

ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL

**GREEN ENTREPRENEURSHIP AS A DRIVING FORCE FOR THE GREEN
ECONOMY: A CASE STUDY ON GREEN ENTREPRENEURSHIP IN
ISTANBUL**



M.Sc. THESIS

Ece TURNA

Department of City and Regional Planning

Regional Planning Programme

JANUARY 2023

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JANUARY 2023

İSTANBUL TEKNİK ÜNİVERSİTESİ ★ LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ

**YEŞİL EKONOMİNİN İTİCİ GÜCÜ OLARAK YEŞİL GİRİŞİMCİLİK:
İSTANBUL'DA YEŞİL GİRİŞİMCİLİK ÜZERİNE BİR VAKA ÇALIŞMASI**

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To my parents,



FOREWORD

First of all, I would like to express my gratitude and appreciation to my advisor, Prof. Dr. Tüzin Baycan, for her seminal guidance, patience and motivating attitude. I have always been curious and excited about studying something related with climate crisis and economy, and she came up with the idea of searching about green entrepreneurship which I have heard about for the first time in my life. No one could suggest a better subject which completes my academic goals that much. Searching about green entrepreneurship and getting in touch with real green entrepreneurs was a pleasure for me. This thesis journey would be very boring if my advisor's subject proposal was not so much in line with what I wanted to research. Thank you for lighting my way professor.

My dear parents, I don't know how to thank you because I can never thank you enough. You have always supported and encouraged me through my lifetime. Thank you for being so understanding, thank you for being so supportive, thank you for being so hopeful, thank you for being such good people, thank you for loving people, nature, animals and teaching me to love too. I wouldn't be who I am today if you hadn't raised me to be respectful and loving towards other living beings. I would not care so much about protecting environment, I would not help people and animals, and I would not try to fight against climate crisis if you hadn't raised me in this beautiful way. I would be lost and half without you.

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January 2023

Ece TURNA



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ABBREVIATIONS

COP	: Conference of the Parties
EFC	: Environmental Framework Condition
EPI	: Environmental Performance Index
EU	: European Union
GDP	: Gross Domestic Product
GEM	: Global Entrepreneurship Monitor
GGEI	: Global Green Economy Index
GIRVAK	: Turkish Entrepreneurship Foundation
GIZ	: Deutsche Gesellschaft für Internationale Zusammenarbeit (German Corporation for International Cooperation)
ILO	: International Labour Organization
ITU	: Istanbul Technical University
KOSGEB	: Small and Medium Enterprises Development Organization of Turkey
MDG	: Millennium Development Goals
NGO	: Non Governmental Organization
OECD	: Organisation for Economic Co-operation and Development
R&D	: Research and Development
SDG	: Sustainable Development Goal
SMSE	: Small and Medium Sized Enterprise
TL	: Turkish Lira
TOBB	: The Union of Chambers and Commodity Exchanges of Turkey
TUBITAK	: The Scientific and Technological Research Council of Turkey
TURKSTAT	: Turkish Statistical Institute
UK	: United Kingdom
UN	: United Nations
UNEP	: United Nations Environment Programme
UNFCCC	: United Nations Framework Convention on Climate Change
USD	: United States Dollar



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GREEN ENTREPRENEURSHIP AS A DRIVING FORCE FOR THE GREEN ECONOMY: A CASE STUDY ON GREEN ENTREPRENEURSHIP IN ISTANBUL

SUMMARY

Environment and economy are an inseparable whole with very strong ties. The environment and economy, which are in constant interaction with each other, are also affected by each other for good or bad. Intensive production and consumption activities and the economic structure that continues its continuous growth in an uncontrolled and unsustainable way affect the environment negatively, trigger climate change and cause the depletion of natural resources. An unhealthy, poor quality and problematic environment, which is formed as a result of the economic structure developing insensitive to the environment, also negatively affects the economic structure in the following processes. For example; it is estimated that about 150 billion dollars of loss in today's economy is indirectly caused by climate change, and 65 billion dollars is directly caused by climate change.

The environment and the economy, which are in constant cyclical communication with each other, must act together and support each other rather than affecting each other negatively for a sustainable world life. Increasing industrialization and economic activities with the First Industrial Revolution put great pressure on the environment, and this situation continued to increase in the Second Industrial Revolution and has survived to the present day. Today, while developed countries can cope with environmental problems stemming from economic activities due to their advanced technologies and reaching a certain economic situation, underdeveloped and developing countries cannot achieve this and cannot prevent environmental problems. Agreements made between many countries around the world fail in most countries due to the fact that these agreements remain in theory and cannot be put into practice, and global problems such as global warming and climate change cannot be prevented.

All these environmental problems stem from the fact that economic actors see the environment as a free good and want to make all goods cheap. In today's economic system, which acts without considering the protection, quality and integrity of the environment, a continuous economic growth is aimed and growth targets that are far from sustainability are set, but it should not be forgotten that the environment is the enabler of economic growth and the damage to the environment as a result of excessive growth will also collapse the economy. In order to prevent these bad scenarios, new and sustainable environmental economic systems and policies such as green economy, sustainable economy, steady state economy, low carbon economy should be adopted. Among these new environmentalist economic models, the one that has become the most widespread today and is started to be implemented by some developed countries is the green economy.

Economic structure is an element that affects the quality of life. Not being paid for the labor in return for intensive and long working hours, economic differences between

different segments of the society, environmental pollution caused by the uncontrolled production and consumption and the depletion of natural resources as a result are the consequences of the absence of a sustainable and green economic system.

The green economy, which has started to be adopted in many developed countries of the world, makes cities more livable and sustainable by bringing an alternative to today's dominant economic model, which increases inequalities, encourages waste, triggers resource shortages and creates widespread threats to the environment and human health. The green economy is the channeling of employment and income growth, public and private investment into economic activities, infrastructure and assets to reduce carbon emissions and pollution, increase energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. It is a low-carbon, resource-efficient and socially inclusive economic model. The green economy aims to achieve clean transportation, more efficient and cleaner energy production, better water use and management, greener buildings, clean and efficient waste management, and improved land use through sustainable agriculture and forestry.

Entrepreneurship activities, which are the providers of economic growth, tend to be environment-oriented and produce environmentally compatible goods and services in accordance with the expectations of the society today. In this direction, green entrepreneurship, which makes a great contribution to the creation of a green economy environment, aims to do green jobs and harmonize the economy and the environment in order to protect the environment and ensure its sustainability. Just as entrepreneurship contributes to the growth and development of the economy, green entrepreneurship contributes to the development of the green economy. In order for a business to be considered within the scope of green entrepreneurship, it should support sustainable development, contribute to sustainable production, meet its energy needs from renewable resources, should not cause environmental pollution and should not harm ecosystem diversity. The basis of green entrepreneurship activities is social responsibility and awareness and growth in a clean and environment-friendly direction.

In the principles, policies and practices of green entrepreneurs, the aim of increasing the quality of life of their customers, employees, society and the environment is in the first place. The main difference that distinguishes the green entrepreneur from the classical entrepreneur is the environmental protection target that they put at the core of their business and activities. Green entrepreneurs are people who seek and find innovative solutions in the production and consumption of goods and services while taking into account social, environmental and economic factors. Green entrepreneurship requires awareness of environmental problems, and technical knowledge in relevant fields, and legislation and market knowledge. Green entrepreneurs are people who establish a business in a sector with the aim of ensuring sustainability and protecting the environment and providing the green transformation of that sector. Green entrepreneurs create green jobs, green products and green technologies for strengthening and growing the green economy. Green entrepreneurship, which is an important potential for an ecological society and a sustainable world, will initiate the creative destruction process, trigger socioeconomic transformation, and enable us to reach healthier environments with a clean and sustainable consumption approach.

Today, intensive consumption and production activities, and fast and uncontrolled growing economy cause many problems, especially in metropolitan areas where

population and economic activities are intense. Adopting sustainable economic systems such as green economy can be a solution in order to prevent these negativities in metropolitan areas. In addition, adopting green entrepreneurship activities will contribute to the development of this new sustainable and environmentally friendly economic system. Today, developed, developing and underdeveloped countries and the situations of metropolitan areas in these countries and the behaviors of green economy and green entrepreneurship activities in these metropolitan areas are different. While processes related to green economy and green entrepreneurship are managed more successfully and systematically in developed countries, the same is not true for underdeveloped or developing countries such as Turkey.

Although the concepts of green economy and green entrepreneurship have been on the agenda for a long time in the world, they are concepts that have just begun to be discussed in Turkey, and applications for these concepts are most common in Istanbul, the country's most developed metropolitan area.

Within the scope of this study, first of all, the concepts of green economy and green entrepreneurship are discussed in detail and examples of good practices from the world are presented. The aim of the study in the first stage is to make a general assessment of the green economic situation and green entrepreneurship ecosystem in Turkey and Istanbul, to determine the current situation and to reveal the problems and potentials related to the subject.

After making evaluations about green entrepreneurship and green economy in Turkey and Istanbul, the empirical study carried out by conducting in-depth interviews with the founders of 22 green enterprises in Istanbul, which is the case study area, is presented. The purpose of the study in the second stage is to analyze the current situation of the green entrepreneur and green enterprise profile in Istanbul and to determine the reasons for green entrepreneurs' motivations behind their work and what is the driving force to do this business, how the economic performance of green enterprises in Istanbul change, impact of green enterprises on their environment, their goals, their potentials, the challenges they face and what are the predictions and expectations about the future of green entrepreneurship.

This study constitutes a roadmap for policy makers by revealing the potentials and what needs to be done for the development of green economy and green entrepreneurship in Turkey and Istanbul. In the last part of the thesis, after a general assessment of the current situation, suggestions are made for the development of the concepts of green economy and green entrepreneurship. The creation of policies and projects that will develop the green economy, the creation of new mechanisms to support green entrepreneurship will contribute to the formation of a green economic order in Istanbul and Turkey and will also develop the green entrepreneurship ecosystem.

