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**HASAN KALYONCU UNIVERSITY  
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**A STUDY OF SUSTAINABLE FINANCING FOR THE TURKISH  
URBAN INFRASTRUCTURE AND URBAN REGENERATION  
PROJECTS: UNITED KINGDOM SHARED OWNERSHIP  
MODEL**

**Ph.D. THESIS  
IN  
CIVIL ENGINEERING**

**MURAT İNCİK  
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**A Study Of Sustainable Financing For The Turkish Urban  
Infrastructure And Urban Regeneration Projects: United Kingdom  
Shared Ownership Model**

**Ph.D. Thesis in  
Civil Engineering  
Hasan Kalyoncu University**

**Supervisor  
Asst.Prof.Dr. Nurullah Akbulut**

**Murat İNCİK  
July 2022**



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**GRADUATE EDUCATION INSTITUTE  
Ph.D. ACCEPTANCE AND APPROVAL FROM**

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Murat İNCİK

## ABSTRACT

### A STUDY OF SUSTAINABLE FINANCING FOR THE TURKISH URBAN INFRASTRUCTURE AND URBAN REGENERATION PROJECTS: UNITED KINGDOM SHARED OWNERSHIP MODEL

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Due to the fact that our country is under the threat of earthquakes and distorted urbanization, the existing building stock needs to be renewed. As in the examples of developed countries, urban transformation should be considered together with the infrastructure and planned in an integrated way with the infrastructure. In the study, the examples of urban regeneration solved together with the infrastructure from the world were mentioned and the examples of Türkiye were given. On the other hand, one of the biggest obstacles in front of urban regeneration is the problem of financing. In the thesis, current financing methods and institutions from the world and from Türkiye are introduced. In the thesis, the financing ecosystem of infrastructure and urban transformation is introduced due both technological and environmental pressures on financing markets, and a financing model specific to our country is presented through concepts such as sharing economy, economic resilience, digital economy and ecological economy within this ecosystem. Within this model, it is thought that the Shared Ownership Model taken from The United Kingdom, specially used in social housing financing through Housing Associations, will set an example for future studies.

**Keywords:** Urban Infrastructure, Urban Regeneration, Social Housing, Housing Associations, Shared Ownership.

## ÖZET

# TÜRKİYE KENTSEL ALTYAPI VE KENTSEL DÖNÜŞÜM PROJELERİNİN SÜRDÜRÜLEBİLİR FİNANSMANI ÜZERİNE BİR ÇALIŞMA: BİRLEŞİK KRALLIK PAYLAŞIMLI MÜLKİYET MODELİ

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144 Sayfa

Ülkemizin deprem tehdidi altında olması sebebi ve çarpık kentleşme gibi sebeplerle mevcut yapı stoğunun yenilenmesi gerekmektedir. Kentsel dönüşüm gelişmiş ülke örneklerinde olduğu gibi altyapısı ile beraber ele alınıp entegre bir şekilde planlanmalıdır. Bu çalışmada kentsel dönüşümün dünyadan altyapı ile beraber çözülmüş örneklerinden bahsedilmiş ve Türkiye örnekleri verilmiştir. Öte yandan kentsel dönüşümünün önündeki en büyük engellerden biri finansman sağlama sorunudur. Tezde dünyadan ve ülkemizden mevcut finansman yöntemleri ve kurumları tanıtılmıştır. Tezde ayrıca gerek teknolojik gerekse çevresel baskılar altında olan finansman piyasalarından dolayı altyapı ve kentsel dönüşüm finansman ekosistemi tanıtılmıştır bu ekosistem içerisinde yer alan paylaşım ekonomisi, ekonomik dirençlilik, dijital ekonomi ve ekolojik ekonomi gibi kavramlar üzerinden ülkemize özgü bir finansman modeli sunulmuştur. Bu modelde hak sahiplerinin finansmanı için Birleşik Krallık'ta ihtisas konut dernekleri tarafından sosyal konut finansmanında kullanılan paylaşımli mülkiyet yönteminin ilerideki çalışmalara örnek oluşturacağı düşünülmektedir.

**Anahtar Kelimeler:** Kentsel Altyapı, Kentsel Dönüşüm, Sosyal Konut, Konut Dernekleri, Paylaşımli Mülkiyet.



*To our Mert and our Aslıhan*

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## **LIST OF ABBREVIATIONS**

ALC	Asset Leasing Companies
AHP	Affordable Homes Programme
APC	Asset Leasing Companies
BLA	Building-and-Loan Association
CCSA	Climate Change Solution Areas
DBLVC	Development-Based Land Value Capture
DRFIP	Disaster Risk Financing and Insurance Program
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EU	European Union
FED	Federal Reserve
GFDRR	Disaster Reduction and Recovery
HCA	Homes and Communities Agency
HPI	House Price Index
IBRD	Bank for Reconstruction and Development
ICO	Initial Coin Offering
IDB	Islamic Development Bank
IFC	International Finance Comitee
IIN	Income-Indexed Notes
IMF	International Monetary Fund
IMM	Istanbul Metropolitan Municipality
IPO	Initial Public Offering

ISA	Individual Savings Accounts
JICA	Japan International Cooperation Agency
LOBOs	Long-Term Lender Option Borrower Option Loans
LVT	Land value tax
MBS	Mortgage Backed Securities
MTR	Mass Transit Railway Corporation
NASDAQ Quotations	National Association of Securities Dealers Automated Quotations
NGO	Non Governmental Organizations
NHF	National Housing Federation
PAC	Public Asset Corporation
PPF	Public Partnership Fund
PPP	Public-Private Partnership
REIF	Real Estate Investment Fund
REIT	Real Estate Investment Trusts
RIN	Revenue-Indexed Notes
RIN	Revenue-Indexed Notes
RPI	Retail Price Index
RSL	Registered Social Landlord
SAD	Special Assessment District
SDR	Special Drawing Rights
SPV	Special Purpose Vehicle
STO	Security Token Offering
TDR	Transfer of Development Rights
TIF	Tax Increment Financing
TOKI	Prime Ministry Housing Development Administration

TSA	Tenant Services Authority
UDP	Urban Development Project
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USD	United States Dolar
UWF	The Urban Wealth Fund



## CHAPTER I

### INTRODUCTION

Donnison (1993) defines the concept of *urban regeneration* as "new ways and methods put forward to solve the problems concentrated in urban collapse areas in a coordinated manner". On the other hand, Roberts (2000) defines urban regeneration as "trying to ensure the continuous improvement of the economic, physical, social and environmental conditions of an area as a comprehensive and integrated vision and action". Based on this definition, it is possible to say that urban regeneration is a planning, implementation and construction process. In the said process, the state of the ownership and the rights attached to the land, the existence of feasible and applicable plans and the provision of financial resources required in the implementation/construction/civil work activities are the main factors affecting the success or failure of urban transformation projects (Roberts, 2000).

The Industrial Revolution and the subsequent migration from rural areas to cities have led to overpopulation in urban areas in many countries of the world, and inappropriate development decisions made in this process have led to the emergence of irregular, unhealthy and unsafe residential areas. Policies in this direction have manifested themselves in accordance with the conjuncture. While the "urban renewal" approach formed the essence of these policies in the period from the 19th century to the 2nd World War, the great destructions that occurred in European cities after the 2nd World War brought the strategies of "reconstruction of cities" to the agenda. Since the beginning of the 1970s, the aforementioned strategies have emerged as an area-oriented "urban improvement and urban renewal" approach that is sensitive to social problems. The 1980s stand out as a period of significant changes in urban regeneration, as in many other issues. "Urban restructuring" policies aimed at economic revival in evacuated, idle and collapsed areas were adopted in this period. The 1990s draws attention as a period in which "urban conservation" policies

stepped forth, which aim to improve and revitalize historical centers that have become collapsed areas especially in European cities, and to protect small and medium-sized historical cities. On the other hand, although the general outline is like this, the different economic, social, political and cultural infrastructures of the countries have brought different organizational models, implementation and financial instruments to the agenda during the implementation of these policies (Caves, 2004).

Urbanization movements, which started with the Republican period in our country, accelerated with the internal migration from the countryside to the city, especially with the mechanization process in agriculture in the 1950s. This situation has caused unhealthy growth of cities that do not have sufficient land and housing stock. In this process, the slums, which migrants initially built in violation of the development rules in order to meet the need for an innocent shelter, have been fully commercialized since the 1970s and have become an urban rent (unearned income) element with the urban regeneration projects that started in the 2000s. The slums, which were estimated to reach 2.2 million in 2002, were at the top of the country's agenda in every period with the social, economic and urban problems they created. In this context, it is known that many regulations have been put into effect by various governments to give legitimacy to slums in Türkiye. *The "Slum Law" No. 775*, which was put into effect in 1966, and the *Law No. 2981 on "Some Transactions to be Applied to Buildings Contrary to the Development and Slum Legislation and Amending an Article of the Development Law No. 6785"* enacted in 1984 is among these regulations. On the other hand, the devastating consequences of the earthquake in Izmit in 1999 constituted an urgency for the liquidation of these buildings in Türkiye. In line with this urgency, the law No. 6306, which entered into force in 2012 and is also known as the *"Urban Transformation Law"* in the public opinion, has been introduced. This law contains some deficiencies in solving the existing problems quickly as it cannot include a strong financial support as well as practical and sustainable application methods (Urban Transformation Act, Law No: 6306, 2012).

On the other hand, considering that there are approximately 7 million residences in the nature of risky buildings in Türkiye and 50 billion TL resources should be allocated every year for their transformation, the question of how this resource will be provided is the main issue that needs to be questioned. At this point, the

deficiencies in Law No. 6306 and the economic situation of Türkiye reveal the need for alternative financial instruments in urban regeneration projects. It is obvious that there is a need for financing in urban regeneration applications.

One of the biggest challenges to be overcome in urban regeneration has been the financing problem, that is, how to finance urban regeneration projects. Because urban regeneration projects are multi-stakeholder, large-volume complex projects. For this reason, it is vital how the stakeholders will finance themselves. Considering the right holder in particular, the urban regeneration projects planned in the regions where the lower income group already resides raise the problem of how the right holders who do not have capital accumulation will finance urban regeneration. When examined from the public perspective, the simultaneous financing of many large-scale projects with public resources will impose a burden on the general budget. On the other hand, from the investor perspective, the financing of large-volume urban regeneration projects is very difficult to finance only with equity and often impossible. In this context, the fact that all stakeholders need financing is inevitable (Adair, Berry, McGreal, Deddis and Hirst, 2000).

In Türkiye, many financial instruments are used for both infrastructure and real estate investments. There are specialized institutions and legislative infrastructure to provide financing. On the other hand, compared to the world, many financial instruments cannot be used for the financing of urban regeneration and infrastructure projects, and there are no institutions necessary for the use of these instruments.

It is evident in the projects examined that urban transformation applications in the examples of developed countries are evaluated together with the infrastructure, and not as independent projects. In this context, it would be right to look at urban regeneration projects in Türkiye as "*Infrastructure and Urban Regeneration*" projects. Since the sensitivity of this issue has been noticed by the public, the relevant institution has been established as "*Directorate General for Infrastructure and Urban Transformation Services*". Within the scope of this thesis, the titles of urban infrastructure and urban regeneration will be examined in the relevant chapter in order to avoid separation of the subject (Delegated Legislation No: 644 and Urban Transformation Act, Law No:6306).

With this thesis, on the one hand, the financing methods and institutions that can be used in Türkiye for infrastructure and urban regeneration will be introduced, on the other hand, the financing methods and institutions that are currently used in the world but not available in Türkiye will be introduced.

Urban regeneration has technical and economic aspects as well as social aspects. Due to the fact that especially the urban transformation areas are the regions where our citizens with low income live, the opportunity of the right holders living in the region to reach financing is low, financing techniques that can be used by right holders and used for social housing financing in examples of developed countries will be introduced. Specially the UK social housing financing methods which gathered under an umbrella concept Help to Buy will be introduced and under this umbrella which named the Shared Ownership will be introduced to solve the right holders finance problem (The Housing, 2009).

In complex construction projects such as urban regeneration, it is vital that relations are transparent and traceable by stakeholders. Again, in multi-stakeholder projects such as urban regeneration, it is vital that payment and legal relations are on time and in accordance with the provisions of the contract. In this context, blockchain, smart contracts and regulation technologies will be introduced and integrated with financing methods in this thesis in order to ensure that the relations are transparent, traceable and lawful in financing solutions covering all stakeholders (Szabo, 1997).

Today, the transition from central systems to distributed-centered systems has begun. The technology of these systems is combined under the name of distributed ledger technologies. Although there are many products of the technology called DTL in short, the most well-known is the Blockchain application (Nakamoto, 2008). Blockchain application, which is a method of data transfer and storage of the transferred data, has gained its place in the financial world because it does not need a management center and it acts on the principle of sharing the data transparently among stakeholders. In the relevant part of the thesis, this technology and its sub-products will be introduced and its use will be examined in terms of multi-stakeholder projects such as urban regeneration.

The concepts of resilience and resilience economy, the importance of which is much better understood worldwide, especially with the pandemic, green economy and

ecological finance, which has increased in importance with global warming and climate change, digital economy and crypto finance, which have become indispensable as a result of technological developments, the concepts of sharing economy and financing, which are frequently mentioned with the decrease of resources throughout the world, will be examined in terms of infrastructure and urban regeneration financing and the ecosystem of infrastructure and urban transformation financing will be defined together with the stakeholder relations that are defined separately. With all these ecosystems and financing instruments, infrastructure and urban regeneration financing model specific to Türkiye will be presented.

Due to the growth model chosen in the past and the current account deficit due to the global economic dynamics experienced in recent years in Türkiye, care was taken to select the financial instruments selected in the model among those with low potential to create a current account deficit.

Due to the fact that the concept of urban regeneration is a new concept for Türkiye and there are frequent changes in our legislation. Since it is vital that these changes are reflected quickly and in a timely manner in construction projects such as infrastructure and urban regeneration, it was deemed appropriate to integrate regulative technologies (Reg-Tech) in the financing model.

What was once a dream is now positioned just a click away with reached technology. Technological developments have spread from the simplest to the most complex jobs, and it has become almost impossible to do business without these developments. In the relevant chapter of the thesis, these technological developments will be mentioned, and concepts such as Industry 4.0, Society 5.0, which have given birth to these developments from time to time, and which have emerged with these developments from time to time will be introduced, and fintech in terms of financing, PropTech in real estate, Regtech in terms of law and regulations will be introduced and integration in terms of financing urban regeneration will be examined.

Especially the damage caused to the world by the consumption frenzy after 1970 has left us alone with environmental disasters and epidemics today. In order to restore the balance of the deteriorating nature and at least not to make it worse, every work should be done within the boundaries of the green economy. In the relevant chapter

of the thesis, concepts such as ecological economy and circular economy, which are adopted in developed countries, will be introduced, and the use of these concepts in terms of financing urban regeneration will be examined by mentioning the sub-topics of ecological financing (Ackerman, 2010).

The time we live in is a time in which risks and returns are very great. Projects to be undertaken without sharing and sharing economy principles will have many problems, both in terms of financing and technical aspects.

It is no longer possible to finance large projects such as urban regeneration without a sharing economy. Since the sharing economy is a model in which the risks and returns that are away from the sense of individuality brought by neoliberal economies are taken together by stakeholders, it should be discussed that it is used in the funding of projects that require great financing such as urban regeneration. In the relevant chapter of the thesis, sharing economy will be introduced, shared financing techniques specific to sharing economy will be mentioned and its use in terms of financing urban regeneration projects will be examined.

The Shared Ownership Model which is used in UK to fund social housing projects will be introduced and proposed to fund the most important stakeholder of the projects, right holder. The urban regeneration projects which should be considered integrated with its infrastructure as in developed countries. During the thesis the projects will be mentioned urban infrastructure and urban regeneration projects as stated in the name of responsible directorate which is named in 2011 "*Urban Infrastructure and Urban Regeneration General Directorate*". The model will be proposed in an ecosystem which defines the framework of the funding activities through urban infrastructure and urban regeneration projects, then the result and discussion and conclusion sections will be presented and the thesis will be concluded.

## CHAPTER II

### LITERATURE SURVEY

The Barcelona urban regeneration project is evaluated by Teresa Graziano and Lluís Frago Clots in 2021. The Poblenau region semi central district Project is an test Project for city. Its main drivers are green city programme. Their research on this area is focused on sustainable urban regeneration. Green public spaces, parks and pedestrianised areas obviously result in increasing urban biodiversity and liveability by reducing air pollution and mortality and offering new opportunities for socialisation and interaction in a growingly urbanised World (Graziano and Clots, 2021).

The Netherlands, Kop Van Zuid Port urban regeneration project with its infrastructure is studied by Ümran Köksüz and İbrahim Baz in 2019. Kop Van Zuid is the old port district of Netherlands which was not attractive for private companies to invest. By aiming to attract private companies the public institutions are invited to establish their headquarters at this region. Also hybrid projects are constructed with the bridge which puts together both sides of the Rotterdam city (Köksüz and Baz, 2019).

The successful examples of urban regeneration projects from worldwide such as Japanese, Lebanon and Brasil is studied by Ahmet Hamdi Aydın and Ömer Çamur in 2016. They have studied Hiroshima Danbara, Beirut Solidere and Rio de Janeiro projects. They have made a brief explanation for these there projects. The main drivers of the projects and socio cultural links are also studied (Aydın and Çamur, 2016).

Hamburg urban regeneration projects are studied by Cem Atakara in 2021. The Hafencity Project is an urban transformation project designed to integrate the out-of-use old port area of the city of Hamburg into the city center. The Hafencity Project is

a port area Project in Hamburg. Wilhelmsburg, is a neighborhood where the people working in this old port area chose to stay due to its location close to the port. The main drivers and planning processes explained by Atakara. These transformation projects in the city of Hamburg were examined on-site, public buildings, social facilities and exhibitions were visited, and people's usage habits of the area were observed (Atakara, 2021).

The key stake holders and operation processes in Iranian regeneration is studied by Arman Mirzakhani, Mateu Turro and Samaneh Jaliliasdrabad in 2021. They have studied the political eras and the affects of these eras on regeneration urbanism. They have presented the urban regeneratio cycle of Iran. Thay categorized the responsible bodies and stake holders of Iran and stated the links between them (Mirzakhani, Turro and Samaneh, 2021).

German cities regeneration funding programs is studied by Ralf Zabel and Youngsang Kwon in 2021. They have presented the federal programs on regeneration and made critics on these programs. Main critics are, the complexity of the programs, plurality of the programs, duration of the permission process, administrative workload (Zabel and Youngsang,2021).

Paticipatory budgets in Poland's regeneration is studied by Dorota Kamrowska Zaluska in 2016. Zaluska has explanined the participatory budgets as financial fund for regeneration in Poland. She has evaluated the budgets in Gdansk. The budgets make a sigificant contrubution in regeneration processes. Participatory budget is an important instrument not only because it helped to finance several noteworthy projects, but also it has a significant role in promoting public awareness (Zaluska, 2016).

Chinese experience in Shangai's water front regeneration is studied by Yawei Chen in 2021. Project divided in zones, Lujiazui Financial and Trade Zone, The 2010 World Expo site development, Xuhui West Bund and Yangpu waterfront redevelopment. Municipality organisation, private investment and commercial banks are used to finance the Project. These funds are gathered in a pool fund and divided into special funds in order to use for Project development, infrastructure projects and other projects. Bonds, stock market shares, tax deductions, PPP, state funds and special economic zones are used to finance the zones (Chen, 2021).

Financing for Denmark Copenhagen Port Regeneration and Infrastructure Project by Public asset Corporation which is an institution to manage the urban facilities, proposed as an alternative financial instrument by Louise Noring in 2019. Noring made a general perspective for PAC and presented the usage of PAC in Denmark Copenhagen urban infrastructure and urban regeneration Project with tools of value capture and PPP. She gave a perspective of the usage of an institution as a financial tool (Noring, 2019).

Land based financial instruments such as Value Capture is studied by George E. Peterson in 2008. Peterson presented as an urban infrastructure funding instrument Value Capture method and he also given some examples from developing countries such as Egypt, South Africa, India, Türkiye and Colombia. Turkish example is of land based finance is sale of old municipal bus station and former administrative site. He criticized the land based finance. His criticisms are; urban land markets are volatile, and recent transactions may reflect a land asset bubble, land sales often lack transparency and accountability, government authorities may be tempted to use restrictive zoning to drive up land values or abuse developer (Peterson, 2008).

The financialization of urban development projects, concepts, processes, and implications is studied by Antoine Guironnet and Ludovic Halbert in 2014. They suggest ways for strategies, expectations, and representations are circulated towards and among other key actors of UDPs, such as developers, planners, and local authorities. First, the production of market representations on which local planners and developers rely to implement UDPs. Second, the tailoring of buildings that qualify as 'tradable income-yielding assets' by property developers. Third, the larger evolution of land planning and development paves the way for the dissemination of finance capital investors' requirements among key actors of UDPs (Guironnet and Halbert, 2014).

Land value capture method as a financial instrument for urban regeneration towards sustainable development is studied by Joy O. Obadoba, Adams Ndalai Baba and Zubair Ahmed in 2009. They have presented Development-Based Land Value Capture (DBLVC) financing schemes being practiced in Asian mega cities like Tokyo and Hong Kong have helped them not only to generate funds for transit investment, operational and maintenance costs. Finding is if adapted to local

contexts, DBLVC have great potential to become an important strategic apparatus of urban regeneration, finance and planning for cities in Nigeria (Obadoba, Ndalai Baba and Ahmed, 2009).

Smart sustainable urban regeneration is a concept presented by Simon Huston, Reyhaneh Rahimzad and Ali Parsa in 2015. They have studied the concept of smart sustainable urban regeneration. This framework has three dimensions, first a common vision second partnership management and third finance. Finance part includes some critics and recommendations such as weak fiscal tax regimes, spatial betterment inflates contiguous house prices but cash-handed commercial payback models fail to police or capture public realm uplifts or logistics benefits. Without commensurate taxation of property capital gains, regeneration is regressive unless projects deliberately target deprived locales. In fluctuating markets, an effective partnership between the public and private sector strengthens the commercial success of targeted projects (Huston, Rahimzad and Parsa, 2015).

Government interference studied by using value capture vehicles and PPP applications for financing of urban regeneration projects by Neslihan Koç in 2018. Koç proposed real estate certificates in accordance with government interference. She also recommended to establish a strong legal basis to avoid speculations (Koç, 2018).

Real estate certificates and lease certificates as a financial tool for urban regeneration projects recommended by Niyazi Erdoğan in 2013. Erdoğan proposed real estate certificates financing urban regeneration projects with alternative instrument lease certificates. He proposed to establish a large based secondary financial markets for these kinds of instruments in order to increase contribution (Erdoğan, 2013).

Classical financial instruments such as government supports and innovative financial instruments such as transfer of development rights proposed to finance urban regeneration projects by Başak Tanınmış and Timuçin Yücememiş in 2021. They have also made a survey with stakeholders. According to the findings obtained, while 62% of the institutions implementing urban transformation practice faced difficulties in obtaining financing, at least one of the urban transformation projects initiated by 56% in the last five years was interrupted because the necessary financing could not be obtained (Tanınmış and Yücememiş, 2021).

Real estate certificates as a financial instrument for urban regeneration projects proposed by Ayça Doğaner and Zekai Özdemir in 2017. They made a general view for urban regeneration in Türkiye and declared the problems and also proposed a model for urban regeneration by using the real estate certificates in order to ease the financial problem and ensure participation (Doğaner, Özdemir, 2017).

Transfer of Development Rights as a financial instrument by securitisation methods is studied by Faruk Göksu in 2003. Göksu has presented TDR instrument and also presented the conceptual terms of urban regeneration. Göksu examined the projects Portakal Çiçeği Vadisi and Dikmen Vadisi in order to categorize the concepts. He has sub categorized the certificates which are linked with property rights such as real estate certificates and TDR certificates (Göksu, 2003).

Urban regeneration projects example and examples from Türkiye given by Müge Özkul in 2017. Özkul made a global and local perspective for urban regeneration projects and also presented some financial methods such as TDR and real estate certificates. Özkul has also presented some international institutions in order to use as a financial fund supplier such as World Bank, EIB and EBRD (Özkul 2017).

