was once believed that the growth in people would solely affect the residential areas, over time these settlements started to expand on and threaten agricultural regions.

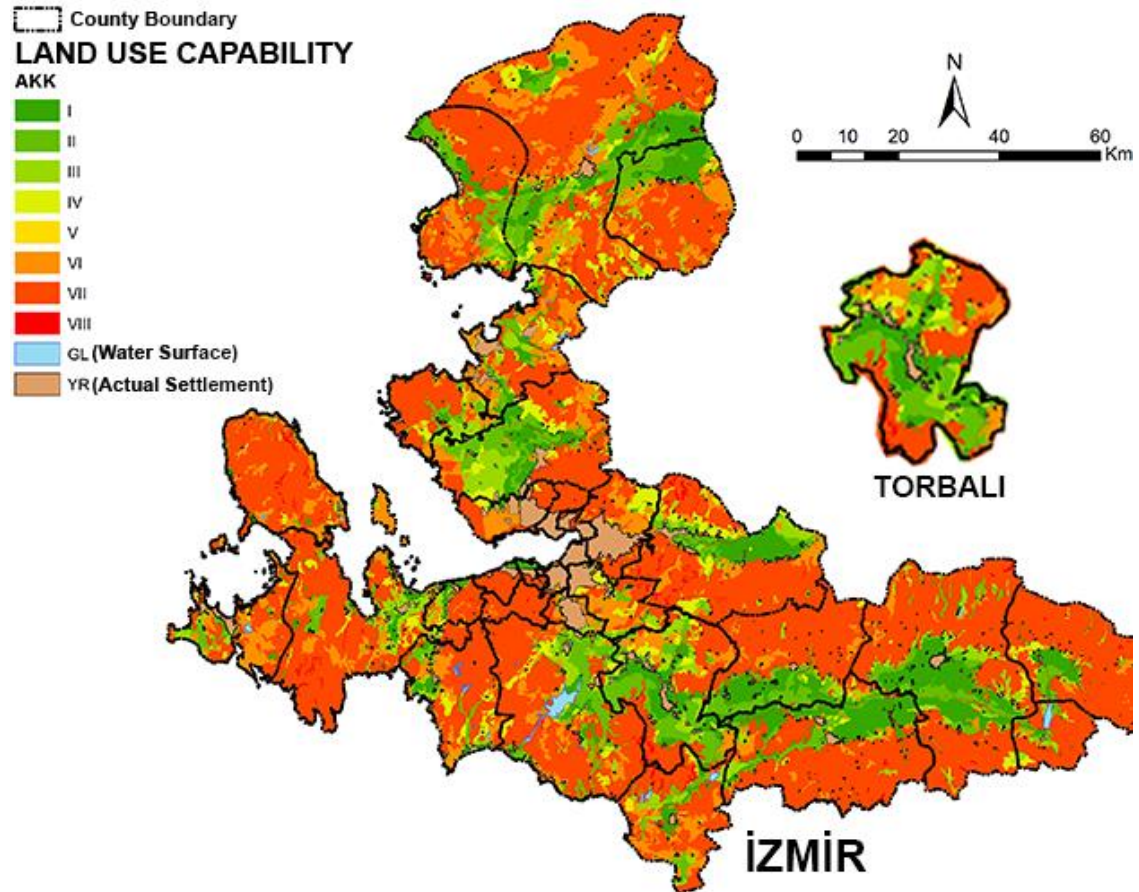


Figure 5.7. The Land Use Capability Analysis of Izmir

(Source: Izmir Special Province Administration, 2013)

In the Figure 5.7, which is included in the land use capability analysis I, II and III. class soils represent fertile agricultural land and are closed to settlement. As it can be seen from the Torbalı district, there are settlements in the city center, while there are fertile agricultural lands on the very large surface in the immediate vicinity.

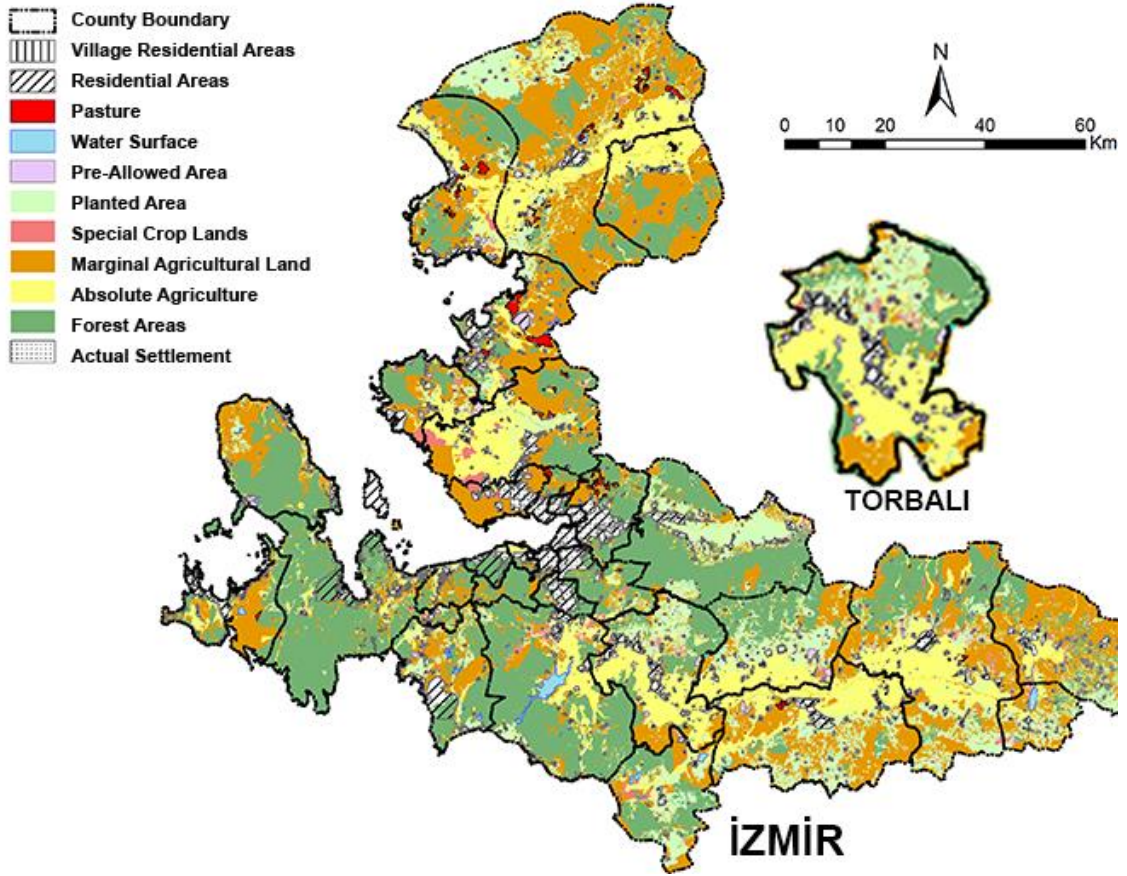


Figure 5.8. The Land Use Analysis of Izmir

(Source: Izmir Special Province Administration, 2013)

Considering the land use map in Figure 5.8, it is observed that forest, marginal agricultural land and absolute agricultural land are concentrated in Izmir, respectively. It can be clearly seen from the map that agricultural lands are concentrated especially in the north and southeast of the province. When we look at Torbalı specifically, the settlements in the center are surrounded by absolute agricultural lands, planted agricultural lands, forest and marginal agricultural lands.



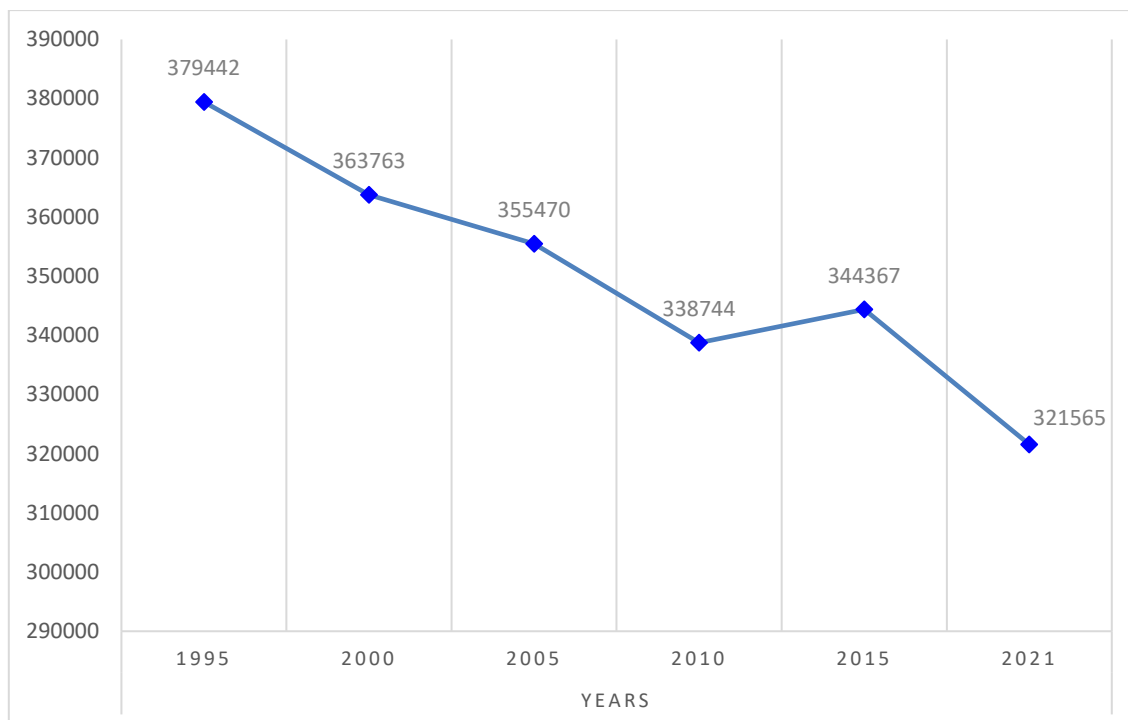


Figure 5.9. Change of Agricultural lands of Izmir – hectares

(Source: TURKSTAT, 2022)

The data in Figure 5.9 show the agricultural land ownership in terms of hectares between 1995 and 2021 in Izmir. Agricultural lands, which had a rapid decline from 1995 to 2010, increased again until 2015, but a rapid decline was happen again until 2021. Today, the agricultural land owned by the province of Izmir has decreased by 15.25 percent since 1995 and has had the lowest rate of the last 25 years.

Tablo 5.1. Amount of agricultural lands (hectares) of some selected districts of Izmir

(Source: TURKSTAT, 2022)

	1995	2000	2005	2010	2015	2021
<b>Bayındır</b>	30919	30919	28235	28214	30563	31909
<b>Bergama</b>	45396	45500	42994	41996	37818	33167
<b>Menderes</b>	28028	23342	23221	23253	23382	23056
<b>Menemen</b>	23070	23000	22699	20237	20275	19475
<b>Ödemiş</b>	38825	37531	34331	34889	29837	33763
<b>Torbali</b>	32790	31700	31002	29943	25566	31094

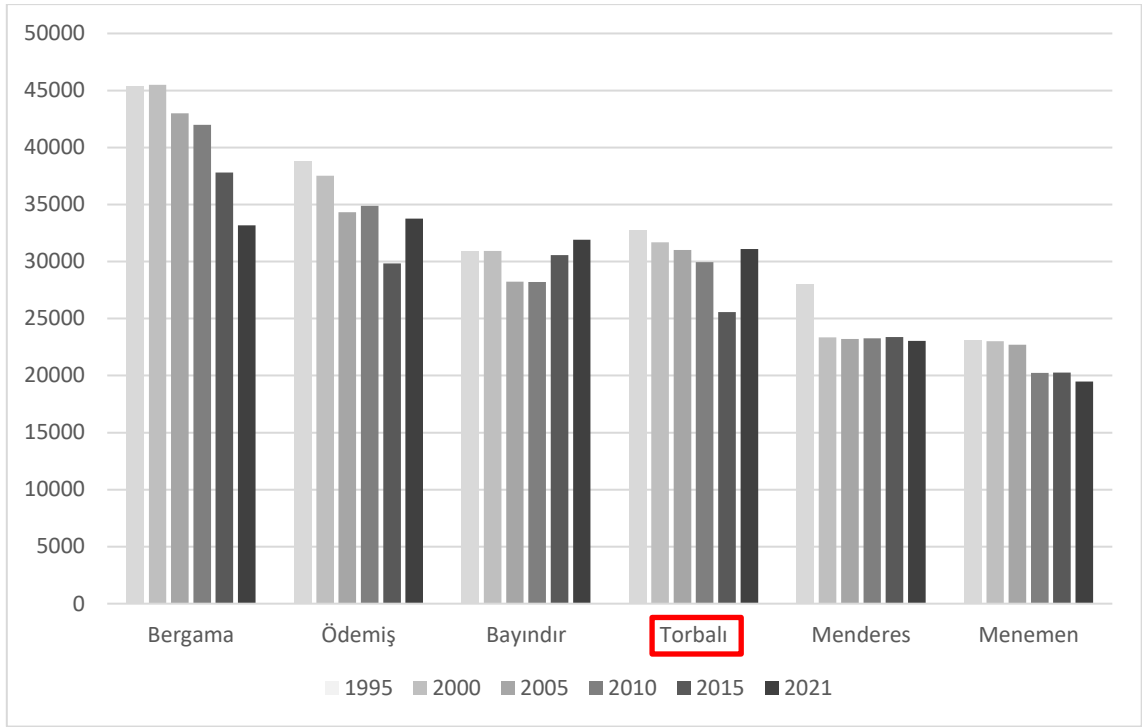


Figure 5.10. Change of agricultural lands of Izmir and some selected districts

(Source: TURKSTAT, 2022)

In Izmir, the districts of Bayındır, Bergama, Menderes, Menemen, Ödemiş, and Torbalı are where agricultural activities are most dominant. In order to compare the findings, Table 5.1 and Figure 5.10 examine the availability of agricultural lands in various areas across 5-year intervals. Except for Bayındır district, all other districts had a decline in agricultural since 1995. Districts in Bergama and Menemen have seen a steady decline for 25 years. In terms of agricultural land assets, the Torbalı district ranks third in the city of Izmir. In this study, Torbalı was specifically chosen because of its high agricultural activity, quick population growth in comparison to other districts, and consequent urbanization. For these reasons, it has been determined that there has been urban expansion on agricultural lands in Torbalı over the years.

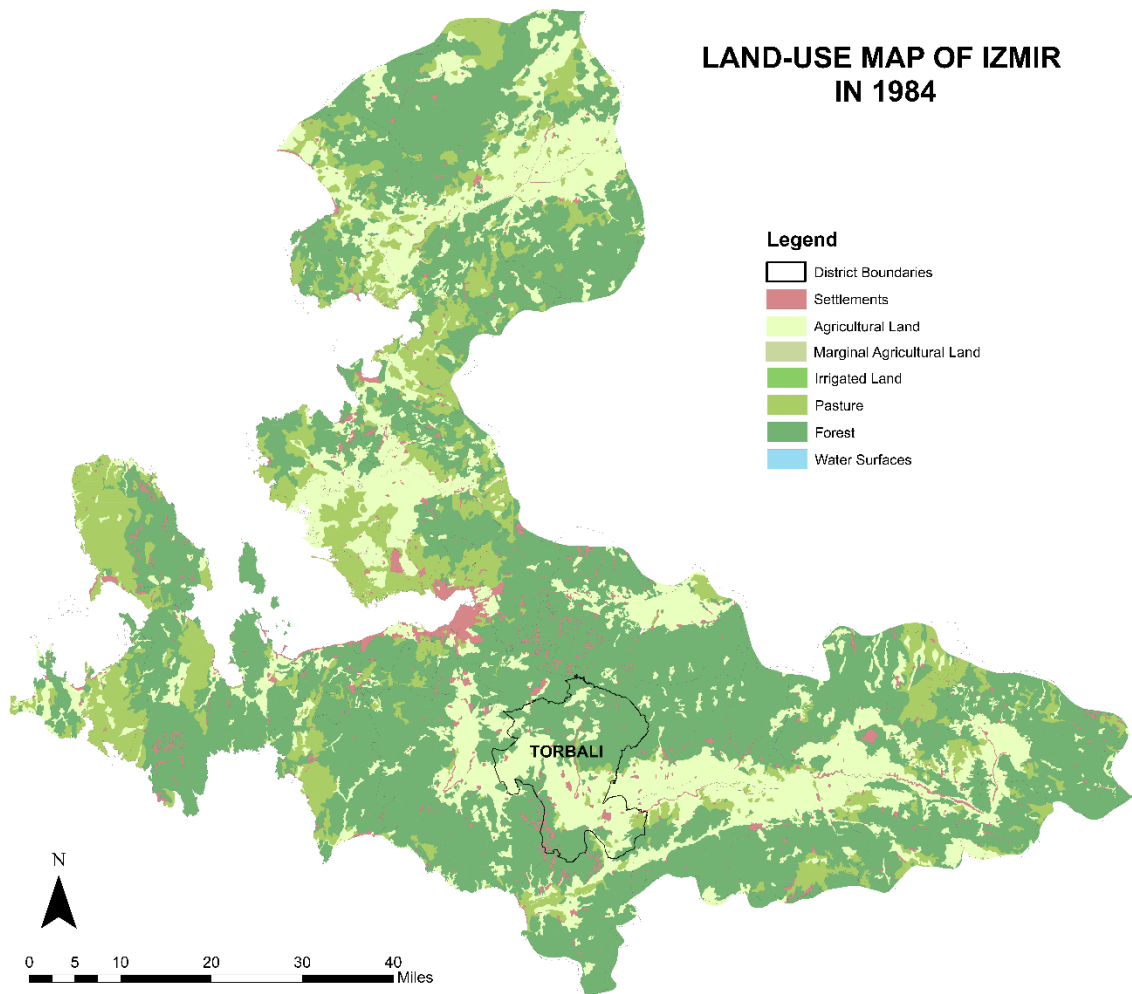


Figure 1.11. Izmir Land Use Status Map in 1984

(Source: Izmir Special Province Administration, 2013)

The maps in Figure 5.11 and 5.12 are prepared by Izmir Special Province Administration until 2013. But after that, when we look at the land use map of the province of Izmir for the years 1984 and 2013, it is obvious that the settlement spot has expanded considerably. However, it is seen that agricultural lands have decreased and even in most places, settlement has destroyed agricultural lands. On the other hand, it has been determined that the same situation is experienced severely in Torbalı as well.

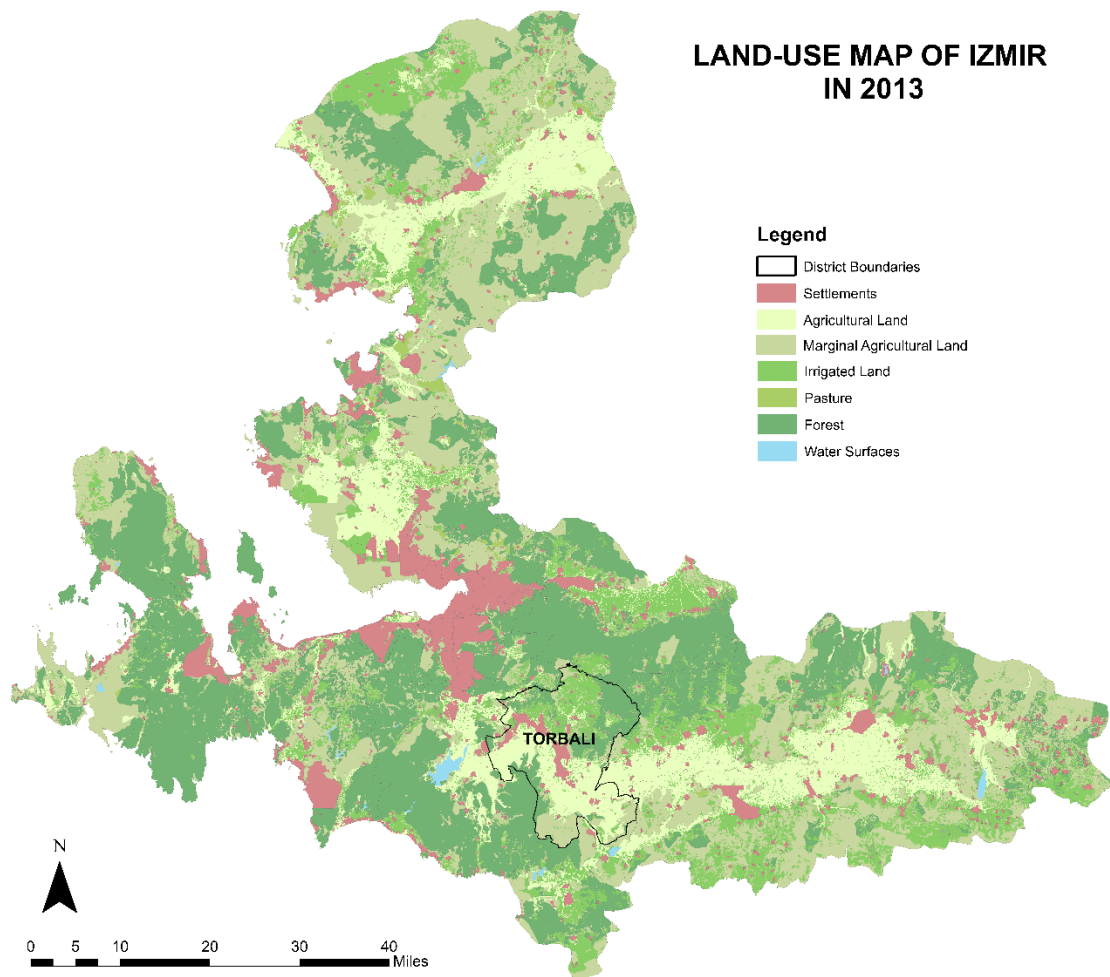


Figure 5.12. Izmir Land Use Status Map in 2013

(Source: Izmir Special Province Administration, 2013)

However, Prof. Dr. Yusuf Kurucu has created a GIS (Geographical Information System) laboratory in Ege University, Faculty of Agricultural Engineering, Department of Soil. After 2013, these maps were updated annually by the laboratory team. According to Yusuf Kurucu' s statement, the 2013 map in Figure 5.12 is the last updated map. Therefore, it would not be wrong to evaluate it in a way that represents today.

## **5.2. Location and General Characteristic of Torbalı District**

Since the beginning of recorded history, Torbalı has served as the center of several civilizations. It is said to have gotten its name from "Metropolis," also known as Tripolis or Triyanna, one of the most illustrious ancient towns (Web 11).

In the area between the ancient towns of Ephessos (Selçuk), Smyrna (Izmir), Kolophon (Değirmendere), Nation (Ahmetbeyli), and Nif (Kemalpaşa), today's Torbalı was founded on rich ground in the Küçükmen deres basin. In 3000 BC, the first village was established. In 2500 BC, the Hittites brought about the region's development. It is believed that it was at its peak of development during Lydia's era in the eleventh century. Neolithic, Chalcolithic, Bronze Age, and Phrygian, Lydian, Persian, Roman, and Byzantine eras, Seljuks and Aydınoğulları between 1071 and 1317, and subsequently the Ottoman periods, are all examples of historical periods. With the appointment of Ertugrul Bey, the prince of Yıldırım Bayezit, to Aydın in 1390, Torbalı began to acquire the status of an administrative unit under Turkish authority. At the time, Torbalı was listed as a unit associated with Izmir Sanjak (Web 12).

After Izmir and its surrounds were captured by the Ottoman Sultan Celebi Mehmet in 1414, Izmir and its surroundings fell under Ottoman administration after 1425. It was occupied after the First World War for about 40 months, from May 15, 1919, to September 7, 1922 (Web 12).

According to Organization Act No. 491 of April 20, 1924, the sanjaks were disbanded with the success of the War of Independence and the declaration of the Republic. Provinces were formed in their place, and as a consequence, Aydın Province was separated and Izmir Sanjak was constituted as Izmir Province. Torbalı was also made into a district inside Izmir. With the passage of Organization Property Law No. 387 on June 26, 1926, Torbalı was transformed into a district. In 1927, it was incorporated as a municipality (Web 12).

Torbalı is a district of Izmir with a population of 201,476 (TURKSTAT 2021 data) in the Aegean Region, 35 km from Izmir city center, 35 km from Adnan Menderes Airport and 60 km from Izmir Port. The area of the district consists of 577 km<sup>2</sup> and 60 neighborhoods.