Green entrepreneurship has the potential to be an important trigger of the green economy, and the right decisions to be made, the right steps to be taken, the right policies to be implemented and innovative incentives will enable the green economic order to be realized by growing and developing the green entrepreneurship ecosystem both in Turkey and in Istanbul.



YEŞİL EKONOMİNİN İTİCİ GÜCÜ OLARAK YEŞİL GİRİŞİMCİLİK: İSTANBUL'DA YEŞİL GİRİŞİMCİLİK ÜZERİNE BİR VAKA ÇALIŞMASI

ÖZET

Çevre ve ekonomi çok kuvvetli bağlara sahip, birbirinden ayrılamaz bir bütündür. Yoğun üretim tüketim faaliyetleri ve sürekli büyümesini kontrolsüzce ve sürdürülebilir olmayan bir şekilde devam ettiren ekonomik yapı çevreyi olumsuz şekilde etkilemekte, iklim değişikliğini tetiklemekte ve doğal kaynakların tükenmesine sebep olmaktadır. Çevreye duyarsız olarak gelişen ekonomik yapı sonucunda oluşan sağlıksız, kalitesiz ve problemlili bir çevre ilerleyen süreçlerde ekonomik yapıyı da olumsuz etkilemektedir. Örneğin; bugünün ekonomisindeki yaklaşık 150 milyar dolarlık kaybın dolaylı olarak, 65 milyar dolarlık kaybın ise direkt olarak iklim değişikliğinden kaynaklandığı tahmin edilmektedir.

Birbirleriyle sürekli bir döngüsel iletişim halinde bulunan çevre ve ekonominin sürdürülebilir bir dünya yaşamı için birlikte hareket edip birbirlerini olumsuz yönde etkilemektense destekleyecek şekilde var olmaları gerekmektedir. Birinci Sanayi Devrimi ile artan sanayileşme ve ekonomik faaliyetler çevre üzerinde büyük baskı kurmuş, bu durum İkinci Sanayi Devrimi'nde de etkisini artırarak devam etmiş ve günümüze kadar gelmiştir. Günümüzde gelişmiş ülkeler gelişmiş teknolojileri ve belirli bir ekonomik doygunluğa ulaşmış olmaları sebebiyle ekonomik faaliyetlerden kaynaklı çevresel problemlerle başa çıkabilirken az gelişmiş ve gelişmekte olan ülkeler bunu başaramamakta ve çevresel problemlerin önüne geçememektedir. Dünya genelinde birçok ülke arasında yapılan anlaşmalar çoğu ülkede bu anlaşmaların teoride kalıp uygulamaya geçilememesi sebebiyle başarısız olmakta ve küresel ısınma, iklim değişikliği gibi küresel ölçekteki problemler de önlenememektedir.

Tüm bu çevresel problemler ekonomik aktörlerin çevreyi bir serbest mal olarak görmesinden ve tüm malları ucuza mal etmek istemelerinden kaynaklanmaktadır. Çevrenin korunması, kalitesi ve bütünlüğü düşünülmeden hareket edilen günümüz ekonomik sisteminde sürekli bir ekonomik büyüme hedeflenmekte, sürdürülebilirlikten uzak büyüme hedefleri konmaktadır fakat unutulmamalıdır ki ekonomik büyümenin sağlayıcısı çevredir ve aşırı büyüme sonucunda çevrenin zarar görmesi ekonomiyi de çökertecektir. Bu kötü senaryoların oluşmasını engellemek amacıyla yeşil ekonomi, sürdürülebilir ekonomi, durağan durum ekonomisi, düşük karbon ekonomisi gibi yeni ve sürdürülebilir çevreci ekonomik sistemler ve politikalar benimsenmelidir. Bu yeni çevreci ekonomik modellerden günümüzde en çok yaygınlaşan ve bazı gelişmiş ülkeler tarafından da hayata geçirilmeye başlanan model yeşil ekonomidir. Düşük karbonlu, kaynak verimli ve sosyal açıdan kapsayıcı bir ekonomik model olan yeşil ekonomi eşitsizlikleri arttıran, israfı teşvik eden, kaynak kıtlıklarını tetikleyen ve çevre ve insan sağlığı için yaygın tehditler oluşturan günümüzün hâkim ekonomik modeline bir alternatif getirerek şehirleri daha yaşanabilir ve sürdürülebilir hale getirmektedir.

Ekonomik büyümenin sağlayıcısı olan ve toplum yararını gözeten girişimcilik faaliyetleri ise günümüzde toplum beklentilerine uygun olarak çevre odaklı olma ve çevreye uyumlu mal ve hizmetler üretme eğilimi göstermektedir. Bu doğrultuda yeşil ekonomi ortamının oluşmasına büyük katkı sağlayan yeşil girişimcilik çevreyi korumak ve sürdürülebilirliğini sağlamak için yeşil işler yapılmasını ve ekonomi ve çevreyi uyumlu hale getirmeyi amaçlamaktadır. Tıpkı girişimciliğin ekonominin büyümesine ve gelişmesine katkı sağlaması gibi yeşil girişimcilik de yeşil ekonominin gelişmesine katkı koymaktadır. Bir işin yeşil girişimcilik kapsamında değerlendirilebilmesi için, bu iş sürdürülebilir kalkınmaya destek sağlamalı, sürdürülebilir üretime katkıda bulunmalı, enerji ihtiyacını yenilenebilir kaynaklardan sağlamalı, çevre kirliliği yaratmamalı ve ekosistem çeşitliliğine zarar vermemelidir. Yeşil girişimcilik faaliyetlerinin temelinde sosyal sorumluluk ve farkındalığın yanı sıra, büyümenin temiz ve çevreyi koruyan yönde olması da yer almaktadır.

Yeşil girişimcilerin ilkelerinde, politikalarında ve uygulamalarında müşterilerinin, çalışanlarının, toplumun ve çevrenin yaşam kalitesini artırma amacı ilk sırada yer almaktadır. Yeşil girişimciyi klasik girişimciden ayıran temel fark, iş ve faaliyetlerinin özüne koyduğu çevre koruma hedefidir. Yeşil girişimciler, sosyal, çevresel ve ekonomik faktörleri dikkate alarak mal ve hizmet üretim ve tüketiminde yenilikçi çözümler arayan ve bulan kişilerdir. Yeşil girişimcilik, çevre sorunları hakkında farkındalık sahibi olmayı, ilgili alanlarda teknik bilgi, mevzuat ve pazar bilgisine sahip olmayı gerektirir. Yeşil girişimciler, sürdürülebilirlik sağlamak ve çevreyi korumak amaçlarıyla bir sektörde iş kurarak o sektörün yeşil dönüşümünü sağlayan kişilerdir. Yeşil girişimciler yeşil işler, yeşil ürünler ve yeşil teknolojiler yaratarak yeşil ekonominin güçlenmesini ve büyümesini sağlamaktadır. Ekolojik bir toplum ve sürdürülebilir bir dünya için önemli bir potansiyel olan yeşil girişimcilik, yaratıcı yıkım sürecini başlatacak, sosyoekonomik dönüşümü tetikleyecek, temiz ve sürdürülebilir bir tüketim anlayışıyla daha sağlıklı çevresel ortamlara ulaşabilmemizi sağlayacaktır.

Günümüzde yoğun tüketim ve üretim faaliyetleri, hızlı ve kontrolsüz büyüyen ekonomi özellikle de nüfusun ve ekonomik faaliyetlerin yoğun olduğu metropoliten alanlarda birçok soruna yol açmaktadır. Metropoliten alanlarda yaşanan bu olumsuzlukların önüne geçmek için yeşil ekonomi gibi sürdürülebilir ekonomik sistemleri benimsemek bir çözüm olabilir. Bunun yanında, yeşil girişimcilik faaliyetlerini benimsemek bu yeni sürdürülebilir ve çevreci ekonomik sistemin gelişmesine katkı sağlayacaktır. Günümüzde gelişmiş, gelişmekte olan ve az gelişmiş ülkeler ve bu ülkelerdeki metropoliten alanların durumları ile bu metropoliten alanlardaki yeşil ekonomi ve yeşil girişimcilik faaliyetlerinin davranışları da farklıdır. Gelişmiş ülkelerde yeşil ekonomi ve yeşil girişimcilikle ilgili süreçler daha başarılı ve sistematik yönetilmekteyken aynı durum az gelişmiş ya da Türkiye gibi gelişmekte olan ülkeler için geçerli değildir.

Yeşil ekonomi ve yeşil girişimcilik kavramları dünyada uzun zamandır gündemde olmasına rağmen Türkiye’de yeni tartışılmaya başlanan kavramlardır ve bu kavramlara yönelik uygulamalar ülkenin en gelişmiş metropoliten alanı olan İstanbul’da en çok görülmektedir.

Bu çalışma kapsamında öncelikle yeşil ekonomi ve yeşil girişimcilik kavramları detaylıca tartışılmakta ve dünyadan iyi uygulama örnekleri aktarılmaktadır. Çalışmanın ilk aşamadaki amacı Türkiye ve İstanbul’daki yeşil ekonomik durum ve

yeşil girişimcilik ekosisteminin genel bir değerlendirmesini yapmak, mevcut durumu belirlemek ve konuyla ilgili sorunları ve potansiyelleri ortaya koymaktır.