Value capture method as a financial instrument for urban regeneration projects is studied by Sezen Tarakçı and Şevkiye Şence Türk in 2020. They have given a wide perspective for value capture method and also they have presented a case study from Türkiye Fikirtepe urban regeneration project. They have studied value capture method by using plan notes. The value capture practice in Fikirtepe was performed by depending solely on plan notes without adopting a holistic value capture policy. In the plan notes, the public value capture tools were identified as infrastructure participation fees and land contributions. Moreover, the findings of the study illustrate that public value captured only by means of plan notes is not sufficient and leads to uncertainties in the process. These uncertainties translate into increased economic risks in the project (Tarakçı and Türk, 2020).

Climate finance and green financial instruments is studied by Seda Canikli in 2022. Canikli has presented the climate finance in words of World Bank and she has presented the alternatives of green financial instruments. These instruments are green bonds, green credits and social bonds. She also made a view of Turkish green financial markets and after Covid affects on markets (Canikli, 2022).

Real estate certificates are studied evaluated by Salih Ülev, Fatih Savaşan and Mervan Selçuk in 2017. They have studied these certificates from perspective of Islamic economies. They have made the explanation of real estate certificates and they have explained issuing the process of the certificates. They have also presented the terms of a real estate certificate such as such as the commencement days, penalties and maturity. The study also criticize bonds from risks such as market risk, political risks and issuer risks (Ülev, Savaşan and Selçuk, 2017).

Land for flat procedure and its varieties are explained in study of Özgür Çatıkkaş and Mehmet Deniz Yener in 2017. They have made the explanations and the terms of land for flat procedure. They have also explained the taxation of this procedure. In this study the legal dimension of the land for flat procedure is presented (Çatıkkaş and Yener, 2017).

Urban regeneration projects of Altındağ Municipality made under contracts of land for flat procedure. This case is studied by Mahmut Güler and Can Giray Özgül in 2020. They have studied land for flat procedure by its legal and technical terms. They have made a brief explanation for urban regeneration both in World and Türkiye. Specially they have studied Altındağ Municipality Project as a case study. They criticize the possible political affects, lack of governmental land properties and lack of qualified staff of municipalities to undeal the management of projects (Güler and Özgül, 2020).

Analysing blokchain affect on asset based finance is studied by Ömer Faruk Kaya, Vahit Ferhan Benli, Feyzullah Yetgin in 2020. They have analysed blockchain usage on real estate certificates. The integration of real estate funding certificates with blockchain analysed and they have situated the need of coordance with General Directorate of Land Registry and Cadastre in order to maket he records under blockchain (Kaya, Benli and Yetgin, 2020).

The usage of Smart Contracts in construction industry in order to avoid mis payments, failure payments and payment refusels is studied by S. Ahmadiheykhsarmast, R. Sonmez in 2018. By setting conditions in smart contracts applicaitons the payment processes will be automated and avoided from failure (Ahmadiheykhsarmast, Sönmez, 2018).

Usage of blockchain technology in construction industry studied by Alican Kandiye in 2020. Kandiye gave a large literature info about blockchain and made a SWOT analysis in order to evaluate strenghts and weakness of the technology in use of construction industry. He also proposed a usage of technology in accordance with BIM and IoT applications (Kandiye, 2020).

Stakeholders' perspective on blockchain and smart contracts solutions for construction supply chains is studied by Samudaya Nanayakkara, Srinath Perera, Sepani Senaratne in 2019. They have made a survey with stakeholders of the industry in order to evaluate the usage of blockchain and smart contracts in construction industry. The key findings of the data analysis highlighted efficiency, trust, fair, security, transparent, accountability, compliance and standardisation were highlighted as the stakeholders' primary perspective on blockchain and smart contracts based solutions for the construction supply chain (Nayakkara, Perera and Senaratne, 2019).

Sharing economy is the main driver of modern economy. Osman Çevik and Esra Uyar studied sharing economy from consumer perspective and they have presented the concept of sharing economy and its brief explanation in the study in 2021 aswell. Their findings are the increasing potential of sharing economy and faint behave of the consumers on some sectors such as house and travel sharing (Çevik and Uyar, 2021).

Sharing economies sub branches and industrial applications is studied by Merve Çelik Varol in 2020. Varol has presented the main driver sectors of sharing economy such as social hubs, property swap platforms, office sharing, ride sharing and crowd funding applications (Varol, 2020).

Industry 4.0 which is the new explanation of the last era of industry and its concept is studied by Yusuf Esmer and Mehmet Asif Alan in 2020. They have made the brief explanation and history of the industrial revolution. And the clasification of industry 1.0 to 4.0. they have alos made the explanation of main drivers of Industry 4.0 such as expanded reality, internet of things, siber security, big data and cloud informatics (Esmer and Alan, 2020).

Initial Coin Offering which is the main funding option via block chain in terms of crowd funding. Initial coin offering (ICO) method in the financing of entrepreneurship is studied by Melih Safa Yavuz and Mehmetcan Suyadal in 2020. They briefly explained the crowd funding concept and use in ICO process. They have studied ICO in start up and fintech perspective. They have put the advantages and disadvantages of the method. The high participation opportunity is the main advantage. And on the other hand they criticize it about lack of trust and regulation weaknesses (Yavuz and Suyadal, 2020).

Security token offering (STO) is another type of crowd funding method which consists of estate and real estate asset based values such as stock certificate, bond, house shares or car shares. Zeynep Küçükkıralı and Kerim Eser Afşar studied STO in block chain technologies and they have explained the concepts and process of the instruments on block chain such as NFT, ICO and STO (Küçükkıralı and Afşar, 2022).

## **CHAPTER III**

### **SUSTAINABLE DEVELOPMENT**

"Sustainable development", which is a development model based on meeting the needs of today's generations without stealing from the resources of future generations, was put into practice globally with the international treaties signed in the 1990s. Sustainable development has determined the main idea in the development goals of countries as "sustainability". The goal, which plans not only the present but also the future, tries to preserve the opportunities for the future as well as meeting the basic needs of everyone. It is essential to plan and implement without consuming the resources of the future in order to meet today's needs. Past experience better emphasizes the importance of this approach because after 1970, rapid growth stole the present from its sources and left us with many environmental, economic and social problems that we face today. One of the most important practices to ensure sustainable development is the increasing trade and growth practices in our globalizing world as a result of the whole world becoming a common market (Ay, 2017).

#### **3.1. Linear and Circular Economy**

The fact that the world population is increasing rapidly and resources are not increasing at the same rate have justified Malthus and, as Gregory Clark said, causes the world to fall into the Malthusian Trap economically (Clark, 2013).

To roughly define, linear economy is an economic production model, which is an economic model that we can call a disposable economy that accelerated after the 1970s and increased in volume, that accepts raw materials as unlimited, that is, a product is produced and discarded after the end of its economic life, that is, it is considered as waste (Bianco, 2018).

The circular economy, on the other hand, is an economy model that accepts that resources are limited and scarce, and that after the end of its economic life, the

product can be recycled once or several times before it becomes waste, that adopts designing tools that enable it to be repaired, not thrown away when it breaks down, and that aims to eliminate possible waste and possible waste when the cycle is completed, in a way that will not pollute the environment. In fact, the circular economy is an economy model where the producer and the consumer share the responsibility together. What is meant here is that consumers use the products in a way that is suitable for recycling within the framework of certain criteria. The circular economy will undoubtedly bring about changes in business models. It is like, consumers can get a discount on a new product if they do not throw away a product after using it and return it to the manufacturer, or some products come out of the product range and enter the service range. For example, the consumer receives lighting services instead of buying light bulbs or similar lighting equipment, and the service providers make a service contract for a certain period of time by providing the necessary infrastructure and spare materials themselves. Or, tending towards leasing instead of purchasing (Bonciu, 2014).

### **3.2. Ecological Growth and Ecological Economy**

The economic crises, social and ecological problems that our world has been experiencing in recent years have made the concept of sustainable development even more important and the ecological and green ones of every sector and application have become debatable. The most important ones for us are green growth and green economy. International organizations define these two concepts as the primary support of goods and services that do not harm the environment and even contribute. Thus, as the environmental footprints of the companies producing under this definition make a contribution to the environment, social footprints also have a positive impact on the employment market and society. When the environmental footprints and social footprints are more clearly defined as the support to be made to value-added companies, the inertia that will arise for this transition will also decrease. The European Union argues that the green economy is closely related to sustainable production, consumption, energy efficiency and the use of renewable energy and the creation of new job opportunities and increasing human welfare. Nevertheless, since there is no clear definition on green economy and growth, there are partial and subjective definitions and practices on the basis of countries and unions (Ackerman, 2010).

### **3.3. Resilience**

It is a scientific term first introduced into English by Frances Bacon in the 17th century and describes the characteristics of an object returning to its original state after some form of pressure. Over time, the term has begun to be used in the fields of material science and psychology. Recently, it has been addressed in relation to the impact of natural and human-induced hazards on health, infrastructure, social systems (such as "community"), environmental and ecological systems and geographical or spatial distributions such as human settlements. The term “disaster” in the context of the term “resilience”, which was adapted to the urban context by the United Nations Office for Disaster Risk Reduction (UNDRR) in 2016, includes the meaning of “all disasters” (Galantini, 2019).

This “all disasters” approach constitutes all of the human-induced issues, such as mass migration, conflict, economic pressure or shocks, technical hazards and social crises, in addition to slow or rapid, “natural” or earth-related disasters.

In the 1970s and beyond, urban growth based on the real estate economy created huge, sprawling cities that swept away rural lands and are today completely unsustainable. Surviving and prosperous cities continued their urbanization process by constantly investing in their development. These investments improve the built environment and further strengthen their economy. Disasters and raids can occur in all cities. However, cities that better manage risk and have a clear strategy for development based on the principle of resilience are more competitive in attracting capital for financing urban development. Today, there are many aids available to ensure resilience. Aids often focus on technical assistance, except for direct capital aid for housing, infrastructure and public facilities in cities and towns that have been devastated or damaged by disasters or war. The World Bank Group, including investment banks and Regional Development Banks, offers a variety of products, technical support, grants, insurance products and low-interest loans. For example, the International Bank for Reconstruction and Development (IBRD) can provide the “The Development Policy Loan with a Catastrophe Deferred Drawdown Option”, which is a type of loan that can be used immediately after critical events/disasters (Campanella and Goldschalk, 2012).

These aids, which generally aim to cover losses caused by pandemics, epidemics, events that affect life by causing illness and death, and meteorological and geological disasters, include Disaster Policies, Disaster Risk Insurance and its derivatives.

The World Bank-funded Global Facility for Disaster Reduction and Recovery (GFDRR) within the Climate Change Solution Areas (CCSA) brings together development partners. The Disaster Risk Financing and Insurance Program (DRFIP) under the Finance and Markets Global Practices manages dialogue with relevant actors on the financial implications of natural disaster risks and helps countries design and implement comprehensive disaster risk financing strategies. Climate change funds also provide financing support for this purpose. Funds flow through multilateral channels, both within and outside the financial mechanisms of the UNFCCC (United Nations Framework Convention on Climate Change) and the Paris Agreement, and increasingly through bilateral and regional and national climate change channels and funds (Canikli, 2022).

### **3.4. Ecological Financing**

Green financing is the provision of opportunities and subsidies to both public and private banks and financial institutions for the implementation and use of products, services and projects that do not harm the environment, even if they do, do the least harm compared to their peers and even benefit the environment. What is meant by subsidies and opportunities is to offer lower resource utilization costs, to keep service fees low or to provide aid to environmental organizations and non-governmental organizations as a prerequisite. The aid here is two-way aid made by both the funding and the funded institutions. Today, due to being specialized in finance and financing of trade through financial instruments and institutions rather than equity capital, that is, financial leverage ratios are high, green finance is one of the most important issues of sustainable development (UN, 2007).

**Ecological financial instruments**, if the financial sector is examined with its main items, these consist of retail banking, which provides services to real persons who are the direct end users, corporate banking services to legal entities, asset management and insurance services, which are the management and administration services of both real and financial assets, insurance service will not be mentioned because it is out of the primary subject of this thesis. Green instruments and applications used for

individual banking can be classified as mortgage housing loan, commercial building loan and asset secured loan, these instruments will be defined below.

**Mortgage Housing Loan**, 1% interest discount is made for buildings that can meet ecological criteria. Free energy rating and carbon emission reduction support can be provided to homes for each year of the loan. It can benefit from this loan facility, provided that it meets the criteria for the houses already purchased with credit, regardless of new or old. In some foreign examples, credit facilities are provided to strengthen the use of green energy on a domestic basis. Again, in order to encourage such houses, there are discounts in insurance transactions, especially in insurance related to the building (Inderst, Kaminker and Stewart, 2012).

**Commercial Building Loan**, high rates of interest deductions occur when commercial buildings provide energy savings with the materials and other applications used. There are overseas applications where these discounts reach twenty-five percent. There are internationally accepted green building certificate applications for residential and commercial buildings (Kuloğlu, 2015).

**Asset Secured Loan**, the financing of solar energy plants has often started to be done with this method. Term can be extended up to 25 years, which is the economic life of the solar power plant, and maturity adjustments can be made for other green energy, wind energy and wave energy facilities within the framework of certain criteria. On the other hand, financial institutions provide aid to environmental social responsibility projects and organizations on behalf of the companies using these loans (UN and DBS, 2017).

When examining the corporate banking sector, there are project finance, partial loan guarantees, securitization and bond applications available. These instruments will be introduced below in general.

**Project Financing**, in parallel with the feasibility of green financing, specialized departments have been established within the bank for green financing and even for some special green financing products and sectors. Green energy facilities such as solar and wind wave can be given as examples to these sectors. Again, within the scope of this project financing, the advantage of maturity is utilized with the Project

financing method specific for biogas and solid waste management facilities for local governments (Inderst, Kaminker and Stewart, 2012).

The project financing technique, which is the subject here, is a separate concept from the financing of the project, and its conventional form will be explained in the following chapters of the thesis.

**Securitization**, will be explained as a concept in the next chapters of the thesis, where securitization is referred to as a special green economy, and it is desired to emphasize that many financing instruments can be made green according to the purpose. In ecological securitization, the suitability of financing to natural infrastructure is tested. In securitization, the risk is eliminated according to the project characteristics and guarantees are provided. Government guarantees or insurance may be involved from time to time in securitization of the asset that provides green financing conditions.

**Bond**, applications are included in green finance as disaster, forest and climate bonds. Catastrophic bonds, in a sense, provide support for catastrophe natural disaster risks and offer extra income for the investor in the portfolio. On the other hand, forest bonds were first designed in the form of 25-year insured long bonds issued on the basis of the Panama Canal and were considered as an investment tool for reinsurance companies. With the deterioration of the ecological balance, seasons, also known as climate bonds, have come to the fore and projects with low carbon emissions are used for financing investments and green energy, green-based large construction projects and ecological infrastructure projects constitute investment areas (Karim, 2021).

Asset management is another subject of green financing and is a main sub-branch of the financial services sector. The green applications of this field will be introduced below.

**Green Public Fund**, if the shares of this fund used in European countries are purchased, low interest is obtained for tax reduction and investments.

**Investment Funds**, are funds that invest in projects in the field of access to clean water, which has social and environmental priorities, and prioritize organic food. On the other hand, they allocate a certain amount of funds to support ecological

inventions. The future energy fund, which is also another fund, is a fund that works in green energy and energy efficiency applications.

**Catastrophe Bond Funds**, targeting disasters caused by climate changes are applied throughout Europe. Catastrophe funds, which are a public-based fund, are planned to protect the risks of environmental disasters unlike conventional insurance (Mariani and Amoruso, 2016).

### **3.5. Classical Development Approach**

For centuries, scientists and philosophers have examined the factors affecting the concept of economic and social development and reached some conclusions with the conditions of the period. These findings, which are sometimes rejected by today's scientists and philosophers, are briefly mentioned below.

**Geography / Climate Factor**, which associates development with geography, is one of the most important development theories on earth. This theory argues that the civilizations established in regions that are not suitable for agriculture cannot make rapid progress in terms of development. Another development theory to be considered in parallel with geography is climate theory. This theory argues that civilizations in the hot climate zone will be more prone to laziness due to weather conditions and therefore will fall behind in the development race (Sachs, 2006).

We see that this development theory is refuted by Aztec, Inca and Maya civilizations established in South America, Angkor in Cambodia, Aksum in Ethiopia, Vijayanagara in South India and Indus civilizations in Pakistan, where are hot and relatively unsuitable for agriculture in terms of geography.

**Culture impact**, that relates development to cultural development, Max Weber, associating wealth with culture, cites Western Europe as an example and argues that the main reason for this development is the religious reform movement and the ethical values of Protestantism. The level of development of Catholic France and other Western European countries and non-protestant Asian countries such as China, Hong Kong and Singapore also refutes this approach (Weber, 2002).

**Ignorance affect**, which argues that another factor underlying the failure to develop is ignorance, examines that the leaders of the underdeveloped countries are weak in

developing their countries because of their ignorance, and that they do not develop because of these ignorant leaders. The Pol Pot government, which governs Cambodia, actually contradicts the relationship of ignorance with development, when a leader who received high-level education in the best schools in Europe sentenced professors who were experts in their fields to death in rice fields (Robbins, 1935).

**Criticism of classical development approach**, has been made by many scientists today. While the critical view of Prof. Dr. Daron Acemoğlu and Prof. Dr. James Robinson will be included here, the concepts they presented against this criticism will be briefly mentioned.

**Institutions**, Daron Acemoğlu and Nobel Prize-winning economist James A. Robinson argues that the classical development model is invalid, and instead, they state that economic development will only be through institutions and present the institution-based development model.

Samuel Huntington defines the institution as "a stable, valued, repetitive behavior". According to Samuel Huntington, "The more flexible, complex, independent and unified the institutions that make up the state, the more developed it is. Institutionalization is a set of established rules and behaviors that exist beyond the people who govern them at any given time".

Daron Acemoğlu and James Robinson say institutions that pave the way for or block economic development by the classical economic development model and they divide it into inclusive and exclusionary economic institutions. "The inclusive economic" institution is an institution that strengthens property rights, provides equal conditions, encourages investment in new technologies and skills, is suitable for creating economic growth and has the power to provide a certain amount of political centralization in the name of ensuring law and order, securing property rights and the inclusive market economy. Exclusionary economic institutions are based on the exploitation of the resources owned by the majority by certain individuals or small groups. These institutions are incapable of protecting property rights and promoting economic activity. It is exclusionary political institutions that enable a small group of political power to perpetuate the order in which it exploits economic institutions and resources" (Acemoğlu, 2013).

**Property**, while communist thought completely rejects private property, liberal thought argues that the primary duty of the state is to protect the individual's property right. According to neo-classical economists, strong property rights are the source of long-term economic development.

Rousseau asserts that "injustice began with the first man who, having enclosed a piece of ground, bethought himself of saying, this is mine". The absence of private property before agriculture started is parallel to people's living with the nomadic family order.

Nicola Machiavelli said, "There are two different types of government in our time. One is Turkish, the other is the kingdom of France. The entire Turkish Monarchy is ruled by a single king; everyone else is his servant. He divides the kingdom into banners and appoints or dismisses each one of them. Whereas the king of France sits in the midst of many privileged lords and cannot touch them without putting himself in danger. Someone who wants to seize the Turkish state will have a hard time achieving this, but once he has it, he can easily rule it. On the contrary, it will be easy to take over the French state, but it will be difficult to keep in in reserve." The Ottoman provincial administration system was known as dirlik (well-being). In the system consisting of the Sipahis, the timar order was applied. In the dirlik system, which has a hierarchical structure as has, zeamet and timar, the smallest timar (fief) consisted of a village or villages with tax incomes sufficient to maintain a sipahi with his horse and equipment. Zeamet meant land given to mid-level officers and Has meant land given to the highest ranks (Fukuyama, 1989).

The difference between the Dirlik system applied in the Ottoman Empire and the feudal system applied in Europe is that the timars are not subject to private ownership and are not transferred through heritage as in Europe. Thus, the Ottoman Empire limited the concept of nobility to a single generation and prevented the rise of a strong class of nobles against the administration (Fukuyama, 1989).

### **3.6. Property Finance Relationship**

Thomas Piketty, in his book *Capital in the Twenty-First Century*, makes the following definitions while explaining wealth and capital. "Wealth consists of two sources. One is the way of inheritance and the other is the wealth provided by

earning income. Income consists of two sources, income obtained through labor and income obtained through capital. While income from labor is income such as wages, salaries and bonuses, income from capital can be classified as income from rent, interest, profit, capital gains and land, real estate, financial instruments and similar sources. Wealth obtained with one of the income sources can be spent or saved. Wealth can be used either to cover living expenses or to reinvest capital” (Piketty and Zuckman, 2014).

Thomas Piketty examined capital distributions in countries such as the United Kingdom, the United States, France and the United Kingdom. In Picetty's study, we see that the capital attached to the real estate is very significant. On the other hand, since the mentioned countries are developed countries, it is obvious that they securitized these real estates and added them to the financial markets. The study that best describes the situation in developing or underdeveloped countries is Hernando De Soto Polar's *The Mystery of Capital*. Hernando De Soto Polar tells us what kind of a financial figure property actually is, by saying, *"The way of wealth is through the poor."* 70 percent of the loans used by new business starters in the United States are given in return for a mortgage placed on official title deeds (De Soto Polar, 2017).

**Dead Capital**, the sections called Favela in Brazil, Bidonville in Haiti, Barong Barong in Philippines, "Slums" in Türkiye is actually a way to reach finance. The said capital is around USD 132.9 billion in the Philippines, USD 74.2 billion in Peru, USD 5.2 billion in Haiti and USD 241.2 billion in Egypt, and in total, it is estimated to be USD 9.3 trillion in Third World Countries and former communist regime countries. De Soto states that this amount amounts to 2 times the dollar in circulation as of 2005, equal to the value of companies registered in ten of the twenty major developed countries' stock exchanges, New York, Tokyo, London, Frankfurt, Toronto, Paris, Milan, NASDAQ and others, 20 times the total aid given to third world and former communist countries between 1989-1999, 46 times all the debts the World Bank has given in the last thirty years, 93 times the total aid that all developed countries have given to the world in the last thirty years (De Soto Polar, 2017)

## CHAPTER IV

### URBAN INFRASTRUCTURE AND URBAN REGENERATION

#### 4.1. Urban Infrastructure

The concept of urban infrastructure is considered as an expression of a whole which is consist of planning and management of services, construction, operation, maintenance and renewal of the necessary facilities and network sof healthy drinking water and distribution, waste water and sewage, solid waste collection, recycling and treatment, urban transportation, energy distribution, communication. Due to the fact that beyond renewal of the existing buildings, regeneration should be considered in an integrated approach conducted with its infrastructure.

During the reproduction of urban areas, infrastructure should also be handled in a sustainable framework and in this context, innovations and technologies that overlap with social, environmental and economic sustainability should be used. Many elements such as the design of the transportation infrastructure in a public transport oriented and environmentally friendly way, the construction of the necessary systems for wastewater and solid waste collection and recycling, the use of smart grids, and the use of renewable energy in outdoor lighting can be included in this.

One of the innovations in the field of urban infrastructure, which has been put forward for environmental, social and economic sustainability, is smart grids. Smart grids simply mean the integration of computer technologies with existing grids. One of the great advantages of smart grids is that they provide more integration opportunities with renewable energy technologies, which attract more attention and investment in terms of sustainability, compared to existing networks (Tozak, Taşkın and Yıldırım, 2019).

In addition, smart grids ensure that both energy distribution and production are more efficient with real-time tracking systems and that the distributor has the opportunity

to intervene by seeing the malfunctions and failures in the system instantly. Providing such infrastructures will be more attractive for new users who will choose a place in this field (Jeffrey and Pounder, 2000).

Public institutions and organizations have a great responsibility in making investments in sustainability and realizing exemplary practices. In the process of rebuilding urban areas and redesigning them within the framework of sustainability, it is necessary to design services such as open-air area and street lighting, traffic lighting and signaling systems, billboards with more efficient energy-consuming systems, to follow new technologies in the field of engineering and to benefit from renewable energy resources. 80% energy saving has been achieved with the use of motion-sensitive LED lighting elements and wireless communication that allows connection between lighting elements applied on the Dutch Delft University Campus (Kandaloğlu, 2012).