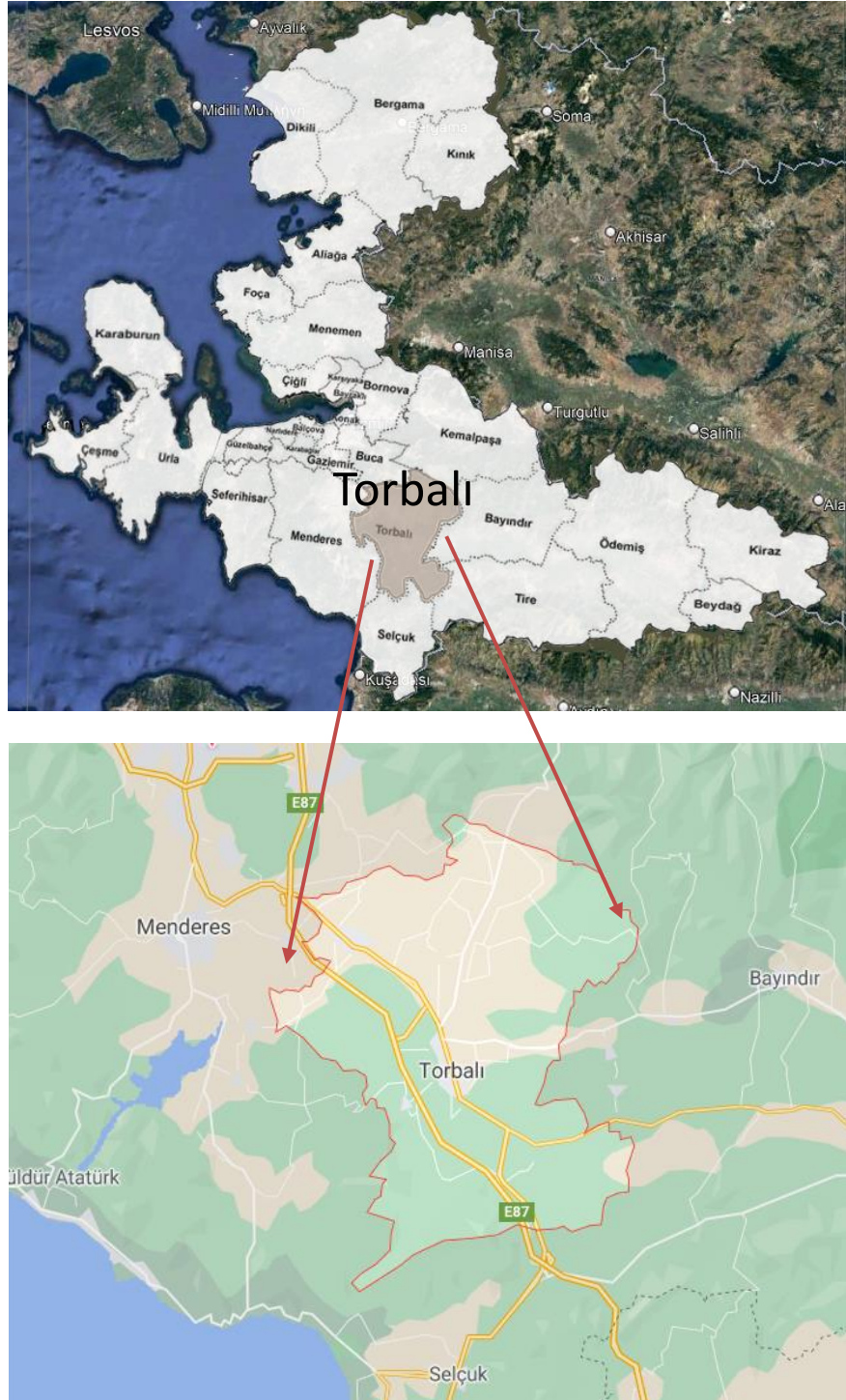


Figure 5.13. The location of Torbalı district in Izmir

Because of factors like the effectiveness of the agricultural lands, the climate, the geopolitical position, and industrialization, the agricultural production capacity of the Torbalı District is relatively high in terms of farm produce diversity and output quantity. However, as industry has grown, agricultural areas began to decline and the number of

industrial products increased relative to traditionally produced goods. There are 307,904 decares of agricultural land in the district (Web 13).

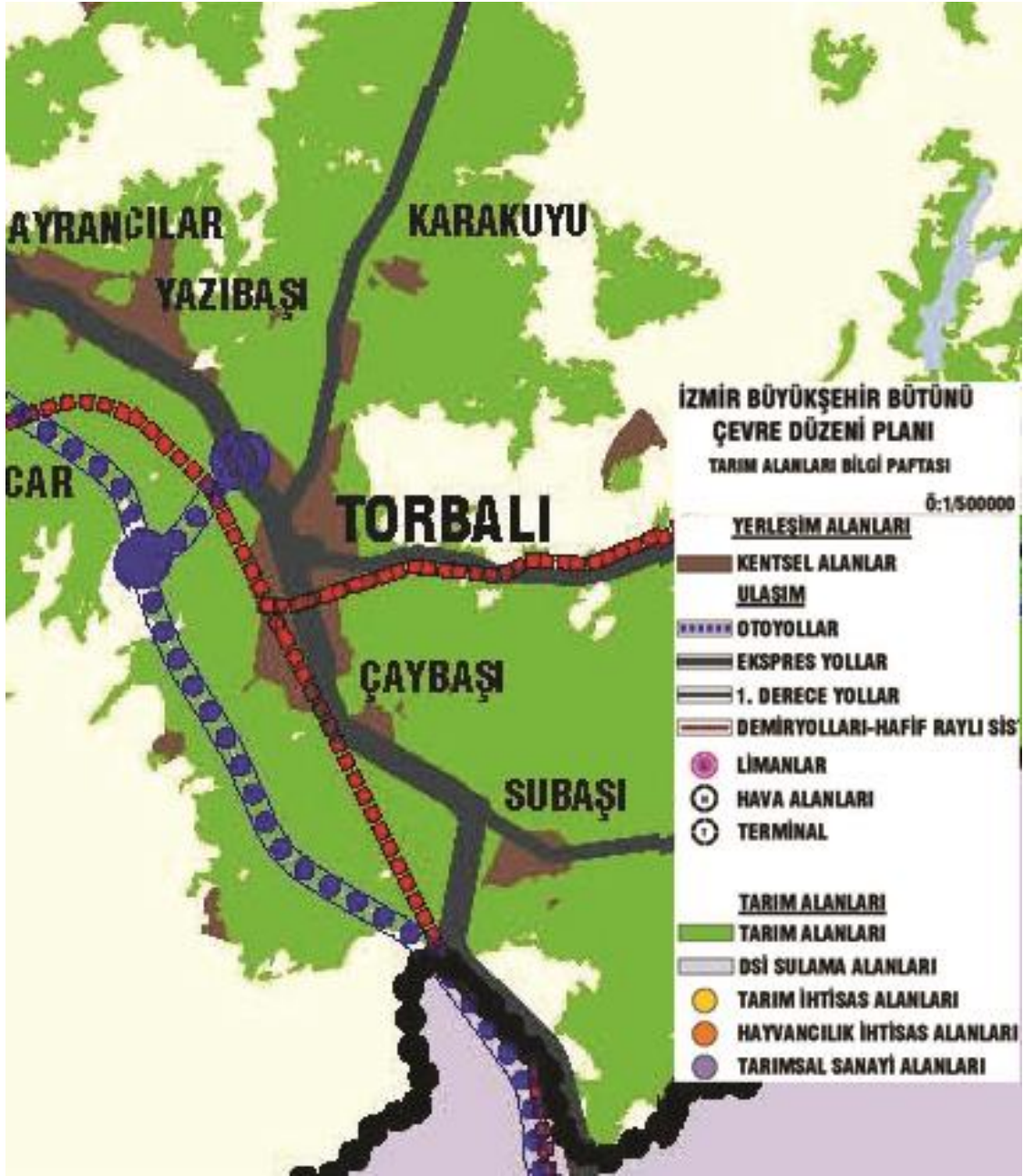
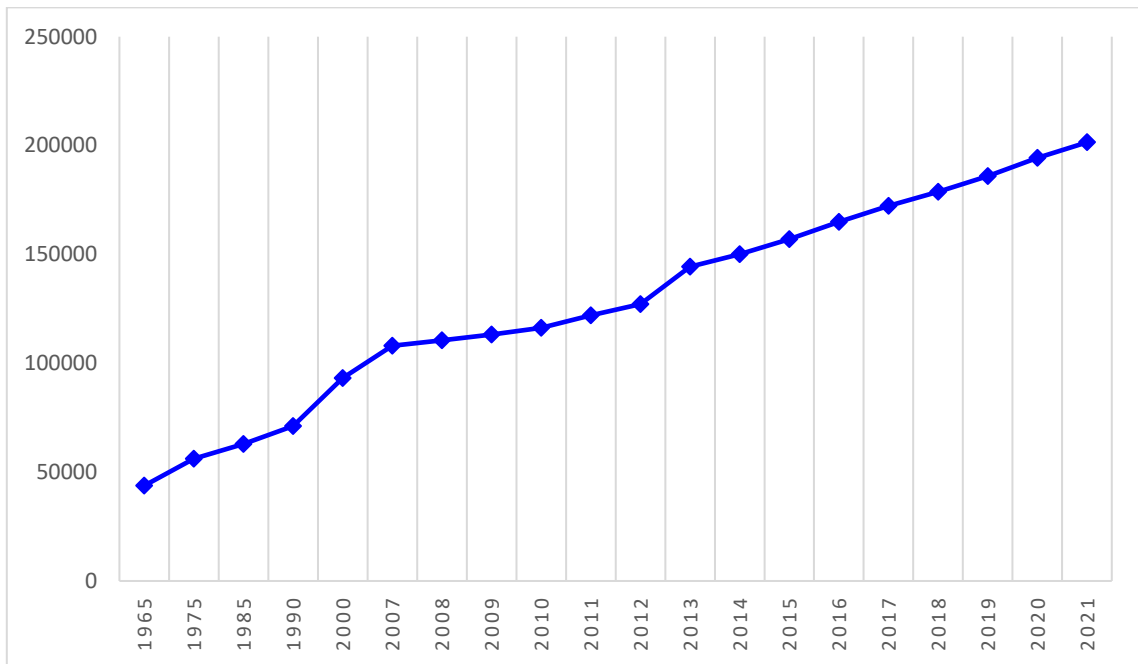


Figure 5.14. Torbalı District 1/50000 scale İzmir Master plan Agricultural Lands Information Sheet

The Torbalı district has strong access to public transit that connects it to neighboring areas and the center of İzmir. The neighborhood is attracting industrial investments because of its good transit connections (Kurucu and Christina, 2008).

Figure 5.14 shows that Torbalı has a railroad, an express route, and a highway near to its center. Although these links help the district's industrial sector develop, there has been an increase in population mobility to the area as a result of the introduction of new economic opportunities. Figure 5.15 shows that the population has been growing steadily and quickly in recent years.



Years	1965	1975	1985	1990	2000	2010	2015	2020	2021
Population	43762	56122	62963	71172	93216	116326	156983	194285	201476

Figure 5.15. Population growth graph of Torbalı between 1965-2021

(Source: TURKSTAT, 2022)

The growth of Torbalı's industrial sector has boosted the demand for additional settlements to accommodate the city's expanding population (Kurucu and Christina, 2008). Due to this, the city has begun a quick development process, and consequently, the agricultural areas in its near proximity are in threat of disappearing.



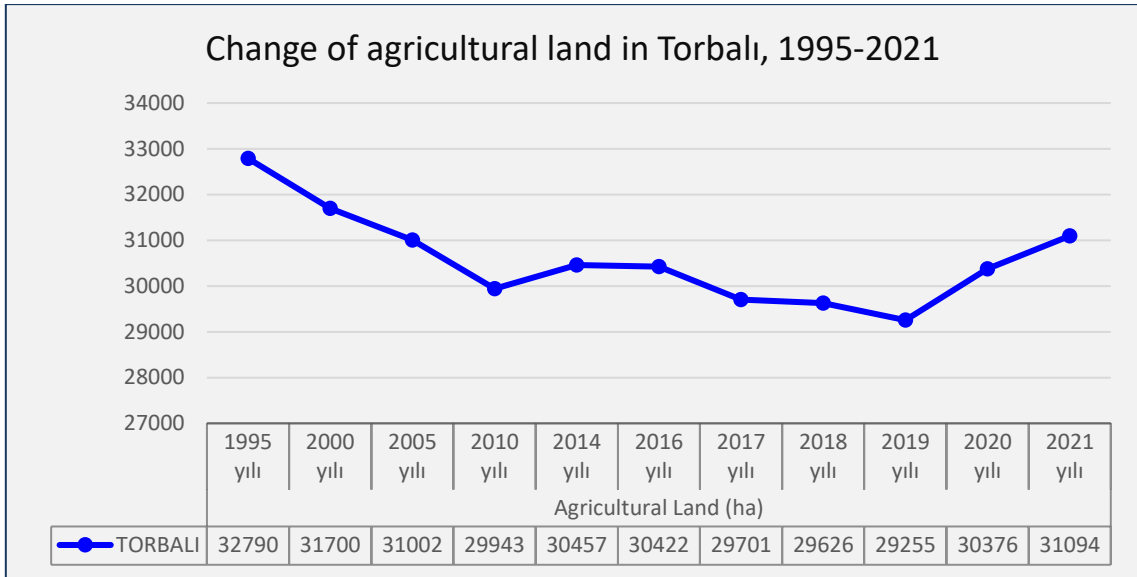


Figure 5.16. Change of agricultural land in Torbalı between 1995-2021

(Source: TURKSTAT, 2022)

As we are interested in this study, It has been noted that with time, Torbalı's agricultural fields lost their contemporary features and evolved into urban activity zones. Regarding agricultural activity, Torbalı district is one of Izmir's richest areas.

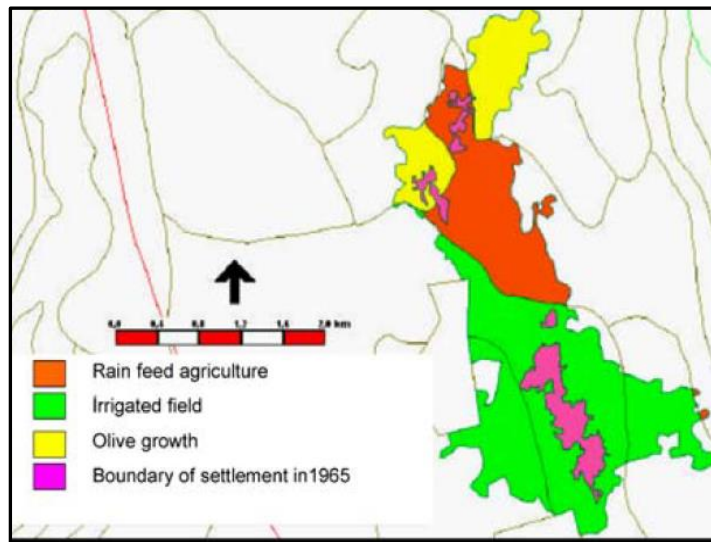


Figure 5.17. Land use of Torbalı district between 1965 and 2001

(Source: Kurucu and Christina, 2008)

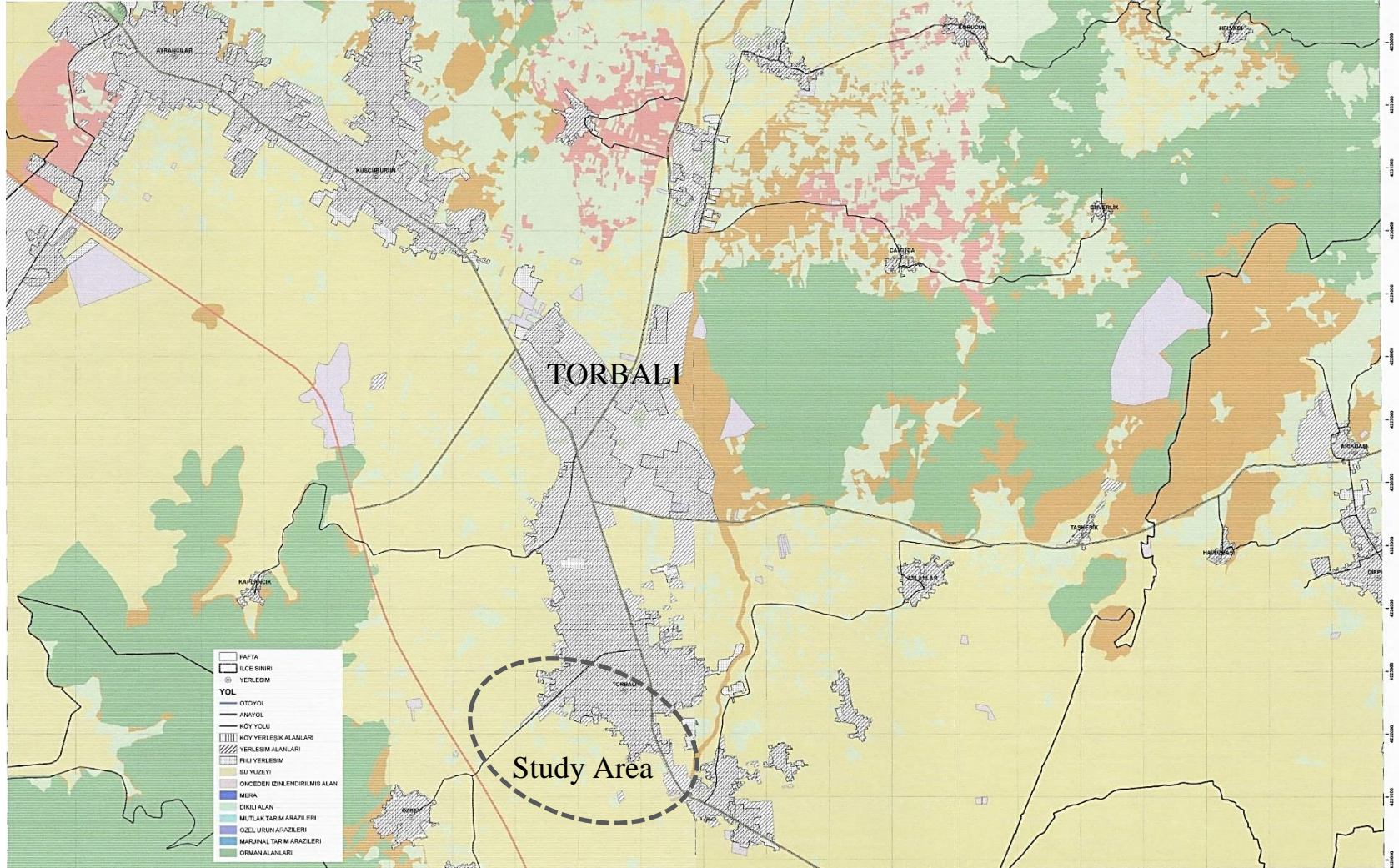


Figure 5.18. 1/25000 scale Torbalı Environmental Plan (Çevre Düzeni Planı)

### 5.2.1. Location of The Study Area / Muratbey Neighborhood

Muratbey neighborhood is one of the central settlement areas of Torbalı district. It is an area where both urban, rural and agricultural activities are intense, and the expansion of the settlement with the increase in its population can be observed most clearly.

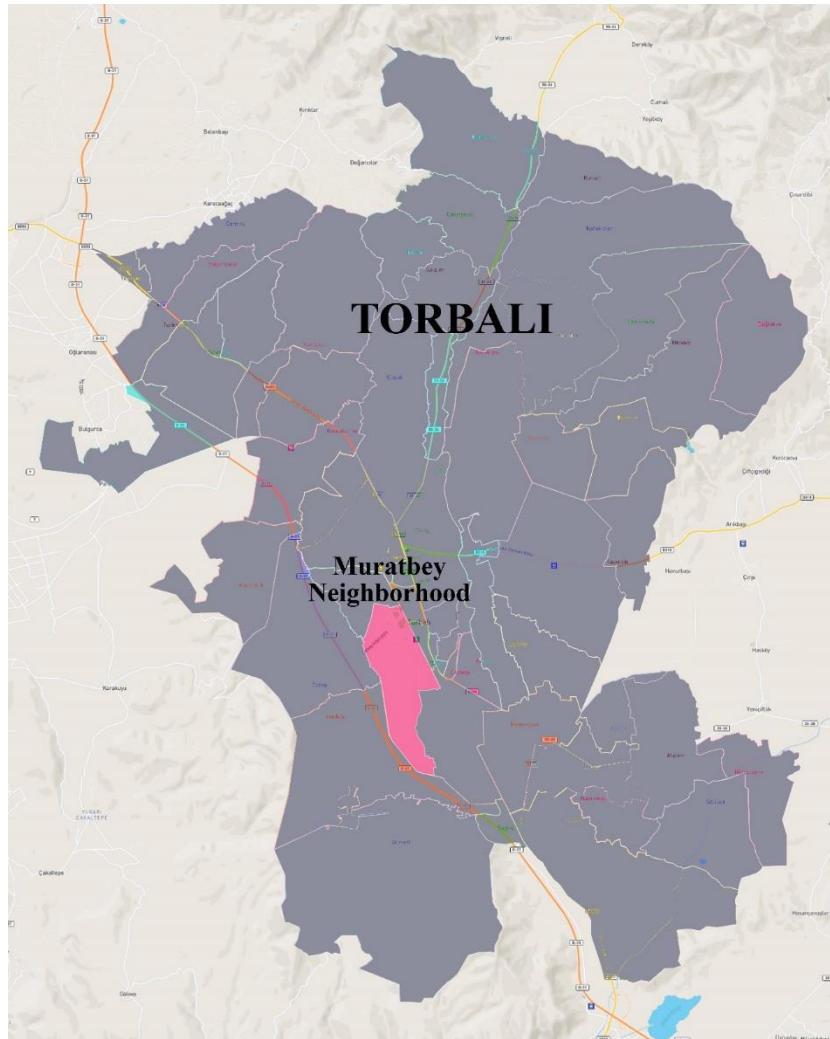


Figure 5.19. The location of Muratbey Neighborhood

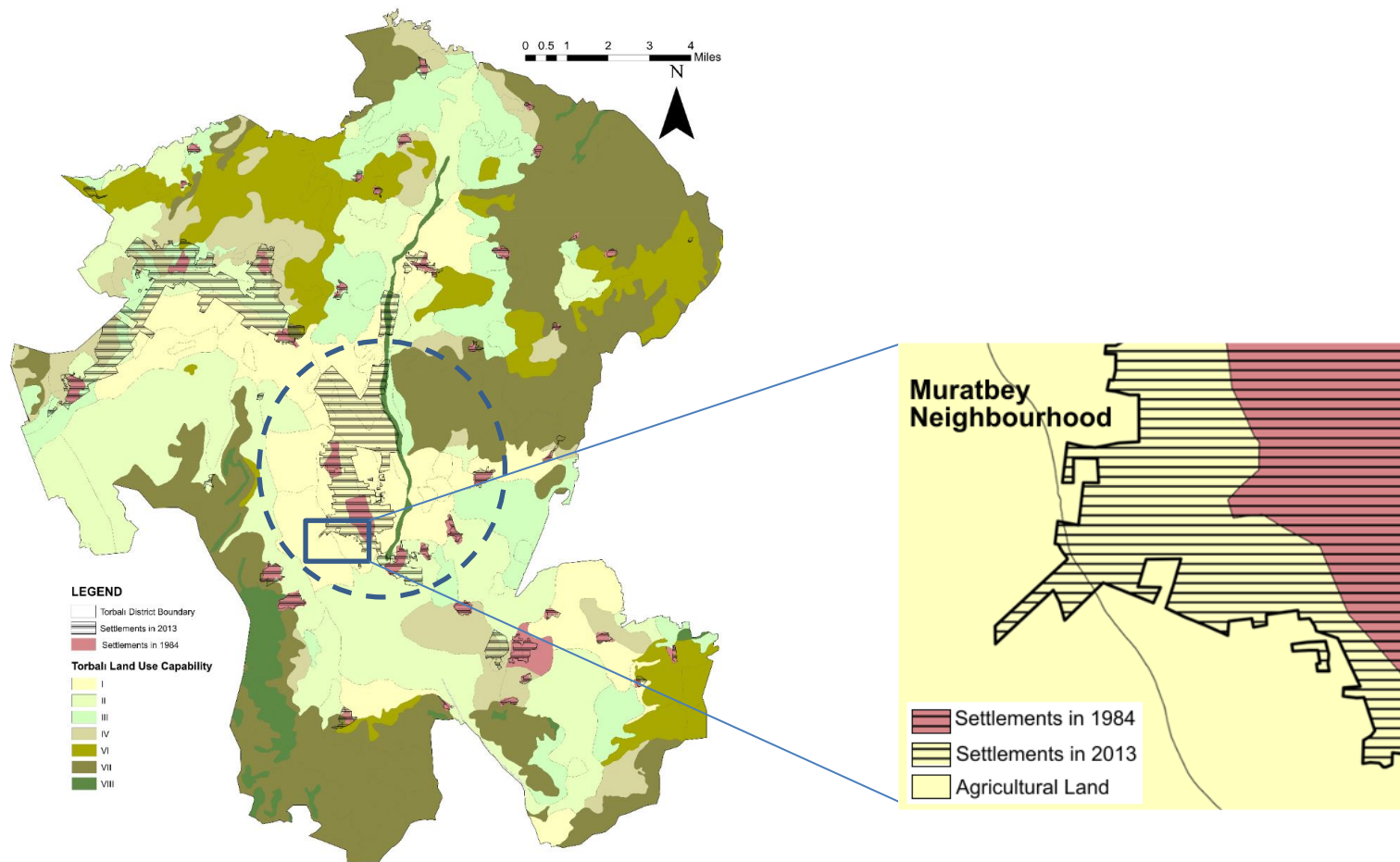


Figure 5.20. Change in Torbalı and Muratbey settlements  
 (Source: Izmir Province Special Administration, 2013)



Figure 5.21. The Settlement expansion of Muratbey neighborhood over the year

The city center is steadily developing while the agricultural regions on the outskirts are shrinking, as can be seen in the above Google Earth images, which were gradually inspected after 2001.