Türkiye ve İstanbul'daki yeşil girişimcilik ve yeşil ekonomi ile ilgili değerlendirmeler yapıldıktan sonra, vaka çalışması alanı olan İstanbul'daki 22 yeşil girişimin kurucularıyla derinlemesine görüşmeler yapılarak gerçekleştirilen ampirik çalışma aktarılmaktadır. Çalışmanın ikinci aşamadaki amacı ise İstanbul'daki yeşil girişimci ve yeşil girişim profilinin mevcut durumunu analiz etmek ve yeşil girişimcilerin yaptıkları işin arkasındaki motivasyonlarının sebebini ve onları bu işi yapmaya yönlendiren itici gücün ne olduğunu, İstanbul'daki yeşil girişimlerin ekonomik performansının nasıl değiştiğini, yeşil girişimlerin çevrelerine olan etkilerini, hedeflerini, potansiyellerini, karşılaştıkları zorlukları ve yeşil girişimciliğin geleceği ile ilgili öngörülerin ve beklentilerin neler olduğunu tespit etmektir.

Bu tez çalışmasının içeriği giriş ve sonuç bölümleri dâhil olmak üzere altı ana bölümden oluşmaktadır. İlk bölümde çalışmanın amacı, kapsamı ve metodolojisi tanıtarak yeşil girişimcilik ve yeşil ekonomi kavramlarının detaylı olarak araştırılmasındaki motivasyonun sebebi ve tezin yanıt aradığı araştırma soruları aktarılmaktadır.

İkinci bölümde kavramsal çerçeve, çevreci ekonomi kavramları bağlamında ele alınmıştır. Çevre, iklim değişikliği ve ekonomi arasındaki ilişki literatür araştırmasından elde edilen bulgulara dayanarak bu bölümde anlatılmaktadır. Ekonomi kavramının tanımı ve dünyadaki mevcut ekonomik düzenin yapısından bahsedildikten sonra durağan durum ekonomisi, güneş ekonomisi, döngüsel ekonomi, yerleşme ekonomisi, düşük karbon ekonomisi, mavi ekonomi ve yeşil ekonomi olmak üzere yedi farklı çevreci ve sürdürülebilir ekonomik modelin tanımları üzerinde durulmuştur. Bu ekonomik modellerden yeşil ekonomi bu tez çalışması kapsamında daha detaylı aktarılmaktadır.

Tezin üçüncü bölümü yeşil ekonomi ve yeşil girişimcilik kavramlarına daha detaylı odaklanmaktadır. Yeşil iş tanımı ve yeşil işler ile yeşil ekonomi arasındaki ilişki bu bölümde detaylandırılmaktadır. Dünyadaki yeşil ekonomik durum tezin bu bölümünde tanıtılmaktadır. Yeşil ekonomi kavramının temelini oluşturan ilk tartışmalar iklim kriziyle mücadele ile ilgili olmuştur. Bu kapsamda Kyoto Protokolü, Montreal Protokolü, Paris Anlaşması gibi uluslararası anlaşmalar ve yasal düzenlemeler irdelenmiştir. Dünyadaki yeşil ekonomik durumu daha iyi anlayabilmek ve ülkeler arası bir karşılaştırma yapabilmek için Environmental Performance Index (EPI) ve The Global Green Economy Index (GGEI) üzerinden bir değerlendirme yapılmıştır. Bu iki indekse göre dünyada yeşil ekonomik performansı en yüksek olan ülkeler İsviçre, Fransa, Danimarka, İsveç, Norveç, Avusturya ve Birleşik Krallık olmuştur. Fransa ve Birleşik Krallık EPI, GGEI indekslerinde ve gayri safi yurt içi hâsıla sıralamasında dünyada ilk 10'da oldukları ve nüfusları da indekslerde üst sıralamalarda olan ülkelere kıyasla Türkiye nüfusuna daha yakın olduğu için yeşil ekonomi bağlamında daha detaylı incelenmiştir. Bu ülkelerdeki yeşil ekonomik durum ve yeşil ekonomi politikaları iyi örnekler ve uygulamalar üzerinden aktarılmıştır. Üçüncü bölümün devamında yeşil girişimcilik kavramı detaylı olarak açıklanıp yeşil girişimcilik örnekleri verildikten sonra metropoliten şehirlerde yeşil girişimcilik pratikleri üzerinde durulmuştur. Metropoliten alanlarda sermaye ve işgücünü çekmek için sunulan gelişmiş hizmetler yeni girişimcilerin de metropoliten alanlarda yer seçmesini sağlamaktadır. Ekonomik değer üreten girişimciler metropoliten alanların ekonomik büyümesine katkı sağlarken, metropoliten alanlar da girişimcilerin ihtiyaç duyduğu

hizmetleri sağlamaktadır. Böylece girişimci ve metropoliten alan arasında karşılıklı faydaya yönelik bir ilişki kurulmaktadır. Mevcut durumda metropoliten alanlarda ekonomik büyüme özellikle de gelişmekte olan ülkelerde kalkınma olarak algılanmaktadır fakat ekonomik büyüme ekonomik kalkınmayı sağlamamakta ve bu durum da yoğun üretim ve tüketimden kaynaklı çevresel problemler başta olmak üzere birçok fiziki ve sosyo ekonomik soruna yol açmaktadır. Özellikle metropoliten alanlarda daha çok karşılaştığımız ekonomik faaliyetlerden kaynaklı çevresel sorunlar sürdürülebilir ekonomik modeller ve yeşil iş kolları ile belirli ölçüde çözülebilmektedir. Metropoliten alanlardaki hızlı ve kontrolsüz ekonomik büyüme çoğu zaman çevresel zararlara yol açmaktadır. Bu durumda, sürdürülebilir ekonomik modellere en çok ihtiyaç duyulan bölgeler de metropoliten alanlar olarak karşımıza çıkmaktadır. Yeşil ekonomisi detaylıca incelenen Fransa ve Birleşik Krallık ülkelerinin en büyük metropoliten alanları olan Paris ve Londra, metropoliten şehirlerde yeşil girişimcilik bölümünün detaylı örneklerini oluşturan şehirler olmuştur.

Tezin dördüncü bölümünde Türkiye ve İstanbul'da yeşil ekonomi ve yeşil girişimcilik ekosistemlerinin mevcut durumu literatür araştırması çıktıları kullanılarak analiz edilmiştir. Bu kavramların hem Türkiye hem de İstanbul için yeni kavramlar olmasından dolayı çok fazla dergi, makale, rapor vb. basılı yayına rastlanılamamış dolayısıyla web siteleri bu bölümün kaynaklarının çoğunluğunu oluşturmuştur. Türkiye'deki yeşil ekonomi ve yeşil girişimcilik ekosistemini analiz edebilmek için öncelikle ülkenin mevcut ekonomik durumu ve girişimcilik ile ilgili çalışmaları özetlenmiştir. Türkiye ekonomisi yıllar içinde büyümüştür fakat enflasyon ve işsizlik oranları artmış, en büyük istihdam kaybı tarım sektöründe yaşanmış kısacası ekonomi büyümüş ama kalkınmamıştır. Türkiye'de yeşil ekonomiye geçiş süreci ise daha çok uluslararası anlaşmalar ve Avrupa Birliği'ne uyum süreci kapsamında gelişmektedir. Yeşil ekonomiyle ilgili proje, uygulama ve politikalar gelişmiş ülkelere kıyasla oldukça yetersizdir. Yeşil teknolojilerin geliştirilmesi, kamu desteğinin artması, politikaların uygulanması, yenilenebilir enerji kaynaklarına geçiş ve doğal kaynakların verimli kullanılması Türkiye'de yeşil ekonomiye geçişi hızlandıracaktır. Türkiye'deki girişimcilik ekosistemi büyümektedir fakat ekonomik durumdaki dengesizlik ve ekosistemin yeterince desteklenmemesi sebebiyle bu büyüme yavaş gerçekleşmektedir. Yeşil girişimcilik Türkiye'de son yıllarda duyulmaya başlayan çok yeni bir kavramdır. Ülkede yeşil girişimciliğe özel kapsamlı bir teşvik ya da destek programı bulunmamaktadır. Türkiye'de yeşil girişimcilik konulu finansal destekler ve politikalar, kurumlar arasındaki işbirliği, yeşil işler ve çevresel konularla ilgili toplum farkındalığı, özel sektör ve devlet teşvikleri yeşil girişimciliği geliştirme ve destekleme konusunda yetersizdir. Türkiye'de yeşil girişimcilik ekosistemini geliştirmek için yeşil girişimciliği destekleyen kuruluşların sayısı ve çeşitliliği artırılmalı ve kurumlar arası koordinasyon sağlanmalıdır, yeşil girişimciliğe özel bir teşvik mekanizması geliştirilmelidir, yeşil girişimcilik ekosistemine daha yenilikçi bir bakış açısıyla yaklaşılmalı ve bu yönde yeni destek programları oluşturulmalıdır, yeşil işler ve çevre konularıyla ilgili toplumsal farkındalık artırılmalıdır. Tezin bu bölümünün odaklandığı bir diğer konu olan İstanbul'daki yeşil ekonomi ve yeşil girişimcilik araştırıldığında ise durumun Türkiye'ye benzer olduğu görülmüştür fakat İstanbul'un birçok konuda Türkiye'nin öncü şehri olması dolayısıyla yeşil ekonomi ve yeşil girişimciliğe ilgili çalışmaların da diğer şehirlere kıyasla en çok İstanbul'da gelişmiş olduğu söylenebilir. İstanbul, Türkiye ekonomisinin en büyük bölümünü oluşturan küresel bir metropoldür ve şehirdeki ekonomik eşitsizlik Türkiye ortalamasının üzerindedir. İstanbul'un ekonomisi de Türkiye'ninkine benzer şekilde büyümekte ama kalkınmamaktadır. İstanbul büyük bir metropoliten alan olması sebebiyle yeşil

ekonomiye en çok ihtiyacı olan şehirlerden biridir. İstanbul, girişimcilik ekosistemi bakımından da Türkiye'nin en gelişmiş kentidir. 2021'de Türkiye'de yeni kurulan şirketlerin %39.62'si İstanbul'da yer seçmiştir. Türkiye'de yeşil girişimcilikle ilgili çalışmaların da büyük çoğunluğuna yine İstanbul ev sahipliği yapmaktadır fakat İstanbul'daki yeşil girişimcilik ekosisteminin gelişmiş ülkelerin metropoliten kentlerindeki kadar büyük olduğu söylenemez. Kentin küresel bağlantıları oldukça gelişmiş olup dünyada değişen ekonomi ve girişimcilik trendleri İstanbul'u da etkilemektedir. Değişen dünya düzeni ve iklim krizinin etkileriyle yeşil iş yapmak isteyenlerin sayısının artmakta olduğu düşünüldüğünde gelecek yıllarda İstanbul'daki yeşil girişimcilik ekosisteminin büyüyeceği söylenebilir.