Another means of ensuring energy efficiency in illumination and lighting services in public areas is the use of renewable energy sources. Today, in addition to countries that benefit from sunlight most of the year, even in the northern countries that benefit less from sunlight throughout the year, solar-powered street lighting systems can be used (Oğuz, Şahin and Güven, 2015).

Another infrastructure element in ensuring sustainability in the restructuring process of urban areas is the production of engineering solutions that will enable the recycling and use of wastewater and rainwater. With the recycling technologies developed in recent years, some of the wastewater can also be used for domestic use and irrigation of green areas. The waters used in the kitchens and bathrooms of the houses, called gray water, can be used in showers, toilet reservoirs, washing machines, car washing, cleaning and watering of green areas after certain processes. Thus, water consumption will be significantly reduced by preventing the use of drinking water in these areas. In addition to domestic reuse, the infrastructure needs to be designed in this direction and solved before the reconstruction of urban areas in order to allow the use of gray water in the irrigation of public green areas (Kandaloğlu, 2012).

## 4.2. Urban Regeneration

It is seen that the concept of urban transformation first appeared as a general expression of the studies carried out to renovate and rehabilitate the economic and social depression regions that emerged as a result of the industrial revolution that started in the 18th century, that it is applied as the development of projects that will contribute to the city in a positive way economically in residential and industrial areas where the population density of the city has decreased or low income groups live in bad conditions (Ataöv and Osmay, 2007: 58).

According to Roberts (2000), the main purpose of urban regeneration is to examine the social problems that lead to physical collapse and deterioration as well as the physical improvement of cities and to investigate the causes of social deterioration. It is seen that studies on urban regeneration are applied in different ways in different areas. The main methods used terminologically around the world are as follows.

**Urban renewal** refers to "the re-construction by removing all or part of the buildings in areas where there is no possibility to improve living and health conditions in terms of both settlement order and the condition of existing buildings" (Keleş, 1998),

**Regeneration** refers to the reintegration of these areas into urban life by creating a new and more functional urban texture in urban collapse areas (Özden, 2008),

**Rehabilitation** refers to increasing the adequacy of a low-performing urban area with degraded infrastructure with various additional investments (Tekeli, 2001),

**Revival-revitalization** refers to the transformation of urban areas, which are in the process of collapse, into an urban attraction center as a result of the destruction or replacement of the factors causing the collapse (Özden, 2008),

**Urban conservation** refers to the protection of cultural and natural properties within the framework of legal regulations, the saving of historical settlements from extinction and the integration of this heritage into today's life (Özden, 2008).

### 4.2.1. Urban Regeneration in the World

From the 1800s to 1945 after the Second World War, the main form of intervention against physical and social deterioration in cities in Europe took the form of "Urban

Renewal". After the Industrial Revolution, approaches such as the "Park Movement" and the "Beautiful City Movement" were developed in North America, especially in the second half of the 19th century in Europe. In order to integrate the city and nature, many parks such as Birkenhead Park in Liverpool in 1844, Victoria in London in 1845 and Central Park in New York in 1863 were built (LeGates and Stout, 1998: 491-502).

After the war, the urban policies of the 1940s and 1950s were in the direction of re-planning and restructuring urban functions, restructuring and reorganizing them under the leadership of central and local governments, by eliminating the physical and social deficiencies from the old order. In the new plans, it was aimed to clean the suburbs, great destruction was made in the city centers, and multi-storey housing, office and commercial building blocks were built in these cleaned areas. Apart from these, the "Urban Development" strategy was also implemented and development leaped out of the city center and caused the formation of many suburbs (Akkar, 2006:31).

In the 1960s and 1970s, it is observed that urban regeneration projects were carried out predominantly by using the "Urban Renewal" and "Urban Improvement" methods (Akkar, 2006:31).

The most important feature of the 1980s was the widespread implementation of the "Urban Redevelopment" policy. Examples of projects during this period are Canary Wharf in London, Rotterdam Waterstad and The Cultural Triangle in Rotterdam, Battery Park City and South Street Seaport in New York. In the 1990s, planners mainly carried out studies to use and re-evaluate city centers more efficiently and effectively. These practices have been named as "Urban Renaissance", "Gentrification" and "Urban Regeneration". In these practices, while the aim is to revive urban centers in general, to adapt the historical urban fabric to today's social life, to maintain the old neighborhood culture, the necessity of cooperation between the local and central government and the private sector is emphasized. These practices continued in the 2000s as well (Akkar, 2006:32).

Selected examples of urban infrastructure and urban regeneration projects from the World will be introduced during the following section of the thesis.

#### **4.2.1.1. Spain/Barcelona Example**

22@barcelona emerged in the 1990s as an urban regeneration project of the “Poblenou” region, the old industrial center of the city. The metropolitan plan dated 1976 brought an industrial decision to the area with the decision numbered code 22. The plan, which was updated in 2000, envisages the transformation of the area into modern spaces for activities based on information technologies and intensive knowledge (Graziano and Clols, 2021).

The municipality of Barcelona carried out and financed the project on behalf of the municipality with its private company “22@barcelona s.a”, which it established in 2001. The institution was summarized by the authorities as a network-type organization consisting of "core group" and "expert groups and non-governmental organizations". The core group, which has a certain and limited number of personnel, is responsible for organizing and directing the projects, providing their financing and trying to attract strategic sector companies to the field. The other part of the company, which is called "legal institution", covers the groups participating in studies and surveys from different sectors according to the projects. This category includes the company and the experts deemed necessary for the project in question, non-governmental organizations and the company's own officials or assigned personnel (likewise experts, engineers, etc.).

1992 Olympic revenues are one of the financial resources of the 22@barcelona initiative. In addition, public-private partnership constitutes the main source of finance of the project. Companies that settle in the area are required to invest in new venues that will organize the area. 30% of the infrastructure cost was borne by utility companies and 70% by property owners. In addition, 22@barcelona project aid management unit has provided consultancy services to companies that choose a place in the region or will be moved to the area about the existing public financing opportunities for the strategic projects of the companies (Graziano and Clols, 2021).

"Special infrastructure plan" has been prepared in order to increase the infrastructure quality of the area. The infrastructure plan, which requires an investment of € 180 million, not only increases the efficiency of the system, such as modern energy infrastructure, central air conditioning control and pneumatic waste collection system, fiber optic and telecommunications, service galleries with free access,

increasing and improving public transport, increasing bike paths (29 km), providing adequate parking spaces, mechanisms to reduce noise and environmental pollution, dissemination of wi-fi technology, increasing public areas but also introduces environmentally friendly and sustainable systems. It is aimed that 30% of the infrastructure cost will be covered by public utility companies and 70% by property owners (Kandaloglu, 2012).

#### **4.2.1.2. Germany-Potsdam Square Urban Regeneraion Project**

The country was destroyed during the war and at the end of the war, it was divided into two as east and west. After the reunification of the two Germans, it turned to urban regeneration studies in order to remember the period before the Second World War and to restore the lost values of the spaces. The Potsdam square project is a multidisciplinary, large-scale urban regeneration practice suitable for the pre-war square texture with the influence of the Berlin senate (Demirsoy, 2006).

With the fall of the wall, the vast, flat and frightening Potsdam square, right in the middle of Berlin, was sold to large companies such as Daimler Benz and Sony in order to include the private sector in the transformation project. An urban design competition was opened for Potsdam square and it was aimed to create a metropolitan center with multi-purpose use, living day and night, consisting of shopping units, cultural structures, small workplaces, residential areas and office areas (Zabel and Youngsang,2021).

Urban lands transferred to the private sector within the framework of the project model were animated in accordance with the concept of the opened urban design competition, meanwhile, the public took an active role in the project with the function of guidance and supervision, while professional chambers and non-governmental organizations played an active role in the project as the representative of the public (Demirsoy, 2006).

The project area, which is a public area, has been transferred to the private sector with the organization model in the form of private sector-managed leadership. The world-renowned companies that chose a place in the project area formed the financing of the project.

#### **4.2.1.3. Japan Hiroshima-Danbara City Urban Regeneration Project**

The atomic bomb dropped in the city of Hiroshima on August 6, 1945 killed 140,000 people and destroyed an area of 13 km<sup>2</sup>. The atomic bomb not only killed people, but also damaged transportation and communication facilities, water and sewage systems and buildings in the region. The reconstruction of Hiroshima was discussed within the scope of the restructuring project carried out by the national government. Such a great destruction has left the region facing restructuring and the project, which started in 1945, was completed in 1995 (Boyraz and Hoş, 2014: 50).

The project, which was planned to be completed in 1995, was approved in 1973 and started in 1983. 62% of the buildings were built until the target date. The project was carried out not only by the public, but also with the participation of the private sector and local people. 461 of the buildings were built by the private sector. Buildings built between 7 and 10 floors are buildings built on the main roads and used as both residential and workplaces. The total cost spent for the project is \$283,800,000. 57% of this cost was obtained from the city of Hiroshima, 38% from local governments and 5% from other private sources (Şişman and Kibaroğlu, 2009: 4).

#### **4.2.1.4. Lebanon Beirut-Solidere Urban Regeneration Project**

After the Lebanese War between 1975 and 1990, 20 thousand people were left homeless in Beirut and the infrastructure of the city was seriously damaged. During the war, the coastal part of the city was looted in an uncontrolled manner. The government, which weakened by the effect of the war, could not have the power to rebuild the city with a large and complex project. The government has initiated an urban renewal and regeneration project in cooperation with the private sector in line with the goal of rebuilding the city. Two different projects have been prepared for urban regeneration. One of them is the Elyssar project, which is related to the south and southwestern suburbs of the city. The other project was undertaken by the real estate company called "Solidere". The Solidere project is a project that wants to complete the reconstruction of the city center of Beirut, which was destroyed due to the war, in cooperation with the public and private sectors. Solidere company focuses on the reconstruction of cafes, restaurants and bars in the city center in a way that the historical texture of the city will not be disturbed (Aydın and Çamur, 2016).

The project consists of two stages. In the first stage, important steps such as underground parking lots, construction works at sea, processing of filling soil, first and second degree infrastructure works have been taken. In the second stage, filling soil was cultivated to protect the city of Beirut from the sea.

The project, which is defined as the heart of Beirut, the capital of Lebanon, is built on an area of 191 hectares and consists of two stages. The first stage covers the years 1994-2004 and the second stage covers the years 2005-2020. For the urban regeneration project to be carried out, the Solidere company first determined the existing property right. The company has determined this right as 1.2 billion US Dollars. This determined value has been converted into A group stock. USD 650 million, which is required for the implementation of the project and the construction of the new region, was obtained from new investors in cash in return for Group B shares. Although there was no legal right ownership, compensation was determined for the poor people and refugees who settled in the region during the civil war period in order to create a social balance and they were ensured to evacuate the areas where they settled (Demirsoy, 2006: 134).

After the project, the new port area and the historical city center were connected. With this connection, a financially strong region has been created. In this way, the project was self-financed and did not impose any additional burden on the public.

#### **4.2.1.5. Netherland Rotterdam Kop van Zuid Project**

Kop van Zuid is a peninsula of 125 hectares on the south bank of the Maas river, directly opposite the city centre of Rotterdam. The area was used as an important port area with docks, a shipyard and a terminal for ships to the ocean, but all these activities were closed and Kop van Zuid was abandoned during the 1960s and 1970s when the port was moved downstream of the river (Köksüz and Baz, 2019).

There were plans to restructure the area as a social housing area, but with a master plan commissioned by the new city planning director Riek Bakker in 1986, Kop van Zuid was seen as the key to unlocking the great potential for the entire city. As a high-quality mixed-use area, it was developed with eye-catching buildings and a vibrant coastline, and if directly connected to the city centre, it could not only change

the image of Rotterdam, but also improve the entire southern side of the city (Cadell, Falk and King, 2008).

The project is carried out by the Rotterdam City Council, which is directly responsible for all aspects of the city's development. Several different municipal departments (landowner Rotterdam City Development Agency, Planning and Housing Agency, Rotterdam Transport Company, Public Works Agency and Port Authorities) are included in the project. The municipal council approved the master plan for Kop van Zuid in 1991 and was approved by the national government in 1994. Meanwhile, the government has agreed to pay about 150m euros for the Erasmus Bridge to be built on the Maas. The bridge, completed in 1996, has become a very well known symbol of Rotterdam. An important achievement for local government has been to persuade politicians to support the most expensive and impressive of the three bridge options and to move various government departments (including the Customs and Tax Office and the Court of Justice) to the region (Köksüz and Baz, 2019).

The new subway station in Kop van Zuid, the Erasmus Bridge and the expansion of the tramway system have more closely connected the northern and southern sides of the city. In addition, by placing the main railway lines underground, pedestrian connections with adjacent residential areas have been greatly improved and new suburban stations have helped to improve local accessibility. There is also a popular system of water taxis that go beyond the river and connect with various tourist attractions (Cadell, Falk, and King, 2008).

#### **4.2.1.6. Denmark Copenhagen Port Project**

From the mid to late 1980s, Copenhagen experienced high unemployment up to 17.5%. Due to the intense migration to the suburbs of Copenhagen, the city's tax collection problem has arisen. As skilled citizens move to the suburbs, the city is left to pensioners and students who do not contribute much to tax revenues.

By the late 1980s, the city was struggling with an annual budget deficit of \$750 million. In 1995, as a symbol of the seriousness of the situation, the local government decided to stop all construction of new social facilities. In the study, it was found that the Port used only 5% of the area and the activities will decrease by 25% during the

construction with the Øresundsbroen Bridge. The port also struggled with large pension debts. The port management had begun to sell the coastal land in parts (Noring, 2019).

In 1990, a historic alliance of representatives of the Danish and Swedish countries came together from all over the national and local governments and the political spectrum to re-plan the city and create a large-scale plan.

Ørestad Development Corporation was founded in 1992 for the purpose of urban regeneration by the national finance ministry with 55% Copenhagen municipality and 45% ownership share. The national government allocated the land and the local government undertook the task of reconstructing it. City & Port financed Copenhagen's urban renewal by establishing public-private partnerships, using value capture methods within the municipality, and achieved urban regeneration in a wide area with scarce resources (Noring, 2019).

#### **4.2.2. Urban Regeneration in Türkiye**

The first urban regeneration movements in our country started with the reconstruction of the regions that had a fire during the Ottoman period and continued by changing the quality, especially with the effects of post-republic industrialization and the increase in the city population. Between 1950 and 1980, industrialization policies accelerated the migration from rural areas to cities, which led to the urbanization of empty or rural areas in the city center. Especially between 1950 and 1960, the urban population showed a significant increase compared to the population of the country. The socio-economic structures of the cities have changed, and the insufficient housing stock in the face of population growth has caused the low-income population to turn to the slums built in empty public lands or rural areas around the city (Ataöv and Osmay, 2007:62).

In this period, urban regeneration practices were carried out in the form of the regulation and implementation of Municipality, Slum, Land Office, Development and Property Ownership Laws, the rehabilitation and restructuring of slum areas and urban renewal works in these areas.

Between the 1980s and 2000s, migration from the village to the city continued, but the decrease in fertility rate compared to the previous period decreased the

population growth rate in the cities. The legalization of slums with development amnesties has led to an increase in slum production and ownership. As a result, it is observed that the number of floors of the slums increased in this period and these buildings gradually became apartments (Ataöv and Osmay, 2007:65).

Urban renewal projects of the Golden Horn Environmental Master Development Plan in Istanbul, works carried out in the historical texture in Ankara and Antalya Kale İçi, the socio-economic transformation experienced in the Cihangir and Kuzguncuk districts of Istanbul can be cited as an example of the conservation and gentrification projects of an area with historical value (Ataöv and Osmay, 2007:67-68).

In the 2000s, it is seen that urban regeneration is included in the laws and urban planning actions are adopted. In this period, unhealthy slums inhabited by the low-income group concentrated in the main arteries of the transportation roads in the cities were demolished by the municipalities and large-scale renovation works were initiated (Ataöv and Osmay, 2007:68).

#### **4.2.2.1. Fikirtepe Urban Regeneration Project**

The project aimed at urban regeneration in an area of 30 ha's, which also constitutes a part of Kadıköy district; Eğitim, Dumlupınar and Merdivenköy neighborhoods for earthquake prevention purposes. After the regeneration project was defined as a special project area in the 1/5 .000 scale development plan, this project area was declared as an urban regeneration area by the Istanbul Metropolitan Municipality. In the plan, construction areas and heights were determined in stages; in parcels up to 200 m<sup>2</sup>, the building coverage ratio is 1.10, the height is 2 floors; while the building coverage ratio is 1.65 and the height is 4 floors between 201 and 600 m<sup>2</sup>, the height is not limited in places higher than 601 m<sup>2</sup>. In this respect, not all of the parcels were allocated to the social equipment area and definitely got the right to build. On the basis of this project, the reason why the metropolitan council gives and approves the building heights above the average of Kadıköy district is that support can be received from the public for transformation (Ünver and Suri, 2020).

Schools are protected in the plan and school and green areas will be built in areas of public abandonment (10% to 20% public abandonment is targeted against peer

upgrades according to the plan notes). Fikirtepe, which has a total population of 49000 in an area of 150 ha, will also cause a concentration of more inhabitants in the future with the merging and enlarging of the blocks. In the plan approved by the IMM assembly, mergers were encouraged, especially on the basis of blocks. Provided that the right holders living on the same map section come together and agree and the necessary areas for building a park, green area, kindergarten, religious facility, family health center are left to the public, the building coverage ratio have been increased and encouraged by IMM.

In the plan approved by the IMM assembly, mergers were encouraged, especially on the basis of blocks. Provided that the right holders living on the same map section come together and agree and the necessary areas for building a park, green area, kindergarten, religious facility, family health center are left to the public, the building coverage ratio have been increased and encouraged by IMM (Tarakçı and Şencetürk, 2020).

According to the determined parameters, with the additions of building coverage ratio, the right to build has reached to 4 in building blocks over 4.000 m<sup>2</sup>. But on such a block, since the road, education and religious sphere should be abandoned to the public, approximately 1,000 m<sup>2</sup> of residence has been abandoned and approximately 3,000 m<sup>2</sup> of residential area remains. The financing through the building coverage ratio increase has been attractive to be met by private companies (Kandaloğlu, 2012).

#### **4.2.2.2. North Ankara Urban Regeneration Project**

The North Ankara urban regeneration project covers the area along the Protokol Road that connects Ankara Esenboğa Airport to Ankara center and extends to Çankaya Mansion until the Çubuk Dam entrance valley. The wide axis, which is referred to as the "protocol road", is the entrance gate and showcase of Türkiye. The process started on 04.03.2004 with the adoption of the North Ankara entrance urban regeneration project law No. 5104. The project was implemented with the joint initiative of the Prime Ministry Housing Development Administration (TOKI) and Ankara Metropolitan Municipality. For this purpose, a protocol was signed between Toki and Ankara Metropolitan Municipality on 02.09.2004 (Türker and Devecigil, 2005).

With the adoption of the law and the signing of the protocol, the North Ankara urban regeneration project regulation was published in the Official Gazette on 14.04.2006 for the implementation of the project. The purpose of the law is determined in Article 1 as "to improve the physical condition and environmental image within the framework of the urban regeneration project in the areas covering the entrance and surroundings of Northern Ankara and to increase the level of urban life by providing a healthier settlement". Within the scope of the project, Toki was generally responsible for the construction of social equipments and right-holder houses, while Ankara Metropolitan Municipality was also responsible for planning, right-holder relations and general infrastructure constructions (Kandalođlu,2012).

#### **4.2.2.3. İzmir Kadifekale Urban Regeneration Project**

Kadifekale urban transformation project includes Kadifekale, İmariye, Kosova, Altay, 1. Kadriye, Hasan Özdemir, 19 Mayıs, Vezirađa and Yeşildere neighborhoods. 50% of the project area is the areas where slum areas are dense (İZTO, 2009).

The project, which aims to realize the urban transformation of approximately 48 ha, is close to the administrative center, commercial center and cultural center. With the declaration of the area as a landslide danger zone in 1978, the foundations of İzmir's largest urban transformation project were laid, and various measures and renovation works continued until 2000 (Akdaş, 2021).

Kadifekale urban regeneration project is located within the boundaries of Konak municipality; nearby, there is Kadifekale castle, which is one of the historical items. However, the archaeological region is not within the boundaries of transformation. The castle in the south of the city is 2 km from the seaside and has one of the most beautiful views of Izmir. The slope of the land in Kadifekale is approximately 35% (İZTO, 2009).

Another feature of the project area is its proximity to the basic transportation axes. Urbanization in the region is quite high and the region is poor in terms of urban green areas. It is aimed to implement the project in three stages. These are field works and reconciliation with the local community, demolition and cleanup, resettlement and redesign. The first stage was completed by experts assigned from

İzmir Konak Municipality and İzmir Metropolitan Municipality. The works first started in 2006 and it was aimed to produce 3080 new houses and 2156 of them will be presented to the people currently living in the area (Ballıkuyu, Yeşildere and Kadifekale). 924 housing units will be purchased by the Metropolitan Municipality to be used for temporary settlements in other urban regeneration projects (İZTO, 2009).

In addition, a unit was established in order to carry out local public relations and to follow the expectations, awareness raising about natural disasters, information about the new residential area in Uzundere was shared, payment conditions were arranged and the title deed information of the citizens who had the right to acquire housing was collected (Ünal, 2020).

Since a total of 1968 slums, where approximately 20000 people live, are located in the landslide area, it is aimed to transfer them to Uzundere residences produced by TOKI. In order not to allow speculations on the subject, the municipality decided to expropriate the Kadifekale region for greening and recreational uses, by removing it from being a residential area after the demolition. The new residential area owned by Toki is 469.425 m<sup>2</sup> (47 ha) and has been agreed with five construction companies to work with Toki. In addition to housing production in the Uzundere residential area, there will also be equipment such as hospitals, markets, trade zones, schools, mosques and police stations (Kandaloğlu, 2012).

## **CHAPTER V**

### **FINANCING OF URBAN INFRASTRUCTURE AND URBAN REGENERATION**

In our country, the financing needs for urban infrastructure and regeneration rises to gigantic figures due to the fact that we are an earthquake zone and the excess of the buildings that need to be transformed. Due to the fact that the figures are so large and the conjuncture in the world, conventional financing methods cannot meet this need. In this chapter, both orthodox financing methods from Türkiye and the world will be mentioned and alternative financing methods will be introduced.

#### **5.1. Institutions for the Financing of Urban Infrastructure and Urban Regeneration**

Since it is a new concept for our country, but a concept that has been experienced much earlier in the world, urban infrastructure and regeneration and its financing should be done through in an institutional framework. In this chapter, institutions from both the world and our country will be introduced and how they can play a role in the financing of urban regeneration will be examined.

##### **5.1.1. Worldwide Institutions for the Financing of Urban Infrastructure and Urban Regeneration**

In this chapter, institutions used for both general financing and real estate financing in certain regions of the world will be introduced and their roles in terms of financing urban infrastructure and regeneration in our country will be examined.

###### **5.1.1.1. Fannie Mae, Ginnie Mae, Freddie Mac**

Fannie Mae, is a state-sponsored initiative concessioned by the American Congress in 1938 to support liquidity and stability in the secondary mortgage market where

mortgaged housing loans are bought and sold. The Company securitizes loans opened by lenders in the primary mortgage market as mortgage-backed securities traded in the secondary market. The company also invests in mortgage-backed securities in the secondary mortgage market. This investment includes the MBSs it has issued itself. The company can also make other investments that increase housing supply (Lemke, Lins and Picard, 2013).

**Ginnie Mae**, in 1968, Fannie Mae split into two to reduce the burden on the state budget and Ginnie Mae became a publicly traded corporation, with preferred shares owned by the federal government (Government National Mortgage Association, Ginnie Mae). “Ginnie Mae is the only home-loan agency explicitly backed by the full faith and credit of the United States government. In general, Ginnie Mae only guarantees mortgage-backed securities with basic mortgages insured by the Federal Housing Administration. ” If a homeowner defaults on a loan underlying a Ginnie Mae security, Ginnie Mae makes payments on the mortgage-backed securities until the underlying property is set off (Yilmaz, 2011).