Figure 5.22. Urban sprawl in Muratbey Neighborhood in the last 20 years

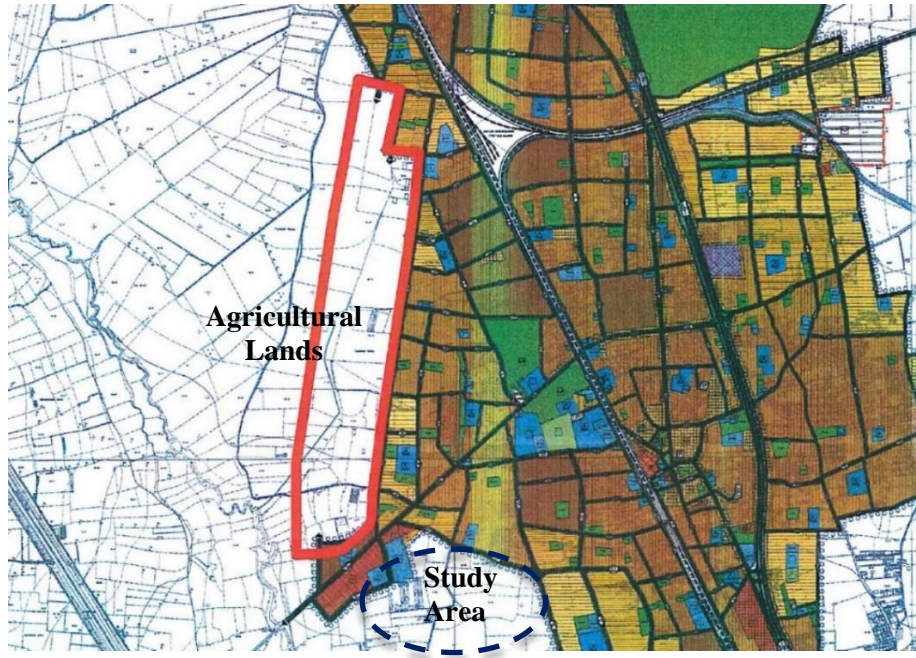


Figure 5.23. Torbalı District 1/5000 scale Master Plan Revision approved for 2017

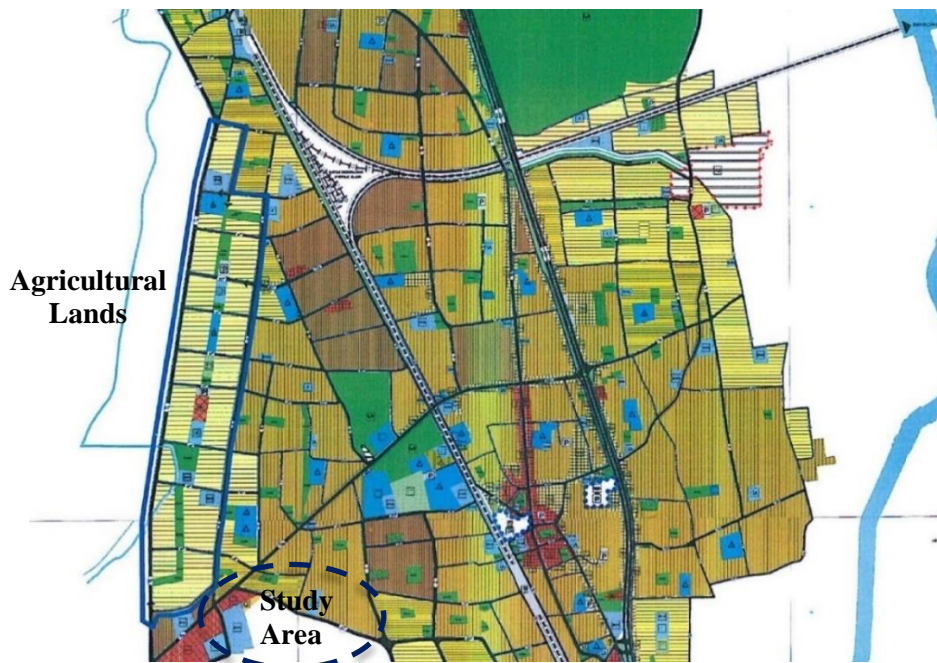


Figure 5.24. Torbalı District 1/5000 scale Master Plan Revision approved for 2019

(Source: Izmir Province, Torbalı District, Muratbey Neighborhood Master Plan Revision Plan Explanation Report)

The area, which was agricultural property two years before, was made available for settlement in accordance with the master plan, as seen on the Figure 5.23 and 5.24 maps.





## CHAPTER 6

### RESULTS AND DISCUSSIONS

#### 6.1. The TDR Model

##### 6.1.1. Land Value Assessment for the Agricultural Land

The concept of “**value assessment**” lies at the rationale of the transfer of the development right. Determination of the concept of “value” and strict clarification of its parameters are crucial in TDR applications. Before the transfer takes place, factors such as the market price value of the sending and receiving areas where the transfer will have departed from and completed, the size of the parcel in the region, and the number of building density should be defined precisely. The clear and thorough explanation of the TDR program will guarantee that the model is implemented successfully and that owners can comprehend the transfer of development rights and utilize the programs (Güzle, 2019: 108). Technicians and administrations have developed criteria and methods to establish land classifications capable of ensuring fair and equal treatment of property in order to appropriately categorize each property. The segmentation of conversion areas is determined from an economic standpoint as a result of their effective usage, which reflects either their actual or potential value (Micelli, 2002). The expected land rent is determined by anticipated urban trends as well as future urban planning and specific spatial projects.

Agricultural production is dependent on the availability and existence of soil as a resource. Agriculture’s viability is heavily dependent on the supply of soil and the continuity of production, which can be seen of as insurance for rural landowners and communities.

The “**direct comparison valuation methodology**” is commonly used one in the land valuation in Turkey. The factors and method of the land valuation is stemmed from the “Expropriated Law” (R.G. 2942/8/11/1983). The valuation of the agricultural land is done by the principles stated in the article 11 and 15 which is named as the “Principles of

Determination of Expropriation Fee<sup>21</sup>”. The value of the land (expropriation fee) is evaluated according to the **net income** to which the land is used according to the location and conditions (11/1-f of the Law).

In Turkey, the “direct comparison value methodology” is widely employed. The “Confiscated Law” (R.G. 2942/8/11/1983) established the criterion and method for assessing land value. The “Principles of Determination of Confiscation Fee” are used to value agricultural land. The valuation of the land (confiscation fee) is calculated by the **net income** generated by the land, taking into account its location and characteristics (11/1-f of the Law). Although the parameters to be considered in the evaluation are specified in the law’s titles, court decisions have largely shaped what they mean and how to apply them (Aslan, 2020).

In accord with the “direct comparison method” to appraise properties inside the master plan’s allowed limit and parcels outside of it, we first calculated the net income from agricultural yields (Table 6.1). According to “Soil Law, No. 5403, the designated agricultural area for the assessment is a first-class watery agricultural land with absolute protection status. Before calculating the net income of agricultural land, the cost and productivity of the crop grown on that property must be determined. Because land that is currently being used to cultivate a profitable crop is less likely to be sold for urban expansion. The larger the profit, the more likely the farmland will be preserved. It is known that agricultural land can only withstand urban sprawl if the profit from agricultural production surpasses the benefit from urban expansion (Catalan, 2008: 180).

For the valuation of the agricultural land named as the “income capitalization method” commonly used in Turkish agricultural property appraisal for those areas located away from 1,5 km and more than 1,5 km. First (1) the net income obtained from the agricultural production is calculated; and then (2) the price of the land with respect to the its proximity to the urban area is appraised. For the first appraisal the capitalization rates of interest are employed in accord with the decisions for the stable High Court’s<sup>22</sup> Judgment and Ordinances. The percentages are used as the capitalization rate as follows; Four percent (4 percent) for wet agricultural land, five percent (5 percent) for dry

---

<sup>21</sup> (R.G. 2942/8/11/1983). “*Kamulaştırma bedelinin tespiti esasları*”

<sup>22</sup> The capitalization rates of interest in stable High Court (*Yargıtay 5. Hukuk Dairesi*) judgements are 4 percent for watery agricultural land, 5 percent for dry agricultural land, and seldom it reaches 6 percent.

agricultural land, and seldom six percent (6 percent). Capitalization interest on high-value agricultural products is low, but when the product's economic value declines, the interest rate rises.

For the calculation of net income is as follows: 1) It is common usage that the farmers of Torbalı region, there is a four-year round change for the agricultural crops to protect the soil's productivity and economic return from the production. It has to be taken into account that, once in a four year the crop type has change to protect the soil fertility. Tomato, cabbage, corn, cotton, and green peas are among the crops planted cyclically in Izmir's agricultural production system. For instance, first year it is assumed that tomato and cabbage are cultivated; the second-year grain corn; the third year is cotton; and finally, green pea and silage corn.

Table 6.1. Average agricultural product income and costs in Izmir

(Source: Agricultural Directorate of Izmir, 2021)

Crop	Total Area (da) <sup>23</sup>	Yield (kg/da) <sup>24</sup>	Price (TL/kg) <sup>24</sup>	Product Cost (TL/kg) <sup>24</sup>	Net Income (TL/da)
Zucchini (Gum)	200	3000	1.50	1.41	268.83
Celery (Root)	2460	3041	2.50	2.33	515.81
<b>Cabbage</b>	<b>350</b>	<b>3500</b>	<b>2.00</b>	<b>1.34</b>	<b>2312.43</b>
<b>Cotton</b>	<b>241885</b>	<b>550</b>	<b>11.44</b>	<b>7.23</b>	<b>2315.26</b>
<b>Green Peas (Fresh)</b>	<b>6200</b>	<b>1300</b>	<b>3.60</b>	<b>3.01</b>	<b>759.42</b>
Pepper (Charliston)	503	4012	3.03	1.80	4939.82
Tomato (Paste)	104803	9359	0.64	0.58	608.30
<b>Tomato (Table)</b>	<b>14801</b>	<b>6371</b>	<b>2.28</b>	<b>1.12</b>	<b>7360.25</b>
Engineer	8437	1362	7.56	4.03	4810.05
Cucumber (Table)	1323	4249	2.91	2.13	3336.03
Zucchini (Gum)	200	3000	1.50	1.41	268.83
Celery (Root)	2460	3041	2.50	2.33	515.81
Lettuce (Aysberg)	100	4250	1.50	1.06	1854.92
<b>Corn (Grain)</b>	<b>98771</b>	<b>1307</b>	<b>2.49</b>	<b>1.84</b>	<b>847.95</b>
<b>Corn Silage Rack</b>	<b>452129</b>	<b>6711</b>	<b>0.47</b>	<b>0.38</b>	<b>625.72</b>
Aubergine	905	3312	2.01	1.68	1090.18
Leek	7930	4015	1.93	1.82	442.27
Onion (Dry)	700	5000	0.90	0.60	1482.69

<sup>23</sup> This information on the total area, yield, price, and product cost was taken from Izmir's Agricultural Directorate.

This crop list is commonly used one in the Izmir's agricultural system especially for those watery agricultural field<sup>24</sup> (see Table 6.1). For the second step, the economic return of the product is divided by the capitalization rate to find out the net land price of the agricultural property.

The formula was applied to all of the crops grown in the provinces of Izmir, and data from the Izmir Agricultural Directorate revealed that the tomato was the most productive crop (Table 6.1).

**Step 1.** The calculation of crops' net income

The formula:  $(A - B) \times C$

A: Price	C: Yield
B: Product Cost	D: Capitalization rate

For example, to calculate the net income of tomato (table);

$$(2,28 - 1,12) \times 6,37 = 7360.25 \text{ TL/da}$$

**Step 2.** The calculation of the land value

The formula:  $(A - B) \times C / D$

For example, to calculate the land value of tomato (table);

$$(2,28 - 1,12) \times 6,37 / 0.04 = 184006.21 \text{ TL}$$

Table 6.2. Calculation Method of the Net Land Price

Annual Round Change	Crop	Yield (kg/da)	Price (TL/kg)	Product Cost (TL/kg)	Capitalization Rate	Net Income (TL/da)
1st Year	Tomato (Table)	6371	2.28	1.12	0.04	7360.25
	Cabbage	3500	2.00	1.34	0.04	2312.43

**Cont. on the next page**

<sup>24</sup> This information has been gathered from the interviews with Izmir's Agricultural Directorate, farmers and agricultural engineers working on the fields.

**Cont. of Table 6.2.**

2nd Year	Corn (Grain)	1,307	2.49	1.84	0.04	847.95
3rd Year	Cotton	550	11.44	7.23	0.04	2315.26
4th Year	Green Peas (Fresh)	1300	3.60	3.01	0.04	759.42
	Corn Silage Rack	6711	0.47	0.38	0.04	625.72
<b>Total Net Income (TL/da)</b>						14221.03
Annual Net Income (TL/da)		14221.03 / 4				3555.26
The Value of 1 Decare of Land		3555.26 / 0,04				88000.00
The Value of 1 Square-meter of Land		88000 / 1000				<b>88.00</b>

This calculation is valid for the locational appraisal of the agricultural land. For the proximity parameter away from urban center we use four rings according to the length in meters respectively 200m (the closest first ring to the urban area), second ring 400m, third ring is the 1,5 km, and the most remote areas (Fig 6.3). The fourth ring the calculation is as follows. The result according to the method indicated in the Table 6.2 is equivalent to the value, **88.000 TL/Decare**<sup>25</sup> for the watery agricultural land.

**6.1.2. Land Value Assessment for The Urban Land**

The method was employed for the appraisal of the urban land, which is known as the “**construction right in return for flat**” in Turkish Planning System. For this (1) it is derived the substantial number of sales data of the residential unit that reflects the market price of the property<sup>26</sup> as stated in the title deed. The criterias for the selection of the residential units are; 1) it has to be located in the Urban Planning Area. And the second

---

<sup>25</sup> Decare (*dönüm*) is the land measure of the 1000 m<sup>2</sup>.

<sup>26</sup>Sahibinden.com is a popular website in Turkey for selling real estate, automobiles, and other items. It is a website that allows users to post commercials and conduct e-commerce transactions in a variety of categories, including real estate, autos, retail products, and services.

(2) it has to be close proximity to the agricultural land, and finally (3) Recently sold residential units (Figure 6.1). Then the average selling price has obtained which was 7000 TL/m<sup>2</sup> according to the selected residential units (Table 6.3).



Figure 6.1. The area where the real estate listings on sahibinden.com were chosen

After the calculation, the Development Plan's building permission has taken into account to find the land value plus the building value, which is constructed at this land. Let's explain in the sample. Suppose we have a 4-story residential building on a 333.33 m<sup>2</sup> plot of land with respect to the building code of the Torbalı's Development Plan which is 0,30 plot area ratio (PAR) and 1,20 is the floor area ratio (FAR). The ground floor size is 100 m<sup>2</sup>, whereas the rest of the flats are 115m<sup>2</sup>. The floors prices are not the same because of the climatic factors. The ground floor's price is the lowest and the top is the second lowest, on the contrary the mid-floors are of the the highest price. To calculate each floor's price, we use index which are 0,925 for the top floor, 0,91 for the ground floor for the normalization of the price. The ground and top floor's price are lower than the mid-floor because ground floor generally has the lowest floor space whereas the top floor has some kind of climatic inconvenience stemmed from heathing, wind and escalator, etc. (Table 6.4). As a result, the **total value** of the sample building is **2.992.000 TL** (the value of the urban land located in the Official Development Plan of Torbalı).

**Step 1.** Determining housing prices in the immediate vicinity and the average market value for a housing unit

Table 6.3. Calculation Method of the Average Price of a Housing Unit

Number of Selected Flats	Housing unit price (TL / m2)	Gross area (m2)	Price (TL)	Number of floors
1	7500	100	750 000	5/5
2	6950	100	695 000	2/6
3	6896	145	1 000 000	5/6
4	6650	100	665 000	3/4
<b>Total</b>	27996			
<b>Average price</b>	27996 / 4		7000 TL/m2	

Table 6.4. Calculation Method of the Total price of a Housing Unit

	A	B	C	D
Number of Floors	Housing unit price (TL / m2)	Gross area (m2)	Index	Price (TL)
<b>1st Floor</b>	7000	100	0,91	637.000
<b>2nd Floor</b>	7000	115	1	805.000
<b>3rd Floor</b>	7000	115	1	805.000
<b>4th Floor</b>	7000	115	0,925	745.000
<b>Total Price (TL)</b>	2.992.000			
Formula to find each floors price		$D = A \times B \times C$		

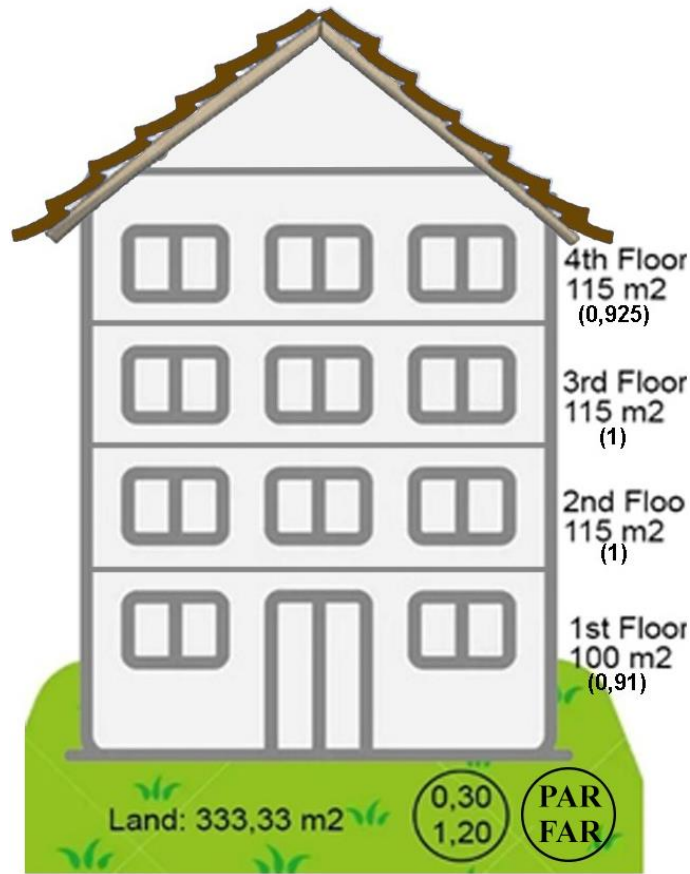


Figure 6.2. A building sample of valued by each floor

**Step 2.** Determining net income of the urban land by using ‘construction right in return for flat’ index

**Formula = (A X B / C) / D**

$$= (2.992.000 \times 0,45 / 1,20) / 333,33 = \mathbf{3366 \text{ TL/m}^2}$$

A: Total price

B: ‘Construction right in return for flat’ coefficient (It is **45 percent** for Torbalı)

C: Cash payment coefficient (**1,20**)

D: Land area

**Step 3.** Converting urban land value into the cadastral land value;

$$3366 \times 0,55 \text{ (DOP Rate)} = \mathbf{1850 \text{ TL/m}^2}$$

The next step (2) is to find out the net income which is calculated by utilizing the normalize index. The index named as “the rate of the construction right in return for flat” is generally **45 percent** in Torbalı and determined by the responsible bodies and



multiple agents<sup>27</sup>. The developer's share in the total value (2.992.000 TL) of the property is equal to 55 percent of the property whereas the landowners' share is the 45 percent. The landowner either got the value in cash or have the residential unit with respect to the 45 percent. If the landowners would prefer actual payment in cash the coefficient (**1,20**) has to be taken into calculation for the risk the constructor for the marketing of the property and to encourage the constructor keep on the building activities. The share of the landowner is (2.992.000 X 0.45) equivalent to the 1.346.400 TL and when this value is divided by the 1,20 the net gain for the property owner is equal to the 1.122.000 TL. The unit value square meter is then 1.222.000/333.33 (the land size), which is **3366 TL/m<sup>2</sup>**. This value is the net income obtained from the urban land.

The final step (3) is to convert urban land into the cadastral land value for the comparison in-between urban land and agricultural land. This is crucial in the Turkish planning system for the conversion of non-urban land (agricultural land included) into the urban land "land readjustment process – Article 18" is used known as the "dough rule" (*hamur kaidesi*). This readjustment is utilized as a private property public control mechanism because Up to 45 percent of the land should be set aside for public use following the necessary land readjustment to ensure equality of the expected gain in land value. In our sample 3666 TL/m<sup>2</sup> X 0,55 is approximately equal to the **1850 TL/m<sup>2</sup>**.

---

<sup>27</sup> After calling various real-estate consultants and constructors we learnt that the ratio is 45 percent for the Torbalı. This ratio is 50 percent for Izmir's central areas whereas it is 45 percent for Torbalı because the district is far from the central areas and the existence of the large-scale agricultural production.

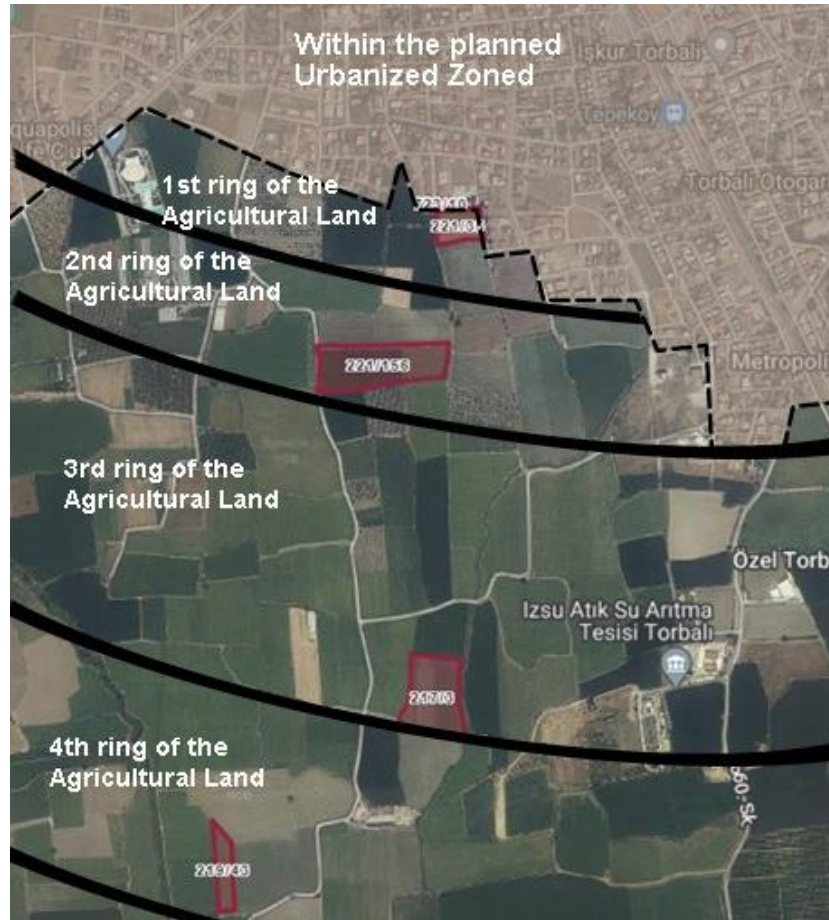


Figure 6.3. Urban area and zoning of agricultural lands

**In accord with the applications by the** Izmir Greater Area Municipality's Real Estate Appraisal Unit (*Emlak Yönetimi Daire Başkanlığı*) the differences between urban and non-urban (agricultural land) land values is of the **one-and-four** rate between the lands in the areas 200 m away from the approval limits of the Development plan's and the urban areas. This is equal to the  $(1850 / 4) = 460 \text{ TL/m}^2$ . And the next ring is of 400 m far from the approval boundary and the land in this ring is **two-and-third** and the value for this ring is equal to  $460 \times (2/3)$ , which is approximately **300 TL** (Table 6.5).

Tablo 6.5. The estimated amount of TDR removed from the sending area

	<b>Features of the rings</b>	<b>Distance to the Boundary of the Development Plan (urban areas)</b>	<b>Indexes</b>	<b>Land value (TL/m2)</b>	<b>TDR Transfer Ratio</b>
<b>Within the planned urbanized zone</b>	Land from the Development plan's approval boundary	-		1850	-
<b>1st ring of the agricultural land</b>	The land with the highest expected rent (waiting for including official development plan's building rights)	200 m	¼ (of the urban land value)	460	0,25
<b>2nd ring of agricultural land</b>	The land with high expected rent (waiting for including official development plan's building rights)	400 m	2/3 (of the 1 <sup>st</sup> ring value)	300	6,2
<b>3rd ring of the agricultural land</b>	Objective value increment <sup>28</sup>	1.5 km	Income capitalization calculation	110	16
<b>4th ring of agricultural land</b>	Pure agricultural land, no pressures of the construction, further away urban area	more than 1.5 km	4/5 of the 3rd ring value	88	21

<sup>28</sup> The "objective value increment" ratio is obtained from the Court's Decisions taken by the Izmir Greater Area Municipality's Real Estate Appraisal Unit. The "objective value increment" has regulated by the Expropriated Law (Law No. 2942) in article 11-f under the subheading of the "Agricultural Land Immobile Property's Value Appraisal".

## CHAPTER 7

### CONCLUSION

The growing urbanization of our nation has also resulted in urban sprawl. The city is gradually expanding towards rural areas and the pressure to build on agricultural lands is emerging. Agricultural areas are in risk of disappearing because they are particularly susceptible to these influences. A new zoning implementation tool has become necessary since the regulations in the current planning system are insufficient to preserve these places. The transfer of development rights (TDR) tool, which has been used successfully abroad as an example, has been considered in conjunction with this study since it may offer a solution here as well.

TDR, as a planning tool, compensates property owners for economic losses caused by development limitations or downzoning, rather than the state paying for the confiscation of the property. The determination of how many TDRs to issue to property owners in the sending areas and how many TDRs a developer needs to build an additional dwelling unit or amount of commercial space in a TDR receiving area is very crucial. The amount of TDR rising from the sending domains and the "density limit" or "unused growth" to be transferred to the receiving area are equalized, and the difference between the protected and de-protected market values, which is the equivalent of the development right is derived from the receiving area with the appropriate transfer rate as defined in legal planning.

In this study, we looked at the Muratbey area in the Torbalı district of the province of zmir, where there is a considerable of development pressure. We have found that agricultural lands are disappearing spatially each year in this study area, where both rapid urbanization and intensive agricultural activities take place. On the other hand, our findings show that there is a large price difference between adjacent urban and rural land (between *Muratbey* neighborhood and adjacent agricultural land). The conversion of agricultural land for urban development would be facilitated by rising land values in the rural-urban outskirts.