Tezin beşinci bölümü İstanbul'da yeşil girişimcilik üzerine yapılan ampirik çalışmaya odaklanmaktadır. İstanbul'daki yeşil girişimcilik ekosistemini daha iyi anlayıp analiz edebilmek için 22 adet yeşil girişimin kurucularıyla çevrim içi derinlemesine görüşmeler gerçekleştirilmiştir. Bu bölümde İstanbul'daki yeşil girişimci ve yeşil girişim profili nasıldır, yeşil girişimcilerin bu işi yapmaktaki motivasyonu ve onları bu işi yapmaya yönlendiren şey nedir, yeşil girişimlerin performansı ekonomik anlamda nasıl değişmektedir, çevrelerine nasıl etkileri vardır, yeşil girişimcilerin işleriyle ilgili hedefleri nelerdir, nasıl zorluklarla karşılaşmaktadırlar ve İstanbul'da yeşil girişimciliğin geleceği ile ilgili öngörüler ve beklentiler nelerdir sorularına yanıt aranmaktadır. İstanbul'daki yeşil girişimcilerin çoğunluğunun genç; lisans ve üstü eğitilmiş olduğu; kendilerini yeşil girişimcidense sosyal girişimci olarak tanımladıkları; ana motivasyonlarının çevreyi korumak, iklim kriziyle mücadele etmek ve sosyal etki yaratmak olduğu görülmüştür. Girişimlerin büyük çoğunluğu ise 2015 ve sonrasında kurulmuş küçük ölçekli şirketlerdir ve performansları zamanla artmaktadır. Yeşil girişimcilerin tümü yaptıkları işin iklim krizi ile mücadeleye ve yeşil ekonomik düzenin oluşmasına katkı sağladığını, İstanbul ve Türkiye ekonomisi üzerinde olumlu etki yarattığını ve sosyal etki yaratarak toplumsal farkındalığın oluşmasına destek olduğunu düşünmektedir. Ulusal ve küresel olarak büyümek, ürün ve iş çeşitliliğini arttırmak girişimcilerin temel hedefleridir. Bu hedeflere ek olarak sosyal etki ve toplumsal farkındalığı daha çok arttırmak, yeni yeşil girişimlerin oluşmasına örnek ve öncü olmak ve ürettikleri iş modelini yaygınlaştırmak da istemektedirler. Girişimciler birçok zorlukla karşılaşmaktadırlar fakat Türkiye'de yeşil girişimcilikle ilgili yeterli destek, politika ve teşviğin bulunmaması girişimcileri en çok zorlayan konudur. Girişimcilerin büyük çoğunluğu yaptıkları işin, buldukları sektörün ve yeşil girişimcilik ekosisteminin geleceğini parlak görmektedirler ve bu ekosistemin büyüyeceği konusunda umutludurlar.

Bu çalışma Türkiye'de ve İstanbul'da yeşil ekonomi ve yeşil girişimciliğin gelişmesi için potansiyelleri ve yapılması gerekenleri ortaya koyarak politika yapıcılara bir yol haritası oluşturmaktadır. Tezin son bölümünde genel bir mevcut durum değerlendirmesi yapıldıktan sonra yeşil ekonomi ve yeşil girişimcilik kavramlarının geliştirilmesi için önerilerde bulunmaktadır. Yeşil ekonomiyi geliştirecek politikaların oluşturulması ve projelerin uygulanması, yeşil girişimciliği destekleyecek yeni mekanizmaların oluşturulması İstanbul'da ve Türkiye'de yeşil ekonomik düzenin oluşmasına katkı sağlayacak ve yeşil girişimcilik ekosistemini de büyütecektir.

Yeşil girişimcilik yeşil ekonominin önemli bir tetikleyicisi olabilecek potansiyeldedir ve verilecek doğru kararlar, atılacak düzgün adımlar, uygulanacak doğru politikalar ve yenilikçi teşvikler hem Türkiye'de hem de İstanbul'da yeşil girişimcilik ekosistemini büyütüp geliştirerek yeşil ekonomik düzenin gerçekleştirilmesini sağlayacaktır.



1. INTRODUCTION

In today's capitalist economic system, resources are seen as unlimited, and continuous economic growth is aimed. Rapid production and consumption activities cause rapid depletion of natural resources and increase the effects of climate change. As a result of the economic order based on rapid production and consumption, wastes increase, food and energy are wasted, natural resources are polluted, and water resources are consumed. While the current economic order increases the effects of climate change, climate change also poses a great threat to the economy. Capitalism, which aims for continuous growth by focusing on rapid production and consumption, makes the economic order more sensitive to the climate crisis and threatens the existence of the current economic system.

Labor productivity; employment; economic growth; different sectors such as agriculture, tourism and health are negatively affected by climate change. Climate change causes approximately 150 billion dollar loss to today's economy indirectly and it causes 65 billion dollar damage per year to today's economy directly. It is assumed that climate change will be causing 160 billion dollar damage per year in 2030. (DARA and Climate Vulnerable Forum, 2010; ILO, 2018) Half of the economic impacts of climate change are felt in industrialized countries. The economic losses due to climate change will increase in every country but the highest rise will be in industrialized countries. Lower-income countries suffer much greater relative stresses to their economies because of climate change and the largest economic stress impact of climate change will be in Central Asia and Russia, Eastern Europe, the Pacific and large parts of Africa. (DARA and Climate Vulnerable Forum, 2010)

The reason of economic loss because of climate change is loss in sectors such as agriculture, tourism and health; money spent to compensate for the damage caused by natural disasters due to climate change; money spent on greenhouse gas emission reduction. Climate change is one of the biggest threats of the age for the global economy due to the stress it creates on different sectors and the destructive effects of the disasters it causes. Some scientific studies predict that trade routes around the

world may change as a result of the complete melting of the Arctic Ocean in 2030 due to increasing global warming. (WEglobal, 2019)

The climate crisis causes cumulative net losses for the global economy. In relation to that, William Nordhaus developed an economic model and he won Nobel Economics Prize in 2018. William Nordhaus states that an increase of 4 °C to be observed in global temperatures will cause a loss of around 4% in global Gross Domestic Product (GDP) and an increase of 6 °C will cause a loss of approximately 11% in global GDP (Figure 1.1). (Gümüş and Buluş, 2020; Nordhaus, 2018; WEglobal, 2019)

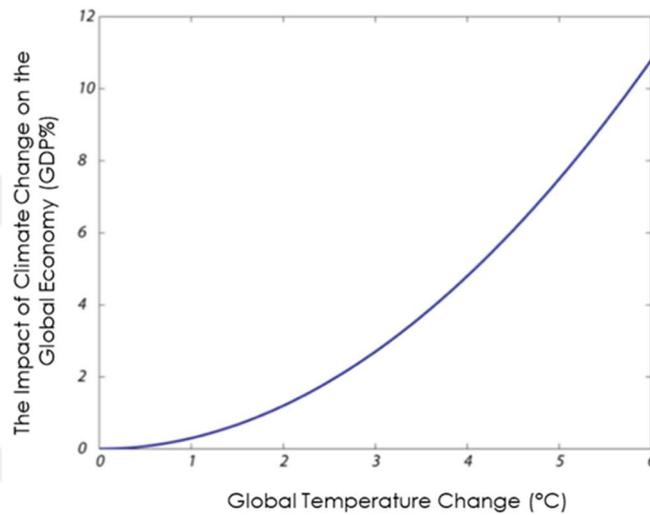
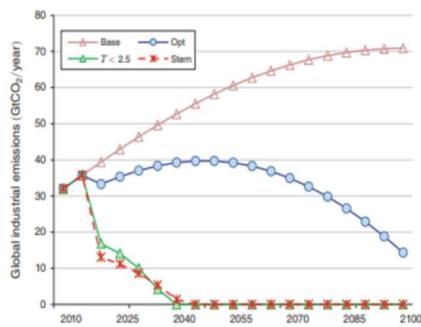
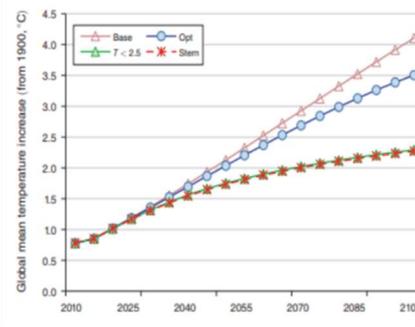


Figure 1.1: The impact of global temperature change on GDP (WEglobal, 2019, p.8).

Nordhaus proposed a limitation on greenhouse gases by imposing a cost on emissions and the need to impose a carbon tax for this purpose for the first time in history. Nordhaus developed a model named DICE in which he makes evaluations on climate change and he shows the possible consequences of four different policy implementations related to carbon tax in the model (Figure 1.2). In the first policy implementation which called Base, there are not any carbon taxes. In the second one which is Optimum, there are carbon taxes but they are a few. In the third policy implementation which is Stern, there are many carbon taxes and it is assumed that these taxes will increase global welfare, and in the fourth policy implementation which called Limit ($T < 2.5$), there are many and high taxes. It is aimed that global warming does not exceed 2.5 °C with this policy. According to Nordhaus, even in the case of the best climate policies, the increase in global temperatures does not fall below 2 °C. (Gümüş and Buluş, 2020; Nordhaus, 2018)



Global Emission in Different Climate Policies



Change in Global Temperatures in Different Climate Policies

Figure 1.2: William Nordhaus' DICE Model (Nordhaus, 2018, p.347-348).