**Freddie Mac**, its legal duty is defined as To provide liquidity, stability and low-interest loan conditions to the American housing market. The company carries out its duty by purchasing mortgaged housing loans from credit institutions and securitizing them in the form of mortgage-backed securities and investing in securities based on housing financing in the secondary mortgage market. The Company purchases mortgage-backed securities and mortgaged loans and manages these interest rates and other market risks by issuing various debt-backed financial instruments in the capital markets and by making derivative contracts (Lemke, Lins and Picard, 2013).

#### **5.1.1.2. Bausparkasse**

Bausparkasse is a "closed-circuit" housing financing system that aims to access a loan with a lower interest rate than the existing market conditions through the savings they have made over a certain period in order for owning a home. The continuity of the system depends on the financing that new individuals who want to buy a house transfer to the savings fund created in the system and in the structure of the company. The way for these formations to be established through the state channel and for individuals to come together and be established as a civil organization is open. Individuals who aim to own a house by being included in the

system can save 10% of the value of the house in a year and can become a house owner in general within 10 years. The fact that 10 people who came together for the same purpose buy a house for one person in turn by bringing together the money they have saved reduces the time of house acquisition. This system emerged in the social sense with the logic of cooperation and evolved into its present form (Öncü, Kılıç and Aktaş, 2007).

Although this system has been implemented in Germany since the end of the seventeenth century, it was established after 1950 in countries such as Austria, Switzerland, the Netherlands and Bulgaria with the purpose of encouraging and facilitating housing ownership. Although this system was developed without interest in France, the Netherlands and Argentina, it could not achieve the desired success due to the decline in the value of money over the years (Birsin and Ötegeçli, 2019).

In our country, it had the opportunity to be applied in its original form in the 1950s. In the first example established under the leadership of Emlak Bank, it has had the chance to become a homeowner by taking a loan from the fund, provided that the amount to be deposited in the account is kept in the savings account for at least one year. Although the system could be maintained until 1963, it could not continue due to the conditions of the country (Kılıç, 2007).

### **5.1.1.3. Housing Associations**

Housing associations are non-profit organization that own, leases and manage housing. As non-profit organizations, income from leasing is transferred back to property acquisition and maintenance. Beyond this definition, there is a wide variety. Housing associations are not required to be registered charities established in the UK. They may be set up to help specific social groups with accommodation, for example, elderly or disabled people. Housing associations are classified as "registered social homeowners" by the real estate sector together with housing cooperatives. Houses belonging to housing associations are known as "social housing", which is a general term that includes state-owned municipal council houses and other affordable accommodation units (Karakaş, 2015).

A Housing Association is a non-profit organization and has a housing portfolio. It then provides and manages these homes to people in need. These organizations are

non-profit organizations, so all of the lease payments is used to buy more property and protect previously owned properties. Housing associations are designed to provide affordable housing for everyone in need. Some housing associations also offer financial assistance to people who, in some cases, buy their own property but cannot use a commercial mortgage agreement. The application for housing association tenancy is directly carried out. People can apply to multiple housing associations at the same time. The application form for each housing association is the same and can be obtained from the housing association office or any Housing Manager. Once this form has been completed or returned to the housing association office or the Housing Manager, the Housing Administration arranges a visit to assess the applicant's needs and current situation. Applicants are then placed on the waiting list until a suitable housing is found (UK Housing Associations Act, 1985).

#### **5.1.1.4. TDR Bank**

Transfer of Development Rights (TDR) Bank is an organization that acts as a bridge and ensures that the Transfer of Development Rights (TDR) certificates printed within the framework of the model are valued according to the market by bringing the buyer and the seller together. The Bank is an important financial element for the fulfillment of financial services and facilitating market integration in the TDR system (Yanık and Suri, 2020).

The TDR program seems easy in concept, but it is very difficult to implement and elaborate and requires extensive studies. For example, the transfer of development rights depends on the TDR supply, and the realization of the supply depends on the decision of the sender region owners. The owner's decision depends on the realization of the price he/she expects according to the supply-demand situation before joining the program. The owner who observes the low price can not sell the right but keep it, and as a result, the timing and operation of the program is disrupted. At this point, the existence of a public bank that can ensure the supply-demand balance and stabilize the program by providing fair pricing would be the solution. The area is required to be at a sufficient level for development investments and the demand for TDR is required to be at a level that can be met, as well. TDR programs, where the transaction volume is low, that is, few owners and development investors are parties, are relatively successful because the costs of a small number of

transactions are low. However, the deterioration of the free market mechanism and the emergence of a monopoly is an emerging risk in this case (Janssen-Jansen, 2008). In cases where those who hold the development right is low, that is, the supply is low and the demand is high, the price of the TDR certificate increases considerably and the speculation may cause problems. The high prices of the TDR certificate can ensure that the value is satisfactory for the sender region owners, but it increases the real estate prices by increasing the costs for the development investors of the region. This situation leads to a disadvantage in terms of the new owners of the region by creating a settlement where the development density has increased and real estate prices are high (Aken, Eckert, Fox, and Swenson, 2008).

The low demand slows down the realization of the expected development in the region, making it difficult to sell the TDR certificates that remain in the hands of the sender region owners. In cases where the supply of TDR certificates is high and the demand is low, the owners of the sender region may wait for the increase of the development demand in the region in order to transfer their rights at higher prices. In this case, owners with a large number of TDR certificates are not affected, but especially those with a small number of TDR experience difficulties when participation in the TDR program is compulsory. In order to prevent such problems, the authorization of the TDR bank enables the purchase of the TDRs of the sender region owners who have unsought certificates (Yanık and Suri, 2020).

The fact that the local government brings together buyers and sellers through a TDR bank for the realization of the TDR program facilitates the operation of the program. In terms of the successful functioning of a TDR program, the pressure to increase the development plan density for the receiving region, and the protectionist approach to reducing or preventing the development plan density for the sending region should be generally accepted (Göksu, 2005).

#### **5.1.1.5. Public Asset Corporation (PAC)/Urban Wealth Fund (UWF)**

The Urban Wealth Fund (UWF) is a Public Asset Corporation of a local government, a holding company that owns, manages and develops operational and real estate assets mainly within its jurisdiction at the level of the city, district or regional public administration (OECD,2021).

This term was put forward by Detter and Fölster in their book “The Public Wealth of Cities.” In general opinion, it is a compromise between government control and privatization, usually with the aim of maximizing the management of a city's assets for the return on assets as a means of generating income for the city government. As a result, this will enable cities to increase their investments (for example, for infrastructure projects) without raising taxes (IMF, 2020).

**The Copenhagen City and Port Development Corporation**, which is wholly owned by the Copenhagen City and the Danish state, were founded in 2007 by merging several development areas around Copenhagen (most notably the port and Ørestad) into a single entity. CPH City & Port Development was established to use redevelopment revenues to finance infrastructure construction (especially the CPH metro line). (Noring, 2019). It performs this task using smart valuation techniques and low-cost financing using assets as collateral. For example, the revaluation of North Harbor land, one of the largest assets, increased its value by €450 million. In total, the redevelopment of North Harbor has led to an investment of 15 billion euros (Noring, 2020).

**Hafen City Hamburg GmbH**, Since 2004, HafenCity Hamburg GmbH is the operational entity responsible for managing all assets and overseeing HafenCity's urban redevelopment. The UWF is referred to as the 'Special Fund for the City and Port' in the HafenCity region (97% of all properties in the HafenCity region), consisting of lands owned by the City of Hamburg. The redevelopment of HafenCity is entirely based on HafenCity Hamburg GmbH, which either sells property or solicits loans from commercial banks using HafenCity's assets as collateral. Capital is then mainly used for infrastructure and essential conveniences, especially roads, bridges, squares, parks, docks and promenades (Noring, 2019).

**MTR Corporation Limited**, (originally Mass Transit Railway Corporation) was founded in 1975 and is charged with managing and operating the rail transport system, adjacent land and most adjacent real estate. In 2000, the MTR was partially privatized. Although the railway system itself is profitable, most MTRs' profits are derived from other commercial activities such as property development and retail space leasing or personal telecommunications services. Similar to CPH in

Copenhagen, UWF is used to provide high-quality public transport while raising the standard of living in Hong Kong (Detter,2020).

### **5.1.2. Institutions for Urban Infrastructure and Regeneration Financing in Türkiye**

In this chapter, the institutions that are available in our country and that are considered appropriate to be used in terms of financing urban infrastructure and regeneration will be introduced.

#### **5.1.2.1. Real Estate Investment Trusts**

REITs regulated by the Capital Markets Board are capital market institutions that can invest in real estate, real estate projects, real estate-based rights and capital market instruments, which can be established for the purpose of realizing certain projects or investing in a certain real estate and engage in other permitted activities, whose income is exempt from corporate tax (Corporate Tax Law article 5/1-d-4) (REIT Communiqué, 2014).

#### **5.1.2.2. Infrastructure Real Estate Investment Trusts**

As defined by the Capital Markets Board, Infrastructure REITs, as a special type of REIT, are real estate investment trusts run by public administrations, social security institutions, local administrations and state economic enterprises; that invest in agriculture, irrigation, mining, manufacturing, energy, transportation, communication, information technologies, tourism, housing, culture, urban and rural infrastructure, municipal services, Urban Infrastructure and Regeneration, environment, research and development services, education, health, justice, security and general administration infrastructure investments and services (Draft Infrastructure REIT Communiqué, 2013).

#### **5.1.2.3. Real Estate Investment Funds**

With the definition of the Capital Markets Board, Real Estate Investment Fund is an unincorporated asset established by portfolio management companies and real estate portfolio management companies for a limited or indefinite period of time in order to operate the portfolio consisting of assets and transactions determined by the Capital

Markets Board (Board) in accordance with the principles of fiduciary ownership on behalf of the shareholders, with the money collected from qualified investors in return for their participation shares (REIF Communiqué, 2014).

#### **5.1.2.4. Türkiye Real Estate Participation Bank**

The bank, which was established as Emlak ve Eytam Bank on June 3, 1926 and transferred to Ziraat Bank in 2001 in order to remedy the housing problem in Türkiye, was established as a specialized participation bank in the real estate sector and resumed its operations as of March 27, 2019. In order to support the growth and development goal of our country, the bank has been redesigned with the vision of being a participation bank supporting local production and social projects, establishing a strong and sustainable relationship between the financial system and the real sector, and with the mission of being an innovative participation bank taking part in projects that produce financial solutions for the real estate sector, support local production, serve sustainable growth, and contribute to the socio-economic structure of the society (TEKB Articles of Association, 2020).

#### **5.1.2.5. TOKI**

The duties of the TOKI (Housing Development Administration) defined/determined by the Law No. 2985 are as follows. To develop projects at home and abroad directly or through its affiliates; to carry out or have carried out residential, infrastructure and urban equipment applications. To establish companies related to the housing sector or to participate in established companies. To support the industry related to residential construction or those working in this field To build, encourage and support housing and urban equipments together with their infrastructures in areas where natural disasters occur, if deemed necessary. Upon the request of the Ministries and the approval of the Minister to which they are affiliated, to carry out or have carried out the projects and applications subject to the request. To carry out or have carried out applications with profitable projects in order to provide resources to the administration. To issue all kinds of securities with domestic and foreign bonds with or without government guarantee. To give private and collective housing loans, to loan projects for the development of village architecture, the transformation of slum areas, the preservation and renewal of historical texture and local architecture, and to subsidize interest on all these loans when necessary. To

decide to take a loan from abroad, upon the approval of the Undersecretariat of Treasury, to be used for expenditures related to its field of duty. To take measures to ensure the participation of banks in the financing of houses, to give loans to banks when necessary for this purpose, to determine the procedures for the implementation of this provision. To ensure that all kinds of research, project and commitment procedures are contracted out when necessary. To perform the duties assigned by the laws and other legislation (Turkish Mass Housing Act, 1984).

#### **5.1.2.6. Development and Investment Banks**

In this section, development and investment banks that can be used in the financing of urban infrastructure and regeneration will be introduced.

**The World Bank**, was established in 1945 as the International Bank for Reconstruction and Development, to provide financing for infrastructure construction in countries destroyed in World War II, and became operational in 1946, and its name was later changed to the World Bank. Like the IMF, the foundations of the World Bank were laid at the United Nations Monetary and Financial Conference held in Bretton Woods in 1944. The World Bank supports infrastructure projects through its subsidiaries such as IBRD and IFC with treasury guarantees in general and without looking for treasury guarantees in particular (Ünsal, 2021).

The projects it supports in Türkiye can be summarized under the subheadings of economic growth, "EU adaptation process, financial markets, poverty and social protection, education, health, energy and climate change, environmental management and disaster prevention." It is examined under the headings of poverty, social protection, environmental management, and disaster prevention and management in the financing of urban infrastructure and regeneration projects.

**European Investment Bank (EIB)**, is the financial institution of the European Union and was established to finance investments that will help the Union achieve its objectives. The primary objective of the European Investment Bank is to contribute to the balanced development of the European Union. In addition, the main task of the European Investment Bank is to provide financing loans for the development of Trans-European transport and telecommunication networks, the protection of the environment, the sustainability of energy resources and the increase of the

competitiveness of European industry and SMEs at the international level. The Bank also helps to implement the cooperation policies of the Union towards non-member states through the support of appropriate projects through loans in third countries that are not members of the European Union (Hergüner, 2011).

**European Bank for Reconstruction and Development (EBRD)**, which started its activities in Türkiye in 2009, defines its field of activity as “providing financial support to projects in a wide variety of sectors and subjects such as transportation, environment, SMEs, energy and health and eliminating dependence on energy, incorporating the private sector into infrastructure, and helping small and medium-sized enterprises, which are the mainstay of the economy, facilitating their access to finance, and states that there are many businesses that commercial banks, municipalities and SMEs lead among the customers to whom they provide credit facilities” (URL 1).

**Development Investment Bank of Türkiye (Türkiye Kalkınma Bankası)**, was established in 1975 as the relevant institution of the Ministry of Industry and Technology under the name of Devlet Sanayi ve İşçi Yatırım Bankası A.Ş. (DESIYAB) with the Decree Law No. 13. With the Decree Law dated 22.6.1988 and numbered 329, its name was changed to Türkiye Kalkınma Bankası A.Ş. and associated with the Prime Ministry, and in addition to the industrial sector, the opportunity to provide financial support of the Bank to other sectors was created.

The aims of the Bank are determined as "(...)For the development of Türkiye; To give loans to the enterprises in the status of joint-stock companies with the understanding of profitability and efficiency, to provide financing and business support by participating, to direct domestic and international savings to development-oriented investments, to contribute to the development of the capital market, to finance domestic, international and international joint investments and to perform all kinds of development and investment banking functions" (Development and Investment Bank of Türkiye Act, 1999).

**İlbank**, was established under the name of 'Municipalities Bank' (Belediyeler Bankası) on June 11, 1933 with the capital of 15 million TRL under Law No. 2301 to finance the development plan activities of the municipalities. On 29.07.1944, the name of the Bank was changed to 'İller Bank'.

The General Directorate of İller Bank, which included Special Provincial Administrations, Municipalities and Villages, was officially established with the entry into force of the law numbered 4759, which was accepted on 13.06.1945 and published in the Official Gazette on 23.06.1945, by assuming the duties of the Municipalities Bank. On 26.01.2011, it was named "İller Bankası A.Ş." by the Law No. 6107, which was accepted by the Turkish Grand National Assembly and published in the Official Gazette on 08.02.2011. İller Bankası A.Ş. is a development and investment bank, which is a special-budget incorporated company, subject to provisions of private law, having a legal personality (İlbank Act, 2011).

**Islamic Development Bank (IDB)**, consists of 43 member Arab countries; Saudi Arabia, the United Arab Emirates and Kuwait, among these member countries, contribute 65% of the Bank's funds (as donations). The Bank has been very effective in making the dollars obtained from oil exports available in the Arab world. Financing of development is carried out according to Islamic principles; there is no interest burden in development financing, instead, the Bank participates in projects through s subscribed capital and profit/loss sharing (Güçlü and Kılıç, 2020).

**Asian Development Bank**, is a regional development bank established on December 19, 1966. It is headquartered in Manila, the capital of the Philippines. The Bank also has 31 field branches/offices around the world. With these branches, it is aimed to make it easy to reach people in need. The Bank recruits members from the United Nations Economic and Social Commission for Asia and the Pacific and developed countries that are not located in the region, ADB is officially UN observer (URL 2).

**Asian Infrastructure Investment Bank**, is an international financial institution that aims to support infrastructure construction in the Asia-Pacific region. The Asian Infrastructure Investment Bank has been proposed by the Chinese government as an initiative and has 48 members. The articles of agreement related to the bank entered into force on 25 December 2015 and became operational on 16 January 2016. The bank's headquarters are located in Beijing, the capital of China (Atlı and Akar, 2020).

**African Development Bank**, was established on 10 September 1964 as a regional economic organization to ensure economic cooperation and solidarity among African countries that have gained independence. In its early years, it did not accept countries outside the continent due to the sensitivity of African countries on 'new colonialism'.

This decision was reviewed in 1972 and the bank was made open to non-continent countries. In 1972, the African Development Fund was established as a subsidiary of the bank. The Bank's headquarters are located in Abidjan, the capital of Côte d'Ivoire. The aim of the bank is to contribute to the economic and social development of the member countries. The bank finances the projects in which member countries develop at a scientific level (URL 3).

**Japan International Cooperation Agency (JICA)**, was established in 1974 and currently operating in 150 countries provides resources for infrastructure projects in cooperation with our country, especially local governments and Ilbank. Marmaray, Fatih Sultan Mehmet bridge, Hasan Uğurlu Dam and Istanbul earthquake master plan studies are at the forefront of these projects (URL 4).

## **5.2. Methods And Tools for Financing Urban Infrastructure and Regeneration**

In this section, methods and tools that can be used to finance urban infrastructure and regeneration from the world and our country will be introduced.

### **5.2.1. Financing Tools and Methods from The World**

In this section, financing methods and tools applied in various regions of the world, both in terms of real estate and in general, will be introduced and their applicability in terms of Urban Infrastructure and Regeneation will be examined.

#### **5.2.1.1. US**

In the United States, when there is a value increase revealed by the public to be used in real estate development and infrastructure development services, the method of the public taking a certain share by capturing the resulting value is used. This method is explained below with the types used.

##### **5.2.1.1.1. Value Capture**

Value capture is a form of public financing that involves the recovery of some or all of the value that the public produces for private land owners (Gielen, 2019).

Value Capture strategies operate under the assumption that public investment often results in increased valuations of private land and real estate. Governments that

“capture” the subsequent increase in value may recover funds that could be used to create additional value for communities in the future (Gielen and Krabben, 2019).

Public investments, such as building transportation or sewer facilities, can increase adjacent land values, generating an unearned profit for private landowners. The unearned value (increases in land value which otherwise profit private landowners cost-free) may be "captured" directly by converting them into public revenue

The most common value capture mechanism is the general real property tax, with no special features other than regular assessment of market value; this is because the value of any given land is determined by its proximity to various amenities (both public and private). Thus, for example, when a new metro station or highway interchange is installed, land near the new facility becomes more valuable. Investment in capital improvements to land can synergistically generate capital investment in other nearby locations, which further increases land value. Thus, even if the rate of taxation does not change, the tax revenue generated from properties which benefit goes up by way of higher land values and increased development. Frequently used types of value capture method are introduced below.

**Land value tax (LVT)**, is a tax levied on land value regardless of buildings, personal property and other improvements. It is also known as a location value tax, a site valuation tax, split rate tax, or a site-value rating.

A land value tax is a progressive tax, in that the tax burden falls on land owners, because land ownership is correlated with wealth and income. Economists since Adam Smith and David Ricardo have advocated this tax because it does not hurt economic activity or discourage or subsidize development.

Land value taxation is currently implemented throughout Denmark, Estonia, Lithuania, Russia, Singapore, and Taiwan; it has also been applied to lesser extents in parts of Australia, Mexico, and the United States (Webb and Merryn, 2013).

**Tax increment financing (TIF)**, is a public financing method that is used as a subsidy for redevelopment, infrastructure, and other community improvement projects in many countries, including the United States. The original intent of a TIF program is to stimulate private investment in a blighted area that has been designated to be in need of economic revitalization (Caves, 2004).

Through the use of TIF, municipalities typically divert future property tax revenue increases from a defined area or district toward an economic development project or public improvement project in the community. To provide the needed subsidy, the urban renewal district, or TIF district, is essentially always drawn around hundreds or thousands of acres of additional real estate (beyond the project site) to provide the needed borrowing capacity for the project or projects. The borrowing capacity is established by committing all normal yearly future real estate tax increases from every parcel in the TIF district (for 20–25 years, or more) along with the anticipated new tax revenue eventually coming from the project or projects themselves. Tax increment financing dedicates tax increments within a certain defined district to finance the debt that is issued to pay for the project. TIF was designed to channel funding toward improvements in distressed, underdeveloped, or underutilized parts of a jurisdiction where development might otherwise not occur. TIF creates funding for public or private projects by borrowing against the future increase in these property-tax revenues (Caves, 2004).

**SAD,** In the United States, a special assessment is a charge that public authorities can assess against real estate parcels for certain public projects. This charge is levied in a specific geographic area known as a special assessment district (SAD). A special assessment may only be levied against parcels of real estate which have been identified as having received a direct and unique "benefit" from the public Project.

The most universally known special assessments are charges levied against lands when drinking water lines are installed; when sewer lines are installed; or when streets are paved with concrete or some other impervious surface. However, special assessment tax levies can be made for other purposes including police or fire protection, parking structures, street lighting and many of the other purposes permitted by state and local government statutes. An impact fee is a fee that is imposed by a local government within the United States on a new or proposed development project to pay for all or a portion of the costs of providing public services to the new development. Impact fees are considered to be a charge on new development to help fund and pay for the construction or needed expansion of offsite capital improvements. These fees are usually implemented to help reduce the economic burden on local jurisdictions that are trying to deal with population growth within the area (Kadzban v City of Grandville Law 190).

Impact fees can be more easily applied to needed infrastructure or facilities while in lieu fees cannot. Impact fees can be applied before new development is started or completed, which may allow costs to be transferred to future residents in the area. Another advantage of using an impact fee compared to the in lieu fee is that it can be applied to any new construction from single family homes, apartments, and even commercial development.

#### **5.2.1.2. Germany**

A general savings incentive program known as the "624 Mark Act" is used in Germany. If a family saves up to (\$277) per year, they will receive a government bonus of 30-40 percent depending on family size This plan is only for those with income less than (\$21,000). Those savings also qualify for a 14 percent Savings Premium if held in a special seven-year contract account. This general savings incentive is complemented by a specialized savings-for-housing plan at building-savings institutions (Rosen, 1982).

**German mortgage market**, the German Government envisaged the provision of financing for housing through banks specialized in housing financing. Those are mortgage banks (Hypothekenbanken), savings banks (Sparkassen) and building savings bank (Bausparkassen). Sparkassen is the major first-mortgage-loan provider. They offer both fixed and variable rate mortgage loans normally for an 8 to 12-year term. They offer 15 to 30-year mortgages at a fixed rate of interest. They finance these mortgages by issuing bonds of a matching maturity (Rosen, 1982).

**Türkiye Housing Account**, although there is not only a specialized bank working for housing financing in Türkiye at the moment, a similar fund of the aforementioned funds has been implemented by Ziraat Katılım Bank with the government support in Türkiye.

When you buy your first home by saving at least 3 years, the Government contribution up to a maximum of 25% of your total savings and the profit share is added to your account (URL 5).

### **5.2.1.3. Gulf Countries and Malaysia**

Gulf countries and Malaysia have generally adopted participation banking methods instead of interest based financing methods, and developed development banking. Those methods, many of which are used in Türkiye, will be introduced in this chapter and their suitability in terms of financing urban infrastructure and regeneration will be examined.

#### **5.2.1.3.1. Participation Banking Financing Methods**

The system, which is described as Islamic finance, is the system in which financial transactions are prepared in accordance with Islamic orders and prohibitions. In Islam, interest is prohibited because it is forbidden. In this context, participation banking instruments are designed in a interest-free structure. The financial instruments used by this system are as follows.