The first ring of the agricultural land value differential is 0,25 whereas the second ring is 6,2. Similarly, the difference between urban areas is 1/16 (3<sup>rd</sup> ring) and the most

remote ring (more than 1,5 km) is 1/21. These ratios illustrate the high danger of agricultural land conversion, starting with the close proximity (1st ring) and ending with the far one (4rd ring).

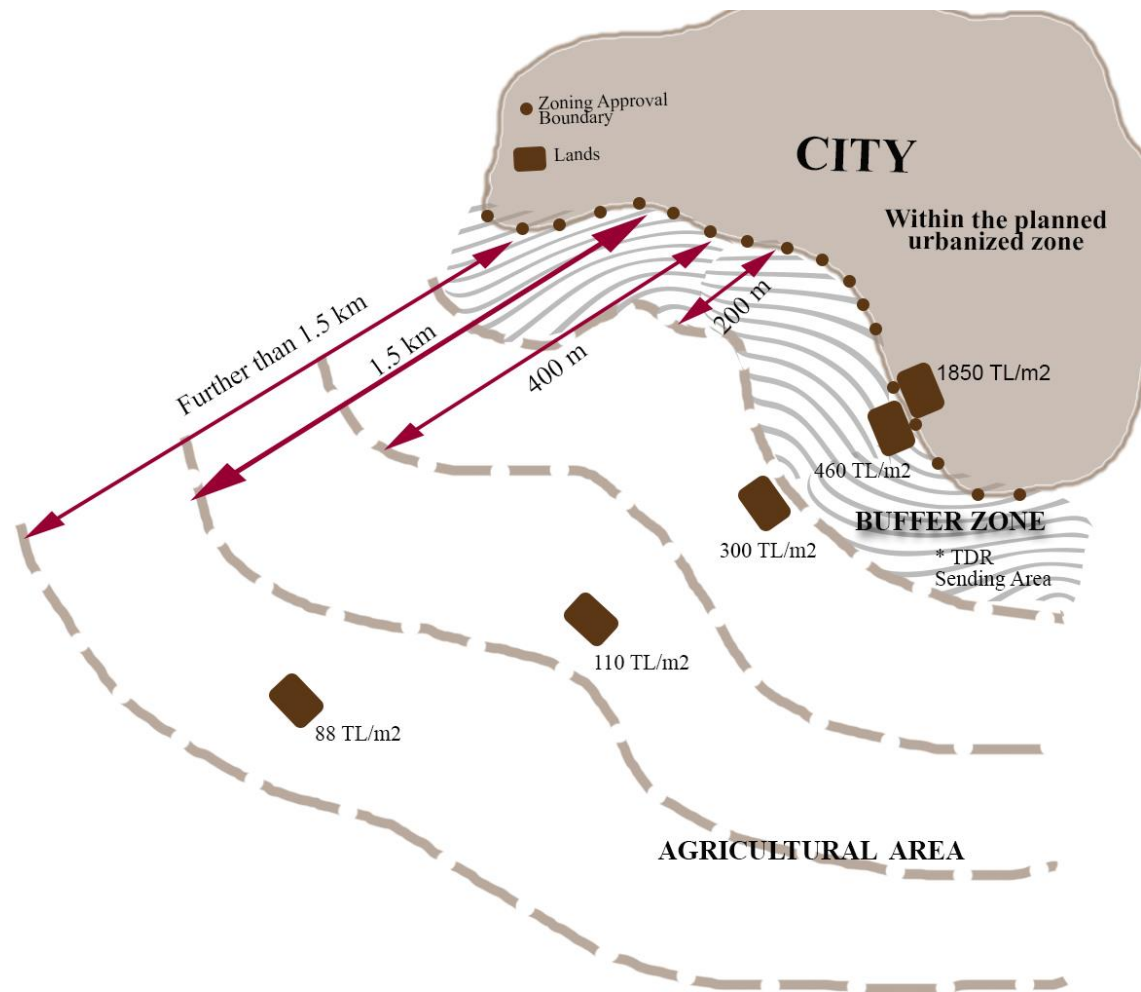


Figure 7.1. Location of TDR sending area

The zoning that emerged as a result of the analyzes was one of the most important steps for the study. According to the resulting zones, the first 200-meter ring, located at the urban area periphery and adjacent to the zoning approval boundary, serves as a transition between the urban settlement and agricultural land. These are the areas where the urban leap can be experienced and the first to be settled in case of need. Failure to protect these regions or rings always threat the next rings as well. Therefore, this ring needs to be transformed into a buffer zone. The protection function in this ring should be defined in the TDR application. Therefore, as a result of our study, the zone that we want to protect as a buffer zone is also defined as the TDR sending area. The transfer of

development rights in this area will not only protect the area from development, but also prevent the development of the next agricultural areas. In this study, it is mainly aimed to determine the area to be protected, namely the TDR sending area. However, we can only make suggestions regarding the TDR receiving area as empty lands that are within the zoning approval boundary and are not built. It is also required that detailed spatial analysis and determinations of the TDR receiving area. In this sense, as a continuation of the study, it has the potential to initiate a new study at the point of TDR receiving area analysis and to further develop the study. It is thought that this study we have carried out will be an example for future studies and will support the emergence of more advanced studies by bringing new issues to the agenda.

Land maintenance is essential for the continuation of the agricultural production. In a similar line, future environmental concerns must be addressed on a regular basis by rural landowners and rural communities to ensure agricultural production's viability. If the thesis findings referred severe discrepancies between the price of urban and rural land are not addressed in the urban growth strategy in the land use planning and land use management system, the conservation of agricultural land and the long-term viability of food production would be threatened severely. A new approach in which the mobilization of actors using TDR as a resource and indispensable planning tool should be included in the decision-making and management process in safeguarding agricultural production and protection of the valuable soil for production, rather than difficulties or victimization due to protection.

## REFERENCES

- Akcesme, H. (2006). *İmar planlarının uygulanmasında ve kentsel rantın kamuya aktarılmasında kullanılan araçlar: 18. madde uygulaması* [Tools for implementing development plans and transferring to the public urban rent: Application of the Article 18]. M.Sc. dissertation, Gazi University. Ankara-Turkey.
- Aken, J., Eckert, J., Fox, N. and Swenson, S. (2008). *Transfer of Development Rights (TDR) in Washington State: Overview, Benefits, and Challenges*. A Report Prepared by the Cascade Land Conservancy for consideration by the Washington State Department of Community, Trade and Economic Development and the Regional TDR Advisory Committee. TDR in WA State FINAL 02-09-2009.doc. March 2008.  
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.167.5097&rep=rep1&type=pdf>
- Akseki, H. and Meşhur, M.Ç. (2013). Kentsel yayılma sonucu yapılaşmaya açılan verimli tarım alanları: Konya kenti deneyimleri. MEGARON 8(3):165-174.
- Aksoy, M. A., Yalçın, K., And Aksoy, E. E. (2019). İmar Hakkı Transfer Sistemi Ve Türkiye İçin Bir Model Önerisi. *Ömer Halisdemir Üniversitesi İktisadi Ve İdari Bilimler Fakültesi Dergisi*, 12(3), 440-453.
- Akşit, B. (2006). Globalization. In *Culture and Civilization: A Theoretical Framework for Comparative Sociological Research, Globalization and Turkish Civilization Symposium Papers*, Biskek: Kyrgyzstan-Turkey Manas University Publications.
- Albrechts, L. (2008). Strategic spatial planning revisited experiences from Europe. In *3rd regional development and governance symposium 27-28 october 2008. Mersin*.
- Almus, S., (1999). Tokat - Zile- Güzelbeyli Kasabasında Uygulanan Arazi Topulaştırmasında Benimsemeyi Etkileyen Faktörlerin ve Çiftçi Eğilimlerinin

Belirlenmesi Üzerine Bir Araştırma. GOP Üniversitesi Fen Bilimleri Enstitüsü, Yayınlanmamış Yüksek Lisans Tezi, Tokat.

- Alonso, W. (1960). The Theory of the Urban Land Market. Papers and Proceeding of the Regional Science Association, Volume 6, 1960.
- Amponsah, O., Blija, D. K., Ayambire, R. A, S. A; Mensah, H; Braimah, I. (2022). “Global urban sprawl containment strategies and their implications for rapidly urbanising cities in Ghana”, *Land Use Policy* 114 (2022) 105979.  
<https://doi.org/10.1016/j.landusepol.2022.105979>
- Aslan, R. (2020). Kamulaştırma Davaları Adli Yargı Süreci. Seçkin Yayıncılık. 2020/02 SECKIN-9789750259395.
- Ataöv, A. and Osmay, S. (2007). “Türkiye’de Kentsel Dönüşüme Yöntemsel Bir Yaklaşım” (A Methodological Approach to Urban Regeneration in Turkey. *ODTÜ Mimarlık Fakültesi Dergisi*, METU JFA, 24/2: 57-82.
- Bademli, R. R. (2006). *Doğal ve Tarihi Kültürel Değerlerin Korunması* [Preservation of Natural and Historical Cultural Values] METU Faculty of Architecture Publications, Ankara (2006).
- Balaban, O. (2012). The negative effects of construction boom on urban planning and environment in Turkey: Unraveling the role of the public sector. *Habitat International*, 36(1), 26–35. <https://doi.org/10.1016/j.habitatint.2011.05.003>.
- Boztoprak, T., Demir, O., and Çoruhlu, Y. E. (2016). Arazi Yönetimi Uygulamalarında Kamulaştırma Düzenlemesi. *Harita Teknolojileri Elektronik Dergisi*, 8(1), 40-50.
- Catalan, B., Sauri, D, Serra, P. (2008). Urban sprawl in the Mediterranean Patterns of growth and change in the Barcelona Metropolitan Region 1993–2000. *Landscape and Urban Planning* 85. 174–184. 2008: 180-181.
- Cavusoglu, E. (2014). Türkiye Kentleşmesinin Toplumsal Arkeolojisi (The Societal Archeology of Turkey's Urbanization). Ayrıntı Yayınları, 2014, İstanbul.
- Chan, Edwin H.W. and Hou, J. (2014). “Developing a framework to appraise the critical success factors of transfer development rights (TDRs) for built heritage



- conservation”. *Habitat International* 46 (2015): 35-43. DOI:10.1007/s10901-018-9613-6 [http://www.spo.org.tr/resimler/ekler/22abfa379f38b5b\\_ek.pdf](http://www.spo.org.tr/resimler/ekler/22abfa379f38b5b_ek.pdf)
- Chester County Planning Commission, (2022). Transferable Development Rights (TDR). Accessed on 5 May 2022. <https://www.chescoplanning.org/MuniCorner/eTools/56-tdr.cfm>
- Chiodelli, F., and Moroni, S. (2016). Zoning-integrative and zoning-alternative transferable development rights: Compensation, equity, efficiency. *Land Use Policy*, 52, 422-429.
- Colavitti, A. M., and Serra, S. (2018). The transfer of development rights as a tool for the urban growth containment: A comparison between the United States and Italy. *Papers in Regional Science*, 97(4), 1247-1265.
- Curtis, J., Pagonis, Z., Roach, E. (2008). *Transferable Development Rights Legislation, A Proposal for Solving Maryland’s Land Use Problems*. Prepared for the Governor’s Summer Internship Program. August 2008. University of Maryland, Baltimore County.  
[http://www.ibrarian.net/navon/paper/Transferable\\_Development\\_Rights\\_Legislation\\_A\\_Pro.pdf?paperid=13321655](http://www.ibrarian.net/navon/paper/Transferable_Development_Rights_Legislation_A_Pro.pdf?paperid=13321655)
- Çağlar, Y. (2015). “Türkiye’de kamu arazilerinin yönetiminde Planlı Plansızlık”. Sosyal Araştırmalar Vakfı.
- Delaney, C. (1999) “The Rise and Demise of Village Life in Turkey”. Bilanço 1923-1998: Türkiye Cumhuriyeti’nin 75 Yılına Toplu Bakış Uluslararası Kongresi, II. Cilt: Ekonomi-Toplum-Çevre içinde, Tarih Vakfı Yayınları, İstanbul 1999, s.191-198.
- Demirel, Z. (1999). *Arazi Topplulaştırma, Yıldız Teknik Üniversitesi Basım–Yayım Merkezi, 2. Baskı, İstanbul*.
- Duyguler, F. (2014). “İmar Sürecinin Yeni Araçları” [New Tools of the Development Planning]. *Mimarlık*. Vol. 375. January-February 2014.  
<http://www.mimarlikdergisi.com/index.cfm?sayfa=mimarlikandDergiSayi=389andRecID=3295>

- Dünder, S. (2010). “İmar Hakkı Aktarımı İstanbul Üzerine Bir İnceleme” [Transfer of Development Rights A Survey on Istanbul]. M.Sc. Dissertation, Istanbul Technical University. 1-221. <http://hdl.handle.net/11527/1613>
- Ekinci, K., and Sayılı, M. (2010). Tarım Arazilerinin Parçalanmasını Önlemeye Yönelik Mevzuat Üzerine Bir İnceleme. *Gaziosmanpaşa Üniversitesi Ziraat Fakültesi Dergisi*, 2010(2), 121-129.
- Eraydın, A. (2012). Contradictions in the neoliberal policy instruments: What is the stance of the state? In T. Tasan-Kok, and G. Baeten (Eds.), *Contradictions of neoliberal planning* (61-77). Dordrecht: Springer.
- Eraydın, A., and Taşan-Kok, T. (2013). Introduction: resilience thinking in urban planning. In *Resilience Thinking in Urban Planning*. Dordrecht, Springer, pp. 17–37.
- Erdem, E. G. (2019). *Urban transformation in Turkey within historical and legal framework: A comprehensive evaluation in İzmir* (Doctoral dissertation, Izmir Institute of Technology (Turkey)).
- Erol, I. (2019). “New Geographies of Residential Capitalism: Financialization of the Turkish Housing Market Since the Early 2000s”. *International Journal of Urban and Regional Research*. Vol. 43/4. 617-814. <https://doi.org/10.1111/1468-2427.12794>
- Ersoy, M. (2000) İmar Planı Uygulamalarında Düzenleme İşlemi, Mekân Planlama ve Yargı Denetimi, Yargı Yayınevi, Ankara.
- Falco, E., and Chiodelli, F. (2018). The transfer of development rights in the midst of the economic crisis: Potential, innovation and limits in Italy. *Land Use Policy*, 72, 381-388.
- Giordano, M. (1987). Over-stuffing the envelope: the problems with creative transfer of development rights. *Fordham Urb. LJ*, 16, 43.
- Goksu, A. Faruk. (2003). “Kent Planlamada Yenilikçi Uygulama Araçları (İhtr.- Menkulleştirme)” [Innovative urban planning application tools (securitization)], Paper presented at the annual meeting for the *TMMOB ŞPO Dünya Şehircilik Günü 27. Kolokyumu*, Mersin, November 6-7-8.

- Gökkür S., (2020). Tarım Arazilerinin Korunması, Apelasyon, ISSN:2149-4908, Haziran 2020, Sayı 79, <http://apelasyon.com/Yazi/1157-tarim-arazilerinin-korunmasi>
- Gün, S, (2001). Türkiye’de Tarım Topraklarının Mülkiyet Durumu ve Uygulanan Politikalar. Cumhuriyetin 100. Yılına Türk Tarımının Hedefleri Sempozyumu, 30 Nisan-1 Mayıs 2001, Ankara.
- Gunay, B. (1995). “Planlama Yaklaşımlarının Mülkiyet Açısından İrdelenmesi” [Analysis of Planning Approaches in Terms of Ownership]. *1. Planlama Kongresi: Planlamanın Meşruiyeti ve Plancıların Konumları*, TMMOB Şehir Plancıları Odası, December 14-15 (1995), 63-71.
- Günay, Baykan, (2005) ‘‘Ankara Çekirdek Alanının Oluşumu ve 1990 Nazım Planı Hakkında bir Değerlendirme’’, in *Cumhuriyet’in Ankara’sı*, ed. Tansı Şenyapılı, 61-118, ODTÜ Yayıncılık
- Guzle G. and Akpınar F., (2019). Transfer of Development Rights For The Effectiveness Of The Conservation Plans: A Case From Historic Kemeraltı, 1. Ring Residential Areas In Izmir. In *International Conference on Contemporary Affairs in Architecture and Urbanism (ICCAUA-2019) 9-10 May 2019*. Antalya
- Güzle, G. (2019). Transfer of Development Rights for the Effectiveness of the Conservation Plans: A Case from Historic Kemeraltı 1 st Ring Residential Areas in İzmir (Doctoral dissertation, Izmir Institute of Technology (Turkey)).
- Guzle, G., Akpınar, F., and Duvarcı, Y. (2020). Transfer of development rights for the effectiveness of the conservation plans: A case from Historic Kemeraltı, Izmir. *Habitat International*, 103, 102207.
- Hanly-Forde, J., Homsy, K., Lieberknecht, K., and Stone, R. (2014). *Transfer of Development Rights Programs, Using the Market for Compensation and Preservation*. Cornell University, College of Architecture, Art and Planning. <http://www.mildredwarner.org/gov-restructuring/privatization/tdr>
- Hin Li, L. and Gan, L. (2013). “Conserving the heritage in Chongqing by market forces: the feasibility of adopting TDR in China”. *Journal of Cultural Heritage Management and Sustainable Development* 3.1 (2013): 18-34. DOI: 10.1108/20441261311317383

- Hou, J., Chan, E. H., and Li, L. H. (2018). Transfer of development rights as an institutional innovation to address issues of property rights. *Journal of Housing and the Built Environment*, 33(3), 465-479.
- International Council on Monuments and Sites (ICOMOS) *The Valetta Principles for The Safe Guarding and Management of Historic Cities, Towns and Urban Areas*. 2011. 17<sup>th</sup> ICOMOS General Assembly on 28 November 2011. [http://www.icomos.org.tr/Dosyalar/ICOMOSTR\\_en0593034001536912260.pdf](http://www.icomos.org.tr/Dosyalar/ICOMOSTR_en0593034001536912260.pdf)
- Isbir, E. G., and Acma, B. (2005). Kentleşme Ve Çevre Sorunları, Anadolu Üniversitesi Yayını. *Baskı, Eskişehir*.
- Izmir Special Province Administration's Land Classification Study (digital ArcGIS), 2010 (the data based updated in The Ege University, Department of Soil in 2013).
- Janssen-Jansen, L.B., (2008). Space for space, a transferable development rights initiative for changing Dutch landscape. *Landsc. Urban Plan.* 87, 192–200. <http://dx.doi.org/10.1016/j.landurbplan.2008.06.002>.
- Johnston, R. A., and Madison, M. E. (1997). From land marks to landscapes: a review of current practices in the transfer of development rights. *Journal of the American Planning Association*, 63(3), 365-378.
- Karadağ, A. (2015). Ege'nin Metropolü İzmir ve Kentleşme. *Ege Coğrafya Dergisi*, 127-157.
- Karakayacı, Z. (2010). Tarım Arazilerinin Dışı Kullanımının Sürdürülebilir Kalkınma Açısından Değerlendirilmesi. *Ziraat Mühendisliği*, (355), 48-53.
- Karakuş, K., Karakuş, S., and Çelikyürek, H. (2019). Ülke Toprakları Ve Tarım Arazilerinin Bitkisel Ve Hayvansal Üretim Faaliyeti Dışında Kullanımı. *Hayvan Bilimi Ve Ürünleri Dergisi*, 2(1), 84-90.
- Keles, R., (1998). Kentbilim Terimleri Sözlüğü, 2. Baskı, İmge Yayınevi, Ankara
- Keyder, Ç. and Yenal, Z. (2013). Bildiğimiz Tarımın Sonu: Küresel İktidar ve Köylülük. İletişim. İstanbul-2013.

- Kılıç, M. (2008). Tarım Arazilerinin Amaç Dışı Kullanımının Hukuki ve Sosyo-Ekonomik Boyutları: Çorum İli Merkez İlçesi Toprak Sanayi Gçletmeleri Örneđi, Ankara Üniversitesi, Fen Bilimleri Enstitüsü, doktora tezi
- Klaus, J. (2020). Sharing property value losses: The spatial concentration of development rights as a way to limit urban sprawl. *Land Use Policy*, 94, 104540.
- Konbul, Y., and Yanalak, M. (2022). A Technical Proposal for the Implementation of Transfer of Development Rights (TDR) on Preserved Historic Buildings in Turkey. *Buildings*, 12(6), 778.
- Kurucu, Y., and Christina, N. K. (2008). Monitoring the impacts of urbanization and industrialization on the agricultural land and environment of the Torbali, Izmir region, Turkey. *Environmental monitoring and assessment*, 136(1), 289-297.
- Leaf, M. (2016) The Politics of Periurbanization in Asia, *Cities* 53(2016), 130-133. <http://dx.doi.org/10.1016/j.cities.2016.01.008>
- Levent, T. (2018). “Kent ve Kır Arasında Bir Arayüz Olarak Kırsal-Kentsel Çeper”. 8 Kasım Dünya Şehircilik Günü 41. Kolokyumu, Planlamada Kırsal Alanlar ve Bölge. Kasım 2018, Ankara.
- Linkous, E. R. (2016). Transfer of development rights in theory and practice: The restructuring of TDR to incentivize development. *Land Use Policy*, 51, 162-171.
- Mabbs-Zeno, C. C. (1981). Design of programs using transferable development rights to preserve farmland in the Northeast. *Journal of the Northeastern Agricultural Economics Council*, 10(2), 57-62.
- Machemer, P. and Kaplowitz, M. D. (2002). “A Framework for Evaluating Transferable Development Rights Programmes”. *Journal of Environmental Planning and Management*. Vol. 45(6): 773-795. <https://documents.pub/document/a-framework-for-evaluating-transferable-development-rights-programmes.html>
- Madran, E. (2000). “Taşınmaz Kültür ve Tabiat Varlıklarını Koruma Mevzuatının Gelişimi ve Yargısal Denetim” [Evolution of the Legal Aspects of the Immobile Cultural and Natural Properties and Juristic Control]. *Mekân*

- Planlama ve Yargı Denetimi*, eds: M. Ersoy and H.Ç. Keskinok, Yargı Yayınevi, Ankara, 156-199, 2000.
- Madran, E. and Özgönül, N. (2005). *Kültürel ve Doğal Değerlerin Korunması* [Conservation of Cultural and Natural Values]. TMMOB Mimarlar Odası, Ankara.
- Mataracı, O., Haznedar, H., Şahin, N., and Bayraktar, Ş. (2017). Kentsel dönüşümde alternatif bir yöntem: imar hakkı transferi. *TMMOB Harita ve Kadastro Mühendisleri Odası*, 16, 3-6.
- Mazi, F. (2009). “Tarihi Çevrenin Korunmasında Sosyo-Ekonomik Faktörlerin Etkisi” [The Effect of Socio-Economic Factors in the Conservation of Historical Environment]. *Mevzuat Dergisi* 12 (138) June 2009 1-11.  
<https://www.mevzuatdergisi.com/2009/06a/01.htm>
- McConnell, V. D., Walls, M., and Kelly, F. (2007). *Markets for Preserving Farmland in Maryland: Making TDR Programs Work Better*. Harry R. Hughes Center for Agro-Ecology, Incorporated, Maryland, USA, 288-303.  
[https://agresearch.umd.edu/sites/agresearch.umd.edu/files/\\_docs/locations/wye/Virginia%20McConnell's%20Final%20Report%20HRHCAE%20Pub%202007-03.pdf](https://agresearch.umd.edu/sites/agresearch.umd.edu/files/_docs/locations/wye/Virginia%20McConnell's%20Final%20Report%20HRHCAE%20Pub%202007-03.pdf)
- Mengilli-Işıldak, F. (2012). Koruma Alanlarında imar hakları transferi ve ABD modeli. *Kültür ve Turizm Bakanlığı Uzmanlık Tezi*.
- Messer, Kent D., (2007). “Transferable Development Rights Programs: An Economic Framework for Success”. *Journal of Conservation Planning*, Vol. 3 (2007) 47 - 56. <https://pdfs.semanticscholar.org/45b2/13dde39e73442772255cb0aada1d557e30c6.pdf>
- Meşhur, M. Ç. (2008). Arazi ve arsa düzenlemesi (18. madde uygulaması) sürecinin kentsel mekân oluşumu açısından irdelenmesi.
- Micelli, E. (2002). *Development Rights Markets to Manage Urban Plans in Italy*, Urban Studies, Vol. 39, No. 1, 141-154.