The climate crisis will affect all economic sectors but agriculture, tourism, health and energy sectors are the most vulnerable to climate change. Factors such as heat stress, drought, flood and extreme weather events significantly reduce the productivity of agriculture, animal husbandry and fisheries, and this situation poses a threat to food security on a global scale. For example, wheat agriculture yields are expected to decline by 35% by 2050 in arid and tropical regions such as Africa. Direct and indirect effects of climate change such as extreme weather events, increased insurance costs and safety concerns, water scarcity, biodiversity loss and damages on cultural and natural heritages affects tourism sector badly. For example, some economic difficulties in the tourism sector has already begun in Southern Europe, North America and Australia because of drought and forest fires. Extremely high temperatures, natural disasters and infections due to climate change create massive damages on health sector. For example, water resources are running out because of climate change and this situation can cause emergence of new type infections. Also, extremely hot weathers cause deaths or cardiovascular and respiratory diseases. The climate crisis puts stress on both renewable energy sources (hydro, wind, bio, solar and wave and other) and fossil energy sources (oil, natural gas and coal). This situation makes it more difficult to produce energy and because of this, energy prices increase. For example, hydroelectric power generation is directly depended on water resources and if water resources are lost due to climate change, hydroelectric power can't be get and this affects energy sector in a bad way. (Başoğlu, 2014; IPCC, 1998, 2001; WEglobal, 2019)

Climate change affects 40% of jobs in global market industries directly or indirectly. 1.2 billion of 3.2 billion jobs in the world were directly or heavily dependent on

ecosystem services in 2014. These sectors include agriculture, forestry, fishing, food, beverage and tobacco, wood and paper, biofuels and renewable energy sources, the pharmaceutical and chemical industry, and environmental tourism. India, China and Indonesia have highest rates with 52, 50 and 41% for ecosystem-based employment. While 5% of total employment in the United Kingdom (UK) and Germany is directly based on ecosystem services, this rate is 16% in the European Union. Within this context, the losses on ecosystem services because of climate change will affect the employment rates on the sectors which are depended on ecosystem services and this means more employment loss. Developing employment policies sensitive to climate is important to reduce economic crises caused by the climate change. (ILO, 2019)

In recent years, when resources have started to run out rapidly, the need to change the current economic system has increased. The adoption of new sustainable economic models such as the green economy will both reduce the effects of economic activities on climate change and reduce the bad economic effects of climate change. In the transition to a green economy, it is extremely important to create green jobs that combat the effects of the climate crisis, prevent environmental pollution and increase awareness, and to provide employment in green jobs. Green entrepreneurship activities provide the formation and development of a green economy, just as entrepreneurial activities provide input to the economy and ensure the growth and development of the economy. Green entrepreneurship is important for the development of green jobs.

In Turkey, where concepts such as green economy and green entrepreneurship have only recently begun to be discussed, the first steps regarding green entrepreneurship, like many other issues, were taken in Istanbul which is the country's only megacity. The green economy has started to be discussed in Turkey, but no large-scale action has been taken yet and there aren't any legal regulations or policy statements regarding green entrepreneurship.

It is obvious that green entrepreneurship and sustainable new economic models such as green economy should be adopted and supported in order to reduce foreign dependency, fight the effects of the climate crisis, ensure justice and increase employment in Turkey, which is a developing country that has recently entered into economic deadlocks.

1.1 Aim and Scope of the Study

Climate change causes socio-economic damages as well as environmental effects. In today's economy, billions of dollars are lost due to climate change, and capitalist economic activities also cause climate change to accelerate. In order to break this unsustainable relationship between climate change and the economy, new sustainable economic models such as green economy should be adopted. This change in the economic system must be realized quickly before the natural resources in the world are depleted. Entrepreneurship activities come to the fore in order to realize this rapid change. Green entrepreneurship is needed to realize the green economy.

Within the scope of this study, the concepts of green economy and green entrepreneurship are discussed in detail and examples of good practices from around the world are presented. After the green economic situation and green entrepreneurship in Turkey are explained in more detail in a separate section, the green economy and green entrepreneurship activities in Istanbul, which is the case study area, are also mentioned.

Istanbul is Turkey's largest metropolitan area and is the leading city where economic activities are most intense. The concepts of green economy and green entrepreneurship have just started to be discussed in Turkey, and Istanbul is the city where studies on these concepts are carried out most intensively, as in many other subjects. Within the scope of the study, an empirical study is conducted with green entrepreneurs in Istanbul. The current situation, problems and potentials of the green entrepreneurship ecosystem in Istanbul are determined by interviewing the founders of 22 green enterprises.

The aim of this study is to make a general assessment of the green economic situation and the green entrepreneurship ecosystem in Turkey and Istanbul, to evaluate the green entrepreneurship ecosystem in Istanbul in more detail with the empirical study, to determine the current situation, to reveal the problems and potentials. As a result of the literature research and empirical field work, it is aimed to determine how the green entrepreneurship ecosystem in Istanbul can be supported and developed, how solutions to problems should be produced, and which methods can accelerate the transition to green economy. Another aim of the study is to define the components of the green entrepreneurship ecosystem as well.

In order to achieve these objectives, answers to the following research questions are sought.

- What is the profile of green entrepreneurs in Istanbul?
- What is the green enterprise profile in Istanbul?
- What is the motivation and driving force of green entrepreneurs in Istanbul?
- How is the performance of green enterprises in Istanbul changing economically?
- How do green enterprises in Istanbul affect their environment?
- What are the business goals of green entrepreneurs in Istanbul?
- What kind of difficulties do green entrepreneurs in Istanbul experience?
- What are the predictions and expectations about the future of green entrepreneurship in Istanbul?
- What policies and incentives should there be to develop green entrepreneurship?

1.2 Data and Methodology

The thesis mainly focuses on green entrepreneurship within the context of the relation between economy and environment. The definition of green entrepreneurship is emphasized with other related concepts such as green economy and green jobs. The methodology of this thesis is based on reviewing the literature and the empirical study conducted in Istanbul, which is the case study area.

Within this framework, the literature review is focused on the concepts of green economy and green entrepreneurship. Different resources of various writers and institutions are used in order to explain the concepts in the best way. Since the concepts are new, most of the sources are recent which is good in that the thesis is based on current references.

The literature includes reports, articles and websites mostly. Websites are mainly used to be able to explain the concept of green entrepreneurship because the concept is new and there aren't many reports or articles about it.

Main part of the international literature belongs to the reports and websites of European Commission, International Labour Organization (ILO), United Nations (UN), United Nations Environment Programme (UNEP) and United Nations Framework Convention on Climate Change (UNFCCC). On the other hand, national literature is mainly focuses on articles of different researchers, Turkish Statistical Institute (TURKSTAT) and websites of the ministries of the Republic of Turkey. To be able to recognize the green entrepreneurship ecosystem in Istanbul, websites of entrepreneurship support programs and companies are used as the main source.

After the literature review, the empirical study is given. In-depth interview and survey technique is adopted to do the empirical study. The case study area was chosen as the biggest metropolis of Turkey, Istanbul. Online interviews were conducted with the founders of 22 green enterprises in Istanbul.

1.3 Structure of the Study

This thesis is organized into six chapters including the introduction part. Introduction part includes sub-subjects which are aim and scope of the study, data and methodology, and structure of the study.

The second chapter presents conceptual framework within the context of environmentalist economy concepts. The relation between environment, climate change and economy is explained in this chapter. The definition of the economy is given and the structure of the current economic order in the world is mentioned. The focus in this part is mainly on definitions of seven different environmentalist and sustainable economy concepts including green economy.

The third chapter goes deeper into the concept of green economy. The chapter consists of two sections. The definition of green economy mentioned at the end of the second chapter is given in more detail in the first section of this chapter. Green jobs, an important component of the green economy, are explained in this section. The situation of green economy in the world, events and agreements that contributed to the formation of the concept of green economy in history, and examples of good practices in the green economy from around the world is discussed in this section.

After explaining the green economy, the concept of green entrepreneurship is explained in the second section of the third chapter. The definition of green

entrepreneurship, the relation between green economy and green entrepreneurship, and activity examples of green entrepreneurship is mentioned in this section. After conceptual definition of green entrepreneurship, green entrepreneurship in metropolitan cities is discussed due to the most intense economic activities take place in metropolitan areas and the most need for green economy and green entrepreneurship is in metropolises. Good examples of green entrepreneurship practices in metropolitan areas are also presented in this section.

Green economy and green entrepreneurship in Turkey and Istanbul is searched in fourth chapter. The chapter consist of four sections which investigate the green economy and the green entrepreneurship in Turkey and in Istanbul separately. The situation of green economy and green entrepreneurship in Turkey and in Istanbul is compared to other countries and cities in this chapter. General economic and entrepreneurship situation of Turkey and Istanbul is explained with numeric data. In the last part of the chapter, the basis of the fifth chapter is formed and the green entrepreneurship ecosystem in Istanbul is examined within the literature review. A brief general assessment of the whole literature review is given at the end of this chapter and components of green entrepreneurship ecosystem is shown.

The fifth chapter represents the empirical study on green entrepreneurship in Istanbul. The results of the interviews with the founders of 22 green enterprises in Istanbul are presented in this section. The problems, potentials, needs and current situation of the green entrepreneurship ecosystem in Istanbul are determined in this section.

The last chapter of the thesis is conclusion part. The whole process is outlined in this chapter. Recommendations about the potential of enabling green economy and green entrepreneurship ecosystem in Turkey and in Istanbul is summarized. Some policy suggestions to develop green entrepreneurship is given. The importance of green economy and green entrepreneurship for creating sustainable cities is highlighted in this section. Finally, what should be done for a greener and more sustainable world is outlined.