**Mudarabah (Passive Partnership)**, is the instrument where labor and capital are used as partnerships. While the financial institution puts all the resources in the partnership, the person in the other partner position who has applied for the fund, that is, the customer, provides resources to this partnership by putting effort. Mudarabah usually finds a place in trade financing (Karamelikli and Alizadeh, 2017).

**Musharakah (Active Partnership)**, in this system, the financial institution provides a certain proportion of the fund required for the partnership, while the other party is expected to be met by the customer, that is, the other partner. The earnings arising as a result of the partnership are shared with the share ratio determined at the beginning. There is no obligation for the rate of earnings to be in the capital ratio. In general, musharakah finds a place in meeting the fund needs of the industrial sector (Gedikli and Erdoğan, 2019).

**Murabahah (Sales Contract at a Profit Markup)**, is the most common method of providing funds in the participation banking system. The murabahah method is a spot sales contract in which the contract price is defined as "cost plus profit margin". In the method, the fund providing institution buys the goods indicated by the service requesting party, that is customer, and resells them to the customer on a term basis by adding a maturity difference specified in the contract. As of the system, the customer

has to know both the payment and the cash price of the goods. Murābahah finds a place in meeting the funding needs of small-scale enterprises (Ayub, 2007).

**Ijarah (Leasing)**, following the method described above, this method is also the second method frequently used in participation banking. The ijarah method operates in parallel with the leasing method used in the traditional banking system. Ijarah application finds a place in the financing of real assets such as real estate and machinery (Yurttadur, 2021).

**Salam and Al-Istisna**, salam operates in a similar way to the maturity option methods used in modern financing. It is based on the principle that the money of a good or service is given in advance before it is received and the goods or service is taken over at a later date determined. Al-Istisna refers to the purchase of the goods as pre-sale, which will be produced on a certain date that does not exist at the time of the contract. These two methods find a place in the financing of agricultural and construction projects. Salam and Al-Istisna have been successfully used in providing funding for large-scale construction projects for many years, especially in the Gulf countries (Ayub, 2007).

**Tawarruq**, is contrary to the Murābahah method, is the purchase a good in installments and sale of it in cash to someone other than the seller. With this system, the person in need of cash meets his/her needs. This system can be used by participation banks to restructure the debts of customers with payment difficulties (Canbaz, 2022).

**Sukuk**, the basic rule in Sukuk, which means the de facto endorsement of securitization within the framework of Islamic finance, is that the notes are based on physical assets. However, within the framework of Islamic law, the scope of assets that can be subject to securitization is relatively limited. According to the definition of Islamic Financial Institutions Accounting and Audit Organization, there are 14 different Sukuk. The main ones of these are leasing-based sukuk, musharakah and mudārabah-based sukuk, murābahah-based sukuk and salam-based sukuk (Tekin, 2017). In participation banking, although there are also Qard Hassan (benevolent loan) methods, which is an unconditional lending method, and Takaful methods, which can be an alternative to the traditional insurance method, it is mentioned only by name since they are not within the scope of the thesis.

#### **5.2.1.4. United Kingdom**

Help to Buy launched as a social housing acquisition programme in the UK will be introduced in this chapter and its eligibility for financing urban infrastructure and regeneration will be examined. Help to Buy is an umbrella program of British government, first described in the March 2013 Budget. For first-time home buyers are those who want to save a deposit or have limited equity, it is designed to help those struggling to get up the property ladder. It consists of three programs that will be explained below (HBB Guide, 2020).

##### **5.2.1.4.1. ISA Individual Savings Account**

Individual Savings Accounts (ISA) under Help to Buy are savings accounts that allow first-time buyers to save money for a mortgage deposit and then claim a government bonus when they buy their first home. Savings deposited in Help to Buy are not taxed. This means that the government contributes 25% to savings of up to £12,000, so that a maximum tax-free bonus of £3,000 can be earned. £200 can be deposited into the Individual Savings Account per calendar month. When you first open the account, you are allowed to make an additional contribution of £1,000, which means a saving of £1,200 in the first month. The right to withdraw money is reserved when necessary. For example, if you contribute £200 at the beginning of the month and then withdraw all (or part of it), you will not be able to pay anything else until the next calendar month. In addition to the government contribution, the money in your account will be treated as deposits in the bank. The British Government has made this program valid until 30 November 2019. After that date, existing account holders will be able to maintain their savings (and qualify for the bonus), but no new accounts will be opened (UK ISA Account Regulations, 1998).

Any UK citizen can apply for Isa Help to Buy, but what you need to do to qualify for the bonus are:

- To be a first-time buyer,
- To buy a home in London for up to £250,000 or £450,000

Individual Savings Account Help to Buy is not limited to buyers of newly built homes. The government bonus will only be paid when a property is purchased, so

you won't get a 25% bonus if you use the money for something else. To qualify for the government bonus, the property you purchase must be mortgaged. As holders of the ISA, you can take any type of residential mortgage and are not required to get your mortgage from your bank with the ISA (UK ISA Account Regulations, 1998).

In order to qualify for the state bonus, the purchased property

- must be in England
- must have a purchase price of £250,000 (or up to £450,000 in London)
- must be the only home you'll ever have
- must be where you want to live
- must be available for purchase with a mortgage (UK ISA Account Regulations, 1998)

#### **5.2.1.4.2. Equity Loan**

Equity Loan is a loan from the government that can combine it with a deposit and mortgage to purchase a newly built property. Depending on where you live, the government lends between 15% and 40% of the property price. To cover the remainder of the property's value, you must make a deposit of at least 5% and you get a mortgage. The amount that can be borrowed is as follows: (UK Equity Loan Guide, 2019).

Up to 20% of the price of the house in England and Wales, up to 40% in London and up to 15% in Scotland. To get equity loans, the assistance is for a percentage of the property's value rather than a set amount of cash. This means that you may be able to pay back more or less than you borrowed, depending on whether your home has risen in value or not. For example, if you take a 20% equity loan to buy a property worth £200,000, you get a loan of £40,000, and when you want to sell, you may be required to reimburse £50,000 if the property is worth £250,000. If the house in the example above was sold for £210,000, you will receive £168,000 (80% from your mortgage and down payment) and repay £42,000 to your loan (20%). You need to pay your mortgage payment with your share of the money. Equity loans are available to homeowners looking to move as well as first-time buyers. The house you want to

buy must be newly built with a price tag of up to £600,000. In order to benefit from this program, it is necessary to buy a house only for the purpose of living and not to own another house (UK Equity Loan Guide, 2019).

#### **5.2.1.4.3. Shared Ownership Based Financing Method**

This method, which is used in the British Isles, is essentially a social housing method and has a unique terminology. Here, the method will be introduced while mentioning this terminology.

Shared ownership, also known as 'part buy part rent', is a program that allows you to buy part of the property and pay the rest of the rent. It is designed to help people with small deposits and low income on the property ladder. You receive 25% to 75% of the property from a residential association (a nonprofit that provides housing) and pay rent of up to 3% of the remaining share. Usually, you need to make a deposit of at least 5%, however, this is only your share rather than the total property price. You pay the rest of your share with a mortgage. There is the option to take a larger share of the property at a later date. These programs target people who do not earn enough to buy a house directly. Most houses that can be purchased with this condition are newly built, however, some of the second-hand properties that are subject to resale by housing associations are included in this program. All properties purchased with shared ownership are only subject to the leasehold ownership regime (UK The Housing Regulations, 2009).

The Shared Ownership includes the following subsidies as it is mainly for people who want to own their own house but cannot afford to buy from the open market.

- The lease is lower than the rate collected on the open market and usually collects 2.75% of the annual property value.
- You can start with a 25% share.
- The payment you make in the first-buy can be up to 5% of the property price, because for a 25% share, there is the right to use a 20% mortgage loan.
- The stamp duty land tax (SDLT or simply 'stamp tax') can generally be deferred until the property ownership rate reaches 80%.

Shared Ownership properties can often be found in a private construction, because provision of a certain number of Shared Ownership units is required as part of planning permission for a development project (UK The Housing Regulations, 2009).

### **5.2.2. Financing Methods and Tools in Türkiye**

Considering Türkiye in particular, the methods available for financing urban infrastructure and regeneration will be introduced under this heading.

#### **5.2.2.1. Public Financing Support**

In Türkiye, public financing support is available as interest support, rent and relocation assistance, these supports will be introduced here.

**Interest Support**, can be given to the loans to be used by real or legal persons who will use loans from the banks within the scope of the Law to be covered from the Conversion Projects Special Account at the rates determined by the Council of Ministers upon the proposal of the Minister of Treasury (URL 6).

The Ministry signs a protocol with the banks that apply to it. The Bank evaluates the loan applications within the framework of the provisions of the protocol and the lending procedure, principles and legislation of the Bank. The Bank notifies the Ministry of the list of beneficiaries that it deems appropriate to give a loan. The application is evaluated by the Ministry within the scope of the Law No. 6306. Those who will benefit from interest support are notified to the Bank. The fees, insurance and similar expenses to be demanded by the banks for the loans to be provided with interest support shall be paid by the beneficiaries.

The interest support payments to be given to the loans to be provided by the banks are made from the account by the Ministry, following the bank's notification to the Ministry of the monthly interest support amounts calculated until the end of the installment maturity for the loans extended and finalized each month according to its own records. For loans that are not repaid by the beneficiaries, interest support payments are suspended. The principal risk of the loan to be used by the beneficiaries within the scope of the protocols to be made with the banks and the risk arising from

the interest payments excluding the interest support belongs entirely to the bank (Guide for Rent Aid, 2019).

**Rent and relocation assistance**, principles related to rent and relocation assistance are provided in Table: 5.1. These costs vary according to the provinces.

**Table 5.1. Rent allowance amounts (URL 6).**

2021 PROVINCE BASED RENT ALLOWANCE AMOUNTS			
PROVINCE	RIGHT HOLDER (Rent Amount)TL		
	Owner	Leasee	Restricted Real Right Holder
“Artvin, Bilecik, Bingöl, Bolu, Burdur, Çankırı, Erzincan, Gümüşhane, Hakkâri, Kırşehir, Nevşehir, Sinop, Tunceli, Bayburt, Karaman, Kırıkkale, Bartın, Ardahan, Iğdır, Yalova, Karabük, Kilis”	715,00 TL	1.430,00 TL	3.575,00 TL
“Amasya, Bitlis, Edirne, Giresun, Isparta, Kars, Kastamonu, Kırklareli, Muş, Niğde, Rize, Siirt, Uşak, Yozgat, Aksaray, Şırnak, Osmaniye, Düzce”	810,00 TL	1.620,00 TL	4.050,00 TL
“Adıyaman, Afyonkarahisar, Ağrı, Çorum, Elâzığ, Kütahya, Ordu, Sivas, Tokat, Zonguldak, Batman, Çanakkale”	905,00 TL	1.810,00 TL	4.525,00 TL
“Aydın, Balıkesir, Denizli, Diyarbakır, Erzurum, Eskişehir, Gaziantep, Hatay, Mersin, Kayseri, Kocaeli, Malatya, Manisa, Kahramanmaraş, Mardin, Muğla, Sakarya, Samsun, Tekirdağ, Trabzon, Şanlıurfa, Van”	995,00 TL	1.990,00 TL	4.975,00 TL
“Adana, Antalya, Bursa, Konya”	1.085,00 TL	2.170,00 TL	5.425,00 TL
“Ankara, İstanbul, İzmir”	1.150,00 TL	2.300,00 TL	5.750,00 TL

### 5.2.2.2. Transfer of Development Rights

It is the transfer of the existing development right or potential development rights that may arise under development pressure, to another project or the conversion of this right into securities in areas that need to be regenerated and protected.

The Transfer of Development Rights is based on the principle of securitization in order to save in another project through local government cooperation or specialized institutions, instead of using the development right on the owner of the land. Although there are two alternative methods in general, studies continue on the development of methods. The first method is that the property owner sells his/her right to those who demand an increase in density, within market principles In the second method, it is based on the principle of establishing a development right

transfer bank, which has specialized institutions, and regulating the system by creating a pool system through these institutions (Zorlu and Aliefendioğlu, 2017).

**Concept of Development Rights,** The equivalent of the "right to develop" defined as "development right" in Anglo-Saxon law is the development right in Turkish law. The right to develop is the opportunity to use (the right of construction), sell, swap, and engage in construction activities on the land within the framework of the action and operation of the central government or local governments arising from the ownership of land (Zorlu and Aliefendioğlu, 2017).

The right to develop means the difference between the current use of a parcel and its potential use as permitted by law. Individuals can use their immovable property as they wish within the framework of plans and projects determined by competent institutions.

#### **5.2.2.3. Securitisation**

It would be appropriate to explain securitization through the Real Estate Certificate, which is used as one of the tools for real estate conversion. For the implementation of urban infrastructure and regeneration projects, similar securities instruments such as the Right of Development, Consolidation and Transfer Certificate can be used (Kaya, Benli and Yetgin, 2020).

**Real Estate Certificate,** is a securitization instrument and is used to fund the real estate project of the investor or developer. Those who have invested in this financing instrument can request the assignment of the independent division to the parties when the instrument in their possession reaches a sufficient number. It is a capital market instrument traded in Borsa Istanbul that allows companies to start or continue real estate projects to sell independent sections by dividing them into small units, namely certificates, that allows those who purchase a sufficient number of certificates to own an independent section through title deed transfer, that allows certificate holders who do not have sufficient certificates to benefit from the possible increase in value (Ülev, Savaşan and Selçuk, 2017).

**Slum Transformation Certificate,** is value of the administration over a mutually agreed value is based on the principle of assigning the slum owner, instead of giving the title deed allocation certificate or right to develop. This security can find use in

places where urban regeneration will take place and facilitate agreement in a practical sense (Göksu, 2003).

**Development Right Transfer Certificates**, are the means by which securitization will be made in the development right transfer method mentioned above. For the realization of urban infrastructure and regeneration projects, it is beneficial to calculate the existing or potential development rights and transfer them to the projects to be realized in another area. The purpose is both to transfer the development right to another area and to establish a good relationship between the users who want to use this right as a security in the free market and the investors who demand it, to create an equitable development right and more public areas such as green areas, parks, etc. The system is based on reconciliation with property owners. The property owner liquidates the value determined in return for the development right on the land, either by means of a certificate, under market conditions, or within another project, under market conditions, by other methods (Aken, Eckert, Fox, and Swenson, 2008).

**Certificate of Consolidation of Development Rights**, are based on securitization of existing rights in regions where the consolidation method is applied, and can be used effectively in bringing together the public and private sector and small and fragmented property owners (Tavares, 2003).

#### **5.2.2.4. Lease Certificates**

They are capital market instruments issued by asset leasing companies (ALC) in order to finance all kinds of assets or rights and that enable their owners to have rights in proportion to their share of the income from these assets or rights (Communiqué on Lease Certificates, 2013).

**Ownership-Based Lease Certificates**, is issued to finance the assets and rights to be taken over from the source institution to be leased to the source institution or third parties or to be managed on behalf of ALC (Communiqué on Lease Certificates, 2013).

**Lease Certificates Based on Management Contract**, is issued for the purpose of transferring the revenues obtained as a result of the management of the assets or

rights of the source institution in favor of ALC, including the lease for the term (Communiqué on Lease Certificates, 2013).

**Lease Certificates Based on Trade**, are the Lease certificates issued in order to finance the purchase of assets or rights in the transaction of an asset or right purchased by ALC and sold on a forward basis to a fund user (Communiqué on Lease Certificates, 2013).

**Lease Certificates Based on Partnership**, are the lease certificates issued by ALC to become a partner in the joint venture. Mudarabah Mudraba is based on profit sharing from a joint venture managed by the entrepreneur, in which ALC is the sole shareholder (Communiqué on Lease Certificates, 2013).

**Lease Certificates Based on Work of Art Contract**, are the Lease certificates issued in order to ensure the creation of the work of art within the scope of a work contract to which ALC is a party as the work owner. They enable to target a different investor group than conventional investors due to the readiness of the legislation and the market and interest-free, and to borrow more cost-effectively due to the secured structure compared to plain vanilla bonds. On the other hand, it necessitates relatively long export processes due to the necessity of having an asset or right behind the product, asset transfer, etc. (Communiqué on Lease Certificates, 2013).

**Project Bonds**, it is used to provide funds from capital markets in order to implement, maintain or refinance the project. It is possible to provide funds for long-term financing needs through Project Bonds that can reach maturities over 20 years. In addition to infrastructure investments, it is used in projects such as transportation, telecommunications, energy, etc. Institutional investors with long-term investments, such as insurance companies and pension funds, are targeted. The fact that it is an alternative for the financing of infrastructure projects needed in the medium and long term, and the interest and support of international financial institutions for long-term infrastructure financing are among the advantages of project bonds. On the other hand, the lack of special legislation, the shallow long-term TL market, and the fact that the real sector prefers to borrow in foreign currency due to high TL interest in long-term financing are among the reasons why the relevant bonds do not frequently appear (Communiqué on Lease Certificates, 2013).

**Revenue Partnership and Revenue-Indexed Notes**, are the notes issued for real and legal persons to be partners in the revenues from bridges, dams, power plants, highways, railways, telecommunication systems, and sea and airports for civil defense and similar ones belonging to public institutions and organizations. With the closure of the Public Partnership Administration and the liquidation of the Public Partnership Fund, these notes are no longer applicable. Revenue-Indexed Notes ("RIN") are designed by indexing the returns to the revenue shares obtained from PPFs and transferred to the budget. Although there are currently no applications, the relevant structure can be provided with the current lease certificates legislation. (Communiqué on Lease Certificates, 2013).

#### **5.2.2.5. Land Acquisition In Return for Flat**

A construction contract in return for flat is a bilateral contract, which is about the land owner transferring a certain share of the land to the contractor, and the contractor handing over a certain number of independent sections built on the land to the land owner in return (Güler and Özgül, 2020).

#### **5.2.2.6. Revenue Sharing Land Acquisition**

The Housing Development Administration (TOKI) has named the concept of Sales, Transfer, Inheritance, Leasing, Swap, Establishment of Limited Rights in Kind and Revenue Sharing in return for Land Sale as Revenue Sharing in return for Land Sale. These contracts are the contract in which the contractor undertakes the obligations of constructing the structure specified in the contract and mediating the sale of independent sections, in return, the land owner promises to sell the independent sections to third parties and is obliged to share the revenue to be obtained from the sale of the independent sections to be built by the contractor with the contractor (Güler and Özgül, 2020).

In this method, land owners do not buy a part of the housing or workplaces built by the contractor in return for their lands, but a part of the revenue obtained from their sales. In this system, although the owner of the land sells his/her land to the contractor, the sale price is determined as a certain percentage of the revenue to be obtained from the sale of the independent sections to be built on the land (Çatıkkaş and Yener, 2017).

### **5.2.2.7. Outsourced Project Loan**

For projects that require major financial support, the reserves of investment, development, and special funds abroad can be utilized. Transnational organizations such as the World Bank, regional and continental development banks, as described in the previous chapter, are among the most important examples.

### **5.2.2.8. Project Financing**

This method can be defined as the provision of non-refundable or partially refundable funds from funders in order to provide funds for investment projects, based on the cash flow generated by the project in loan repayment and capital return calculations. First of all, the project must be within a separate legal entity or even if the project is in a larger structure, the profit and loss and cash flow must be separable, that is, ring fenced. The fact that the method is non-refundable or partially refundable indicates whether those who finance the project company can apply to the project sponsors when there is a problem with the loan. A limited refund in the transaction indicates a limitation either in relation to time or quantity. In corporate financing, the project owner uses the loan on the existing structure and the company is responsible for all assets and cash flow in connection with the new loan received. However, this responsibility does not exist or is limited in project financing.

A separate company is established in which the project owners are partners and under unlimited responsibility in relation to the project. The newly established company is called special purpose vehicle (SPV). A structure is created in such a way that the license, permission and concession agreements related to the project and all assets related to the project belong to this project company, and all cash flow related to the project passes through this company (URL 7).

### **5.2.2.9. Public-Private Partnership Method**

PPP is a higher concept that includes the provision and presentation of all kinds of public goods and services by the private sector, has found wide and diverse application areas in the world in recent years, and incorporates alternative methods.

In short, PPP is a higher concept in the spectrum between the classical ways of providing public services by the state and the provision of all services through the

private sector, which includes all models of goods and services supply that involve the joint participation of the state and private sectors. The concept of PPP contains many different application models. Today, the most commonly used models are acquisition, ownership, leasing, rental, contracting, concession and company models. Brief description of the models are below.

**Acquisition Model** is, the contractor undertakes the planning, construction, financing and operation of an immovable to be used by the public sector on a land owned by him. The partnership usually lasts between 20 and 30 years. At the end of the contract, the ownership of the land and the building passes to the public administration that issued the contract. The Contractor is compensated with regular payments. This price is determined when the contract is established and includes elements of planning, construction, operation, financing and transfer of ownership, including land (URL 7).

**Ownership Model** is, unlike the acquisition method described above, the ownership of the land belongs to the public institution that made the contract. (Deloitte, 2006).

**Leasing Model**, is the private contractor undertakes the planning, construction, financing and operation of an immovable. However, unlike the Acquisition model, there is no obligation to pass the ownership of the building upon the expiration of the contract period. Rather, the private contractor has the right of choice between returning the property or acquiring ownership in exchange for the pre-calculated residual value. In addition to the purchase option, it is also possible to extend the lease agreement or cash bond agreement options. As a usage fee, the contract giver pays the contractor the installments (Leasing Installment) determined at the establishment of the contract at certain maturities (Boz, 2016).

**Rental Model**, is essentially similar to the Leasing model, but there is no option to purchase for a pre-determined fee. The building can only be purchased in return for market value at the end of the contract (Boz, 2016).

**Contract Model**, is that the contractor undertakes the construction and economic activation of certain technical facilities or works in a structure of the contracting authority. The term of the contract is usually between 5 and 15 years. It consists of certain intermittent payments agreed upon when establishing the contract in order to

cover the planning, implementation, operation and financing costs to the Contractor (Deloitte, 2006).

**Concession Model**, the contractor is under the obligation to perform a certain action directly to the citizen, at his own risk. In return, the contractor finances its expenses from the users in return for a fee or a consideration (Usta and Bilgiç, 2016).

**Company Model**, is established where the public partner undertakes public duties (e.g. implementation and financing of an infrastructure project) together with one or more private companies and all shares are not held by the public sector (Usta and Bilgiç, 2016).

#### **5.2.2.10. Barter System**

Barter can be defined as ‘Interchange ‘or’ Exchange’. Barter trading system, which is made without money , is an advanced system different from one-to-one exchange transactions. It is a financial and trade system in which the price of the goods or services purchased by a business is produced by itself or paid with the goods or services owned by it. The content of the barter system is therefore far beyond than just exchange. In addition to being a large market where many buyers and sellers come face to face, Barter is a system that brings together these buyers and sellers within the framework of certain rules and according to certain criteria, regulates the mutual relations of the buyer and the seller and determines the rights and responsibilities of both the buyer and the seller.

Barter is a shopping club where buyers and sellers can find markets under the best economic conditions and make their purchases in this market, and where individuals or institutions with certain qualifications can become members or benefit from the system. Considering the economic facts, that is, the cash shortage, it is self-evident that barter is a serious solution. In both advanced and emerging models, the Barter System is a global financial model in terms of continuity. The Barter system creates great added value for all sectors when it is carried out by expert staff and by developing the right policies. Because the system essentially has very serious responsibilities that the banking sector is not interested in such as increasing the sales of the Barter Common Market member organization, directing the marketing policy,

solving the investment and financing problem and ensuring its growth by evaluating the idle capacity (Humphrey, 1985).

### **5.2.3. Financial Instrument Example from Virtual World**

Today, the virtual environment has changed its name to virtual world and determined a unique ecosystem. Here, ICO and STO, which are frequently used methods in developed countries from the virtual world, will be introduced and their use for the financing of urban infrastructure and regeneration will be examined.

#### **5.2.3.1. ICO/STO**

The ICO, which is also mentioned in the New Economy Program and to be supported, will be examined with the crowdfunding model and sub-concepts that form the basis of it. The concept of STO, which is an alternative to ICO, will also be examined and information will be given.