- Mulders, M., (2003). Pink forGreen, research about the improvement of spatial quality in Brabant as a result of the Space for Space provision, Province of North Brabant, Den Bosch [in Dutch].
- Nelson, A.C., Pruetz, R., and Woodruff, D. with Nicholas, J.C., Juergensmeyer, J.C. and Witten, J. (2013). *The TDR Handbook: Designing and Implementing Transfer of Development Rights Programs*. Island Press, Washington, Covela, London. [http://digilib.bppt.go.id/sampul/The\\_TDR\\_Handbook.pdf](http://digilib.bppt.go.id/sampul/The_TDR_Handbook.pdf)
- Öğdül, H. (2010). Urban and Rural Definitions in Regional Context: A Case Study on Turkey. *European Planning Studies*, Vol. 18, No. 9, September 2010. <http://www.informaworld.com/smpp/title~content=t713417253>
- Özdemir, N. (1995). Türkiye'de Tarım Bölgelerine Göre Toprak Korumaya Yönelik Sorunlar Ve Öneriler. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi*, 26(3).
- Özügül, M. D. (2010). Türkiye’de Tarım Alanı Tahribatı ve Çevresel Etki Değerlendirmesini Yeniden Düşünmek. *Megaron*, 5(2).
- Pizor, P. J. (1986). Making TDR work: a study of program implementation. *Journal of the American planning association*, 52(2), 203-211.
- Pruetz, R. (2003). *Beyond Takings and Givings: Saving Natural Areas, Farmland and Historic Landmarks with Transfer of Development Rights and Density Transfer Charges*, California: Arje Press Marina Del Rey, California. [https://books.google.com.tr/books/about/Beyond\\_takings\\_and\\_givings.html?id=mYItAQAIAAJandredir\\_esc=y](https://books.google.com.tr/books/about/Beyond_takings_and_givings.html?id=mYItAQAIAAJandredir_esc=y)
- Rakodi, C. (2002). Economic development, urbanization and poverty, in: C. Rakodi and T. Llyod-Jones (Eds) *Urban Livelihoods: A People-Centred Approach to Reducing Poverty*, pp. 23–36 (London: Earthscan).
- Renard, V., (2007). Property rights and the ‘transfer of development rights. Question of efficiency and equity. *Town Plan. Rev.* 78 (1), 41–60.
- Ripp, M. and Rodwell, D. (2017). “Governance in UNESCO World Heritage Sites: Reframing the Role of Management Plans as a Tool to Improve Community Engagement”. In *Aspects of Management Planning for Cultural World Heritage Sites: Principles, Approaches and Practices*, edited by Simon Makuvaza, 241-253. Springer.

- Saykılı, İ., Birdal, A., Türk, T., (2017). En Uygun Arazi Kullanım Planlarının CBS ile İncelenmesi: Sivas İli Dikmencik Köyü Örneği. *Geomatik Dergisi*, 2(3): 126-134. DOI: 10.29128/geomatik.322899
- Songu, C., Şerbetçi, M., and Gülal, E. (2009). *Ölçme bilgisi*. Birsen yayınevi.
- Sönmez, Ö., (2018). Sanayileşen Alanlarda Tarım Topraklarını Koruma Güçlüğü: Trakya Bölge Planlama Deneyimi. *Uygulamalı Yerbilimleri Dergisi*, 17(2): 101-114. DOI: 10.30706/uybd.453500.n
- Steinberg, F. (1996). "Conservation and rehabilitation of urban heritage in developing countries". *Habitat International* 20(3): 463-475.
- Talen, E. (2013). *Zoning for and against sprawl: the case for form-based codes*. *Journal of Urban Design*, 18(2), 175-200.
- Tavares, A. (2003). *Can The Market Be Used To Preserve Land? The Case For Transfer of Development Rights*. European Regional Science Association 2003 Congress,3-8 <http://www-sre.wu.wien.ac.at/ersa/ersaconfs/ersa03/cdrom/papers/292.pdf>
- Tekeli, I. (1991) *Bir Kentin Kimliği Üzerine Düşünceler* [Options on the Identity of a City]. *Kent Planlaması Konuşmaları*, T.M.M.O.B publishing, Ankara, 1991.
- Tekeli, İ. (2004). "Türkiye’de Kent Bölgeleri üzerine Düşünmek". Dünya Şehircilik Günü 28. Kollogyum. 8-9-10 Kasım 2004. Değişen-Dönüşen Kent ve Bölge: Prof. Dr. İlhan Tekeli Onuruna Cilt 1.
- Tekeli, İ. (2015). *İzmir Tarih, İzmirliilerin Tarihle İlişkisini Güçlendirme Projesi, Tasarım Stratejisi Raporu* [Izmir History, Project for Strengthening the Relation of Citizens of İzmir with History, Report on Design Strategy]. *Izmir Büyük Şehir Belediyesi Yayını, İkinci Basım*.
- Temizkan, A. and Akan, M. (2013). *Kent ve Seyyah: Evliya Çelebi'nin Gözüyle İzmir ve Çevresi - 1: Evliya Çelebi Seyahatnamesi'nin İzmir Kısımının Transkripsiyonlu, Sadeleştirilmiş ve Orijinal Metni* [City and Traveller: İzmir and its Environs with the Eye of Evliya Çelebi - 1: The Original and Shortened Text of the Travelogue of Evliya Çelebi, İzmir Section, with Transcription]. Eds. M. Ekici and T. Gökçe, *Izmir, Ege Üniversitesi Basımevi*, 29-41.



- Tiesdell, S. and Allmendinger, P. (2005). *Planning tools and markets: Towards an extended conceptualisation*. In Adams, D, Watkins, C and White, M (Eds) Planning. Public policy and property market.
- Topçu, P, (2012). Tarım arazilerinin korunması ve etkin kullanılmasına yönelik politikalar. T.C. Kalkınma Bakanlığı. İktisadi Sektörler ve Koordinasyon Genel Müdürlüğü.
- TurkSTAT (Turkish Statistics Institute), (2022). ‘Crop Production Statistics. Agricultural areas by county’. Accessed on 12 April 2022.  
<https://data.tuik.gov.tr/Kategori/GetKategori?p=tarim-111>
- Turner, R. K, Pearce, D. and Bateman, I. (1996). *Economia Ambientale*. Bologna: II Mulino
- Türk, S.S., (2004). The Applicability Of Urban Land Acquisition Methods For The Provision of Served Residential Land In The Turkish Case, IDPR, 26 (2)
- Türk, S.S., (2005): Land Readjustment: An Examination Of Its Application In Turkey, Cities, Vol. 22, No. 1, syf:29–42
- Türk, Ş. Ş., and Ünal, Y. (2011). Arazi ve arsa düzenlemesi metoduna ilişkin olumsuz önyargı. *İTÜDERGİSİ/a*, 2(1).
- Yağcı, M. (2014). Türkiye’de tarımsal niteliği korunması gerekli arazilerin korunamamasının nedenleri: Antalya ili Manavgat ilçesi örneği. Ankara Üniversitesi. Taşınmaz Geliştirme Anabilim Dalı. Dönem Projesi
- Yalpir, Ş., and Mesut, E. K. İ. Z. (2017). Eşdeğerlilik Esaslı Arazi Ve Arsa Düzenlemesinde Analitik Hiyerarşi Prosesinin Kullanımı. *Niğde Ömer Halisdemir Üniversitesi Mühendislik Bilimleri Dergisi*, 6(1), 59-75.
- Yamak, Y. (2006). “İmar (Yapılanma) Haklarının Devri: Model-Uygulama Alanları ve Sorunlar” [Transfer of Zoning Rights: Model-Implementation Areas and Problems]. *Planlama* Vol. 150, 63-73.  
[http://www.spo.org.tr/resimler/ekler/f50893f80d6830d\\_ek.pdf](http://www.spo.org.tr/resimler/ekler/f50893f80d6830d_ek.pdf)
- Yeldan, E. (2018). “Büyüme, Kaynağı Nereden, Ne Pahasına ve Ne İçin” [Growth, where to pick up, what costs and for what]. *Journal of İktisat ve Toplum*, No. 90/ April.

- Wang, B., Li, F., Feng, S., and Shen, T. (2020). Transfer of development rights, farmland preservation, and economic growth: A case study of Chongqing's land quotas trading program. *Land Use Policy*, 95, 104611.
- Web 1: [https://www.ntv.com.tr/galeri/turkiye/bir-fidanla-basladi-ormanoldu,dF7o4ImaVE2N14Afc46ruA/6UdSAAI3eUm1XKjFtgM7\\_w](https://www.ntv.com.tr/galeri/turkiye/bir-fidanla-basladi-ormanoldu,dF7o4ImaVE2N14Afc46ruA/6UdSAAI3eUm1XKjFtgM7_w)
- Web 2: <https://www.sabah.com.tr/guney/2018/01/09/tarim-arazileri-imar-kurbani>
- Web 3: <https://www.aa.com.tr/tr/turkiye/gida-tarim-ve-orman-alaninda-duzenlemeler-yapan-kanun-resmi-gazetede-yayimlandi/2031804>
- Web 4: <https://www.ipekgil.av.tr/blog/19/imar-mevzuatina-aykiri-yapi>
- Web 5: <https://earth.google.com/web/search/torbal%c4%b1/>
- Web 6: <https://www.hensonarchitect.com/robert-a-m-stern-on-midtown-east-rezoning/>
- Web 7: Clarke Caton Hintz. <https://clarkecatonhintz.com/project/old-york-village-2/>
- Web 8: <https://smartgrowth.org/wp-content/uploads/2016/10/moco-agreserve.jpg>
- Web 9: [choosemontgomerymd.com](http://choosemontgomerymd.com)
- Web 10: <https://www.fikir.gen.tr/turkiyenin-konumu-turkiyenin-mutlak-ve-goreceli-konumu/>
- Web 11: <https://izmir.ktb.gov.tr/TR-77469/torbali.html>
- Web 12: <https://www.torbali.bel.tr/tarihce>
- Web 13: <https://tr.wikipedia.org/wiki/Torbal%C4%B1>

**APPENDICES**  
**APPENDIX A**  
**EXPERT REPORTS ON LAND VALUATION**

**T.C**  
**ÖDEMiŞİ.ASLİYE HUKUK MAHKEMESİ HÂKİMLİĞİ'NE**  
**(BİLİRKiŞİ HEYETİ RAPORU)**

**Dosya No** : 2020/616 E.  
**Davacı** : izmir Büyükşehir Belediyesi  
**Davacı Vekili** : Av. Ozan Can ONUK  
**Davalı** : Bülent AKKAŞ  
**Dava Konusu** : Kamulaştırma Bedel Tespiti  
**Dava Tarihi** : 12.10.2020

Yukarıda dosya numarası, tarafları ve konusu yazılı davada seçilmiş bilirkişiler olarak Mahkeme Heyeti ile birlikte 08.03.2021 tarihinde dava konusu taşınmazın bulunduğu İzmir ili, Ödemiş ilçesi, Emmioğlu Örnek çiftliği Mahallesi gidildi. Taşınmaz üzerinde ve çevresinde yapmış olduğumuz inceleme, gözlem ve değerlendirmeler sonucunda ortaya çıkan görüşlerimiz, yürürlükte bulunan yasal düzenlemeler dikkate alınarak aşağıda sunulmuştur.

**1-DAVA KONUSU VE İSTEK:**

Davacı vekilin mahkemenize verdiği dilekçede Ödemiş Entegre Katı Atık Yönetim Sistemine ulaşımı sağlayacak olan 10 metre genişliğindeki yol için davalıya ait İzmir İli, Ödemiş İlçesi, **Emmioğlu Örnek çiftliği** Mahallesi, 47 parsel numaralı taşınmazın **4.299,81 m<sup>2</sup>** kamulaştırma bedelinin tespiti istenmiştir. Ayrıca kurum adına tapuya kayıt ve tescili ile yol olarak terkinine, tapuya kamulaştırma şerhinin konulmasına, varsa ipotek, hak haciz ve diğer takyidatların bedele yansıtılmasına, harçtan muaf tutulmalarına karar verilmesini talep etmiştir.

**İmar Durumu:** Ödemiş Belediyesinin 30.10.2020 tarih E.19757 sayılı yazısına göre; **Emmioğlu Örnek çiftliği** Mahallesi 47 parsel sayılı taşınmazın **Belediye uygulama imar planı içinde bulunmadığı Tarım ve Sulama Alanı içerisinde ve 6360 Sayılı Kanun ile 31 Mart 2014 tarih itibariyle mücavir alan sınırları içinde kaldığı ve etrafın meskûn olmadığı** anlaşılmaktadır.

Dava Konusu **Emmioğlu Örnek çiftliği** 47 parsel kamulaştırma nedeni tespit edilen alan taşınmazın kuzey sınırı kısmında **4.299,81 m<sup>2</sup>**'dir. Tapu kayıtlarında parşelin vasfı Tarla olup tarla tarımında kullanılmakta olup keşif tarihinde silajlık mısır ekili olduğu görüldü. Yargıtay kararları ve imar durumu ile zemin kullanımı değerlendirildiğinde, **tarım arazisi olarak kabul edilmiş** ve kamulaştırma bedelinin tespiti, 2942 sayılı Kamulaştırma Yasasının 11. Maddesi esaslarına göre yapılmıştır.

**2-KAMULAŞTIRMA YASASININ 11.MADDESİNE GÖRE İNCELEME:**

**2.1)Taşınmazın Cinsi, Nevi ve Yüzölçümü:**

<b>İli</b>	İzmir	<b>Ada no:</b>	0
<b>İlçesi</b>	Ödemiş	<b>Parsel No:</b>	47
<b>Köyü-Mah.</b>	Örnek çiftliği	<b>Yüzölçümü (m<sup>2</sup>)</b>	233980,00
<b>Mevkii</b>	Kara Mehmetkırı	<b>Cinsi</b>	Tarla

## 2.2) Taşınmazın Değerini Etkileyen Faktörler:

Taşınmazın Güneyi Ödemiş – İzmir karayoluna cepheli, diğer cephelerde ise tarım arazisi olarak kullanılan taşınmazlar bulunmaktadır.

Dava konusu taşınmaz, kumlu-tınlı bünyede, su tutma kapasitesi iyi, eğimsiz bir arazidir. Taşınmazın tuzluluk, alkalilik, drenaj gibi bitki gelişimini olumsuz etkileyecek herhangi bir problemi bulunmamaktadır. Erozyon sorunu yoktur. Yeterli toprak işleme derinliğine sahip, drenaj problemi olmayan verimli sulanabilen bir tarım arazisidir. Keşif günü itibarıyla taşınmazın içerisinde dış mekân süs bitkileri olduğu aktif olarak faaliyette bulunduğu yaklaşık 4 dekarlık kısmında tarla tarımı yapıldığı tespit edildi. Taşınmaz içerisinde su kaynağının bulunduğu ve Devlet Su İşleri Aktaş Barajı Sulama Havzasında bulunması ve bölgesel olarak sulu tarım faaliyetlerinin yoğun olarak yapıldığından dava konusu parsel **sulu tarım arazisi** olarak değerlendirilmektedir.

Zeminde yapılan tespitite Fen bilirkişi raporunda yeşil boyalı gösterilen kamulaştırılacak alan içerisinde 8 adet 50-60 yaşlı dut ve 1 adet akasya ağacı bulunmaktadır. Yine aynı alan içerisinde 1 adet dalgiç pompa ve ona kumanda eden 1 adet elektrik panosu ile yer altına döşenmiş ihtiyaç olan yerlerden başlıkları çıkmış 3 adet sulama bacası tabir edilen su çıkış yerleri olduğu görüldü. Keşif tarihinde pompa çalıştırılarak bacaların çalıştığı görüldüğü tespit yapıldı. 1 numaralı baca ile 4 numaralı baca arasındaki mesafenin uzunluğu 297,88 m + 172,51 m =470,39 m olup ebatı 5 lik tabir edilen borudur. Dalgiç pompanın derinliği 140 m'dir.

## 2.3) Kamulaştırılan Taşınmaz Malın Dava Tarihindeki Mevkii ve Şartlarına Göre Olduğu Gibi Kullanılması Halinde Yıllık Getireceği Net Gelir Ve Münavebe Planı:

Kamulaştırmaya konu taşınmaz tarım arazisi vasfında olduğundan kamulaştırma bedelinin hesaplanmasında "**Tarımsal Net Gelirin Kapitalizasyonu**" yöntemi kullanılmıştır. Bu yöntemde göre, bir malın değeri, o maldan elde edileceği varsayılan bütün gelirlerin değer biçilen zamana biriktirilmesi olarak tanımlanır. Buna göre;

Arazi Değeri (K) =Net Gelir / Kapitalizasyon faiz oranı (f) formülü ile bulunur.

Kapitalizasyon faiz oranı; taşınmazın tek parça halinde olması, mülkiyet güvenliğinin olması, arazinin serbest alınıp satılabilmesi, kadastro işlemlerinin yapılmış olması, bölgenin gelişmişlik durumu, sel ve erozyon riski, taşınmazların toprak yapısı, topoğrafik durumu, bölgedeki arazi alım satım fiyatları ile Sulu Tarım arazisi olması dikkate alınarak % 4 olarak saptanmıştır.

Taşınmazın Ödemiş-Balabanlı kara yoluna cepheli olması, Ödemiş İlçe Merkezine yakınlığı, toplu taşıma güzergâhı, çiftlik binası, restoran, akaryakıt istasyonu vb. tesislerin yapılma olasılığına bağlı olarak satın alma taleplerinin fazla olacağından; zemin değerine % 25 objektif değer artışı uygulanmıştır.

**2.3.1) Münavebe Planı ve Yıllık Getireceği Net Gelir:** Yörenin iklim şartları (Nem, sıcaklık, güneşli ve yağışlı gün sayısı vs) ve bitki örtüsü, taşınmazların toprak yapısı (Birinci Sınıf tarım arazisi) ile yapılan tarımsal faaliyetler (hayvancılık, sebze ve tarla bitkileri yetiştiriciliği, vs.) göz önünde bulundurulduğunda, yine yöredeki öteden beri yapılan üretim gereği taşınmazlardan **yılda iki ve hatta üç ürün** alınabildiği görülmektedir.

Bölgedeki üretilen ürünlerin üretim sezonları, ekim ve dikim süreleri de bu yaklaşımı desteklemektedir. Dava konusu **Emmioğlu Örnek çiftliği** Mahallesi47 parsel sayılı taşınmaz yöreye adapte olmuş, tarımı yapılan her tür bitkinin münavebeye girebildiği ve yöre ortalamasının üzerinde ürün alınabilen son derece verimli arazilerdendir. Ödemiş İlçe Tarım ve Orman Müdürlüğü'nün yörede yetişen ürünlere ilişkin maliyet cetvellerinde yer alan bitkilerin tümü üretim dönemlerinde arazilerde ekili-dikili durumdadır. Gerek keşif sırasındaki incelemelerimizde, gerekse diğer arazi çalışmalarımızda her dönemde sulanabilir tarım arazilerinde, yörede hayvancılığın yoğun olarak yapıldığı göz önünde bulundurulduğunda silajlık mısır, arpa hasıl (hayvanlara yeşil olarak yedirilmek için yetiştirilen ekin), tritikale, yem şalgamı gibi bitkiler tercih edilmektedir. Ekonomik değeri ve pazar olanağı yüksek olan (Patates, Hıyar (turşuluk), Salçalık Domates, Biber, Lahana, Brokoli, Marul, Karnabahar, vb) bitkiler tercih edilmektedir. Bütün bu bilgiler ışığında taşınmazların ve yörenin çok

çeşitli tarımsal faaliyet yapmaya elverişli olması ve buna olanak vermesi yöredeki tarım arazilerinin üreticiler tarafından tercih edilmesine neden olmaktadır.

Kurulumuz münavebe planını belirlerken yukarıda açıklanan bütün bu gerçeklikleri göz önünde bulundurarak homojen, sağlıklı bir değerlendirme yapabilmek amacıyla yörede yaygın olarak yetiştirilen ürünlerin 3 yıllık (alternatif) münavebe planını uygulayarak hesaplamalarını gerçekleştirmiştir.

Ödemiş ilçemiz de sulu arazilerde yıl içinde 3 ürün alındığı halde, birlikiş kurulumuzca 3 yıllık münavebe planında; 1. yıl (alternatif); **buğday-silajlık mısır**, 2. yıl (alternatif); **Patates**, 3. yıl (alternatif) için ise **yem şalgamı ve brokoli** ekimi seçilmiştir.

Dava konusu taşınmaz sulu arazi olup 3 yıllık münavebe planı uygulanmıştır.

#### 2.5.2) Dava konusu taşınmazın dava tarihindeki değeri:

1 Dekar Sulu Arazide 3 Yıllık Münavebe ve Yıllık Net Geliri (2020 yılı)

Münavebe Alternatifi	Ürün Cinsi	Verim (Kg/Da)	Fiyat (TL/Kg)	Brüt Gelir (TL/Da)	Brüt Gider (TL/Da)	Net Gelir (TL/Da)
1.Alternatif	Buğday (Dane)	650	1,50	1.415,00	471,67	943,33
	Saman	550	0,80			
	Silajlık Mısır	7000	0,35	2.450,00	816,67	1.633,33
2.Alternatif	Patates	4000	1,10	4.400,00	1.466,67	2.933,33
3.Alternatif	Yem Şalgamı	7000	0,25	1.750,00	583,33	1.166,67
	Brokoli	2500	2,00	5.000,00	1.666,67	3.333,33
<b>TOPLAM NET GELİR (TL/DEKAR)</b>						<b>10.010,00</b>
<b>YILLIK NET GELİR (TL/DEKAR)</b>			<b>10.010,00</b>	/	3	3.336,67
a) 1 dekar arazinin değeri.....			3.336,67	/	0,04	83.416,67
b) 1 m <sup>2</sup> arazinin değeri.....			83.416,67	/	1000	83,42
c) Objektif değer artışı (ODA)			83,42	X	0,25	20,85
d) ODA artışı sonrası 1 m <sup>2</sup> arazinin değeri (b+c).....						104,27
<b>Kamulaştırılan Alanın Değeri:</b>			<b>104,27</b>	<b>X</b>	<b>4.299,81</b>	<b>448.341,18</b>

**Açıklama:** Tarım ve Orman Bakanlığı Ödemiş İlçe Müdürlüğünce 2020 yılı maliyet cetvelleri kullanılmış, 3 alternatif ürün münavebe planı uygulanmıştır. Üretim gideri olarak masraflar toplamı alınmıştır. Maliyet cetvellerinde, üretim giderlerinin gayrisafi üretim değerinin 1/3 ünden fazla olduğu görülmüş, bu nedenle Yargıtay 5. Hukuk Dairesi'nin 19/04/2017 tarih ve 2017/11146 no.lu kararı gereğince, üretim giderleri gayrisafi üretim değerinin 1/3 ü olarak hesaplamalara dâhil edilmiştir.

**47 sayılı parselin Zemin Bedeli: 104,27 TL./m<sup>2</sup> X 4299,81m<sup>2</sup>= 448.341,18 TL.** olarak hesaplanmıştır.

Taşınmazın bulunduğu yerde genel olarak yetiştiriciliği yapılan ürünler dikkate alınarak birinci yıl buğday ve silajlık mısır, ikinci yıl patates, üçüncü yıl ise yem şalgamı ve brokoli yapılarak münavebe tablosu hazırlanmıştır. Yetiştirilen ürünlerin maliyet analizleri yapılırken Ödemiş İlçe Tarım ve Orman Müdürlüğünün 2020 yılı maliyet cetvelleri kullanılmıştır.

Yine kamulaştırılacak alan içerisinde bulunan dut ve akasya ağaçlarının değerleri bu konuda yayınlanmış en yakın ve kapsamlı Tokat Tarım ve Orman İl Müdürlüğünün 2018 yılı Maliyet ve Ağaç değerleri baz alınıp her yıl Maliye Bakanlığınca yayınlanan Yeniden Değerleme Oranları miktarınca artırılarak ağaç değerleri tespiti yoluna gidilmiştir. Söz konusu yayında Akasya ağacına ait fiyat bulunamamış olup değeri yaş ve kullanım yönünden (gölgelik ve süs) eşit olan dut ağacı gibi hesaplanmış üst değerleri alınmıştır.