2. CONCEPTUAL FRAMEWORK: ENVIRONMENTALIST ECONOMY CONCEPTS

According to the definition of neo-classicals, economy is defined as the science that examines the most effective use and distribution of scarce resources in order to meet unlimited individual and society demands. The word ‘economy’ comes from the Greek word *oikonomia*, which means management of the household. *Oikonomia* foresees meeting the needs of the household for the future (Leshem, 2016). Contrary to the definitions of economy, today's economic system aims at unlimited production and consumption by assuming that the nature will serve humanity forever by providing unlimited raw materials. This system, which aims for continuous growth, is focused on short-term growth figures, is extremely careless to the future of the world and is not fair and sustainable.

Throughout history, the main purpose of the economy has been to increase the level of human welfare. Adam Smith, one of the classical economists, said that it is sufficient to accept the production of goods and services as an indicator of welfare. According to this view, the principle that societies will be happier when they produce more goods is adopted. The main aim of the economy is to provide and increase welfare, but a quality environment is needed to ensure complete welfare. Since the classical economic view, the environment has been seen as an inexhaustible and free commodity. Seeing the environment as a free commodity has led to the irresponsible and excessive use of natural resources and, as a result, to the deterioration of these values. The free commodity approach, which does not take into account the future, has a great impact on the formation of environmental pollution. While production and consumption activities in the world are increasing rapidly, the quality of the environment is getting worse rapidly due to these approaches and the environment is turning into an economic good that cannot respond to demands.

One of the most important factors causing environmental problems is the intervention in ecological systems. Muşmul and Yaman stated that “Although the ecological system is in a regular cycle within itself, it has experienced great destructions as a result of

human intervention” (Muşmul and Yaman, 2018, pp. 68-69). The extremely intense production and consumption activities that started with the Industrial Revolution in the 1860s put great pressures on the environment. In the same period, the rapid rise in the world population and in the use of fossil fuels led to an increase in environmental problems. Climate change and global warming, which are among the biggest problems of our time, have also emerged as a result of high carbon emissions of economic activities.

Continuous production and consumption activities which are the inputs of the economy affect the environment and this situation causes the environment and the economy to be two related entities that cannot be considered separately. The environment provides inputs such as raw materials, energy and resources needed for the continuity of economic activities and thus contributes to economic vitality by supporting production and consumption. However, production and consumption activities have begun to affect the environment negatively today. While some wastes can be recycled thanks to technological developments, most of them cannot be recycled and this situation negatively affects both environmental quality and economic activities. Intensive industrialization and urbanization, which developed as a result of the increase in production and consumption activities, creates air, water and soil pollution, causes depletion of natural resources by causing population growth, and negatively affects the environment by causing traffic and infrastructure problems.

According to the Environmental Kuznets Curve, which shows the relationship between income level and environmental quality, environmental degradation initially increases as income level increases, but after reaching the peak, this situation changes and environmental degradation decreases (Figure 2.1). The reason for this change is the desire of high-income people to demand a better quality environment. With the increasing income level, people's awareness of their socio-economic level and environmental problems also increases and they become more sensitive to environmental problems. Increasing demand for a better quality environment puts pressure on administrative units and makes it necessary for these units to work for a higher quality environment. (Yandle et al., 2004; Muşmul and Yaman, 2018)

Economic activities that occur as a result of intensive production and consumption processes affect the environment negatively, but it should be known that bad environmental conditions will also negatively affect the economic situation in the

following processes. Losses in the environment will also affect the economy. As a result of bad environmental conditions, sectors such as agriculture, tourism and health will be negatively affected and this will lead to the deterioration of the economic structure. It should be accepted that bad environmental conditions will also affect the economy badly and solutions should be developed in this direction.

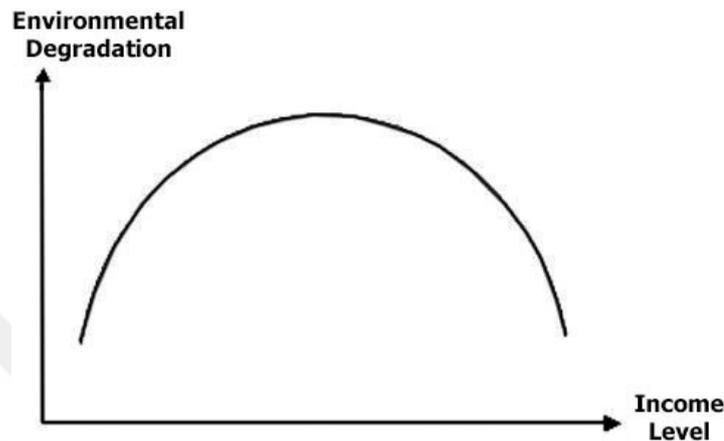


Figure 2.1: Environmental Kuznets Curve (Yandle et al., 2004).

Economic growth causes natural and social losses due to the deterioration of the structure of the environment. This kind of growth is not sustainable. Sustainable development will be possible with the establishment of a new environmentalist economic system that brings individuals to full welfare.

Today, the capitalist system has been adopted in many countries. This system is capital-oriented and works for the benefit of people with money and power and causes high income disparities and environmental problems as a result of globalization, overproduction and consumption. In the 21st century, when the economic order started to destroy natural resources and accelerated climate change, the importance given to environmental policies began to increase.

In conferences, meetings, protocols and agreements held around the world, the relationship between the economy and the environment was mentioned and it was argued by many scientists that new economic orders should be adopted. Conferences on the protection of the environment were held with the contributions of the UN. The Human and Environment Conference, held in Stockholm, Sweden in 1972, created awareness all over the world and led to the start of movements for the protection of the environment. The conference enabled the member states of the UN to make legal

arrangements for the protection of the environment and to establish environmental organizations. While there has been an increase in environmental protection awareness since the Stockholm Conference, there has also been an intense increase in environmental pollution. While there are countries that can cope with environmental problems, there are also countries that cannot overcome these problems. While developed countries can cope with environmental problems relatively more through initiatives such as closing thermal power plants and banning the use of diesel, underdeveloped or developing countries have been quite unsuccessful in dealing with environmental problems. (Sencar, 2007)

A modeling study was carried out for the Club of Rome. The model stated that if the world population continues to increase at the current rate, if the industrialization and economic growth maintains its pace, if new food sources that will feed humanity and new natural resources that will allow the production mechanism to continue are not found, and if there is no remedy for the pollution and deterioration of the environment, the life span of humanity on earth will be only a century. According to the study, economic growth should be limited in order to prevent environmental problems. (Meadows et al., 1972)

Although there has been a lot of work on the protection of the environment on a global scale, when we look at the current situation, it is seen that the necessary progress in environmental protection has not been taken. Considering the great effects of the economy on the environment, it is necessary to establish new environmentalist economic systems. In this part of the thesis, these new systems will be mentioned and after explaining what measures these systems protect the environment with, what features they differ from each other will be discussed.

Environment and economy are an inseparable whole with very strong ties. The environment and economy, which are in constant interaction with each other, are also affected by each other for good or bad. Intensive production and consumption activities and the economic structure that continues its growth in an uncontrolled and unsustainable way affect the environment negatively and cause the depletion of natural resources. An unhealthy, poor quality and problematic environment, which is the result of a bad and environmentally insensitive economic structure, also negatively affects the economic structure in the following processes. The environment and economy, which are in constant cyclical communication with each other, must exist in a way that

supports each other rather than affecting each other negatively, for a sustainable world life. Increasing industrialization and economic activities with the First Industrial Revolution put great pressure on the environment, and this situation continued to increase in the Second Industrial Revolution and has survived to the present day. Today, while developed countries can cope with environmental problems arising from economic activities due to their advanced technologies and reaching a certain economic saturation, underdeveloped and developing countries cannot achieve this and cannot prevent environmental problems. Agreements made between many countries around the world fail in most countries due to the fact that these agreements remain in theory and cannot be put into practice, and global-scale problems such as global warming and climate change cannot be prevented. All these environmental problems originate from the fact that economic actors see the environment as a free good and want to make all goods cheap. The enabler of economic growth is the environment, and the damage to the environment as a result of excessive growth will also collapse the economy. In order to prevent these bad scenarios, new environmental economic systems such as green economy, steady-state economy and low carbon economy should be adopted.

New environmentalist economies have been developed in order to alleviate the pressure on environment by the economy, to prevent soil, air and water pollution, to combat climate change and global warming, to create a fair economic system for all and to increase the level of welfare. These environmentalist economy concepts are steady-state economy, solar economy, circular economy, localized economy, low-carbon economy, blue economy and green economy.

Green economy is the most prominent concept among these concepts and it has started to take place in the economy policies of many countries. In the following part of the thesis, the concept of green economy will be examined in more detail and its connection with green entrepreneurship will be established.

2.1 Steady – State Economy

The foundations of the steady-state economy were laid in the mid-19th century by John Stuart Mill. According to Mill, fixed capital and population conditions do not mean that human development will also be fixed. A steady-state economy is a non-growth economy. Unlike today's economic system, this system aims to stop economic growth.