**Digital economy**, is meant by digital economy is the revenues obtained from electronic commerce and digital platforms and the way they are obtained. The digital economy is an umbrella concept with many sub-concepts, including all applications made with blockchain technologies, apart from electronic commerce and virtual platforms. Although the digital economy is used as a roof, it is highly likely that the crypto economy will take the lead from now on. The sub-concepts of the digital economy, which also constitutes the infrastructure of the sharing economy, will be explained in the following sections specifically on Urban Infrastructure and Regeneration and its financing (Güven and Şahinöz,2018).

**Fintech**, is the concept of using advanced technology to improve and facilitate financial transactions, and to increase the variety of services, created by the abbreviation of the words finance and technology. It provides transparency, speed, reliability and personalized customer experience beyond traditional financing services. With the use of these technologies, the traditional banking system, whose traditional financing understanding has changed, is evolving (Küçükkıralı and Afşar, 2022).

**Regtech**, is obtained by the abbreviation of the English words regulation and technology, can be translated as technologies of law. This concept includes the full-

time transfer and intervention of instant arrangements to financial and legal events with the information flow it provides. This concept, which is very important on the basis of states, refers to technologies where instant changes and regulations can be used in multilateral exchanges, especially in terms of international agreements and taxation (Demirdöğen, 2019).

**Proptech**, is which emerged by combining the English words property and technology, can be translated as property technologies. This concept, which refers to digital transformation in real estate, now emerges as a concept whose first three stages are consumed with a concept such as Proptech 4.0 in the UK. In general, this concept, which covers all stages from the production of the real estate to the marketing and handover, roughly covers the use of blockchain technologies from the use of artificial intelligence in the design phase, from quality control in the production phase, to the use of augmented reality and digital economy in the marketing phase and the use of blockchain technologies in the sales registration phase. Undoubtedly, this technology offers opportunities and changes in, urban infrastructure and regeneration and its financing (Baum and Saul and Braesemann, 2020).

**Sharing economy**, the fact that the resources in the world are decreasing day by day and the population is increasing geometrically according to Malthus's words, has revealed the common use and sharing economy rather than individual use.

In general, the sharing economy is the sharing of resources to people gathered for the same purpose, not to individuals. Concepts to be considered together with the sharing economy; Industry 4.0, Society 5.0 will be discussed in general terms below.

**Industry 4.0**, until today, the industry has taken its current form by going through many processes. However, the current state of the industry does not coincide with today's needs and developments, and the need for a new industry and a new production model has arisen.

When examining the history of industrial production, it would be correct to take the invention of the steam engine as a milestone. While the production model with the steam engine is called the first industrial revolution, the transition to production with the electric motor is called the second industrial revolution, and the transition to

automation of the production processes with the use of digital revolution and information technologies is called the third industrial revolution.

The world is preparing for the fourth industrial revolution, namely the transition to industry 4.0, with the pressure of today's needs, resources, and technologies. If we take a brief look at Industry 4.0, we see that it emerges as a production model in which advanced technology products are blended. We can summarize these technologies as; big data that is still being collected and used, that is, the collection of all records of people in electronic media, and the use of this data in the development and marketing of new products by processing. The internet of things, that is, the information network where all machines on the production line use each other in connection with each other, exchange information and inform each other about needs. Artificial intelligence, that is, the ability of machines to learn and decide with the help of certain algorithms and software. Augmented reality, that is, virtual reality, which we can call an upper and umbrella level, is the presentation of virtual models integrated with the real world, and, of course, 5G, the super-fast internet technology that can run these applications together (Kandiye, 2020).

The new industrial revolution, which will be passed by using these technologies together, will undoubtedly have many advantages and disadvantages. With the transition to this production model, many paradigm changes will come along with working models, lifestyles, law and economy in particular. Undoubtedly, this industrial change and accompanying technologies will also change real estate and finance and affect, Urban Infrastructure and Regeneration, and its financing (Esmer and Alan, 2019).

**Society 5.0**, was first used by the Japanese Government in 2016 in the "Fifth Science and Technology Basic Plan" and subsequently introduced to the world by Japanese Prime Minister Shinzo Abe at the Hannover Cebit fair in 2017. In general terms, it is defined as a super-intelligent society in which cyberspace and real space are highly integrated. It is a philosophy that advocates the view that technology is a helper, not a threat (Saracel and Aksoy, 2020).

Society 5.0 is about a society that has changed its lifestyles with the aforementioned technologies that are fully integrated, benefiting from all the possibilities of Industry 4.0. This society will undoubtedly change, Urban Infrastructure and Regeneration,

and its financing and demand that it be presented in line with these technologies. Examples of Sharing Economy, from the world are basically renting a house and looking for a place to stay, sharing a car, and using a common office.

#### **5.2.3.1.1. Crowdfunding**

Which is an alternative financing method for projects and entrepreneurs; is defined as the provision of financing through funding platforms without investor compensation provisions, the collection of money from the public in order to provide the funds needed by a project, within the principles determined by the Capital Markets Board. In fact, crowdfunding is not a new concept, because in the 18th century, writers and musicians were collecting money from investors to spread their art works. Just as NGOs collect aid to establish a school or do a social project, today, such local communities are now able to reach a larger audience with the contribution of the internet. It can be said that it is the modern version of the traditional fundraising process (Çelik and Varol, 2020).

This method has recently been introduced as a way to help small businesses and entrepreneurs seeking investment capital for their business ventures. When asked about how they can increase the money to establish a business and what is the most common method of obtaining the loan, the first source that comes to mind is the banks, but banks find entrepreneurs very risky (Çevik and Uyar, 2021).

There are three basic crowdfunding methods. These are donation-based, reward-based and investment-based funding. Crowdfunding platforms operating with donation and reward-based methods have been established in our country since 2010 (Agrawal, Catalini, Goldfarb, 2013).

The basic logic in crowdfunding is to bring together those who need funds for their project, idea, design and fund owners. There are also crowdfunding platforms that enable small companies and startups to receive investments by giving shares from the company. This is called "the crowd capital" (Bayram and Karaçam, 2022).

As examples from the world "Give Forward" platform established in 2010 for personal medical charity collection and for fundraising around disaster events such as hurricanes and typhoons. The Kickstarter platform, on the other hand, specializes in providing funding for creative projects such as movies, games, art and technology.

To date, the platform has mediated the financing of over one hundred and fifty thousand projects. Types of Crowdfunding vary mentioned below.

**Donation Based Crowdfunding**, is based on funding a project by asking a large number of participants to donate a small amount.

**Reward-Based Crowdfunding**, is based on the principle of determining different levels of rewards corresponding to certain collateral amounts.

**Peer-to-peer (P2P) or Debt-Based Crowdfunding**, is based on start-ups borrowing money from a few people and paying it back after the project is finished.

**In the Crowdfunding by Lending Method**, is entrepreneurs provide themselves a term fund in the form of loans that they will repay to the lenders at a predetermined term with a determined interest rate.

**Equity Crowdfunding**, is investors invest in a company that is not traded in the stock market, in exchange for equal rights.

#### **5.2.3.1.2. Blockchain**

Blockchain is a decentralized, distributed-based data recording system that provides transaction tracking with some encryption methods. Distributed means that it is multi-centralized, not uni-centralized. The recorded data cannot be changed or deleted again, which is proof that there is no database. In short, the blockchain is a system based on the principle that the data in the chain, namely the blocks, are stored in an encrypted manner with an algorithm that will be explained in the future, and the chain formed by these blocks is shared in a multi-centralized distributed manner (Nanayakkara, Perera and Senaratne, 2019).

To give a brief example, even though they are not used today, the grocery books which will create a smile on the face of my age group when they remember it will be a nostalgic and good example. When you did your shopping at the local grocery store, the grocery store would write in its own credit book and we would write it in the house's credit book. The purpose of this mutual recording principle was, of course, to prevent the grocer from adding anything to the book without the knowledge of the customer, and also to prevent the customer from removing anything from this book without the knowledge of the grocer. Likewise, the logic in

the blockchain works in a way that the block containing the transaction is shared with everyone on the chain at the same time, and that anyone on the chain making changes on this block conflicts with the records of those on the other blockchain and therefore remains out of the network (Kaya, Benli and Yetgin, 2020).

Thus, it is possible to keep unchangeable records on the blockchain. While making these unchangeable records, there is no need for a center and security increases with the increase in the number of computers registered in the system. The blockchain was invented in 2008 along with a cryptocurrency, Bitcoin, by a person or group named or alias Satoshi Nakamoto. Because humanity does not even know who this person or company or group of companies is, on the other hand, there are many questions and doubts due to the disappearance of such a technology by begging humanity for a grant. Although these doubts disturb humanity, there is no more choice at the moment other than to continue on our way by thinking about how to benefit from this technology more effectively (Güven, Şahinöz, 2018).

Bitcoin is the first encrypted digital currency to use this technology, along with the Blockchain by Satoshi Nakamoto. The reason why I say it is the first digital currency, many digital currencies and tokens have emerged after Bitcoin. All transactions made in Bitcoin are recorded on its own blockchain and all information is open to anyone who requests it. Bitcoin is subject to number limitations due to its internal protocols, and almost eighty percent of this number is currently produced. It can be thought that the reason for this is that Bitcoin was designed as a commodity, not a money. Because the name of Bitcoin processors is also called miners. Just as precious metals and commodities are subject to limited production, Bitcoin is also limited and may be designed to be used as a value storage or investment tool or reserve rather than a barter tool. While its price in the first days was around one-tenth of a dollar, it is around 10 thousand dollars as of the time this part of the thesis was written (Nakamoto, 2008).

**Blockchain Works Process**, blockchain technology through the example of Bitcoin: While Bitcoin's blockchain has its own set of rules, other blockchains are also governed by the rules for which they were designed. Because each blockchain can have its own rules, which is already in line with the spirit of this technology. The process of operation can be gathered in 3 main steps (Nakamoto, 2008).

**Creating the Transaction**, in order to transact with Bitcoin, it is necessary to have a wallet app. With this wallet app, two unique addresses are given, public and private. A public address is required to receive Bitcoin transfers. A private address, on the other hand, can be thought of as a password that only the wallet owner should know. This private address, that is, the password, is used when someone wants to send Bitcoin (Kandiye, 2020).

We can make it more understandable by describing an example Bitcoin transfer. For example, Mert wants to send 2 Bitcoins to Aslihan. In order for this to happen, Mert will need to enter Aslihan's public address and the amount of Bitcoin to be sent in the wallet app. The Wallet app creates a transaction on behalf of its users. We can also think of this transaction as a kind of bank check used in daily commercial life. Bank checks have the buyer's information, amount and signature on them. In fact, the situation is not much different for Bitcoin transactions. How many Bitcoins the person receiving the transfer has is determined by the account balances, that is, the sum of the Bitcoins sent to their address before. In this case, the wallet app goes on a search to find the Bitcoins sent by Mert before on the chain. This research continues until Mert reaches the amount of Bitcoin he wants to send. The final stage of this transaction is the 'Signing stage'. At this stage, it needs to be proven that this transaction really came from Mert. For this, a method called digital signature is used. The wallet app creates a signature by passing Mert's private key and this process through a certain method. This signature will be used in the future by people on the chain network to prove that this transaction was created by Mert. The wallet app sends this created transaction to the blockchain network for approval.

**Approval of Transaction**, miners working in the blockchain network need to check the accuracy of this process before entering it into the Blockchain network. When performing this check, 2 criteria are considered. First of all, it is checked whether the Bitcoins referenced in the transaction have been used before. Secondly, it is checked whether the signature in the transaction is correct. They find this by checking the public address, the transaction and the signature of the sender in a function (Nakamoto, 2008).

If this signature is returned to them as ‘true’, this transaction will be placed in the approved transaction pool. In the next step, this transaction is now added to the chain.

**Adding the block to the chain**, now it is necessary to add the transaction to the chain within a block and everyone in the chain must accept this transfer. The block can be considered as a text file. This text file contains the block number, transaction proof number, transaction proof number of the previous block and, finally, approved transactions. The blockchain is held in the same way on all nodes on the network. Therefore, if a block is to be added, it must be propagated to all nodes. And that transaction should be difficult. For this, a method called proof of work has been developed. This is a kind of riddle, and miners who want to add blocks need to solve this riddle. Whoever solves the riddle first will be eligible to add the next block and will receive a reward for it (Kandiye, 2008).

First of all, the proof of work works with an algorithm called SHA256 algorithm. The first person to find this proof of work number will spread his/her answer and the block he/she wants to add to the network. Once the people on the network are sure that this answer is correct, they add this block to their chains and continue the race to add the next block. Too much computer power is used to find the proof-of-work number. Therefore, the person who adds a block is rewarded. This reward was determined as 50 BTC when Bitcoin was first revealed, but as the number of blocks increases, the reward amount is halved. The Bitcoin system, as explained at the beginning, is a system subject to limited production and when the amount is 21 million, the production will stop and the amount produced so far is around 16 million (Nakamoto, 2008).

#### **5.2.3.1.3. Smart Contracts**

Smart contracts are a computer protocol designed to facilitate, verify, or implement the operation of the contract. Smart contracts were proposed by Nick Szabo in 1996. The aim of smart contracts is to reduce other contract-related transaction costs while providing a safer environment than contract law. Smart contracts help to transparently exchange money, property, or anything of value without the need for a person or institution such as an intermediary, notary public, broker, etc. (Nanayakkara, Perera and Senaratne, 2019).

It would not be wrong to compare smart contracts to vending machines in public areas. Normally, for a sale, it is necessary to go to the notary or the relevant institution in our country, and to a lawyer in western countries, and while it is necessary to pay for the brokerage service received to these individuals or institutions and to wait for a certain period of time. With smart contracts, a digital cryptocurrency is placed on the vending machine (i.e. the ledger) and it is seen that this transaction comes directly to the account if the instruction is made for a license or whatever. On the other hand, smart contracts not only contain rules and penalties related to a traditional contract, but also automatically fulfill these obligations (Wood, 2014).

#### **5.2.3.1.4. Reg-Tech**

Regtech, is obtained by the abbreviation of the English words regulation and technology, can be translated as technologies of law. This concept includes the full-time transfer and intervention of instant arrangements to financial and legal events with the information flow it provides. This concept, which is very important on the basis of states, refers to technologies where instant changes and regulations can be used in multilateral exchanges, especially in terms of international agreements and taxation (Demirdöğen, 2019).

#### **5.2.3.2. ICO and STO Operation Process**

ICO is the cryptocurrency version of crowdfunding. It is one of the easiest and most effective ways to raise capital and invest in projects. ICOs are an event that usually lasts for a week or more and where people can buy newly released tokens in exchange for already known cryptocurrencies. In ICOs, supporting a project can have a certain limit or purpose, i.e. each token has a pre-designed fee and does not change throughout the ICO period. As one of the consequences, a fixed number of tokens are supplied. The more investment a project receives, the higher the token price will be (Yavuz and Suyadal, 2020).

ICOs can sometimes only be single-stage, sometimes two-stage. Some ICOs may request investments for the development of the project in the first stage and take partners to their projects. In the second stage, the sale of the "Token", which offers

opportunities to all users with a few dollars in capital, such as dividends or preemptive rights, similar to the stock application, is started.

To explain the operation of the ICO system with an example. “Let's say you have an ICO project, for example. Let's say your project has 100,000 pre-planned cryptocurrencies called projectcoin. Since you are not likely to sell in pieces for projectcoin that has no value yet, let's sell tokens that represent each x coins. Let's set the ICO first token sales period as 1 week. Let's sell 200,000 tokens with smart contracts thanks to Blockchain technology in this 1 week. In this case, after the ICO token sale, 1/2 projectcoin will be transferred to the account of those investors, thanks to the blockchain, to an investor who has purchased 100 tokens. If you have one hundred thousand coins and one hundred thousand tokens are sold, 1/1 one-to-one coins are sent, if 50 thousand tokens are sold, 2/1 ratio, that is, 2x coins are sent to each investor's account. In this case, the ICO project has collected the investment funds necessary for the development of the business, and the investors have invested in the future of a project they truly believe in. Investors, on the other hand, can make a profit when the value of projectcoin increases against their investments converted into coins. One advantage of investing in ICO projects is that there is usually a certain percentage discount on token purchases. It is like getting 125 tokens when you can get 100 tokens for 100 dollars” (Wood, 2014).

**STO (Security Token Offering)** “is the method of offering security tokens to the public with crowdfunding. For example, tokens offered to the public through STO may represent a company's stocks. Investors acquire various rights on the company with the tokens they purchase. A new IPO method, the STO, is now subject to similar regulations as the traditional IPO method, but the capital market boards of the US and Hong Kong have issued legally informative statements about the STO. However, both technically and legally, the concept of a security token is rapidly evolving.

While the tokens supplied with STO are called security tokens, those supplied with ICO are called utility tokens. Utility tokens supplied by ICO do not grant participants any rights over the company or its resources compared to the STO. ICO-supplied tokens often have a variety of project-related uses. However, it is unlikely to use the tokens offered, since most of the time the ICO is made to raise the money needed to

develop the project. Whether the usage areas of utility tokens will add any value to the token in the long term is another question for ICO participants. While there are many uncertainties about the tokens offered with the ICO and their usage areas, security tokens offered with STO represent a variety of real assets such as stocks. In short, STO can be defined as the public offering of stocks or securities in general in the form of tokens.” (Küçükkıralı and Avşar, 2022).



## CHAPTER VI

### MATERIAL AND METHOD

In order to conduct an appropriate way of urban regeneration, the developed country experiences which conducted the projects as a whole integrated with its infrastructure, examined during literature survey. The conjunctural, environmental and technological pressures and thresholds on financial markets researched and ecosystem dynamics stated for the sustainable financing of urban infrastructure and urban regeneration. Financial instruments from World and Türkiye was investigated and presented. The expertise financial institutions presented in order realize the financial instruments from World which are not existing in our financial market.

The most important actor of the urban infrastructure and urban regeneration projects is the right holder (beneficiary). Because in most cases the projects are on base to demolish and regenerate the right holder's houses which have low income and do not have a chance to reach finance easily.

Due to the fact that, the social housing method from UK, the Shared Ownership method and the Housing Association which is the driver institution for the method are chosen from the presented methods and expertise institutions to adaptate for right holders funding in order to ease them to reach finance and have a chance to stay in their neighborhood as well.

#### **6.1. The United Kingdom Shared Ownership Model**

This method, which is used in the British Isles, is essentially a social housing method and has a unique terminology. Here, the method will be introduced while mentioning this terminology. Shared ownership, is briefly 'part buy part rent', is a program that allows people to buy part of the property and pay the rest of the rent. It is a social housing scheme under umbrella program Help to Buy which offers alternatives for people willing to buy house but not have enough money (UK The Housing Regulations, 2009).

### 6.1.1. Historical Approach to Shared Ownership

Every country tried find solutions for affordable housing or in another words social housing. Shared Ownership is a solution of 1980s. Up to 1980 different solutions and policies were tried by UK Governments such as co ownerships and half and half schemes. In the 1980s, the Act revealed to have o social approach for housing, the Housing Act 1980 also included other initiatives such as mortgage interest tax relief, homesteading and improvements for sale; it was not until 1983 that council tenants had the right to buy on shared ownership terms. Up to 1983 the shared ownership model was “do-it-yourself shared ownership”. Shared ownership emerged from a disparate range of local schemes in the 1960s and 1970s. In the 1980s it was introduced in the form known it today via the Housing Act 1980, which incorporated the right to staircase to help people who were in housing need and could not afford to buy a home outright. After 2010, the Coalition and Conservative Governments implemented a range of initiatives to assist first-time buyers into home ownership. These have included policies and grant funding intended to extend shared ownership (Cowan, Carr, and Wallace, 2015).

**Table 6.1.** Chronology of Shrared Ownership, updated and revised from (Cowan, Wallace and Carr, 2015).

<b>1980</b>	Shared ownership
<b>1981</b>	Co-ownership properties sold to tenants
<b>1982</b>	Shared ownership off the shelf
<b>1983</b>	Do-it-yourself homeownership
<b>1984</b>	Right-to-buy shared ownership. Homeownership for tenants of charitable housing associations. Do-it-yourself homeownership stopped.
<b>1986</b>	Mixed and flexible tenure promoted
<b>1989</b>	Shared ownership for elderly. Rehabilitation shared ownership
<b>1990</b>	Tenants incentive scheme. Council incentive scheme
<b>1993</b>	Peak year for shared ownership up to 2001.
<b>1998</b>	Homebuy introduced.
<b>2001</b>	Starter home initiative
<b>2004</b>	Key worker living
<b>2006</b>	Social Homebuy. New-build Homebuy. Open market Homebuy
<b>2008/09</b>	Rent to buy
<b>2009</b>	Homebuy direct
<b>2011</b>	FirstBuy
<b>2013</b>	Help to buy – equity share. Help to buy – mortgage guarantee
<b>2015</b>	Affordable rent to buy
<b>2021</b>	New Shared Ownership Model declared.

### **6.1.2. Economical Theory Approach to Shared Ownership**

Ownership is part of contract theory. Oliver Hart (1995) has declared that matters related with ownership is in the context of incomplete contracts. When some future contingencies cannot be taken care of in a contract today, then negotiations will take place tomorrow (Hart, 1995).

Ownership improves the bargaining position in these negotiations. As a result, today an owner has stronger incentives to make relationship-specific investments. In this framework, Schmitz (2017) has shown that shared ownership of an asset can be desirable today, even though tomorrow it is optimal to give the asset to the party who values it most. The reason is that shared ownership yields more balanced investment incentives of the involved parties. The optimal ownership shares depend on whether the investments are embodied in the physical capital or in the parties' human capital (Schmitz, 2017).

### **6.1.3. Conceptual Framework of Shared Ownership**

The concept of the Shared Ownership is subsidising the people who want to buy a house but do not have the enough money to own the whole share of the property. It is briefly a affordable or in other words a social housing policy of UK Government in order to support the population and increase the percentage of house owning. Shared ownership enables people to buy a share of a property and pay a subsidised rent on the remaining share. This subsidised rent is fixed by the legislation which is up to 3% value of the property bought under this scheme. In general use the approach of the social landlord is to apply 2,75% value of the unsold part of the property bought in terms of the scheme mentioned. Shared ownership has been described as a hybrid tenure between social renting and private ownership (Cowan, Wallace and Carr, 2015).

The majority of shared ownership homes are delivered and managed by housing associations which will be described relevant section of the study. The Housing Associations also called social landlords due to their social duty. Some local authorities and private developers have also social housing schemes as well. Shared ownership properties are currently constructed using a composition of private finance and grant funding through the Affordable Homes Programme 2021-26 or

developer contributions via planning obligations. This funding composition enables housing providers to build new properties for shared ownership and ask a subsidised rent on their share of the property.

#### **6.1.4. Model-Specific Ownership Types**

The Shared Ownership model contains UK ownership regime in the method terminology. These ownership types will be introduced below. The model is formed due to nature of UK ownership regime which will be explained below.

##### **6.1.4.1. Freehold**

It is the ownership system in which the purchased property is purchased together with the land and it is the ownership model that gives the owner the right to make changes and modifications to the property and to make decisions. In England and Wales, most homes are under such an ownership regime (UK Leasehold Reform Act, 1967).

##### **6.1.4.2. Commonhold**

Commonhold is a relatively new idea introduced in 2004. It is a ownership regime generally used for flats and independent sections. A group, for example, has an apartment block jointly. Personal ownership is not in question. The owner is a legal entity called a commonhold association. The owner of each apartment is a member of this association. When a commonhold apartment is purchased, it automatically becomes a member of this association. The commonhold association is responsible for the protection of the common areas of the building. The advantages of the partnership are as follows, there is no fixed term ownership and no rent to be paid during the period described in the next chapter. All decisions regarding the building are taken jointly by the owners (UK Leasehold Reform Act, 1967).