**TOKAT TARIM VE ORMAN İL MÜDÜRLÜĞÜ**

**2018 YILI BAZI TARIMSAL ÜRÜNLERİN TAŞINMAZA KATTIĞI DEĞER (AĞAÇ DEĞERİ) TABLOSU**

Ağaç Cinsi	Yaşı	Üst Değer (TL)					
Dut	50-60	256,25					
Akasya	50-60	256,25					
YILLAR	ORAN %	2018 Yılı Dut Ağacı Fiyatı	2018 Yılı Akasya Ağacı Fiyatı	2019 Yılı Dut Ağacı Fiyatı	2019 Yılı Akasya Ağacı Fiyatı	2020 Yılı Dut Ağacı Fiyatı	2020 Yılı Akasya Ağacı Fiyatı
2019	22,58	256,25	256,25	314	314		
2020	9,11	256,25	256,25			343	343

AĞAÇCİNSİ	AĞAÇ SAYISI	AĞAÇ YAŞI	Adet DEĞERİ (TL)	TOPLAM DEĞERİ (TL)
Dut	8	50-60	343	2.744
Akasya	1	50-60	343	343
<b>Toplam</b>	<b>9</b>			<b>3.087</b>

**3)- SONUÇ VE KANAAT**

Heyetimiz kamulaştırmaya konu olan; Ödemiş ilçesi, İlkurşun Mahallesi, 47parsel nolu **4299,81 m<sup>2</sup>** yüzölçümlü Tarla vasıflı taşınmazın 2942 sayılı kanunun 11. Maddesi esaslarına göre kamulaştırma zemin bedeli **448.341,18TL** olarak hesaplanmıştır. Ağaç değerleri ile beraber toplamı **448.341,18 TL + 3.087 TL= 451.428,18 TL' dir.**

**Ayrıca**

1-) 470,39 m yer altında gömülü sulama borusu bedeli [Ø 110 mm anma çaplı, yapıştırma muflu, 16 Atmosfer basınç dayanımlı, Sert PVC Plastik İçme Suyu Boruları (PVC ham maddesi kursun içermeyen) (TS EN ISO 1452-1, TS EN ISO 1452-2) (conta bedeli dahil)%25 yıpranmalı Poz.10.450.3102 (04.768/11P03)]:  $470,39m \times 26TL/Mt \times 75 = 9.172,61 TL$

2-) 1 adet 140 m derinlikli dalgıç pompa bedeli: [poz no. 25.360.1101 (239-401) Debisi m<sup>3</sup>/h: 2,0-6,0 Basıncı mSS (3,0 -6,0), Dalgıç Tip] = **1.510,06 TL olup %25 yıpranma payı nazara alındığında : 1510,06\*%75 = 1.132,55 TL**

3-) 1 adet elektrik pompası bedeli [(poz no. 25.355.1001 . debisi 3-5m<sup>3</sup>/h] = **2.464,69 TL 'dir. olup %25 yıpranma payı nazara alındığında : 2464,69\*%75 = 1.848,52**

**Toplam Kamulaştırma Bedeli 451.428,18 TL +9.172,61+1.132,55+1.848,52= 463.581,90 TL'dir.**

Maliki	Toplam kamulaştırma bedeli	Hisse Oranı	Hisseye düşen para miktarı (TL)
SEMRA PAR : SADIK ZEKİ Kızı	463.581,90	1/2	231.790,90
BÜLENT AKKAŞ : SADIK ZEKİ Oğlu	463.581,90	1/2	231.790,90

Tarafımızdan 3 sayfa ve üç nüsha olarak hazırlanan iş bu rapor ortak kanaatimiz olup, son takdir ve değerlendirme Sayın Mahkemenize ait olmak üzere saygıyla arz ederiz. 18.10.2021

**BİLİRKİŞİ HEYETİ**

**BİROL AKGÜL**  
Ziraat Mühendisi  
Sicil No: 23320

**Levent ÇELİK**  
İnşaat Mühendisi  
Sicil No: 25800

**Hasan Hüseyin TUNÇDEMİR**  
İnşaat Mühendisi  
Gayrimenkul Değ. Uzm. Sicil No: 25792

**TOKAT TARIM VE ORMAN IL MUDURLUGU**  
**2018 YILI BAZI TARIMSAL ÜRÜNLERİN TAŞINMAZA KATTIĞI DEĞER (AĞAÇ DEĞERİ) TABLOSU**

YAT. B. 1. 001

**V E R İ M D Ö N E M İ**

20,40	143,00	100,00	162,50	120,00	195,00	140,00	227,50	160,00	260,00	176,00	286,00	200,00	300,00	130,00	1,30	-
143,00	220,00	162,50	260,00	195,00	260,00	227,50	360,00	260,00	400,00	286,00	440,00	300,00	440,00	200,00	3,20	3,20
23,21	117,00	92,00	140,50	112,00	182,00	132,00	214,50	152,00	247,00	168,00	273,00	64,00	104,00	104,00	1,30	-
117,00	189,00	140,50	230,00	182,00	280,00	214,50	330,00	247,00	380,00	273,00	430,00	104,00	160,00	160,00	3,20	3,20
147,51	617,50	480,00	700,00	640,00	1.040,00	840,00	1.365,00	1.160,00	1.805,00	1.520,00	2.470,00	1.720,00	2.795,00	1.795,00	520,00	1.300,00
617,50	950,00	700,00	1.200,00	1.040,00	1.600,00	1.365,00	2.100,00	1.805,00	2.800,00	2.470,00	3.800,00	2.795,00	4.300,00	2.795,00	1.300,00	1.300,00
46,73	178,75	140,00	227,50	170,00	276,25	200,00	325,00	230,00	373,75	250,00	406,25	100,00	202,50	202,50	1,30	-
178,75	275,00	227,50	360,00	270,25	425,00	320,00	500,00	373,75	575,00	406,25	625,00	202,50	400,00	400,00	3,20	3,20
87,10	354,38	315,00	486,88	335,00	520,38	385,00	581,88	425,00	654,38	480,00	734,38	175,00	284,38	284,38	1,30	-
354,38	537,50	486,88	727,50	520,38	787,50	581,88	887,50	654,38	1.000,00	734,38	1.090,00	284,38	437,50	437,50	3,20	3,20
32,32	61,75	72,50	94,25	87,50	126,75	127,50	159,25	147,50	191,75	177,50	224,25	147,50	191,75	191,75	1,30	-
61,75	95,00	94,25	145,00	126,75	195,00	159,25	245,00	191,75	295,00	224,25	345,00	191,75	295,00	295,00	1,30	1,30
27,35	92,00	90,00	117,00	110,00	143,00	140,00	180,00	150,00	195,00	170,00	221,00	150,00	195,00	195,00	1,00	-
92,00	140,00	117,00	180,00	143,00	220,00	180,00	260,00	195,00	300,00	221,00	340,00	195,00	300,00	300,00	2,00	2,00
35,65	104,00	80,00	130,00	90,00	156,00	112,00	181,00	130,00	221,00	153,00	247,00	120,00	195,00	195,00	1,30	-
104,00	180,00	130,00	200,00	156,00	260,00	181,00	290,00	221,00	340,00	247,00	390,00	195,00	300,00	300,00	3,20	3,20
21,16	74,75	62,00	100,75	70,00	126,75	94,00	152,75	110,00	170,75	126,00	204,75	110,00	170,75	170,75	1,00	-
74,75	115,00	100,75	155,00	126,75	195,00	152,75	235,00	170,75	275,00	204,75	315,00	170,75	275,00	275,00	2,50	2,50
14,40	21,54	16,14	26,23	19,76	32,11	23,00	38,94	30,00	48,75	36,02	58,54	31,20	50,71	50,71	0,00	-
21,54	33,13	26,23	40,36	32,11	49,40	30,00	49,94	40,75	65,00	48,54	78,03	50,71	78,03	78,03	0,20	0,20
39,55	81,25	70,00	113,75	90,00	146,25	120,00	195,00	140,00	227,50	170,00	276,25	110,00	170,75	170,75	1,00	-
81,25	125,00	113,75	175,00	146,25	225,00	160,00	260,00	227,50	350,00	276,25	425,00	170,75	275,00	275,00	2,00	2,00
49,42	69,06	62,50	101,50	82,50	134,06	112,50	187,01	137,50	215,31	162,50	264,06	102,50	166,50	166,50	1,00	-
69,06	104,25	101,50	154,25	134,06	204,25	137,01	231,25	162,50	249,25	187,01	294,25	166,50	256,25	256,25	3,20	3,20

ÖDEMİŞ İL ASLİYE HUKUK MAHKEMESİ HÂKİMLİĞİ'NE

(BİLİRKİŞİ HEYETİ EK RAPOR)

**Dosya No** : 2020/617 E.  
**Davacı** : İzmir Büyükşehir Belediyesi  
**Davacı Vekili** : Av. Gürkan TURAN  
**Davalı** : Hülya ÇOBAN, HÜSEYİN EFE  
**Dava Konusu** : Kamulaştırma Bedel Tespiti  
**Dava Tarihi** : 12.10.2020

Mahkemenizin 23.03.2021 tarihli ara kararı gereğince münavebe planında ikinci yıl için neden 2/3 alındığının açıklanması ve raporda ki ufak hesap hatalarının giderilmesi hususunda tarafımızdan ek rapor istenmiştir.

Münavebe planı 3 yıl üzerinden alınmış olup 1. yıl buğday – silajlık mısır 2. Yıl için patates ve 3. Yıl içinde patates bitkisi üzerinden münavebe kurulmuştur. Münavebede patates bitkisi için 2/3 yazması 2 yıl üst üste patates bitkisinin münavebede kullanılmasından kaynaklıdır.

Hesap hataları incelenmiş ve aşağıda ki tabloda düzeltilmiş hesaplama sonucu kamulaştırılacak alanın değeri verilmiştir.

İli	İzmir	Ada no:	0
İlçesi	Ödemiş	Parsel No:	3
Köyü-Mah.	Ömekçifliği	Yüzölçümü (m <sup>2</sup> )	91050,00
Mevki	Karahmetkin	Cinsi	Tarfa ve İncir Bahçesi

2.5.1) Münavebe Planı ve Yıllık Getireceği Net Gelir: Hesaplamalarda TOB Ödemiş İlçe Müdürlüğü 2020 yılı maliyet cetvelleri kullanılmıştır.

I Dekar Sulu Arazide 3 Yıllık Münavebe ve Yıllık Net Gelir (2020 yılı)							
Münavebe Yılı	Ürün	Verim (kg/da)	Birim Fiyat (TL/kg)	Brüt Gelir (TL/da)	Brüt Gider (TL/da)	Münavebe oranı %	Net Gelir (TL/da)
1. yıl	Buğday			1.415,00	471,67	1/3	314,44
	Dane	650	1,50	975,00			
	Saman	550	0,80	440,00			
	S. Mısır	7000	0,35	2.450,00	816,67	1/3	544,44
2. yıl	Patates	4000	1,10	4.400,00	1.466,67	1/3	977,78
3. yıl	Patates	4000	1,10	4.400,00	1.466,67	1/3	977,77
<b>TOPLAM NET GELİR (TL/da)</b>							<b>2.814,43</b>
a) I dekar arazinin değeri			2.814,43 TL	/	0,04		70.360,75
b) I m <sup>2</sup> arazinin değeri			70.360,75 TL	/	1.000,00		70,36
<b>Kamulaştırılan alanın değeri:</b>			<b>70,36 TL</b>	<b>X</b>	<b>248,38 m<sup>2</sup></b>		<b>17.476,02</b>



Açıklama: Üretim gideri olarak masraflar toplamı alınmış, üretim gideri brüt üretim gelirinin 1/3'ünden fazla olamayacağı yönündeki Yargıtay kararları uygulanmıştır. Buna göre maliyet cetvelinde tüm ürünlerde gelirin 1/3'ü alınmıştır.

"...Türkiye ortalamasına göre üretim masraflarının brüt gelirin 1/3'ünden fazla olamayacağı" hükmü gözetilerek hesaplama yapılmıştır." Yargıtay 5. Hukuk Dairesi 'nin 22/03/2017 tarih ve 2017/1294 E., 2017/8886 K.

3)- SONUÇ VE KANAAT: Ödemiş ilçesi, Örnekciftliği, 3 parsel nolu 91.050,00 m<sup>2</sup> yüzölçümlü Tarla ve İncir Bahçesi vasıflı taşınmazın 248,38 m<sup>2</sup>'sinin kamulaştırma bedelini 2942 sayılı kanununun 11. Maddesi esaslarına göre kamulaştırma bedelini 17.476,02 TL olarak hesaplanmıştır.

Hissedarlara ödenmesi gereken miktar:

MALIKI	HISSESİ	Hisseye düşen para miktarı ( TL )
Fatma ÇOBAN	1/2	8.738,01
Mehmet EFE	1/2	8.738,01

## 2.1)Taşınmazın Cinsi, Nevi ve Yüzölçümü:

İli	İzmir	Ada no:	0
İlçesi	Ödemiş	Parsel No:	4
Köyü-Mah.	Örnekciftliği	Yüzölçümü (m <sup>2</sup> )	31400,00
Mevki	Karaahmetli	Cinsi	Tarla

2.5.1) Münavebe Planı ve Yıllık Getireceği Net Gelir: Hesaplamalarda TOB Ödemiş İlçe Müdürlüğü 2020 yılı maliyet cetveleri kullanılmıştır.

1 Dekar Sulu Arazide 3 Yıllık Münavebe ve Yıllık Net Geliri (2020 yılı)							
Münavebe Yılı	Ürün	Verim (kg/da)	Birim Fiyat (TL/kg)	Brüt Gelir (TL/da)	Brüt Gider (TL/da)	Münavebe oranı %	Net Gelir (TL/da)
1. yıl	Buğday			1.415,00	471,67	1/3	314,44
	Dane	650	1,50	975,00			
	Saman	550	0,80	440,00			
	S. Mısır	7000	0,35	2.450,00	816,67	1/3	544,44
2. yıl	Patates	4000	1,10	4.400,00	1.466,67	1/3	977,78
3. yıl	Patates	4000	1,10	4.400,00	1.466,67	1/3	977,77
<b>TOPLAM NET GELİR (TL/da)</b>							<b>2.814,43</b>
a) 1 dekar arazinin değeri			2.814,43 TL	/	0,04		70.360,75
b) 1 m <sup>2</sup> arazinin değeri			70.360,75 TL	/	1.000,00		70,36
<b>Kamulaştırılan alanın değeri:</b>			<b>70,36 TL</b>	<b>X</b>	<b>787,26 m<sup>2</sup></b>		<b>55.391,61</b>

Açıklama: Üretim gideri olarak masraflar toplamı alınmış, üretim gideri brüt üretim gelirinin 1/3'ünden fazla olamayacağı yönündeki Yargıtay kararları uygulanmıştır. Buna göre maliyet cetvelinde tüm ürünlerde gelirin 1/3'ü alınmıştır.

"...Türkiye ortalamasına göre üretim masraflarının brüt gelirin 1/3'ünden fazla olamayacağı" hükmü gözetilerek hesaplama yapılmıştır." Yargıtay 5. Hukuk Dairesi 'nin 22/03/2017 tarih ve 2017/1294 E., 2017/8886 K.

### 3)- SONUÇ VE KANAAT

Ödemiş ilçesi, Örnekçiftliği, 4 parsel nolu 31.400,00 m<sup>2</sup> yüzölçümlü Tarla vasıflı taşınmazın 787,26 m<sup>2</sup>'sinin kamulaştırma bedelini 2942 sayılı kanunun 11. Maddesi esaslarına göre kamulaştırma bedelini 55.391,61 TL olarak hesaplanmıştır.

**Hissedarlara ödenmesi gereken miktar:**

MALIKI	HISSESİ	Hisseye düşen para miktarı( TL )
Fatma ÇOBAN	1/2	27.695,81
Mehmet EFE	1/2	27.695,81

**Taşınmazın Cinsi, Nevi ve Yüzölçümü:**

İl	İzmir	Ada no:	0
İlçesi	Ödemiş	Parsel No:	5
Köy-Mah.	Örnekçiftliği	Yüzölçümü (m <sup>2</sup> )	24150,00
Mevki	Karahmetken	Cinsi	Kağır ev ve Çayırık

**Münavebe Planı ve Yıllık Getireceği Net Gelir:** Hesaplamalarda TOB Ödemiş İlçe Müdürlüğü 2020 yılı maliyet cetvelleri kullanılmıştır.

1 Dekar Sulu Arazide 3 Yıllık Münavebe ve Yıllık Net Gelir (2020 yılı)							
Münavebe Yılı	Ürün	Verim (kg/da)	Birim Fiyat (TL/kg)	Brüt Gelir (TL/da)	Brüt Gider (TL/da)	Münavebe oranı %	Net Gelir (TL/da)
1. yıl	Buğday			1.415,00	471,67	1/3	314,44
	Dane	650	1,50	975,00			
	Saman	550	0,80	440,00			
	S. Mısır	7000	0,35	2.450,00	816,67	1/3	544,44
2. yıl	Patates	4000	1,10	4.400,00	1.466,67	1/3	977,78
3. yıl	Patates	4000	1,10	4.400,00	1.466,67	1/3	977,77
<b>TOPLAM NET GELİR (TL/da)</b>							<b>2.814,43</b>
a) 1 dekar arazinin değeri		2.814,43 TL	/	0,04			70.360,75
b) 1 m <sup>2</sup> arazinin değeri		70.360,75 TL	/	1.000,00			70,36
<b>Kamulaştırılan alanın değeri:</b>		<b>70,36 TL</b>	<b>X</b>	<b>1036,85 m<sup>2</sup></b>			<b>72.952,77</b>

**Açıklama:** Üretim gideri olarak masraflar toplamı alınmış, üretim gideri brüt üretim gelirinin 1/3'ünden fazla olamayacağı yönündeki Yargıtay kararları uygulanmıştır. Buna göre maliyet cetvelinde tüm ürünlerde gelirin 1/3'ü alınmıştır.

"...Türkiye ortalamasına göre üretim masraflarının brüt gelirin 1/3'ünden fazla olamayacağı" hükmü gözetilerek hesaplama yapılmıştır." Yargıtay 5. Hukuk Dairesi 'nin 22/03/2017 tarih ve 2017/1294 E., 2017/8886 K.

### 3)- SONUÇ VE KANAAT

Ödemiş ilçesi, Örnekçiftliği, 5 parsel nolu 24.150,00 m<sup>2</sup> yüzölçümlü Kâğır Ev ve Çayırık vasıflı taşınmazın 1036,85 m<sup>2</sup>'sinin kamulaştırma bedelini 2942 sayılı kanunun 11. Maddesi esaslarına göre kamulaştırma bedelini 72.952,77 TL olarak hesaplanmıştır.

**Hissedarlara ödenmesi gereken miktar:**

MALIKI	HISSESİ	Hisseye düşen para miktarı( TL )
Fatma ÇOBAN	1/2	36.476,38
Mehmet EFE	1/2	36.476,38

Tarafımızdan 4 sayfa ve üç nüsha olarak hazırlanan iş bu rapor ortak kanaatimiz olup, son takdir ve değerlendirme Sayın Mahkemenize ait olmak üzere saygıyla arz ederiz. 07.04.2021

T.C  
ÖDEMİŞ 1. ASLİYE HUKUK MAHKEMESİ HÂKİMLİĞİ'NE  
(BİLİRKİŞİ HEYETİ RAPORU)

01 / 04 / 22

Dosya No : 2020/616 E.  
Davacı : İzmir Büyükşehir Belediyesi  
Davacı Vekili : Av. Ozan Can ONUK  
Davalı : Bülent AKKAŞ  
Dava Konusu : Kamulaştırma Bedel Tespiti  
Dava Tarihi : 12.10.2020

EK RAPOR: Mahkemenizin 15.02.2022 tarihli 6.Celsesinde Dava tarihinin 12.10.2020 olduğu gözetilerek 2020 yılı maliyet cetveline göre hesap yapılması ve ağaç bedellerinin de 2020 yılına göre tespiti için ek bilirkişi raporu alınmasına (20 01.2022 tarihli rapordaki diğer husuların aynen korunmasına) dairdir.

**1) Kamulaştırılan Taşınmaz Malın Dava Tarihindeki Mevkii ve Şartlarına Göre Olduğu Gibi Kullanılması Halinde Yıllık Getireceği Net Gelir Ve Münavebe Planı:**

Kamulaştırmaya konu taşınmaz tarım arazisi vasfında olduğundan kamulaştırma bedelinin hesaplanmasında "**Tarımsal Net Gelirin Kapitalizasyonu**" yöntemi kullanılmıştır. Bu yöntemle göre, bir malın değeri, o maldan elde edileceği varsayılan bütün gelirlerin değer biçilen zamana biriktirilmesi olarak tanımlanır. Buna göre;

Arazi Değeri (K) = Net Gelir / Kapitalizasyon faiz oranı (f) formülü ile bulunur.

Kapitalizasyon faiz oranı; taşınmazın tek parça halinde olması, mülkiyet güvenliğinin olması, arazinin serbest alınıp satılabilmesi, kadastro işlemlerinin yapılmış olması, bölgenin gelişmişlik durumu, sel ve erozyon riski, taşınmazların toprak yapısı, topoğrafik durumu, bölgedeki arazi alım satım fiyatları ile Sulu Tarım arazisi olması dikkate alınarak % 4 olarak saptanmıştır.

Taşınmazın Ödemiş-Balabanlı kara yoluna cepheli olması, Ödemiş İlçe Merkezine yakınlığı, toplu taşıma güzergâhi, çiftlik binası, restoran, akaryakıt istasyonu vb. tesislerin yapılma olasılığına bağlı olarak satın alma taleplerinin fazla olacağından zemin değerine % 25 objektif değer artışı uygulanmıştır.

**2.) Münavebe Planı ve Yıllık Getireceği Net Gelir:** Yörenin iklim şartları (Nem, sıcaklık, güneşli ve yağışlı gün sayısı vs) ve bitki örtüsü, taşınmazların toprak yapısı (Birinci Sınıf tarım arazisi) ile yapılan tarımsal faaliyetler (hayvancılık, sebze ve tarla bitkileri yetiştiriciliği, vs.) göz önünde bulundurulduğunda, yine yöredeki öteden beri yapılan üretim gereği taşınmazlardan **yılda iki ve hatta üç ürün** alınabildiği görülmektedir.

Bölgedeki üretilen ürünlerin üretim sezonları, ekim ve dikim süreleri de bu yaklaşımı desteklemektedir. Dava konusu **Emmioğlu Örnek çiftliği** Mahallesi 47 parsel sayılı taşınmaz yöreye adapte olmuş, tarımı yapılan her tür bitkinin münavebeye girebildiği ve yöre ortalamasının üzerinde ürün alınabilen son derece verimli arazilerdendir. Ödemiş İlçe Tarım ve Orman Müdürlüğü'nün yörede yetişen ürünlere ilişkin maliyet cetvellerinde yer alan bitkilerin tümü üretim dönemlerinde arazilerde ekili-dikili durumdadır. Gerek keşif sırasındaki incelemelerimizde, gerekse diğer arazi çalışmalarımızda her dönemde sulanabilir tarım arazilerinde, yörede hayvancılığın yoğun olarak yapıldığı göz önünde bulundurulduğunda silajlık mısır, arpa hasıl (hayvanlara yeşil olarak yedirilmek için yetiştirilen ekin), tritikale, yem şalgamı gibi bitkiler tercih edilmektedir.

h

Ekonomik değeri ve pazar olanağı yüksek olan (Patates, Hıyar (turşuluk), Sofralık Domates, Biber, Lahana, Brokoli, Marul, Karnabahar, vb) bitkiler tercih edilmektedir. Bütün bu bilgiler ışığında taşınmazların ve yörenin çok çeşitli tarımsal faaliyet yapmaya elverişli olması ve buna olanak vermesi yöredeki tarım arazilerinin üreticiler tarafından tercih edilmesine neden olmaktadır. Kurulumuz münavebe planını belirlerken yukarıda açıklanan bütün bu gerçeklikleri göz önünde bulundurarak homojen, sağlıklı bir değerlendirme yapabilmek amacıyla yörede yaygın olarak yetiştirilen ürünlerin 3 yılda 4 ürün (alternatif) münavebe planını uygulayarak hesaplamalarını gerçekleştirmiştir.

Ödemiş İlçemiz de sulu arazilerde yıl içinde 3 ürün alındığı halde, birlikiş kurulumuzca 3 yıllık münavebe planında; 1. yıl (alternatif); **arpa-silajlık mısır**, 2. yıl (alternatif); **brokoli**, 3. yıl (alternatif) için ise **sofralık domatesi** ekimi seçilmiştir.

Dava konusu taşınmaz sulu arazi olup 3 yıllık münavebe planı uygulanmıştır.

### 3) Dava konusu taşınmazın dava tarihindeki değeri:

1 Dekar Sulu Arazide 3 Yıllık Münavebe ve Yıllık Net Geliri (2020 yılı)								
Münavebe Alternatifi	Ürün	Verim (kg/da)	Birim Fiyat (TL/kg)	Brüt Gelir (TL/da)	Brüt Gider (TL/da)		Net Gelir (TL/da)	
					Normal Maliyet	1/3 Maliyet		
1.yıl (1:ürün)	Arpa			1.270,00	541,00	423,33	846,67	
	Dane	600	1,45	870,00				
	Saman	500	0,80	400,00				
1.yıl (2.ürün)	S.Mısır	7000	0,35	2.450,00	1.378,50	816,66	1.633,34	
2.yıl	Brokoli	2500	2,00	5.000,00	2.293,51	1.666,66	3.333,34	
3.yıl	Domates (Sofralık)	7500	1,50	11.250,00	4.468,50	3.750,00	7.500,00	
<b>TOPLAM NET GELİR (TL/da)</b>							<b>13.313,35</b>	
<b>YILLIK NET GELİR (TL/da)</b>				<b>13.313,35</b>	TL	/	3	4.437,78
a)1 dekar arazinin değeri .....				4.437,78	TL	/	0,04	110.944,50
b)1 m <sup>2</sup> arazinin değeri .....				110.944,50	TL	/	1.000,00	<b>110,94</b>
<b>b) 1 m<sup>2</sup> arazinin değeri.....</b>				<b>110.944,50</b>	/		<b>1000</b>	<b>110,94</b>
c) Objektif değer artışı (ODA)				110,94	X		0,25	27,74
<b>d) ODA artışı sonrası 1 m<sup>2</sup> arazinin değeri (b+c).....</b>								<b>138,68</b>
<b>Kamulaştırılan Alanın Değeri:</b>				<b>138,68</b>	<b>X</b>		<b>4299,81</b>	<b>596.297,65</b>

**Açıklama:** Tarım ve Orman Bakanlığı Ödemiş İlçe Müdürlüğünce 2020 yılı maliyet cetvelleri kullanılmış, 3 alternatif ürün münavebe planı uygulanmıştır. Üretim gideri olarak masraflar toplamı alınmıştır. Maliyet cetvellerinde, üretim giderlerinin gayrisafi üretim değerinin 1/3 ünden fazla olduğu görülmüş, bu nedenle Yargıtay 5. Hukuk Dairesi'nin 19/04/2017 tarih ve 2017/11146 no.lu kararı gereğince, üretim giderleri gayrisafi üretim değerinin 1/3 ü olarak hesaplamalara dâhil edilmiştir.

**47 sayılı parselin Zemin Bedeli: 138,68 TL./m<sup>2</sup> X 4299,81m<sup>2</sup>= 596.297,65 TL.** olarak hesaplanmıştır.

Yine kamulaştırılacak alan içerisinde bulunan dut ve akasya ağaçlarının değerleri için Beydağ İlçe Tarım Müdürlüğü ağaç değerleri cetveli incelenmiş tabloda bu cins ağaçların bulunmadığı görülmüştür. Bunun yerine Ödemiş İlçe Tarım Müdürlüğü'nün 2021 yılı Maliyet ve Ağaç değerleri baz alınıp her yıl Maliye Bakanlığınca yayınlanan Yeniden Değerleme Oranları miktarınca eksiltilecek 2020 yılı ağaç değerleri tespiti yoluna gidilmiştir. Söz konusu yayında Akasya ağacına ait fiyat

bulunmamış olup değeri yaş ve kullanım yönünden (gölgelik ve süs) eşit olan ıhlamur ağacı gibi hesaplanmış üst değerleri alınmıştır.