A steady-state economy is likened to a mature forest with a continuous cycle of birth, growth, death, and decay, but no growth in the overall ecosystem. In a steady-state economy, there is no growth in the size of the economy, but growth in the quality of the economy. A steady-state economy provides a better and fairer distribution of wealth, and is a sustainable and long-term economic system. In contrast to the capitalist system, which aims at continuous growth and causes environmental pollution on a large scale, the steady state economy, which advocates not to grow in the economy and to remain stable, is an ecological economic system that also minimizes the consumption of natural resources. (Center for the Advancement of the Steady State Economy, 2022; Daly, 2019; Econation, 2022d)

2.2 Solar Economy

Today, a very large part of the source of energy use is obtained from fossil fuels. Fossil fuels increase carbon emissions, trigger global warming, cause climate change, and create air, water and soil pollution. Fossil fuels are finite resources and are rapidly depleting. Solar economy, which wants to prevent the use of fossil fuels, proposes the use of solar energy as the main energy source. Other renewable energy sources, such as wind, can also be used to avoid fossil fuel use, but the energy from wind or sea waves actually depends on weather conditions affected by the sun. For these reasons, the idea of solar economy, which argues that the use of solar energy should increase, has been put forward. It is said that the energy obtained from the sun has increased in recent years, but this energy is not used enough. In order to prevent the use of fossil fuels and to have a healthier environment, a transition should be made to the solar economy, which will meet all its energy from the sun in the production and consumption processes. (Econation, 2022c; Nath, 2022)

2.3 Circular Economy

The circular economy is an economy that behaves like nature as it produces no waste because everything is recycled in this economy. Also, there is no systematic increase in toxic or hazardous chemicals. The circular economy is an economic system in which the pressure on natural and fresh water resources and ecosystems is minimized. “The circular economy is a systematic approach to economic development designed to benefit businesses, society and the environment” (Ellen MacArthur Foundation, 2022).

Since the industrial revolution began, the amount of waste in nature has increased continuously. The reason for this is the buy – build – throw out logic in economics. In this buy – build – throw out logic, resources are plentiful, easily accessible, and disposal is easy and harmless but actually that is not the case. Resources are not as many as we think and the disposal of waste is not an effortless process as it is thought. Unlike the 'buy – build – throw out' linear model, the circular economy is a design-innovated model and aims to gradually decouple growth from consumption of resources. The aim of the circular economy is to create a cycle in which all the outputs of the economy are not wasted but recycled into production. This means reusing, repairing, refurbishing and recycling existing resources, materials and products. According to the circular economy, anything that used to be considered waste can be turned into a resource. This economic system aims to manage all resources more efficiently throughout their life cycle. There are two types of material flows in the circular economy. These are biological resources and technical resources. In the circular economy model, processes are designed for the safe re-entering of biological resources into the biosphere and the continuous circulation of technical resources without entering the biosphere. (Econation, 2022a; Ellen MacArthur Foundation, 2022)

The circular economy is designed as a restorative and regenerative economy. In a circular economy, economic activity ensures that the system is healthy and can be rebuilt rather than harming the system. This economic system advocates and thrives on the need for an economy that must operate effectively at all scales for large and small businesses, global and local organizations and individuals. (Econation 2022a; Ellen MacArthur Foundation, 2022)

The circular economy is based on three principles. These are designing waste and pollution processes, keeping products and materials in continuous use and renewing natural systems. (Ellen MacArthur Foundation, 2022)

Circular economy designs waste and pollution processes with uncovering the negative effects of economic activities such as carbon emissions, environmental pollution and excessive waste which threat human health and natural ecosystems. Circular economy keeps products and materials in continuous use making effective use of organic materials. It promotes many diferent uses for organic materials and the organic materials can circulate between economy and natural systems. Circular economy

renews natural systems while avoiding the use of non-renewable resources. (Ellen MacArthur Foundation, 2022)

The transition to a circular economy will have economic, environmental and individual benefits. This system, which will reduce material expenditures, will provide more efficient and effective use of resources, bring a new understanding of economic growth and create new professions. This system, which designs waste and pollution processes, ensures that products and materials remain in continuous use and can ensure the achievement of global climate targets by protecting natural systems. Businesses can benefit significantly by changing their operations in line with the principles of the circular economy. These benefits are the creation of new profit opportunities, less need for unused materials, resulting in reduced costs and stronger relationships with customers. The circular economy will increase expendable personal income by reducing the cost of products and services, and it is a system that will also benefit individuals because it minimizes health problems by creating a quality environment. (Econation 2022a; Ellen MacArthur Foundation, 2022)

2.4 Localized Economy

Modern and unsustainable economies are dependent on global trade and cheap energy. In the future, fossil fuels will run out and energy costs will increase. This means that the goods necessary to meet our basic needs such as food, shelter and energy will be locally sourced. Localized economy can be described as decentralisation of economic activities and this kind of change in the economic system can make it more self-sufficient. This situation will also prevent migration from rural to urban to a certain extent and will increase the value of the local.

The localized economy enables the establishment of human-sized businesses. This means the creation of many small businesses instead of just a few national or global corporate firms. The dependence on the workforce will increase and the dependence on technology and energy will decrease with localized economy. There will be more local and small scale jobs, more welfare, less environmental pollution and less resource use with localized economy. The localized economy decreases global trade, regulates finance, increases local trade and the accountability of businesses. If there is a transition to localized economy, there will be less transportation and packaging. So, human ecological footprint and carbon dioxide emissions will decrease. With the

localized economy, food will be produced locally, so the transportation of food will be prevented, and people will have access to healthier, seasonal and fresh food by eliminating the additives that prevent it from spoiling. The localized economy is a more sustainable and qualified economic system that strengthens the bonds between people while protecting the environment. (Econation, 2022b)

2.5 Low – Carbon Economy

A low carbon economy is an economy that emits minimal greenhouse gases into the atmosphere and relies on low carbon power sources. Greenhouse gas emissions from human activities are one of the most important causes of global warming since the mid-20th century. The continued emission of greenhouse gases causes long-term changes worldwide, creates widespread and irreversible effects for humans and ecosystems. Moving to a low carbon economy on the global scale provides significant benefits for both developed and developing countries. Many countries in the world try to design and implement low emission development strategies. These strategies aim to reduce greenhouse gas emissions in the long term, increase resilience to the effects of climate change, and achieve social, economic and environmental development goals. If the low carbon economy is implemented on a global scale, it will be extremely effective in tackling climate change and global warming. (Business Council for Sustainable Development Turkey, 2022; Turner, 2019)

Priority issues in the transition to a low carbon economy are energy efficiency in industry, vehicles and buildings; use of renewable energy sources in energy production; resource efficiency in industrial processes; alternative energy sources and an advanced technology to discover and develop them, and the application of strong financial mechanisms to realize the transformation to a low carbon economy in the economy and in all business processes. (Business Council for Sustainable Development Turkey, 2022; Turner, 2019)

2.6 Blue Economy

The World Bank defines blue economy as “the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health” (The World Bank, 2017).

The term covers a wide variety of activities such as renewable energy, fisheries, maritime transport, tourism, climate change and waste management. The relation between the blue economy and these activities are briefly explained below.

- Sustainable marine energy is crucial for social and economic development.
- Sustainable fisheries create more revenue and fish, also contributes to restore fish stocks.
- A major amount of international goods are transported by sea.
- Ocean and coastal tourism have a large share in economic growth around the world.
- Oceans are important carbon sinks and they help to reduce devastating effects of climate change.
- Better waste management on land helps oceans to recover because 80% of litter in the ocean is from land-based sources.

Blue economy develops offshore renewable energy, reduces carbon emissions in maritime transport and creates greener ports. It works for prohibition of the use of offshore platforms, tries to renovate the standards for fishing gear design and ship recycling and so it contributes to make the economy more circular. Blue economy helps to preserve biodiversity and landscapes because it develops the green infrastructure of coastal areas. It also provides sustainable coastal tourism and economy. Blue economy contributes to the reduction of carbon emissions, provides coastal resilience and helps vulnerable states to mitigate catastrophic effects of climate change. (European Commission, 2022d)

Blue economy is one of the integrations of sustainable development and green growth. It is a concept that establishes the link between the marine ecosystem and the ocean and coastal economic system while using and protecting coastal and marine resources. It works for social equity and improvement of human wellbeing while trying to reduce ecological or environmental scarcities and risks. (Wenhai, et al., 2019)

Blue economy supports all of the United Nations' Sustainable Development Goals (SDGs), especially the 14th goal 'life below water'. It promotes economic growth and social inclusion while providing environmental sustainability of oceans and coastal zones. (IOC-UNESCO, 2022)

Blue economy seeks to preserve oceans today, for the favor of future generations. It contains sectors reducing their climate and environmental impacts on marine ecosystems such as oceans, seas and coasts while contributing the recovery of them. Collaboration across nation-states and across the public-private sectors at global scale is needed to be able to achieve blue economy. (European Commission, 2021; IOC-UNESCO, 2022)

2.7 Green Economy

The green economy is a low-carbon, resource-efficient and socially inclusive economic model. The green economy is the transfer of employment and income growth and public and private investments into economic activities, infrastructure and assets to reduce carbon emissions and pollution, increase energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. Burkart states that the green economy is based on six main components and “they are renewable energy, green buildings, sustainable transportation, water management, waste management and land management” (as cited in Onyusheva et al., 2018, p.149). When these components are made possible, the green economy will be achieved.

The green economy aims to achieve improved land use through sustainable agriculture and forestry, clean transportation, more efficient and cleaner energy production, better water use and management, greener buildings and clean and efficient waste management. (Hassan, 2019)

An inclusive green economy is an economy that improves human welfare and creates social equity while reducing environmental risks and scarcity. (UNEP, 2022a)

The details of the concept of green economy and its relationship with green entrepreneurship will be discussed in the next section of the thesis.