##### **6.1.4.3. Leasehold**

When a leasehold property is purchased, actually a property that has been leased for a period of time has been purchased, therefore, in a leasehold property, you cannot buy the land on which the property is located. Most flats in England and Wales are leasehold property. These are subject to the land rent due to the landlord. The ground

rent shall cover the common maintenance and repair costs. In addition, land rent increases with inflation in general, but in most cases it is not contractual. When the period specified in the lease expires, the ownership of the purchased property is returned to the owner. Most leases have been around for 99 years. However, the Lessees may receive an extension lease period, usually 50 years, for a certain fee. In today's conditions, 999-year leases are becoming increasingly widespread in newly constructed buildings. On the other hand, many mortgage companies do not lend to such structures if the lease term is less than 75 years. A lease can be extended, but there is a cost associated with it, and the shorter the lease, the more expensive it is to extend (UK Leasehold Reform Act, 1967).

### **6.1.5. Process of Shared Ownership**

The process of Shared Ownership Model has steps such as buying, staircasing and selling. And the eligibility of the model also will be described in this section. A general overview of the process of Shared Ownership Model is below.

#### **6.1.5.1. Buying**

Applicants purchase a share of a flat or house from provider. The size of the share is determined by the purchaser's ability to afford and sustain the purchase. Generally the initial share purchased has been between 25% and 75%, but the new amended model of shared ownership, which applies to properties built from April 2021, allows for a minimum purchase share of 10%. Buyers must be able to raise a sufficient deposit and raise a mortgage to buy a share of the property. Shared ownership properties are always leasehold. The shared ownership lease agreement sets out the legal obligations of the two parties the leaseholder and the landlord (Cromarty, 2021)

#### **6.1.5.2. Eligibility**

The eligibility is varies up to providers and regions. The general eligibility criteria is:

- You must be at least 18 years old,
- Outside of London your annual household income must be less than £80,000,
- In London, your annual household income must be less than £90,000,
- You must either be a first-time buyer or must be in the process of selling your current home,

- You should not be able to afford to buy a home suitable for your housing needs on the open market,
- You must show you are not in mortgage or rent arrears,
- It is necessary to have a good credit history and not be on the black list.

Verifying a potential buyer’s eligibility, providers must carry out a financial assessments, to have at least £4,000 cash to buy a house. In most cases, you need easy access to a minimum of 5-10% of the share you purchase as a deposit (UK The Housing Regulations, 2009).

### 6.1.5.3. Rent and Other Costs

The initial rent must not exceed 3% of the capital value of the unsold equity at the point of initial sale. Annual rent increases are limited to the Retail Price Index (RPI) plus 0.5%.

**Table 6.2.** Calculation of maximum rent amount

Example for maximum rent	
Property value at purchase	£200.000
Equity share paid at sale	30%
Payment to provider at sale	£60.000
Equity share not paid at sale	70%
Value of share not paid at sale	£140.000
Maximum annual rent	£4.200
Maximum rental payment	£350 per calendar month

In addition to rent, shared owners will normally pay an annual ground rent to the freeholder and will contribute to the provision of services, such as cleaning of communal areas, via a service charge. The lease agreement will set out any service charge requirements (Capital Funding Guide, 2021).

### 6.1.5.4. Staircasing

Generally the scheme applicants can buy additional shares in the property as and when they can afford. Staircasing ranges in 10% goes up to 100%, at which point the applicant become the owner. The government declared new model for the scheme from April 2021, applicants will be able to purchase in smaller increments. As the shared owner purchases more shares in the property, their rent falls according to the

proportion of unsold equity. You can buy shares of 5% or more at any time. If the house is bought after declared new model in 2021 you may also be able to staircase 1% each year for the first 15 years. No chance to purchase shares of 2%, 3% or 4%. The cost of your new share will depend on how much your home is worth when you want to buy the share (Cromarty, 2021).

The example of staircasing calculated below is for a house bought at the same condition explained in maximum rent calculation table above. It is assumed in the calculation that the house price is stable during staircasing.

**Table 6.3.** Calculation of standart staircasing particulars

<b>Purchased Share</b>	<b>Remaining Share</b>	<b>Value of purchased share</b>	<b>Value of remaining share</b>	<b>Annual rent to be paid</b>
40%	60%	£80.000,00	£120.000,00	£3.600,00
50%	50%	£100.000,00	£100.000,00	£3.000,00
60%	40%	£120.000,00	£80.000,00	£2.400,00
70%	30%	£140.000,00	£60.000,00	£1.800,00
80%	20%	£160.000,00	£40.000,00	£1.200,00
90%	10%	£180.000,00	£20.000,00	£600,00
100%	0%	£200.000,00	£0,00	£0,00

#### **6.1.5.5. Selling**

The process for selling a scheme funded property differs from standart selling process. Under a scheme funded lease the housing provider will have ‘preemption’ rights if the shared owner has not purchased up to 100% of the property. This means if the applicants wishes to sell they must first give the housing provider the chance to purchase back the property at the prevailing market value, or nominate a willing and suitable buyer. If the provider is not willing to buy or unable to find a suitable buyer within a specified period then the applicant can sell the property on the open market, subject to conditions (Cromarty, 2021).

The preemption clause is intended to ensure access to shared ownership properties is retained in perpetuity for people who are unable to buy outright. The new model declared by UK Government has also easements for selling as well in the case of shared ownership homes delivered under the new national model for shared

ownership after April 2021, the preemption/nomination period has been reduced from eight to four weeks.

#### 6.1.5.6. Subsidised Types of Shared Ownership

There are some subsidised types of Shared Ownership Model existing in UK in order to support people with disadvantages or at senior ages. There are also subsidised versions of Shared Ownership Model for private groups such as members of some government institutions. I will briefly explain only the first group of subsidised schemes for the people with disadvantages and at senior ages below.

**People with disabilities**, is subsidies for people with a long-term health disability. You can only apply to this subsidise, if properties found in other housing schemes don't meet your needs, for example, if you need a ground floor (UK The Housing Regulations, 2009).

**Older people**, if you are over 55 or older, you can get help from another housing program called Senior Shared Hosting. It works the same as the General Shared Ownership plan, but you can only buy 75% of your home. Once you own 75% you don't have to pay lease on the remaining share (UK The Housing Regulations, 2009).

The example of staircasing for subsidised for older people calculated below is for a house bought at the same condition explained in maximum rent calculation table above. It is assumed in the calculation that the house price is stable during staircasing.

**Table 6.4.** Calculation of older people staircasing particulars

Purchased Share	Remaining Share	Value of purchased share	Value of remaining share	Annual rent to be paid
40%	60%	£80.000,00	£120.000,00	£3.600,00
50%	50%	£100.000,00	£100.000,00	£3.000,00
60%	40%	£120.000,00	£80.000,00	£2.400,00
70%	30%	£140.000,00	£60.000,00	£1.800,00
75%	25%	£150.000,00	£50.000,00	£0,00
90%	10%	£180.000,00	£20.000,00	£0,00
100%	0%	£200.000,00	£0,00	£0,00

### **6.1.6. New Model Proposed by UK Government for Shared Ownership**

As explained above the Shared Ownership Model is applied up to 2016-2011 Affordable Housing Schemes. Due to conjunctural challenges government declared a new model for Shared Ownership Model which contains easements and amendments in order to deal the conjunctural challenges. These amendments will apply on 2021-2026 schemes. On 28 August 2019, the UK Government announced proposals for a new national model for shared ownership schemes for making it “fairer, more affordable, and more consumer friendly as well as a better model for the market to deliver.” (MHCLG, 2019).

The Government published the response on 8 September 2020, which confirmed the key features of the new national model for shared ownership:

- The share at the initial purchase reduced from 25% to 10%.
- New applicants will be able to staircase in their home in 1% increments for up to 15 years, with heavily reduced fees. It will still be possible to staircase in larger increments with the minimum additional share purchase reduced from 10% to 5%. Applicants willing to staircase in 5% increments or more will have to pay the fees, such as valuation fee, legal and mortgage costs.
- There will be a new 10 year, repair free period, during which maintenance and repairs costs will be met by the housing provider rather than the applicant. This will help to tighten the gap between renting and homeownership which allegedly known as cons for the scheme.
- The new model will allow the applicant to end the housing provider’s eight-week pre-emption period at four weeks if they would prefer to sell the property at open market.

The UK Government subsequently published a further technical consultation on the implementation of the new model. The consultation response, published on 1 April 2021, confirmed some additional details of how the new model would operate, including:

- Prior to a sale, providers will be required to give prospective purchasers key information documents, highlighting key responsibilities, processes and costs. This is

intended to ensure that purchasers are aware of the responsibilities associated with becoming a shared owner and have a good understanding of both the initial and ongoing costs of managing a shared ownership home.

- All new build homes constructed under the new model will have minimum 990 year lease term. This long period of leases will provide long term security for applicants and reduce the cost of paying for more lease extensions.

- In addition the mentioned staircasing decrease of 1% from %5 will be applied by the price of the 1% share will be based on the original full market value adjusted up or down each year in line with the House Price Index (HPI). This allows the applicant not have to pay for a full valuation each time of staircasing. Landlords will also be prohibited from charging administration fees on shares bought as part of this gradual staircasing model.

- In the first 10 year repair period, the landlords will be responsible for the cost of essential repairs to the external fabric of the building and structural repairs to walls, floors, ceiling and stairs inside the home but only where the repair is not covered by the building warranty or any other guarantee.

- In the first 10 year repair period, shared owners can claim costs of up to £500 a year from the landlord to help with essential repairs or replacement of certain installations within the property. A maximum of £500 worth of unused repairs expenditure can be rolled over into a following year.

- The Government will engage with mortgage lenders to ensure continued support for the new model and with the Law Commission to explore how to streamline the legal process for staircasing. The Government also announced it would extend the statutory right to a lease extension to all shared owners ( MHCLG, 2021).

The new model for scheme applies to all new grant funded shared ownership homes delivered through the Government's Affordable Homes Programme (AHP) 2021-26 from 1 April 2021. The AHP 2021-26 is providing £11.5 billion grant funding over five years and is expected to deliver up to 180,000 new affordable homes. From 28 June 2021, new shared ownership housing delivered through the planning system should also be based on the new standard model.

### 6.1.7. Statistical Approach to Shared Ownership

Shared ownership homes bought in 2019/20 had a median value of £245,000 in UK. The median initial stake purchased was £100,000. Buyers had a median initial deposit of £10,500, with the remainder of the initial stake covered by a mortgage. The most common age group for buyers was 30-39, representing 33% of the total. Around half of buyers were single adults, while a minority (13%) were families with children.

**Table 6.5.** Demographic statistics for Shared Ownership, (DLUHC, Live tables 695 and 696, 23 February 2021).

Age And Household Type Of Shared Ownership Buyers 2019/20			
Age Group		Household Type	
Under 25	13%	Families with children	13%
25-29	25%	Single adult	4%
30-39	33%	Multi adult	8%
40-49	15%	Single adult only	50%
50-59	9%	Multi adults only	33%
60 and over	5%	Older people	5%

### 6.1.8. Pros and Cons of Shared Ownership Model

As a general approach Shared Ownership has cons and pros compared with the conventional ownership. In any case the model is a hybrid model of ownership and in UK it is called allegedly the fourth tenure compared with the UK tenancy regime. The table below is giving a brief perspective for cons and pros of the Shared Ownership Model.

The new Shared Ownership declared by The UK Government have amendments in order to answer discussion papers. These amendments aim to answer and strenght the model against economic and social challenges. Most of the amendments are line on applicants favour in order to incent home ownership and reduce cost of living against economic challenges. These amendments are strenghtening the pros of Shared Ownership against conventional home ownership, such as decreasing the staircasing percentages, decreasing the maintanance costs, changes on valuation obligations. The amendments are also attached the table below in order compare current circumstance.

**Table 6.6. Pros and Cons of Shared Ownership**

Pros	Cons
Chance to increase ownership by using more shares from the housing association.	You wont own the house outright.
The rent rate is usually below market rate. It is fixed up to 3%.	The buying process is more complicated than buying on the open market. It has valuation processes fort he applicant.
Shared Ownership deposits are normally lower than the open market properties.	All the properties will be leasehold unless you have 100% of the property some providers offers freehold as well.
Option to sell your owned shares any time you want.	Do not have a chance to buy for all properties. Buying is restricted to spesific properties.
Have a chance for partial letting or have a flat mate provided that you are living permanently in the property.	Valuation fees occur when purchasing more shares. It is updated by the new model no valuation fees occures unless you buy 5% or more share. For less shares House Price Index is used for valuation.
Less risky market due to strong regulations compared with open market	Housing association has the right to market the property for the first eight weeks.
Normally it is not necessary to pay stamp duty land tax on initial purchase unless you have 80% shares of the flat.	It is a specific type of tenure due to the fact that not all lenders offer loans for Shared Ownership
No restriction for purchasing time. You can buy further shares as and when you can afford them.	Sub letting is not allowed unless you have 100% shares.
Applicant have security of tenure, as long as the rent is paid and then you can live in the property for as long as you wish unlike private renting.	You have to pay the % 100 of the ground rent and service charge on your property how ever low your share is. Although there are easements for maintanance charges in new model declared as well.
Any increases on the rent you pay on the portion of the property you dont own are set out in the lease and are based on inflation not property prices. Normally Retail Price Index+0.5%. It is less than the open market prices an not volatile like open market propertries.	Shared Ownerhip has same difficulties to normal home ownership in time of financial hardship and when property prices decline you are still under obligation to pay your mortgage, rent, ground rent and service charge.

## **6.2. Housing Associations**

In United Kingdom, housing associations are private, non-profit organisations that provide affordable "social housing" for people. Any earnings are used to repair and maintain existing housing and to funding new properties. They are independent bodies but also, they are regulated by the state and commonly receive public funding (The National Affordable Housing Programme, 2012).

### **6.2.1. Legal Status**

Housing associations may be in various forms of legal entity. Housing associations may be in form of industrial and provident societies on the other hand they could also be in form of trusts, registered or unregistered charities and in form of co-operatives as well. Registered social landlord (RSL) is the technical name for social landlords that in England were formerly registered with the Housing Corporation. From 2010 to 2012, associations were termed registered providers under the Housing and Regeneration Act 2008, irrespective of status (private, public, for-profit or not-for-profit). As of 2012, the terms registered social landlord and private registered providers of social housing are both used as alternative names for housing association. Housing associations are generally not owned or directly controlled by the state. This status, however, has been challenged by a number of legal rulings. In 2004 the UK Government accepted housing associations as public bodies for the purposes of procurement regarding to European Union legislation (UK Capital Funding Guide, 2015).

### **6.2.2. Regulation**

This social landlord bodies daily expenses are funded by rent and service charges payments made by, those living in its properties. In this sense, these institutions are managed as commercial companies. Social housing generally receives economic subsidies, the source of which will depend on where the association is based. In England, housing associations are funded and regulated by the Homes and Communities Agency (HCA), the exception being funding in London which from April 2012 is the responsibility of the Greater London Authority. The HCA's predecessor until 2008 was the Housing Corporation. The Housing Corporation's regulatory role was split out to a separate body from 2010, the Tenant Services

Authority (TSA), but merged again into the HCA from April 2012 (UK Capital Funding Guide, 2015).

### **6.2.3. Funding**

Subsidies for new homes (often termed 'social housing grant') amount to sizeable public investments. In its 2008–11 prospectus, the Housing Corporation stated that in the three-year period to 2011 investment would be "at least £8 billion". The majority of this would go to housing associations for use in development projects. Since 2003, in an effort to seek greater value for money, much of the funding by the Housing Corporation for new house building has been channelled to fewer than 80 "developing housing associations" that have achieved "partner status" through partner programme agreements. Long-term lender option borrower option loans (LOBOs) have been taken out in the past by housing associations (The National Affordable Housing Programme, 2012).

After the Housing Act 1988, the proportion of the cost of new homes met by capital grants was scaled back by the government, so borrowing became the primary source of funding for investment. Much of this was simply borrowed from banks and building societies, but after the late-2000s financial crisis these institutions ceased to offer long-term loans, so developing associations are increasingly turning to corporate bonds to raise funds for expansion (Hollander, 2011).

In England, National Housing Federation (NHF) representing housing associations working in the UK, each covering a respective country.

## CHAPTER VII

### SUSTANIABLE FINANCING MODEL PROPOSAL FOR URBAN INFRASTRUCTURE AND URBAN REGENERATION PROJECTS

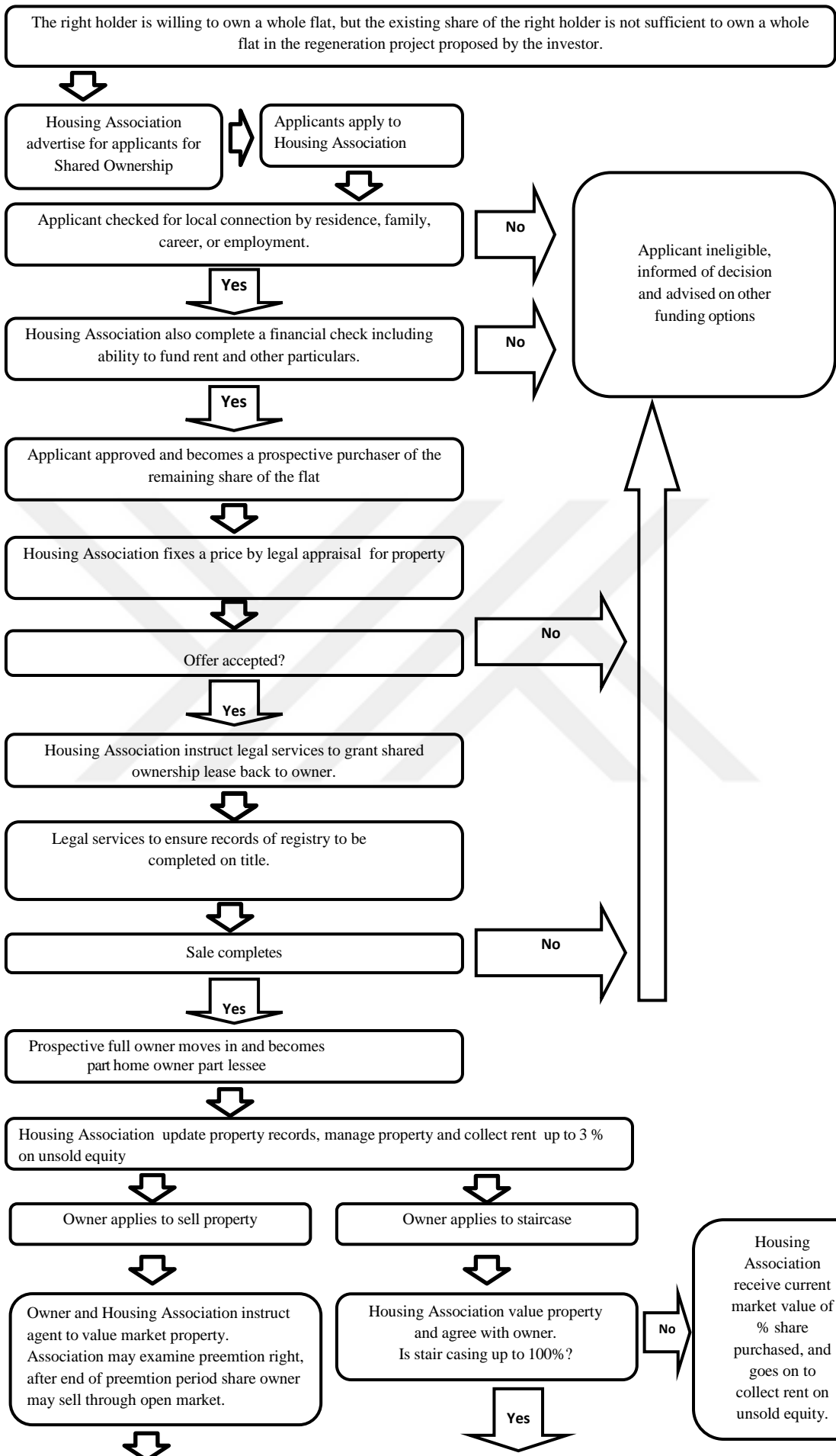
#### 7.1. Financing Model

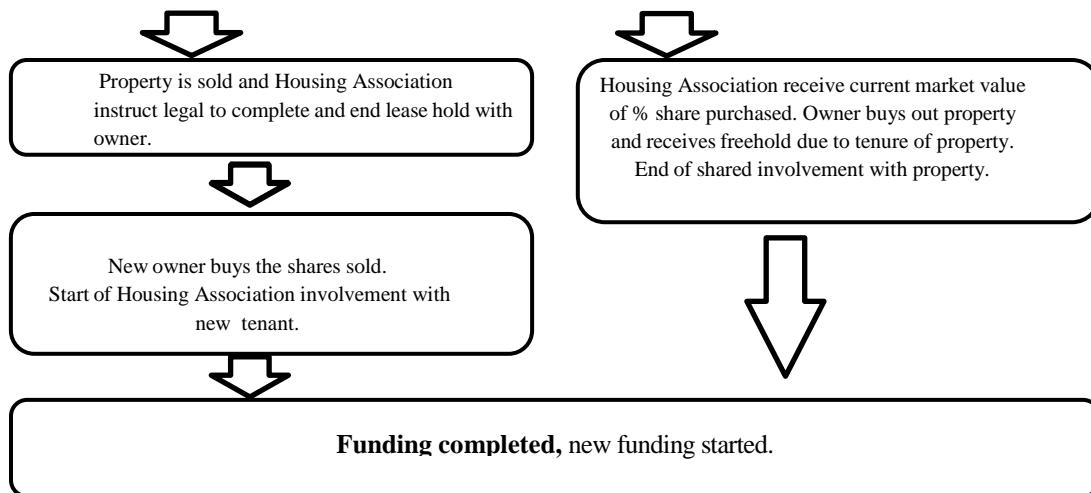
In the light of what is explained in the relevant parts of the thesis, I propose the model described, which can be revised according to the needs of each strategic project on behalf of our country. The financing model is based on the principle of funding the right holder for his or her absent shares of the property through Housing Associations. While funding the right holder, keeping him or her in the property as lessee for the absent shares, described in the relevant parts of the thesis.

While the thesis categorizes the stakeholders in general and introduce financing methods for each, on the other hand, it introduce the relations of the stakeholders with each other. The thesis, which evaluates the project as a whole, with its infrastructure and proposes the regtech, smart contracts, blockchain technics described in the relevant parts of the thesis in stakeholder relations.

While this thises presents methods such as revenue sharing, land for flat procedure and etc. used in our country, as well as methods such as shared partnerships used abroad, which are not used in our country yet, and methods such as ICO and STO used in the virtual world, in financing methods. Thesis also envisages the financial ecosystem of the whole project process.

The model specially proposed is for right holders willing to keep staying at the project area and do not have a chance to fund the gap between his or her contribution and distrubition rights. The model is specially for urban regeneration right holders in order to complete the funding gap between the contribution and distribution in order to keep them in their neighborhood and ease to complete the funding gap and reach finance promptly. Figure 7.1. demonstrate the proposed Shared Ownership Model in order to fund right holder's missing share to have the whole flat.

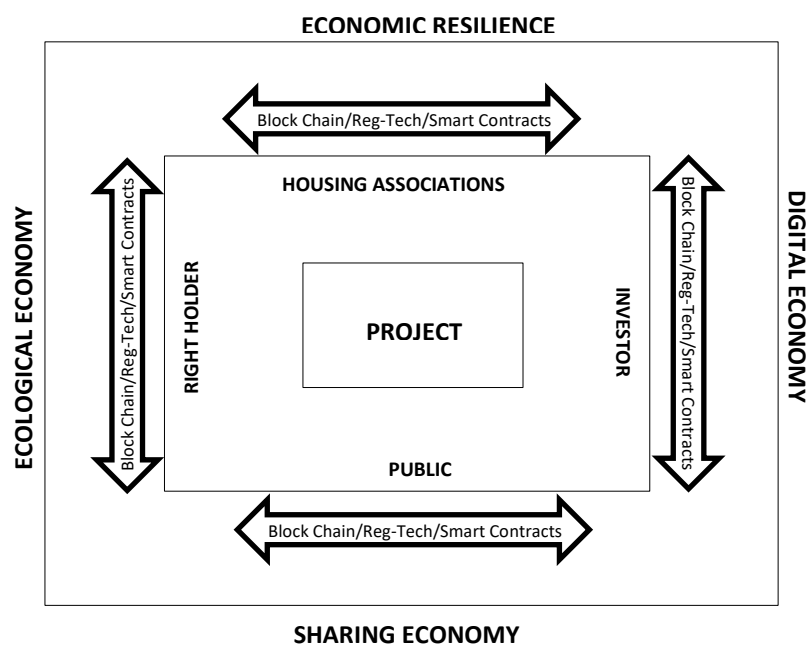




**Figure 7.1.** Flow chart for right holder's funding through Shared Ownership

### 7.1.1. Financing Model Ecosystem

The financing model operates in its own ecosystem. This ecosystem is introduced in the relevant part of the thesis, the ecological economy that radically changes the economic view of today's world, the digital economy, which is indispensable for the future with technological developments, and the sharing economy that has emerged with the decrease of resources and the increase in needs, as well as the economic resilience framework which is vital during the whole funding timetable against all hazards. The economic structures, stakeholders and stakeholder relations that make up the ecosystem of the proposed financing model are set out in Figure 7.2.