VERGİ USUL KANUNUNDA KULLANILAN YENİDEN DEĞERLEME ORANLARI  
DUT AĞACI İÇİN

YILLAR	ORAN %	50 % DÜZELTME KATSAYISI	TAŞINMAZ (m <sup>2</sup> )
			BİRİM GELİRİ (TL)
2019	22,58	11,29	216,96
2020	9,11	4,555	244,58
2021	10,09	5,045	256,25

AKASYA yerine IHLAMUR Ağacı

2019	22,58	11,29	233,69
2020	9,11	4,555	263,43
2021	10,09	5,045	276,00

AĞAÇCINSİ	AĞAÇ SAYISI	AĞAÇ YAŞI	Adet DEĞERİ (TL)	TOPLAM DEĞERİ (TL)
Dut	8	50-60	244,58	1.956,64
Akasya	1	50-60	263,43	263,43
<b>Toplam</b>	<b>9</b>			<b>2.220,07</b>

**4)- SONUÇ VE KANAAT**

Heyetimiz kamulaştırmaya konu olan; Ödemiş ilçesi, Emmioğlu Örnek Çiftliği Mahallesi, 47 parsel nolu **4299,81 m<sup>2</sup>** yüzölçümlü Tarla vasıflı taşınmazın 2942 sayılı kanunun 11. Maddesi esaslarına göre kamulaştırma zemin bedeli **596,297,65 TL** olarak hesaplamıştır. Ağaç değerleri ile beraber toplamı **596,297,65 TL + 2.220,07 TL= 598.517,72 TL' dir.**

**Ayrıca**

1-) 470,39 m yer altında gömülü sulama borusu bedeli [Ø 110 mm anma çaplı, yapıştırma muflu, 16 Atmosfer basınç dayanımlı, Sert PVC Plastik İçme Suyu Boruları (PVC ham maddesi kursun içermeyen) (TS EN ISO 1452-1, TS EN ISO 1452-2) (conta bedeli dahil)%25 yıpranmalı Poz.10.450.3102 (04.768/11P03)]: 470,39m\*26TL/Mt\*\*%75 = **9.172,61 TL**

2-) 1 adet 140 m derinlikli dalgıç pompa bedeli: [poz no. 25.360.1101 (239-401) Debisi m<sup>3</sup>/h: 2,0-6,0 Basıncı mSS (3,0 -6,0), Dalgıç Tip ] = **1.510,06 TL olup %25 yıpranma payı nazara alındığında: 1510,06\*%75 =1.132,55 TL**

3-) 1 adet elektrik pompası bedeli [(poz no. 25.355.1001 . debisi 3-5m<sup>3</sup>/h) = **2.464,69 TL 'dir. olup %25 yıpranma payı nazara alındığında: 2464,69\*%75 = 1.848,52**

Toplam Kamulaştırma Bedeli **598.517,72 + 9.172,61+1.132,55+1.848,52= 610.671,40 TL' dir.**

Maliki	Toplam kamulaştırma bedeli	Hisse Oranı	Hisseye düşen para miktarı (TL)
SEMRA PAR : SADIK ZEKİ Kızı	<b>610.671,40</b>	1/2	<b>305.335,70</b>
BÜLENT AKKAŞ : SADIK ZEKİ Oğlu	<b>610.671,40</b>	1/2	<b>305.335,70</b>

DOĞRUSİ İLÇESİ 2020 YILI ANKARA'DAN MALİYETİ	
GİDERLER	TUTARI (TL/Do)
TARLA KIRASI	
GİRDİ GİDERLERİ	153,39
Gilve Bedel	73,99
Fide Bedel	39,00
Şu Bedel	5,00
Zir. Mül. İst. Bedel	35,40
İŞÇİLİK GİDERLERİ	337,99
İst. Sürme (Ank. Başarı) Pula	60,00
Dalışma	30,00
Termit Çatama	0,00
Sürgü	30,00
Gilvelama İyileş	30,00
İstems (malzeme)	30,00
Ank. Sürme-Karık Açma	0,00
Şu Mül. İstems	0,00
Sulama Hazırlık	0,00
Sulama İyileş	37,30
Ziraat - Yıprama	60,00
İstems İyileş	60,00
MAKULİYET GİDERLERİ	30,00
Anabata Tazminat (Dava)	30,00
Anabata Tazminat (Dava)	0,00
Anabata Tazminat (Sermis)	0,00
Anabata Tazminat (Sermis)	0,00
DİĞER GİDERLER	20,00
Bulaç	0,00
İst. Çatma	0,00
İst. (İst. ve Malzeme Tazminat ve Bulaç)	20,00
<b>TOPLAM</b>	<b>541,00</b>
Yapılaş. Mül. Pula Karşılığ (M7.5)	
Genel İstems Giderleri(T.Mis.%)	
<b>GİDERLER GENEL TOPLAMI</b>	<b>541,00</b>
Akarsu Arama Dama Ürün Hissat (Kıyda)	0,00
Akarsu Arama Sürme Hissat (Kıyda)	30,00
1 Kg Ürünle Malzeme (TL/İst)	1,45
1 Kg Sürme Ürünle Ort. Saha Piyas (TL/İst)	0,00
1 Dm Arama Güçü (TL/Do)	929,99
1 Dm Sürme Güçü (TL/Do)	499,99
1 Kg Ürünle Malzeme (TL/İst)	0,24

DOĞRUSİ İLÇESİ 2020 YILI BİRİM GİDERLERİ MALİYETİ	
GİDERLER	TUTARI (TL/Do)
TARLA KIRASI	
GİRDİ GİDERLERİ	333,25
Gilve Bedel	177,00
Fide Bedel	39,00
Şu Bedel	16,25
Zir. Mül. İst. Bedel	20,00
İŞÇİLİK GİDERLERİ	741,25
İst. Sürme (Ank. Başarı)	60,00
Dalışma	30,00
Termit Çatama	0,00
Sürgü	30,00
Gilvelama İyileş	30,00
İstems (malzeme)	30,00
Ank. Sürme-Karık Açma	0,00
Şu Mül. İstems	0,00
Sulama Hazırlık	0,00
Sulama İyileş	60,00
Ziraat - Yıprama	60,00
İstems İyileş	60,00
MAKULİYET GİDERLERİ	120,00
Anabata Tazminat (Dava)	120,00
Anabata Tazminat (Dava)	0,00
Anabata Tazminat (Sermis)	0,00
Anabata Tazminat (Sermis)	0,00
DİĞER GİDERLER	104,00
Bulaç	0,00
İst. Çatma	0,00
İst. (İst. ve Malzeme Tazminat ve Tazminat)	104,00
<b>TOPLAM</b>	<b>1.378,50</b>
Yapılaş. Mül. Pula Karşılığ (M7.5)	
Genel İstems Giderleri(T.Mis.%)	
<b>GİDERLER GENEL TOPLAMI</b>	<b>1.378,50</b>
Akarsu Ürün Hissat (Kıyda)	7.000,00
1 Kg Ürünle Malzeme (TL/İst)	0,24
1 Kg Sürme Ürünle Ort. Saha Piyas (TL/İst)	0,00
1 Dm Arama Güçü (TL/Do)	2.499,99
1 Dm Sürme Güçü (TL/Do)	1.071,29
1 Kg Ürünle Malzeme (TL/İst)	

DOĞRUSİ İLÇESİ 2020 YILI BİRGİRLİ MALİYETİ	
GİDERLER	TUTARI (TL/Do)
TARLA KIRASI	
GİRDİ GİDERLERİ	
Gilve Bedel	97,20
Fide Bedel	730,00
Şu Bedel	130,00
Zir. Mül. İst. Bedel	60,25
<b>GİRDİ GİDERLERİ TOPLAMI</b>	<b>1.087,45</b>
İŞÇİLİK GİDERLERİ	
İst. Sürme (Ank. Başarı) Pula	60,00
Dalışma	30,00
Termit Çatama	0,00
Sürgü	30,00
Gilvelama İyileş	30,00
Çarpı Çatama (Fide Ürün Yarı Hazırlama)	30,00
Fide Üstems	300,00
Çapalama İyileş	300,00
Malzeme Çatama	30,00
Sulama Hazırlık, Karık açma ve Bulaç Çatama	30,00
Sulama İyileş	62,50
Ziraat Mülzeme İyileş	120,00
MAKULİYET GİDERLERİ	420,00
Anabata Tazminat (Dava)	420,00
<b>İŞÇİLİK GİDERLERİ TOPLAMI</b>	<b>1.182,50</b>
MAKULİYET GİDERLERİ	
Anabata Tazminat	300,00
<b>MAKULİYET GİDERLERİ TOPLAMI</b>	<b>300,00</b>
DİĞER GİDERLER	
Anabata Tazminat	0,00
Bulaç	0,00
<b>DİĞER GİDERLER TOPLAMI</b>	<b>0,00</b>
<b>TOPLAM</b>	<b>2.289,95</b>
Yapılaş. Mül. Pula Karşılığ (M7.5)	
Genel İstems Giderleri(T.Mis.%)	
<b>MASRAFLAR GENEL TOPLAMI</b>	<b>2.289,95</b>
Akarsu Ürün Hissat (Kıyda)	2.500
1 Kg Ürünle Malzeme (TL/İst)	0,24
1 Kg Sürme Ürünle Ort. Saha Piyas (TL/İst)	2,00

DOĞRUSİ İLÇESİ 2020 YILI DONATIS SÖZMENSİZ MALİYETİ	
GİDERLER	TUTARI (TL/Do)
TARLA KIRASI	
GİRDİ GİDERLERİ	
Gilve Bedel	278,50
Fide Bedel	690,00
Şu Bedel	300,00
Zir. Mül. İst. Bedel	300,00
<b>GİRDİ GİDERLERİ TOPLAMI</b>	<b>1.668,50</b>
İŞÇİLİK GİDERLERİ	
İst. Sürme (Ank. Başarı) Pula	120,00
Dalışma	60,00
Termit Çatama	30,00
Sürgü	0,00
Gilvelama İyileş	30,00
Çarpı Çatama (Fide Ürün Yarı Hazırlama)	30,00
Fide Üstems	300,00
Çapalama İyileş	300,00
Malzeme Çatama	60,00
Sulama Hazırlık, Karık açma	30,00
Sulama İyileş	225,00
Ziraat Mülzeme İyileş	120,00
MAKULİYET GİDERLERİ	1.200,00
Anabata Tazminat (Dava)	1.200,00
<b>İŞÇİLİK GİDERLERİ TOPLAMI</b>	<b>2.285,00</b>
MAKULİYET GİDERLERİ	
Anabata Tazminat	300,00
<b>MAKULİYET GİDERLERİ TOPLAMI</b>	<b>300,00</b>
DİĞER GİDERLER	
Anabata Tazminat	0,00
Bulaç	0,00
<b>DİĞER GİDERLER TOPLAMI</b>	<b>0,00</b>
<b>TOPLAM</b>	<b>4.468,50</b>
Yapılaş. Mül. Pula Karşılığ (M7.5)	
Genel İstems Giderleri(T.Mis.%)	
<b>MASRAFLAR GENEL TOPLAMI</b>	<b>4.468,50</b>
Akarsu Ürün Hissat (Kıyda)	7.500
1 Kg Ürünle Malzeme (TL/İst)	0,24
1 Kg Sürme Ürünle Ort. Saha Piyas (TL/İst)	1,30

## APPENDIX B

### TORBALI DISTRICT AGRICULTURAL PRODUCTION DISTRIBUTION BY PARCEL

(Data from Izmir Provincial Directorate of Agriculture)

İlçe	Köy	Ada	Parsel	Kullanılan Alan(da)	Parsel Alanı	Tarımsal No.	Ürün	Tarım Şekli	Ekili Alan (da)	Ekim Tarihi	Hasat Tarihi
TORBALI	MURATBEY	1100	2	1.732	1.732	638485482	BEZELYE (MUHTELİF)	Sulu	1.732	15/11/2020	15/04/2021
TORBALI	MURATBEY	1100	2	1.732	1.732	638485482	DOMATES (SALÇALIK)	Sulu	1.732	15/05/2021	15/09/2021
TORBALI	MURATBEY	1211	8	1.602	1.602	109162488	BUĞDAY (EKMEKLİK)	Sulu	1.602	30/11/2020	20/06/2021
TORBALI	MURATBEY	1211	1	1.242	1.242	109162480	BUĞDAY (EKMEKLİK)	Sulu	1.242	25/11/2020	25/05/2021
TORBALI	MURATBEY	1211	7	1.44	1.44	109162487	BUĞDAY (EKMEKLİK)	Sulu	1.44	30/11/2020	20/06/2021
TORBALI	MURATBEY	1211	1	1.242	1.242	109162480	MISIR (DANE)	Sulu	1.242	01/06/2021	01/10/2021
TORBALI	MURATBEY	1211	7	1.44	1.44	109162487	MISIR (DANE)	Sulu	1.44	01/07/2021	01/11/2021
TORBALI	MURATBEY	209	20	15.144	15.144	96529944	ŞEFTALİ (MUHTELİF)	Sulu	3	01/03/2000	15/06/2021
TORBALI	MURATBEY	210	31	5.041	5.041	105325929	ARPA (YEŞİL OT)	Sulu	5.035	01/10/2020	01/03/2021
TORBALI	MURATBEY	210	30	5.041	5.041	105325928	ARPA (YEŞİL OT)	Sulu	4.934	01/10/2020	01/03/2021
TORBALI	MURATBEY	210	14	3.4	3.4	105106816	BROKOLİ (MUHTELİF)	Sulu	3.369	15/07/2021	15/11/2021
TORBALI	MURATBEY	210	1	25.347	25.353	115538049	BROKOLİ (MUHTELİF)	Sulu	25.277	15/07/2021	15/11/2021

TORBALI	MURATBEY	210	10	11.673	11.681	105106812	BROKOLİ (MUHTELİF)	Sulu	11.673	15/07/2021	15/11/2021
TORBALI	MURATBEY	210	18	30.444	30.444	105106820	DOMATES (SALÇALIK)	Sulu	30.134	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	14	3.4	3.4	105106816	DOMATES (SALÇALIK)	Sulu	3.369	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	13	6.913	6.915	105106815	DOMATES (SALÇALIK)	Sulu	6.54	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	20	20.934	20.942	115538047	DOMATES (SALÇALIK)	Sulu	20.66	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	1	25.347	25.353	115538049	DOMATES (SALÇALIK)	Sulu	25.277	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	21	12.606	12.614	116130304	DOMATES (SALÇALIK)	Sulu	12.606	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	19	25.386	25.391	115538044	DOMATES (SALÇALIK)	Sulu	25.386	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	10	11.673	11.681	105106812	DOMATES (SALÇALIK)	Sulu	11.673	01/02/2021	01/05/2021
TORBALI	MURATBEY	210	20	20.934	20.942	115538047	KARNİBAHAR (MUHTELİF)	Sulu	20.66	01/07/2021	01/11/2021
TORBALI	MURATBEY	210	19	25.386	25.391	115538044	KARNİBAHAR (MUHTELİF)	Sulu	25.386	01/07/2021	01/11/2021
TORBALI	MURATBEY	210	21	12.606	12.614	116130304	KARNİBAHAR (MUHTELİF)	Sulu	12.606	01/07/2021	01/11/2021
TORBALI	MURATBEY	210	13	6.913	6.915	105106815	LAHANA (KIRMIZI)	Sulu	6.54	01/08/2021	01/12/2021
TORBALI	MURATBEY	210	22	10.563	10.569	105106824	LAHANA (KIRMIZI)	Sulu	10.563	01/08/2021	01/12/2021
TORBALI	MURATBEY	210	23	10.408	10.411	105325921	MISIR (DANE)	Sulu	10.27	01/03/2021	01/07/2021



TORBALI	MURATBEY	211	3	8	8	142119664	BUĞDAY (EKMEKLİK)	Sulu	8	15/10/2020	15/03/2021
TORBALI	MURATBEY	211	5	16.39	16.39	142119686	BUĞDAY (EKMEKLİK)	Sulu	16.298	15/10/2020	15/03/2021
TORBALI	MURATBEY	211	4	6.425	6.425	96700163	BUĞDAY (EKMEKLİK)	Sulu	6.251	15/10/2020	15/03/2021
TORBALI	MURATBEY	211	16	16.265	16.265	117478607	DOMATES (SALÇALIK)	Sulu	16.265	01/02/2021	01/05/2021
TORBALI	MURATBEY	211	9	5.141	5.141	229669101	DOMATES (SALÇALIK)	Sulu	5.141	01/02/2021	01/05/2021
TORBALI	MURATBEY	211	11	16.278	16.278	118875122	DOMATES (SALÇALIK)	Sulu	16.278	01/02/2021	01/05/2021
TORBALI	MURATBEY	211	10	5.395	5.395	118875398	DOMATES (SALÇALIK)	Sulu	5.339	01/02/2021	01/05/2021
TORBALI	MURATBEY	211	9	5.141	5.141	229669101	FASULYE (TAZE)	Sulu	5.141	20/07/2021	30/10/2021
TORBALI	MURATBEY	211	16	16.265	16.265	117478607	FASULYE (TAZE)	Sulu	16.265	20/05/2021	30/08/2021
TORBALI	MURATBEY	211	15	6.966	6.966	117188664	MISIR (DANE)	Sulu	6.953	01/03/2021	01/07/2021
TORBALI	MURATBEY	211	7	6.767	6.767	230174380	MISIR (DANE)	Sulu	6.735	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	14	5.045	5.045	117188721	BROKOLİ (MUHTELİF)	Sulu	5.015	15/07/2021	15/11/2021
TORBALI	MURATBEY	212	3	9.528	9.53	116143227	DOMATES (SALÇALIK)	Sulu	9.528	01/02/2021	01/05/2021
TORBALI	MURATBEY	212	13	28.785	28.789	115814877	DOMATES (SALÇALIK)	Sulu	28.785	01/02/2021	01/05/2021
TORBALI	MURATBEY	212	3	9.528	9.53	116143227	FASULYE (TAZE)	Sulu	9.528	15/05/2021	15/11/2021
TORBALI	MURATBEY	212	6	7.367	7.367	96803533	İTALYAN ÇİMİ (YEŞİL OT)	Kuru	7.367	01/10/2020	01/03/2021
TORBALI	MURATBEY	212	14	5.045	5.045	117188721	MISIR (DANE)	Sulu	5.015	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	7	3.663	7.327	96803534	MISIR (DANE)	Sulu	3.663	01/03/2021	01/07/2021

TORBALI	MURATBEY	212	15	3.804	3.804	230174307	MISIR (DANE)	Sulu	3.792	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	2	18.896	18.899	96803527	MISIR (DANE)	Sulu	18.699	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	1	28.947	28.949	96803515	MISIR (DANE)	Sulu	28.86	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	4	21.341	21.342	96803530	MISIR (DANE)	Sulu	21.335	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	17	5.754	5.754	117610940	MISIR (DANE)	Sulu	5.754	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	18	5.754	5.754	480250838	MISIR (DANE)	Sulu	5.693	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	16	9.869	9.869	96803523	MISIR (DANE)	Sulu	9.869	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	12	20.816	20.818	115311803	MISIR (DANE)	Sulu	20.693	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	9	11.148	11.148	96803536	MISIR (DANE)	Sulu	11.076	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	11	12.624	12.627	117024211	MISIR (DANE)	Sulu	12.624	01/03/2021	01/07/2021
TORBALI	MURATBEY	212	13	28.785	28.789	115814877	MISIR (SİLAJLIK)	Sulu	28.785	20/05/2021	30/08/2021
TORBALI	MURATBEY	212	6	7.367	7.367	96803533	MISIR (SİLAJLIK)	Sulu	7.367	01/05/2021	01/09/2021
TORBALI	MURATBEY	212	5	14.548	14.548	96803532	ŞEFTALİ (MUHTELİF)	Sulu	7.223	01/03/2017	15/06/2022
TORBALI	MURATBEY	212	5	14.548	14.548	96803532	ŞEFTALİ (MUHTELİF)	Sulu	7.2	28/02/2017	14/06/2022
TORBALI	MURATBEY	213	44	14.365	14.365	96700181	BEZELYE (MUHTELİF)	Sulu	14.276	15/12/2020	15/04/2021
TORBALI	MURATBEY	213	40	10.644	10.644	96700177	BEZELYE (MUHTELİF)	Sulu	10.644	15/12/2020	15/04/2021
TORBALI	MURATBEY	213	41	10.403	10.403	96700178	BEZELYE (MUHTELİF)	Sulu	10.334	15/12/2020	15/04/2021
TORBALI	MURATBEY	213	1	26.19	52.381	96700170	BUĞDAY (EKMEKLİK)	Sulu	26.19	15/10/2020	15/03/2021
TORBALI	MURATBEY	213	11	3.959	3.959	98578604	BUĞDAY (EKMEKLİK)	Sulu	3.908	15/12/2020	15/03/2021
TORBALI	MURATBEY	213	9	19.125	19.125	116391860	BUĞDAY (EKMEKLİK)	Sulu	19.003	15/12/2020	15/03/2021

TORBALI	MURATBEY	213	10	5.562	5.562	142278719	BUĞDAY (EKMEKLİK)	Sulu	5.562	15/12/2020	15/03/2021
TORBALI	MURATBEY	213	5	55.855	55.855	98578629	BUĞDAY (EKMEKLİK)	Sulu	55.855	15/10/2020	15/03/2021
TORBALI	MURATBEY	213	6	12.884	12.884	98578637	BUĞDAY (EKMEKLİK)	Sulu	12.85	15/12/2020	15/03/2021
TORBALI	MURATBEY	213	7	20.325	20.325	98578638	BUĞDAY (EKMEKLİK)	Sulu	20.325	15/12/2020	15/03/2021
TORBALI	MURATBEY	213	37	10.934	10.934	98578084	DOMATES (SALÇALIK)	Sulu	10.934	01/02/2021	01/05/2021
TORBALI	MURATBEY	213	46	3.841	3.841	96700183	DOMATES (SALÇALIK)	Sulu	3.841	01/02/2021	01/05/2021
TORBALI	MURATBEY	213	4	13.965	13.965	96700176	DOMATES (SALÇALIK)	Sulu	13.965	01/02/2021	01/05/2021
TORBALI	MURATBEY	213	45	14.645	14.645	96700182	DOMATES (SALÇALIK)	Sulu	14.622	01/02/2021	01/05/2021
TORBALI	MURATBEY	213	25	33.633	33.635	98578619	DOMATES (SALÇALIK)	Sulu	33.633	01/02/2021	01/05/2021
TORBALI	MURATBEY	213	47	7.814	15.633	98578626	PAMUK (MUHTELİF)	Sulu	7.814	01/05/2021	01/09/2021
TORBALI	MURATBEY	213	48	5.077	10.156	98578627	PAMUK (MUHTELİF)	Sulu	5.077	01/05/2021	01/09/2021
TORBALI	MURATBEY	213	19	39.389	39.389	229103642	PIRASA (MUHTELİF)	Sulu	39.356	15/07/2021	15/11/2021
TORBALI	MURATBEY	213	45	14.645	14.645	96700182	PIRASA (MUHTELİF)	Sulu	14.622	15/07/2021	15/11/2021
TORBALI	MURATBEY	213	4	13.965	13.965	96700176	PIRASA (MUHTELİF)	Sulu	13.965	15/07/2021	15/11/2021
TORBALI	MURATBEY	213	46	3.841	3.841	96700183	PIRASA (MUHTELİF)	Sulu	3.841	15/07/2021	15/11/2021

TORBALI	MURATBEY	214	3	29.766	29.773	104545374	DOMATES (SALÇALIK)	Sulu	29.605	01/02/2021	01/05/2021
TORBALI	MURATBEY	214	6	29.212	29.213	116146983	DOMATES (SALÇALIK)	Sulu	29.032	01/02/2021	01/05/2021
TORBALI	MURATBEY	214	3	29.766	29.773	104545374	FASULYE (TAZE)	Sulu	18.832	15/05/2021	15/12/2021
TORBALI	MURATBEY	216	33	8.528	8.528	96700237	PAMUK (MUHTELİF)	Sulu	8.423	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	1	18.48	18.486	117804542	PAMUK (MUHTELİF)	Sulu	18.288	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	37	13.664	27.328	96700239	PAMUK (MUHTELİF)	Sulu	13.664	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	34	3.186	3.189	631287604	PAMUK (MUHTELİF)	Sulu	3.179	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	46	7.59	7.595	118356526	PAMUK (MUHTELİF)	Sulu	7.573	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	50	14.418	14.426	639216780	PAMUK (MUHTELİF)	Sulu	14.418	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	37	13.662	27.328	96700239	PAMUK (MUHTELİF)	Sulu	13.662	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	11	30.217	30.219	96700215	PAMUK (MUHTELİF)	Sulu	30.003	01/05/2021	01/09/2021
TORBALI	MURATBEY	216	51	2.5	5	638768313	ZEYTİN (YAĞLIK)	Sulu	2.5	01/01/2010	15/11/2021
TORBALI	MURATBEY	217	3	22.76	22.76	105106827	BEZELYE (MUHTELİF)	Sulu	22.5	15/11/2020	15/04/2021
TORBALI	MURATBEY	217	35	16.02	36.053	96700283	BEZELYE (MUHTELİF)	Sulu	16.02	15/11/2020	15/04/2021
TORBALI	MURATBEY	217	32	16.497	16.499	96700280	BİBER (SİVRİ, ÇARLİSTON)	Sulu	0.497	01/03/2021	01/06/2021
TORBALI	MURATBEY	217	45	29.897	29.897	104545386	BUĞDAY (EKMEKLİK)	Sulu	29.777	15/12/2020	15/04/2021