**Figure 7.2.** Ecosystem of urban infrastructure and urban regeneration financing

### **7.1.1.1. Financing Model Environmental Dynamics**

Environmental dynamics, which are closely related to each business line, will be introduced specifically to the financing model.

#### **7.1.1.1.1. Digital Economy**

What is meant by digital economy is the revenues obtained from electronic commerce and digital platforms and the way they are obtained. The digital economy is an umbrella concept with many subconcepts, including all applications made with blockchain technologies, apart from electronic commerce and virtual platforms. Although the digital economy is used as a roof, it is highly likely that the crypto economy will take the lead from now on.

#### **7.1.1.1.2. Ecological Economy**

The economic crises, social and ecological problems that our world has been experiencing in recent years have made the concept of sustainable development even more important and the ecological and green ones of every sector and application have become debatable. The most important ones for us are green growth and green economy. International organizations define these two concepts as the primary support of goods and services that do not harm the environment and even contribute. Thus, as the environmental footprints of the companies producing under this definition make a contribution to the environment, social footprints also have a positive impact on the employment market and society. When the environmental footprints and social footprints are more clearly defined as the support to be made to value-added companies, the inertia that will arise for this transition will also decrease. The European Union argues that the green economy is closely related to sustainable production, consumption, energy efficiency and the use of renewable energy and the creation of new job opportunities and increasing human welfare. Nevertheless, since there is no clear definition on green economy and growth, there are partial and subjective definitions and practices on the basis of countries and unions (Ackerman, 2010).

#### **7.1.1.1.3. Sharing Economy**

The fact that the resources in the world are decreasing day by day and the population is increasing geometrically according to Malthus's words, has revealed the common use and sharing economy rather than individual use. In general, the sharing economy is the sharing of resources to people gathered for the same purpose, not to individuals.

#### **7.1.1.1.4. Economical Resilience**

It is a scientific term first introduced into English by Frances Bacon in the 17th century and describes the characteristics of an object returning to its original state after some form of pressure. Over time, the term has begun to be used in the fields of material science and psychology. Recently, it has been addressed in relation to the impact of natural and human-induced hazards on health, infrastructure, social systems (such as "community"), environmental and ecological systems and geographical or spatial distributions such as human settlements. The term "disaster" in the context of the term "resilience", which was adapted to the urban context by the United Nations Office for Disaster Risk Reduction (UNDRR) in 2016, includes the meaning of "all disasters" (Galantini, 2019).

This "all disasters" approach constitutes all of the human induced issues, such as mass migration, conflict, economic pressure or shocks, technical hazards and social crises, in addition to slow or rapid, "natural" or earth related disasters.

#### **7.1.1.2. Financing Model Stakeholders**

The stakeholders of the financing model are listed below.

##### **7.1.1.2.1. Public**

Ministry, metropolitan municipalities, district municipalities, other public institutions that have the right in the project or have rights to affect the project.

##### **7.1.1.2.2. Right Holder (Beneficiary)**

Individuals, who have shares in project but not chance to reach finance in order to complete absent shares, are specially accepted as right holders in this study.

### **7.1.1.2.3. Investor**

All public or private institutions, invest on the projects such as financial institutions, real estate investment companies, funds, etc.

### **7.1.1.2.4. Housing Associations**

The housing associations are the non profit expertise institutions for affordable housing mentioned in related clauses of the thesis, which operates social housing schemes in UK. In order to organize the relations between right holder, public and investor, while funding needed at right holder side. In case of funding needed to complete the share of the house, regenerated after the project the housing associations will be in charge to fulfill shared ownership of the house for applicant.

### **7.1.1.3. Financing Model Stakeholder Relations**

Relations between the stakeholders of the financing model are proposed as described below.

#### **7.1.1.3.1. Blockchain/Regtech/Smart Contracts**

Blockchain is a decentralized, distributed based data recording system that provides transaction tracking with some encryption methods. Distributed means that it is multi-centralized, not uni-centralized. The recorded data cannot be changed or deleted again, which is proof that there is no database. In short, the blockchain is a system based on the principle that the data in the chain, namely the blocks, are stored in an encrypted manner with an algorithm that will be explained in the future, and the chain formed by these blocks is shared in a multi centralized distributed manner.

This concept, obtained by the abbreviation of the English words regulation and technology, can be translated as technologies of law. This concept includes the full-time transfer and intervention of instant arrangements to financial and legal events with the information flow it provides. This concept, which is very important on the basis of states, refers to technologies where instant changes and regulations can be used in multilateral exchanges, especially in terms of international agreements and taxation. Smart contracts are a computer protocol designed to facilitate, verify, or

implement the operation of the contract. Smart contracts were proposed by Nick Szabo in 1996.

The aim with smart contracts is to reduce other contract-related transaction costs while providing a safer environment than contract law. Smart contracts help to transparently exchange money, property, or anything of value without the need for a person or institution such as an intermediary, notary public, broker, etc. It would not be wrong to compare smart contracts to vending machines in public areas. Normally, for a sale, it is necessary to go to the notary or the relevant institution in our country, and to a lawyer in western countries, and while it is necessary to pay for the brokerage service received to these individuals or institutions and to wait for a certain period of time. With smart contracts, a digital cryptocurrency is placed on the vending machine (i.e. the ledger) and it is seen that this transaction comes directly to the account if the instruction is made for a license or whatever. On the other hand, smart contracts not only contain rules and penalties related to a traditional contract, but also automatically fulfill these obligations.

## **CHAPTER VIII**

### **RESULTS AND DISCUSSION**

Although the 2008 crisis, the first truly global crisis, seems to have arisen from subprime loans, it has similar characteristics with the Florida Real Estate crisis that occurred before the 1930 Great Depression when examining its fundamentals. In the period before the Great Depression, there was a rush to American stock markets, a significant amount of money accumulated in the country, and this money became a crazy firecracker with no clue where it would go, and naturally, it had a tendency to overvalue the prices of goods that were not worth that much due to behavioral economics, and overestimated the prices of homes in the state of Florida, like the Dutch tulip spree at the time, and with the destruction of these houses as a result of a hurricane, the significant amount of money tied to them evaporated. Of course, this small incident did not cause the Great Depression, but it is significant in terms of exemplifying the behavior at that time.

When examining the global crisis of 2008 from this point of view, since the government policy of the period was actually democracy by property and, loans were distributed to people to feel belonging and equal, and even people were allowed to use their homes as a piggy bank and to value and draw new loans many times, and again, consciously or unconsciously, these loans were turned into a subprime loan crisis, which was inflated and sold due to control and ethical deficiencies.

At that time, the effects of the crisis, which was thought to fly by our country, remained below expectations, both due to the abundance of money in the international market and the fact that the secondary market of mortgage loans in our country was not established. The feature that distinguishes mortgage loans from conventional housing loans is that they are securitized and do not create liquidity pressure on institutions.

The establishment of secondary markets is an approach that will allow the institutions that will solve the liquidity problem to channel the incoming resources with more suitable conditions for urban infrastructure and regeneration, however, in the 2008 crisis, Fannie Mae and Freddie Mac were declared scapegoats and even nationalized, that is, the people were made to pay for the damage.

Mortgage Finance Corporation, whose communiqué has already been published but its establishment has not been completed yet, is designed to fulfill the task of the foreign examples mentioned, but, these institutions should be established by taking into account the control weaknesses of the institutions in the American example, otherwise, alternative institutions should be preferred. Non interest funds should be used for the institution in order avoid interest risk.

In Türkiye, sectoral expertise banking has been tried with institutions such as Emlak Bank, Yapı Kredi Bank, etc., but could not be developed by the abolition of these institutions or by changing their fields of activity. In Türkiye, construction specialized banking should be switched to in terms of housing or real estate , so that the transitivity between sectors should be reduced and the domino effect should be eliminated. While establishing expertise bankings interest-free models should be selected in order to increase participation and distribute risk factor.

In this context, Emlak Katılım Bank, which has been restructured, has many opportunities such as past experience in terms of expertise banking. The fact that Emlak Bank is structured as a participation bank may also enable it to establish a building savings fund such as Bausparkase, a German example.

İlbank, which is already equipped with many powers and duties, to undertake the role of TDR Bank with its past experience and technical infrastructure and to make securitizations with Emlak Katılım Bank and Mortgage Finance Corporation. İlbank has already have a research infrastructure and prepared expertise reports for conversion to TDR as well.

With TOKİ's central and provincial structure, a reliable and strong organization of Türkiye, and its involvement in the construction industry, on the other hand, with its technical infrastructure and knowledge, it would be appropriate for TOKİ to lead the establishment of the Housing Associations institution, especially in the provinces, in

the example of England, and to lead those who will follow it in this regard. Likewise, it would be appropriate to establish Housing Associations in order to encourage other REITs, in particular Emlak Konut GYO.

The Belt and Road Project, which was launched by the Chinese Government as the second Silk Road, brings many opportunities and risks to countries such as Türkiye on this line. Grants from the both Asian Infrastructure Investment Bank and Asian Development Bank , dominated by the Chinese Government, can be used to finance urban infrastructure and regeneration.

On the other hand, the specialized grants established by the development and investment banks from time to time, should be introduced and used more actively. Although the IPA program, the pre-accession financing instrument of the European Union, does not include urban regeneration projects, it would be beneficial to make an attempt at the ministry to use these projects for urban infrastructure facilities.

Within the scope of the rapprochement with the Japanese Government, grant transfer with JICA, which has been financing infrastructure projects within the scope of cooperation that has been going on for years, can relieve urban infrastructure and regeneration, not directly but in terms of infrastructure financing.

It should be ensured that REITs and especially infrastructure REITs play an active role in the financing of urban regeneration by providing authority and tax advantages, either by investing, raising capital in the stock market, or by securitization.

The globalization process took place in an environment where the labor could not become globalized while the capital was globalizing, the risk perception has changed with the help of technology while the capital is globalizing, and the capital has now gained a more destructive power. What we understand as a country faced of the foreign exchange shock we encountered in 2018 is that our current account deficit is far from being financed by due to global conjuncture.

In this context, it would be appropriate to finance intensive and long-term financial needs such as urban infrastructure and regeneration with methods that will not increase the current account deficit.

Both the IMF program implemented since the early 2000s and with the Maastricht criteria complied with the EU full membership goal of the government of the period, a strict budget policy has been implemented in the public sector and the budget deficits were more efficient than the world average.

On the other hand, in 2017, it started to deteriorate due to both the revival of the economy, which started to shrink, and the World conjuncture, unfortunately, faced serious deviations from the determined targets.

When examined as, it is clear that the financing of urban infrastructure and regeneration can not be carried out by putting it into the central budget. Methods and tools that will not create a budget deficit in the financing of urban infrastructure and regeneration should be selected.

When choosing methods that will not create a burden on monetary and fiscal policy, which are the two tools of economic policy, care should be taken to ensure that projects can finance themselves as much as possible.

In addition to the currently used construction in return for land and revenue sharing methods for the land cost, which is often the biggest cost item of real estate projects, the method of transferring development rights will also alleviate the cost pressure.

Securitization, which is a means of switching to alternative methods such as transferring development rights or real estate certificate and lease certificates methods, should be carried out through professionally established institutions without any control weakness.

Although project financing and financing of a project are separate things, they are often misused. It is possible to finance large-scale projects with the project financing method. The Channel Tunnel project, which connects England to France, is a very good example both in technical terms and in terms of financing literature. While examining this project, it is a good example that technical feasibility and financial feasibility are very different concepts from each other because both must be done by competent experts.

The Channel Tunnel project is a project financed by 102 banks with the project financing method, and many of them went bankrupt in the end. Since the project was a reputation project, governments undertook the loss and financed the project.

As explained in the relevant section, project financing is a closed cycle in which the project finances itself. If the technical and financial feasibility of this cycle is done by experts, using it instead of conventional bank loans in urban infrastructure and regeneration projects decrease risk and increase profitability.

On the other hand project finance method will manage both the financial burden and the banking system, whose main task is to finance the real sector, actively and in accordance with the purpose of its establishment. Project finance method should be structured with participation banking methods in order to reduce risk and maximize profitability.

Participation financing methods frequently used in the Gulf States and Malaysia are an alternative to conventional loans while distributing project risk, and create a less risky environment for the funded and financed since they work with the counterpart principle instead of speculative expectations.

In this context, the Salam and Al-Istisna methods used in Gulf countries and Malaysia, which are among the participation banking methods, may be suitable for large scale construction projects such as urban infrastructure and regeneration.

Undoubtedly, the dramatic change in technology affects both the masses and the methods. Technological development made us face with digital economy and digital era. This era enables funding methods which maximize participation and distribute risks.

The ICO and STO method, which are examples of this, has also been included in the government's new economy program, and will be suitable for financing urban infrastructure and regeneration when supported and properly designed. ICO should stand on a large and constructive legislative base which is not existing now.

The model, which is very similar to ICO but produces share based tokens, can be used more reliably for STO urban infrastructure and regeneration projects. Although ICO do not but, STO stands on constructive legislative base like conventional IPO

programs. Taking advantage of this constructive legislative base could establish trust and maximize contribution.

Social housing programs, which are described as affordable housing or social housing, are used in developed countries in order to maximize home ownership and reduce accommodation shortage.

In the examples of Germany, France, and England, programs are implemented with limited term and limited budget fund allocations under the name of housing account or individual savings account. Ziraat Katılım Bank has created a similar fund in Türkiye. The fund, whose structure is explained in the relevant chapter, can be revised and considered as a new program in terms of financing urban infrastructure and regeneration projects in order grant public contribution.

UK has gathered the accessible housing program under an umbrella program in the name of Help to Buy, in addition to the individual savings account in Germany and France, UK has also added equity loan and shared partnership models under this umbrella.

The UK government has stopped the individual savings account program as of 30 November 2019, and continues its equity loan and shared partnership models under the Help to Buy program.

Only growth-oriented economic policies have focused on numerical sizes, leaving aside development. The conjuncture we are in has shown us that the structures in which the masses benefit and profit collectively, on the other hand, where the risk is shared, face the future with confidence. As explained above, the economy is now evolving into a shared economy model. The Shared Ownership Model successfully implemented in the UK will be encouraging and constructive in housing ownership for countries with less savings. With the Shared Ownership Model, the state will fulfill the requirement of the social state principle.

On the other hand, it will alleviate the problem of funding right holders, which is the biggest problem encountered in urban infrastructure and regeneration projects on a local basis, with the option of the right owner to become a tenant in the missing share of the flat.

Shared Ownership Model and its main driver Housing Associations enable sustainability for finance of the urban infrastructure and urban regeneration projects due to their nature consist of sharing. Shared Ownership Model enables the tresholds sharing economy, economic resilience, ecological economy and digital economy easily with few regulations.



## **CHAPTER IX**

### **CONCLUSION**

In terms of shedding light on today's economic conjuncture in the course of history, it would not be a wrong approach to take as a starting point the year 1971, when the USA did not recognize the terms of the Bretton Woods agreement, abstracted its money from gold and began to print money for free, and for Türkiye, the period from January 24 1980, which we can accept as the first step towards the liberal economy model, in which the world has passed rapidly since the beginning of the seventies.

As of 1971, the USA has left the world in unlimited Dollars by setting aside its principle of printing money for gold, as stipulated by the Bretton Woods Agreement, which brought the world to 2008 with its economic model that provoked consumption, and after the global mortgage crisis, it has brought its economy to the present day by printing as much money as the FED has printed throughout its two hundred year history.

Türkiye completed a step in 1980 for the transition to a liberal economy, again with an IMF based program, with its other step in 2001. The stones of the road leading to 2001, the last neoliberal economic step of Türkiye, started with the 1994 crisis, followed by the 1997 Asian Crisis, 1998 Russian Crisis, 1999 Istanbul Earthquake and the unsuccessful IMF program in 2000.

After 2001, with both the EU full membership declaration and Türkiye's agreement with the IMF, the path Türkiye will take in the economy has been almost clear and has progressed within the framework of certain rules.

Following the expansionary fiscal policies of developed countries in order to prevent the recession after the 2008 crisis, which was the first global crisis in real terms, the abundance of foreign currencies worldwide quickly accumulated in developing countries including Türkiye.

In 2013, due to the fact that expansionary policies around the world have been replaced by tightening policies in line with the economic recovery signals of the states that follow those expansionary policies and its political agenda, Türkiye's share in the currently declining FX and credit pie has also decreased.

In this context financing of big projects such as urban infrastructure and urban regeneration should be safe for the current deficit and budget balance. In other words the funding methods will be chosen should not occur current deficit and not damage budget balance in order to ensure sustainability.

The Bruntland Commission describes "sustainability and sustainable development" as follows: "Sustainable development is the ability to achieve development today without jeopardizing the ability of future generations to meet their own development needs."

In summary, sustainability can be defined as "the development and maintenance of the steps taken to develop economic development and welfare in a way that does not harm people and our planet".

The concept of sustainability is divided into three as economic, social and ecological/environmental. Economic sustainability is on production and consumption habits and relationships that are vital for development. Social sustainability is about the elimination of health, well being and future anxiety, which are social concepts. Ecological/environmental sustainability is related to the nature in which human beings communicate with each moment they live.

If the financing of urban infrastructure and regeneration will be carried out with environmental pressure and scarce resources in this century, it should undoubtedly be performed in a green economic framework so that no harm is done again while trying to benefit.

On the one hand, Industry 4.0, Artificial intelligence (AI), Extended reality (ER), Internet of Things (IoT), Big Data and Society 5.0, on the other hand, with the pressure of blockchain-based technologies, the world is now discussing new economy, employment and growth models in a concrete way.

In the light of these data, just as the world and systems are changing, it would be appropriate to turn to alternative methods instead of seeking success with conventional financing methods.

Urban regeneration should be considered as an integrated project with its infrastructure as examined in the developed country examples. Without this integration this projects may stay unsustainable. For that reason in this thesis the developed country examples specially selected from the projects which integrated with its infrastucture.

Instead of centralized methods where power is gathered in one hand, decentralized models in which power is gathered in a large community and risk and return are shared will be valid for today.

Shared financing models specific to the sharing economy should be discussed. In Türkiye's financing model, the technical infrastructure of the Shared Ownership Model based on the concept of sharing should be established and encouraged.

The human dimension of climate change and its subsequent negative effects is indisputably very important, but on the other hand, the monetary effects of this thesis are now so obvious that they are even reflected in the FED reports. Because, according to the aforementioned report, the part from New York to the Florida coast is in danger of global warming and flooding, and this is a complete management weakness and it will be a great burden to the Federal Government to finance the damages.

On the other hand, climate change will be felt more intensely due to geography and climate in developing countries. In an example, almost all of Bangladesh is at sea level and is faced with flooding. If we go further, the relocation of Jakarta, the capital of Indonesia with a population of ten million, is on the agenda due to both the fact the city is founded on the swamp, and the acceleration of this sinking with climate change. In this context, it is inevitable that the financing of urban infrastructure and regeneration, should be financed in an environmental framework with environmentally friendly green methods.

Today, when making definitions, there is a need to evaluate all the systems that it interacts with, that is, its ecosystem, and then make the definition. In this context, it

is necessary to define the ecosystem of the financing of urban infrastructure and regeneration first.

The concepts included in the proposed financing model are the concepts that define the ecosystem of urban infrastructure and regeneration, placed in terms of the sustainability of the financing of urban infrastructure and regeneration, and the proposed financing model should be evaluated and used in a holistic way with these concepts.

Like all doctrines that have been changed and are changing in the world, finance has to comply with this change. In the light of these changes, it is clear that urban infrastructure and regeneration must be designed within the boundaries of the circular economy and its financing must be green. Shared Ownership Model has high potential to fit in ecological economy framework as it is organized by Housing Associations which has well coming grants and subsidises both from state and financing institutions.

The financial sector is the first to benefit from the technology progressing at the speed of light. In this context, the financing of urban infrastructure and regeneration must also be digital. Shared Ownership model has high potential to fit in digital economy framework due to its closed circuit process through Housing Associations and its sub institutions.

With the pressure of the mainstream in a changed world of diminished management of resources, it is now clear that a financing that is not based on the sharing economy will not be sustainable. In this context, the financing of urban infrastructure and regeneration must also be based on sharing. Shared Ownership Model depends on sharing and by subsidises it reduces the risks and maximize the value through social benefiting.

As the new Shared Ownership Model issued by The UK Government in 2021, it proves its economic resilience potential. Due to current economic difficulties and decreasing home ownership ratio, the Shared Ownership Model quickly transformed to give an answer to current challenges. Due to its resilient potential, measures taken by UK Government quickly by reducing staircasing rates to 1%, reducing the

maintenance costs and reducing the responsibilities of applicant in order to ease the scheme and resilient answer to economic challenges.

For financing of urban infrastructure and regeneration, it is necessary to apply models in the form of a harmonization of financing methods that have passed the filters of, green economy, sharing economy, resilient economy and digital economy and met their requirements, and it is necessary to re evaluate these models for each project.

The right to property should be considered as a human right and a right that states must provide within the principle of justice, and strategic planning and arrangements should be made accordingly. The right to housing, which should be considered within the social state principle, is described as accessible housing or social housing in the examples of developed countries, and the states establish programs for delivery of these housing. The aim of these social housing programs is to provide the necessary financing and facilities for citizens to access the housing. While these social housing access financing programs facilitate the access of low income applicants to housing, they also bring up the use of alternative financing tools in the financing of housing.

Urban regeneration is undoubtedly one of the first things to be done in terms of human rights, justice, social life and economy. When the subject of this thesis is examined in terms of economy and finance, urban regeneration, it will also mean the capitalization of urban capital, in the words of Hernando De Soto Polar.

From the perspectives of Thomas Piketty and Hernando De Soto Polar, described at the beginning of the chapter, as financial figures on property and real estate; property and real estate contain meanings other than their simple meanings and can turn into a financing tool when properly managed. In both developed and undeveloped country examples, there is a great potential on real estate and when this potential is transformed into kinetics with the right methods, it contributes greatly to development.

It is also clear that if the capitalization of the urban capital mentioned by Hernando De Soto Polar in his book *The Mystery of Capital* is carried out without the necessary precautions, arrangements and proper planning, such as the mistakes made

in Mexican and other Latin American practices, the existing negativities increase exponentially, and it can deprive people of their homes, perhaps their only connection with the world, albeit unofficially.

Due to this context when it is determined most of the regeneration projects applied in the region of the people have low income. For that reason the most important side of financing of the projects should be focused on right holder's financing.

Due to the fact that when the projects rights distributed before registration. Gaps occurs with the contribution share and distribution share of the right holders due to the nature of the regeneration project. This means in an example while the right holder is contributing the projects with his own and whole house at 100% share, he or she will be getting less than 100% share of a flat. This gap is normally offered to be financed by the right holder in cash or they are steered to sell his or her rights to investor and move to less expensive district leaving their life style.

To avoid this social fracture and in order to support these low income citizens, the Shared Ownership Model should be proposed as a funding option for regeneration projects for the absent shares of right holders. By this way the projects will be more affordable, more social and more sustainable.

On the other hand by establishing Housing Associations, they will pioneer social housing schemes such as Shared Ownership Model. By this context starting from urban infrastructure and urban regeneration projects to social housing projects, the Shared Ownership Model will lead affordable housing which became urgent in current conjuncture, as well.



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