TORBALI	MURATBEY	217	5	29.256	29.256	104545387	BUĞDAY (EKMEKLİK)	Sulu	25	16/11/2020	15/04/2021
TORBALI	MURATBEY	217	27	17.812	17.812	96700275	BUĞDAY (EKMEKLİK)	Sulu	17.758	15/12/2020	15/03/2021
TORBALI	MURATBEY	217	26	15.57	15.57	96700274	BUĞDAY (EKMEKLİK)	Sulu	15.321	15/11/2020	15/03/2021
TORBALI	MURATBEY	217	25	27.818	27.818	96700273	BUĞDAY (EKMEKLİK)	Sulu	27.818	15/11/2020	15/03/2021
TORBALI	MURATBEY	217	44	11.443	11.443	104545385	BUĞDAY (EKMEKLİK)	Sulu	11.443	16/11/2020	15/04/2021
TORBALI	MURATBEY	217	36	8.603	16.897	114718138	DOMATES (SALÇALIK)	Sulu	8.603	01/02/2021	01/05/2021
TORBALI	MURATBEY	217	48	10.829	13.68	105106829	DOMATES (SALÇALIK)	Sulu	10.829	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	40	6.403	6.403	105058088	DOMATES (SALÇALIK)	Sulu	6.328	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	27	8.007	8.007	105058083	DOMATES (SALÇALIK)	Sulu	7.822	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	9	10.366	10.368	105106682	DOMATES (SALÇALIK)	Sulu	10.366	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	16	9.165	9.165	104545403	DOMATES (SALÇALIK)	Sulu	9.165	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	5	21.64	21.64	96626368	DOMATES (SALÇALIK)	Sulu	21.598	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	6	7.04	7.04	96626369	DOMATES (SALÇALIK)	Sulu	6.966	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	10	8.287	8.287	105106674	DOMATES (SALÇALIK)	Sulu	8.258	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	42	15.165	15.165	104545405	DOMATES (SALÇALIK)	Sulu	15.157	01/02/2021	01/05/2021

TORBALI	MURATBEY	219	34	10.728	10.729	105325791	DOMATES (SALÇALIK)	Sulu	10.728	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	28	10.969	10.969	103418773	DOMATES (SALÇALIK)	Sulu	10.871	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	33	11.69	17.536	105106681	DOMATES (SALÇALIK)	Sulu	11.69	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	23	22.28	22.28	105058079	DOMATES (SALÇALIK)	Sulu	17.15	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	1	6.851	13.702	116737325	DOMATES (SOFRALIK)	Sulu	1	01/02/2021	01/05/2021
TORBALI	MURATBEY	219	23	22.28	22.28	105058079	ENGİNAR (MUHTELİF)	Sulu	5	15/12/2020	15/07/2021
TORBALI	MURATBEY	219	4	30.928	30.93	105058087	FASULYE (TAZE)	Sulu	30.279	15/05/2021	15/10/2021
TORBALI	MURATBEY	219	8	6.765	13.531	105325797	FASULYE (TAZE)	Sulu	6.437	15/05/2021	15/11/2021
TORBALI	MURATBEY	219	9	10.366	10.368	105106682	FASULYE (TAZE)	Sulu	10.366	20/07/2021	30/09/2021
TORBALI	MURATBEY	220	28	4	27.417	630582301	BAMYA (MUHTELİF)	Sulu	0.5	01/02/2021	01/07/2021
TORBALI	MURATBEY	220	28	19.416	27.417	630582301	BEZELYE (MUHTELİF)	Sulu	0.5	15/11/2020	15/04/2021
TORBALI	MURATBEY	220	28	19.416	27.417	630582301	BİBER (DOLMALIK)	Sulu	1	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	28	4.001	27.417	630582301	BİBER (DOLMALIK)	Sulu	0.55	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	32	21.606	21.608	142180505	BİBER (DOLMALIK)	Sulu	1	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	28	4	27.417	630582301	BİBER (DOLMALIK)	Sulu	0.5	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	8	16.308	16.312	96707473	BİBER (SALÇALIK)	Sulu	2	01/03/2021	01/06/2021

TORBALI	MURATBEY	220	32	21.606	21.608	142180505	BİBER (SALÇALIK)	Sulu	1	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	48	9.184	9.184	100670382	BİBER (SALÇALIK)	Sulu	9.101	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	28	4	27.417	630582301	BİBER (SALÇALIK)	Sulu	0.5	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	28	19.416	27.417	630582301	BİBER (SİVRİ, ÇARLISTON)	Sulu	1	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	8	16.308	16.312	96707473	BİBER (SİVRİ, ÇARLISTON)	Sulu	3	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	32	21.606	21.608	142180505	BİBER (SİVRİ, ÇARLISTON)	Sulu	1	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	28	4	27.417	630582301	BİBER (SİVRİ, ÇARLISTON)	Sulu	0.5	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	8	16.308	16.312	96707473	BİBER (ÜÇBURUN)	Sulu	1	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	32	21.606	21.608	142180505	BİBER (ÜÇBURUN)	Sulu	1	01/03/2021	01/06/2021
TORBALI	MURATBEY	220	28	19.416	27.417	630582301	BÖRÜLCE (MUHTELİF)	Sulu	1	01/03/2021	01/08/2021
TORBALI	MURATBEY	220	8	16.308	16.312	96707473	BROKOLİ (MUHTELİF)	Sulu	3.308	15/07/2021	15/11/2021
TORBALI	MURATBEY	220	28	4.001	27.417	630582301	DEREOTU (MUHTELİF)	Sulu	0.25	01/01/2021	01/03/2021
TORBALI	MURATBEY	220	28	4.001	27.417	630582301	DOMATES (ÖRTÜALTI)	Sulu	0.5	01/02/2021	01/05/2021
TORBALI	MURATBEY	220	28	4.001	27.417	630582301	MARUL (KIVIRCIK)	Sulu	0.2	15/01/2021	15/04/2021
TORBALI	MURATBEY	220	28	4.001	27.417	630582301	MAYDANOZ (MUHTELİF)	Sulu	0.25	01/03/2021	01/05/2021

## APPENDIX C

### İZMİR PROVINCE AGRICULTURAL PRODUCT COSTS (2021)

(Data from Izmir Provincial Directorate of Agriculture)

İL Ortalaması	İZMİR İLİ Ortalaması (2021 YILI)											
	Ürün Adı	Ürün Birimi	Verim (kg/da)	Fiyat (TL/kg)	Yan Ürün Geliri (TL/da)	Toplam Üretim Değeri (TL/da)	Toplam Üretim Masrafları (TL/da)	Net Gelir (TL/da)	Net Gelir (Arazi S.Faizi Hariç) (TL/da)	Ürün Maliyeti (TL/kg)	Ürün Maliyeti (Arazi S.Faizi Hariç) (TL/kg)	Toplam Alan (da)
	Biber (Dolmalık)	kg	5,991	2.80	0.00	16,766.90	13,860.04	2,906.86	8,377.63	2.31	1.40	1,006
	Kiraz	kg	1,078	10.48	0.00	11,301.39	9,053.78	2,247.61	5,878.19	8.40	5.03	117,104
	Yonca (Yeşil Ot)	kg	3,126	1.55	0.00	4,852.25	2,961.27	1,890.98	2,461.09	0.95	0.76	22,928
	Zeytin (Sofralık)	kg	581	10.18	0.00	5,918.26	4,206.15	1,712.10	3,495.15	7.24	4.17	125,835
	Marul (Aysberg)	kg	4,250	1.50	0.00	6,375.00	4,520.08	1,854.92	2,454.92	1.06	0.92	100
	Domates (Sofralık)	kg	6,371	2.28	2.20	14,498.83	7,138.59	7,360.25	7,976.46	1.12	1.02	14,801
	Biber (Sivri)	kg	2,819	3.10	0.00	8,727.50	8,250.41	477.09	1,026.04	2.93	2.73	2,375
	Tritikale (Yeşil Ot)	kg	3,374	0.79	0.00	2,662.94	1,741.20	921.74	1,421.74	0.52	0.37	71,500
	Hıyar (Sofralık)	kg	4,249	2.91	0.00	12,382.77	9,046.74	3,336.03	3,933.16	2.13	1.99	1,323
	Trabzon Hurması	kg	1,500	4.00	0.00	6,000.00	5,089.31	910.69	1,660.69	3.39	2.89	100
	Fiğ (Diğer) (Kuru Ot)	kg	1,153	1.34	0.00	1,539.13	1,282.83	256.30	556.30	1.11	0.85	765
	Elma (Diğer)	kg	1,556	1.62	0.00	2,517.17	2,264.82	252.35	752.35	1.46	1.13	1,590



Mısır (Dane)	kg	1,307	2.49	0.69	3,257.37	2,409.42	847.95	1,491.70	1.84	1.35	98,771
Marul (Göbekli)	kg	3,613	1.54	0.00	5,566.67	3,656.26	1,910.40	2,377.07	1.01	0.88	1,500
Kavun	kg	2,551	1.95	0.00	4,964.61	3,331.41	1,633.21	1,923.47	1.31	1.19	6,406
Arpa (Diğer)	kg	361	2.56	263.85	1,185.35	1,024.89	160.46	455.98	2.11	1.29	45,505
Buğday (Diğer)	kg	496	2.56	337.95	1,609.45	1,225.40	384.05	795.45	1.79	0.96	224,650
Buğday (Yeşil Ot)	kg	507	2.50	450.00	1,717.74	1,352.44	365.31	787.89	1.78	0.95	31,000
Mandalina (Satsuma)	kg	1,852	3.08	0.00	5,709.37	6,018.84	-309.47	2,277.21	3.25	1.85	46,378
Ceviz	kg	291	15.58	0.00	4,536.63	3,476.62	1,060.00	2,345.09	11.94	7.53	23,380
Patates (Diğer)	kg	4,453	1.48	0.00	6,575.04	4,456.82	2,118.22	2,702.88	1.00	0.87	100,213
Tütün	kg	109	26.41	0.00	2,885.69	2,573.95	311.74	671.95	23.56	20.26	13,786
Kabak (Sakız)	kg	3,000	1.50	0.00	4,500.00	4,231.18	268.83	768.83	1.41	1.24	200
Ispanak	kg	1,794	2.00	0.00	3,595.14	1,916.04	1,679.10	2,427.08	1.07	0.65	24,700
Şeftali (Diğer)	kg	1,728	5.10	0.00	8,807.82	7,872.24	935.57	3,942.91	4.56	2.82	37,614
Kestane	kg	444	19.97	0.00	8,861.65	5,630.22	3,231.43	4,047.04	12.69	10.85	34,370
Fasulye (Taze)	kg	1,734	4.47	0.00	7,754.35	5,506.58	2,247.77	2,878.18	3.18	2.81	26,557
Biber (Salçalık) (Kıyık)	kg	4,832	1.29	0.00	6,247.98	6,734.75	-486.77	99.59	1.39	1.27	10,500
Bakla (Taze)	kg	1,500	3.00	0.00	4,500.00	3,667.38	832.62	1,432.62	2.44	2.04	100
Çilek	kg	3,500	7.00	0.00	24,500.00	10,930.97	13,569.03	14,319.03	3.12	2.91	1,400
Soğan (Kuru)	kg	5,000	0.90	0.00	4,500.00	3,017.31	1,482.69	1,682.69	0.60	0.56	700
Hıyar (Turşuluk)	kg	2,767	3.19	0.00	8,832.29	7,068.26	1,764.03	2,381.90	2.55	2.33	25,005

İtalyan Çimi (Yemlik)	kg	4,033	0.71	0.00	2,870.00	1,686.57	1,183.43	1,684.97	0.42	0.29	57,102
Lahana (Kırmızı)	kg	3,500	2.00	0.00	7,000.00	4,687.57	2,312.43	2,812.43	1.34	1.20	350
Üzüm (Kurutmalık) (Çekirdeksiz)	kg	1,633	11.23	0.00	18,337.49	6,136.28	12,201.21	15,391.49	3.76	1.80	46,004
Fiğ (Diğer) (Yeşil Ot)	kg	1,500	0.90	0.00	1,350.00	781.27	568.73	868.73	0.52	0.32	530
Yulaf (Dane)	kg	278	4.08	184.97	1,318.92	838.40	480.52	756.20	2.35	1.36	4,217
Üzüm (Sofralık) (Çekirdeksiz)	kg	1,120	4.06	0.00	4,552.39	5,133.99	-581.60	2,947.54	4.58	1.43	10,296
Yem Şalgamı	kg	6,333	0.30	0.00	1,900.00	1,186.34	713.66	1,213.66	0.19	0.11	15,000
Ayçiçeği (Yağlık)	kg	277	5.93	0.00	1,643.08	981.66	661.43	894.34	3.54	2.70	6,290
Karanfil	Adet	150,000	0.85	0.00	127,500.00	33,564.53	93,935.47	103,935.47	0.22	0.16	68
Börülce (Taze)	kg	1,400	6.00	0.00	8,400.00	5,267.53	3,132.47	3,507.47	3.76	3.49	200
Erik	kg	1,493	5.11	0.00	7,633.84	5,545.72	2,088.11	4,368.01	3.71	2.19	8,955
İncir(Yaş)	kg	628	11.57	0.00	7,263.46	3,541.39	3,722.06	4,532.28	5.64	4.35	50,984
Kayısı	kg	1,200	7.00	0.00	8,400.00	4,961.63	3,438.37	6,438.37	4.13	1.63	2,100
Lahana (Beyaz)	kg	3,434	1.80	0.00	6,169.15	5,450.35	718.80	1,318.55	1.59	1.41	4,040
Zeytin (Yağlık)	kg	739	6.38	3.37	4,718.97	3,885.36	833.61	2,420.15	5.26	3.11	777,996
Enginar	kg	1,362	7.56	0.00	10,293.20	5,483.16	4,810.05	5,194.43	4.03	3.74	8,437
Yulaf (Yeşil Ot)	kg	1,250	1.23	0.00	1,537.91	1,067.84	470.08	849.04	0.85	0.55	12,080
Pırasa	kg	4,015	1.93	0.00	7,764.50	7,322.24	442.27	1,087.60	1.82	1.66	7,930
Karpuz	kg	4,659	1.14	0.00	5,330.17	4,584.54	745.64	1,290.38	0.98	0.87	4,643
Kereviz (Kök)	kg	3,041	2.50	0.00	7,601.63	7,085.81	515.81	1,153.62	2.33	2.12	2,460

Badem	kg	200	35.00	0.00	7,000.00	5,963.89	1,036.11	2,536.11	29.82	22.32	790
Barbunya Fasulye (Taze)	kg	1,430	5.76	0.00	8,232.56	4,254.21	3,978.34	4,593.46	2.97	2.54	6,880
Bezelye (Taze)	kg	1,300	3.60	0.00	4,678.43	3,919.01	759.42	1,306.60	3.01	2.59	6,200
Yonca (Kuru Ot)	kg	2,652	1.72	0.00	4,554.57	4,052.44	502.13	1,167.36	1.53	1.28	9,850
Fiğ (Adi) (Kuru Ot)	kg	798	1.04	0.00	830.15	1,182.77	-352.62	46.45	1.48	0.98	18,756
Üzüm (Sofralık) (Çekirdekli)	kg	1,164	5.10	25.83	5,964.67	4,642.41	1,322.26	3,653.16	3.97	1.96	17,596
Tritikale (Kuru Ot)	kg	1,500	1.00	0.00	1,500.00	1,354.95	145.05	645.05	0.90	0.57	2,500
Fiğ (Adi) (Yeşil Ot)	kg	1,441	1.51	0.00	2,173.24	1,256.98	916.26	1,268.74	0.87	0.63	15,730
Patlıcan	kg	3,312	2.01	0.00	6,657.46	5,567.28	1,090.18	1,543.21	1.68	1.54	905
Mısır Silajlık	kg	6,711	0.47	0.00	3,143.27	2,517.55	625.72	1,097.79	0.38	0.30	452,129
Üzüm (Şaraplık)	kg	1,418	6.13	0.00	8,697.07	6,471.89	2,225.18	5,460.81	4.56	2.28	6,463
Pamuk (Kütlü)	kg	550	11.44	0.00	6,288.42	3,973.16	2,315.26	3,043.76	7.23	5.90	241,885
Buğday (Durum)	kg	350	2.25	600.00	1,387.50	1,018.98	368.52	538.52	1.20	0.71	25
Domates (Salçalık)	kg	9,359	0.64	0.00	6,011.36	5,403.06	608.30	1,280.19	0.58	0.51	104,803
Arpa (Yeşil Ot)	kg	1,515	1.10	182.28	1,853.31	1,200.81	652.50	1,090.13	0.67	0.38	52,089
Brokoli	kg	2,348	2.77	0.00	6,508.34	5,727.67	780.67	1,408.52	2.44	2.17	14,675
Kasımpatı (Krizantem)	Adet	81,990	1.18	0.00	96,877.80	34,810.33	62,067.47	69,211.18	0.42	0.34	669
İncir(Kuru)	kg	210	22.92	0.00	4,819.92	3,594.46	1,225.46	2,250.91	17.09	12.21	46,471
Karnabahar	kg	1,877	3.55	0.00	6,668.70	4,220.06	2,448.64	2,985.91	2.25	1.96	14,650
Bamya	kg	622	11.33	0.00	7,050.52	4,879.06	2,171.45	2,665.23	7.84	7.05	2,810

**APPENDIX D**  
**EXAMPLES OF FLATS FOR SALE CHOSEN FOR**  
**APPRAISAL OF URBAN LAND**  
**(Data from Sahibinden.com Website)**

Emlak Konut Satılık Satılık Daire Favori İlanlar Favori Aramalar Son Gezdiğiniz İlanlar İlan Karşılaştır

Egeland'dan Muratbey'de 2+1 Her Katta Tek Sıfır Daire

750.000 TL Kredi Teklifi

İzmir / Torbalı / Muratbey Mah.

İlan No

İlan Tarihi 06 Nisan 2022

Emlak Tipi Satılık Daire

m<sup>2</sup> (Brüt) 100

m<sup>2</sup> (Net) 86

Oda Sayısı 2+1

Bina Yaşı 0

Bulunduğu Kat 5

Kat Sayısı 5

Isıtma Yerden Isıtma

Banyo Sayısı 2

Balkon Var

Eşyalı Hayır

Kullanım Durumu Boş

Site İçerisinde Hayır

Site Adı Belirtilmemiş

Aidat (TL) Belirtilmemiş

Krediye Uygun Evet

Tapu Durumu Kat İrtifakı

Kimden Emlak Ofisinden

Görüntülü Arama İle Gezilebilir Evet

Takas Hayır

İlan ile ilgili Şikayetim Var

1/23 Fotoğraf

Emlak Endeksi | Gayrimenkul Ekspertiz | Emlak Alım Rehberi

İlan Detayları Konumu ve Sokak Görünümü Emlak Endeksi

**Açıklama**

**MURATBEY MAHALLESİNDE BULUNAN BİNAMIZ:**  
**HER KATTA TEK DAİRE**  
**İKİ ODA BİR SALON**  
**EBEVEYN BANYOLU**  
**VESTİYER VE GÖMME DOLAP TAKILI**  
**ÜÇLÜ ANKASTRE SET TAKILACAKTIR.**  
**DAİREMİZ YERDEN ISITMALIDIR.**  
**İZBAN DURAĞI VE DİĞER DURAKLAR YÜRÜME MESAFESİNDEDİR.**  
**KREDİ DE SINIR YOKTUR.**  
**DAİREYİ GÖRMEK İÇİN LÜTFEN RANDEVU ALINIZ**

**MURATBEY MAHALLESİNDE SATILIK 3+1 DAİRE**1.000.000 TL Kredi Teklifleri

İzmir / Torbalı / Muratbey Mah.

İlan No: 2022  
Daire

m² (Brüt)	145
m² (Net)	130
Oda Sayısı	3+1
Bina Yaşı	0
Bulunduğu Kat	5
Kat Sayısı	6
Isıtma	Doğalgaz (Kombi)
Banyo Sayısı	2
Balkon	Var
Eyyah	Hayır
Kullanım Durumu	Boş
Site İçerisinde	Hayır
Site Adı	Belirtilmemiş
Aldat (TL)	Belirtilmemiş
Krediye Uygun	Evet
Tapu Durumu	Kat İrtifaklı
Kimden	Emlak Ofisinden
Görüntülü Arama ile Gezilebilir	Hayır
Takas	Hayır

1/28 Fotoğraf

[Emlak Endeksi](#) | [Gayrimenkul Ekspertiz](#) | [Emlak Alım Rehberi](#)

Emlak ile ilgili şikayetleriniz var

[İlan Detayları](#)[Konumu ve Sokak Görünümü](#)[Emlak Endeksi](#)**Açıklama****KONUM OLARAK;**

- MARKETLER
- TOPLU TAŞIMA ALANLARI
- EĞİTİM KURUMLARI
- HASTANE
- İZBAN İSTASYONU MESAFESİNDEDİR

**İÇERİSİNDE;**

- VESTİYER
  - GÖRÜNTÜLÜ DİYAFON
  - DOĞALGAZ/KOMBİ
  - 3'LÜ ANKASTRE SETİ
  - HİLTON BANYO
  - DUŞA KABİN
  - EBEVEYN BANYO
  - OTOMATİK PANJÜR
  - SPOT/LET AYDINLATMA ÇİBİ
  - KARTLI SİSTEM
- BİRÇOK ÖZELLİK BULUNMAKTADIR

UZMAN EMLAK OFİSİ OLARAK MÜŞTERİLERİMİZİN (ALICI) VE MAL SAHİBİ (SATICI) İLE BİREBİR GÖRÜŞME İMKANI SAÇLAMAKTAYIZ. TÜM TAPU VE KREDİ İŞLEMLERİ ESNASINDA FIRMAMIZ SİZLERİN YANINDA OLACAKTIR.

DETAYLI BİLGİ VE HER KONUDA YARDIM ALMAK İÇİN BİZİMLE İLETİŞİME GEÇEBİLİRSİNİZ

## ÖZBORAN'DAN DOĞAYLA İÇ İÇE MURATBEYDE UYGUN SIFIR 3+1 145 M2



2/35 Fotoğraf



[Emlak Endeksi](#) | [Gayrimenkul Ekspertiz](#) | [Emlak Alım Rehberi](#)

1.000.000 TL

Kredi Teklifleri

**İzmir / Torbalı / Muratbey Mah.**

<b>İlan No</b>	
<b>İlan Tarihi</b>	29 Nisan 2022
<b>Emlak Tipi</b>	Satılık Daire
<b>m<sup>2</sup> (Brüt)</b>	145
<b>m<sup>2</sup> (Net)</b>	140
<b>Oda Sayısı</b>	3+1
<b>Bina Yaşı</b>	0
<b>Bulunduğu Kat</b>	5
<b>Kat Sayısı</b>	6
<b>Isıtma</b>	Doğalgaz (Kombi)
<b>Banyo Sayısı</b>	2
<b>Balkon</b>	Var
<b>Eşyalı</b>	Hayır
<b>Kullanım Durumu</b>	Boş
<b>Site İçerisinde</b>	Hayır
<b>Site Adı</b>	Belirtilmemiş
<b>Aidat (TL)</b>	0
<b>Krediye Uygun</b>	Evet
<b>Tapu Durumu</b>	Kat İrtifaklı
<b>Kimden</b>	Emlak Ofisinden
<b>Görüntülü Arama İle Gezilebilir</b>	Evet
<b>Takas</b>	Hayır

[İlan ile ilgili şikayetim Var](#)

[İlan Detayları](#)

[Konumu ve Sokak Görünümü](#)

[Emlak Endeksi](#)

**Açıklama**

DAİREMİZ MURATBEYDE

OLUP 3+1 145 M2 DIR

DAİRE 6 KATLI BİNANIN 5.Cİ KATINDADIR OKUL, ÇARŞI, SEMT PAZARI, İZBAN ,AVM LERE YÜRÜME MESAFESİNDEDİR

DAİRE ÖZELLİKLERİ

DOĞALGAZ KOMBİ

LAMİNAT PARKE

SPOT AYDINLATMA

DUŞA KABİN

HAZIR MUTFAK DOLABI

VESTİYER VB

## TORBALI MURATBEY'DE SATILIK ARA KAT 2+1 DAİRE

#101160228



**SADULLAH UÇAR**  
Gayrimenkul Danışmanlığı



1/16 Fotoğraf

[Emlak Endeksi](#) | [Gayrimenkul Ekspertiz](#) | [Emlak Alım Rehberi](#)

695.000 TL

Kredi Teklifleri

İzmir / Torbalı / Muratbey Mah.

İlan No	
İlan Tarihi	14 Nisan 2022
Emlak Tipi	Satılık Daire
m <sup>2</sup> (Brüt)	100
m <sup>2</sup> (Net)	85
Oda Sayısı	2+1
Bina Yaşı	0
Bulunduğu Kat	2
Kat Sayısı	6
Isıtma	Doğalgaz (Kombi)
Banyo Sayısı	1
Balkon	Var
Eşyalı	Hayır
Kullanım Durumu	Boş
Site İçerisinde	Hayır
Site Adı	Belirtilmemiş
Aidat (TL)	Belirtilmemiş
Krediye Uygun	Evet
Tapu Durumu	Kat İrtifakı
Kimden	Emlak Ofisinden
Görüntülü Arama İle Gezilebilir	Hayır
Takas	Hayır

İlan ile ilgili şikayetim Var

[İlan Detayları](#)

[Konumu ve Sokak Görünümü](#)

[Emlak Endeksi](#)

Açıklama

**DAİREMİZ MURATBEY MAHALLESİNDE YER ALMAKTA  
2+1 OLUP ARA KATTA BULUNMAKTADIR  
GÜNEY CEPHE OLUP ÖNÜ TAMAMEN AÇIKTIR  
VESTİYER, KATLANIR CAM BALKON  
DOĞALGAZ, KOMBİ, PETEK TAKILIDIR  
GÖRÜNTÜLÜ DİAFON  
HİLTON BANYO, LED VE SPOT AYDINLATMA  
İZBAN VE ÇARŞIYA YÜRÜME MESAFESİNDE  
NOT: DAİREMİZDE DUVAR KAĞIDI YOKTUR**