3. GREEN ECONOMY AND GREEN ENTREPRENEURSHIP

3.1 Concept of Green Economy

A green economy is defined as low carbon, resource efficient and socially inclusive economy. In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced carbon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services. (UNEP, 2022b)

The green economy was created as an alternative to today's dominant economic model, which increases inequalities, encourages waste, triggers resource shortages and poses widespread threats to the environment and human health. The green economy aims at low carbon levels, efficient use of resources and being socially inclusive. The green economy requires investments to be enabled and supported through targeted public spending, policy reforms, changes in taxation and regulation. The green economy takes a macroeconomic approach to sustainable economic growth by focusing on investment, capital and infrastructure, employment and skills, and positive social and environmental outcomes. (UNEP, 2022a, 2022c)

The realization of the green economy is a multi-actor process and includes governments, non-governmental organizations, associations, private sector and local governments. The green economy, which has begun to be adopted in many developed countries of the world, brings an alternative to the existing economic system and makes cities more livable and sustainable. (UNEP, 2022a, 2022c)

The green economy brings macro-economic approaches to sustainable economic growth through regional, sub-regional and national forums. It focuses on green finance, technology and access to investments. It argues that countries should be supported in terms of developing and disseminating macroeconomic policies to support transition to the green economy. (UNEP, 2022b)

The Green Economy Coalition defines the 5 principles of the green economy as follows:

Principle of Welfare: All people can create and use their welfare in a green economic system. The green economy puts people at its center. It aims at creating real prosperity and increasing wealth supporting well-being. The wealth in green economy includes human, social, physical and natural capital besides financial capital. Access to sustainable natural systems, infrastructure, knowledge and education essential to the well-being of all people is a priority for the green economy. Green economy provides new opportunities for businesses and individuals by creating green livelihoods. It is a system for the benefit of the public, but it does not neglect the benefit of the individual.

Principle of Justice: Equality within and between generations is provided in a green economic system. The green economy is an inclusive economic model. It promotes decision-making, fair distribution of benefits and costs, and empowerment of women. It reduces inequalities between people, tries to cope with poverty and injustice. The green economy protects all human's rights including workers, indigenous ones and minorities by strengthening solidarity, social justice, trust and social ties. Strengthening social enterprises and sustainable livelihoods is promoted in the green economy.

Principle of Planetary Borders: Nature is protected, restored and invested in green economic systems. The green economy prevents the loss of critical natural capital and the violation of ecological boundaries. It is an innovative system that invests in protecting, growing and restoring biodiversity, soil, water, air and natural systems.

Principle of Efficiency and Sufficiency: Sustainable production and consumption are supported in the green economy. Being low-carbon, using resources efficiently, being diverse and circular are the characteristics of an inclusive green economy. It adopts new models of economic development that address the problem of creating prosperity within planetary boundaries. According to the green economy, if we stay within planetary boundaries, a significant global shift is required to limit the consumption of natural resources to physically sustainable levels.

Principle of Good Governance: The green economy includes and is governed by integrated, accountable and flexible institutions. It is an interdisciplinary economic system with multiple actors. It is a transparent, democratically accountable, free and

inclusive economic system that requires public participation. It was established to serve the benefits of society in a secure manner. It creates a new financial system to ensure prosperity and sustainability. The green economy is universal, transformative and innovative. It requires radical changes in government structures. (Green Economy Coalition, 2020)

In recent years, people's perspectives on environmental issues have been changing, and depending on the conditions, environmental concerns can sometimes overtake economic concerns. This subject was addressed in a study by Bolderdijk, Geller, Steg and Postmes in 2012. In the study, it was stated that people feel better if they are green and environmentalist. It was proven that people may feel better about complying with biospheric appeals rather than economic appeals. However, authors state that participants generally feel better about biospheric appeals than economic appeals but this attitude may vary depending on differences such as cultural background and ideology. (Bolderdijk et al., 2012)

In addition to cultural background and ideology, economic and financial conditions can affect people to make their choice between economy and environment. In developing countries such as Turkey or in underdeveloped countries, economic choices can override environmental choices. For example, inflation rates in Turkey are increasing day by day and the purchasing power of the people is decreasing gradually. In such an environment, it is not possible for people to prefer environmentally friendly but more expensive products to cheaper ones. In this case, economic concerns take precedence over environmental concerns. Eco-friendly products and services are generally more expensive than non-eco-friendly ones. In order for a green product to be preferred by people with poor economic status, the prices of green products and non-green products should be equal.

In today's world, where people start to demand green products and companies start to make their production processes more sustainable and produce green products in response to this demand, it should not be necessary to have a certain financial competence to be more environmentally friendly. Increasing the number of green businesses, companies and entrepreneurs will accelerate the process of solving this problem and increase awareness. As the public's demand to be green increases, the supply of companies to be green will also increase, so the economic balances will

change in a way that will bring the non-green product and the green product to the same level.

According to a global survey of 30,000 consumers in 2018, 62% of consumers want companies to be sustainable, transparent and fair (Barton et al., 2018). This attitude of consumers and some legal sanctions such as the Paris Agreement will require companies to adopt more sustainable and green methods in the coming years. Companies that don't take this action will have to pay costs such as legal sanctions and customer losses. Unfortunately, the adoption of greener processes by companies sometimes does not take place in real terms. Although some companies claim that they are on the way to being greener and more sustainable, and they organize advertising campaigns in this direction, their contribution to the environment is not always materialized. This situation is referred to as 'greenwashing' in the literature. According to Cambridge Dictionary's definition, greenwashing means "behaviour or activities that make people believe that a company is doing more to protect the environment than it really is" (Cambridge University Press, 2022).

A few examples of greenwashing can be listed as follows. Fiji Water claimed that it would help consumers who buy bottled water to reduce carbon emissions released into the environment, but it filled the water in plastic bottles, the bottles met with customers after traveling many kilometers and creating a large carbon footprint. McDonalds changed the color of its logo from yellow and red to yellow and green in 2009 and claimed that this change was done to show that it conserves natural resources but in fact, it did not make any changes in its production processes to protect the environment. Lexus has claimed that its new hybrid cars produce the lowest carbon emissions in its class, but actually it turned out to have the worst fuel economy compared to other hybrid cars, even non-hybrids. (Potamya, 2022)

It can be difficult for customers to understand whether companies do greenwashing. One of the most negative things about greenwashing is that there isn't any international measurement mechanism on this issue. It is sometimes unclear whether a company is doing greenwashing or truly promising environmental benefits. Companies which do greenwashing undermine customers' trust by making unrealistic environmental promises. They can adversely affect people's motivation to combat climate crisis and environmental problems.

The transition to a real green economy with the challenges and threats mentioned above is not an easy process, but a transition to a new economic system is needed in order to realize the SDGs set by the UN. The green economy contributes to the realization of all SDGs but the most related SDGs with the green economy are Goal 1 No Poverty; Goal 8 Decent Work and Economic Growth; Goal 9 Industry, Innovation and Infrastructure; Goal 11 Sustainable Cities and Communities and Goal 12 Sustainable Consumption and Production (UNEP, 2022a).

3.1.1 Green jobs

In order to realize the green economy, green jobs are needed. UNEP defines green jobs as “work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute substantially to preserving or restoring environmental quality” (UNEP/ILO/IOE/ITUC, 2008, p.3).

Green jobs increase efficient energy and raw material consumption, reduce greenhouse gas emissions, minimize waste generation, support ecosystem protection and rebuilding, and contribute to climate change adaptation (Iberdrola, 2022). Individuals working in green jobs work in areas such as biodiversity, renewable energy, waste recycling, sustainable transportation and environmental protection. Green jobs include jobs that help protect the ecosystem and biodiversity, reduce energy, material and water consumption through high-efficiency strategies, and completely avoid or minimize all forms of waste and pollution through a carbon-neutral economy (UNEP/ILO/IOE/ITUC, 2008, p.3). Green jobs are in many different sectors such as manufacturing, agriculture, renewable energy, construction, transportation, landscaping, insulation, recycling and waste management. (Görmüş, 2019)

Green jobs require both skilled and unskilled labor and have a wide variety of job opportunities in every sector. Pinderhughes (2007) noted that there are 22 different sectors which provide green jobs in the United States Economy.

These sectors include:

1. Bicycle repair and bike delivery services
2. Car and truck mechanic jobs, production jobs, and gas-station jobs related to bio-diesel, vegetable oil and other alternative fuels
3. Energy retrofits to increase energy efficiency and conservation

4. Food production using organic and/or sustainably grown agricultural products
5. Furniture making from environmentally certified and recycled wood
6. Green building
7. Green waste composting on a large scale
8. Hauling and reuse of construction and demolition materials and debris (C&D)
9. Hazardous materials clean up
10. Green (sustainable) landscaping
11. Manufacturing jobs related to large scale production of a wide range of appropriate technologies (i.e. solar panels, bike cargo systems, green waste bins, etc.)
12. Materials reuse/producing products made from recycled, non-toxic materials
13. Non-toxic household cleaning in residential and commercial buildings
14. Parks and open space maintenance and expansion
15. Printing with non-toxic inks and dyes and recycled papers
16. Public transit jobs
17. Recycling
18. Solar installation and maintenance
19. Tree cutting and pruning
20. Peri-urban and urban agriculture
21. Water retrofits to increase water efficiency and conservation
22. Whole home performance (i.e: attic insulation, weatherization, etc.)
(Pinderhughes, 2007, p. 3)

Environmental or biological systems engineers, environmental consultants, ecological architects, solar and wind energy engineers, green vehicle engineers, organic farmers, environmental lawyers, environmental educators, environmental protection and

ecotechnology workers, electricians and other workers in solar panels and installations, construction and insulation workers in the construction of energy efficient green buildings and wind farms, all other jobs including clean, renewable and sustainable energy development are green jobs. (Görmüş, 2019)

Green jobs are not only environmentally friendly, but also fair and provide good working conditions. They have social appeals as well as environmental appeals. It is important for green jobs to be decent. Without fairness or sufficient employment quality, a green job is not decent. If a green job doesn't provide social protection, adequate income, equal rights and safe working conditions, it can't be said that the job is fully green. (World Green Economy Organization, 2020)

Green jobs are needed to realize the green economy, and green initiatives are needed to realize green jobs. Today, the most active area of green jobs are the fields related to renewable energy, recycling and waste management, and environmental technologies are needed in order to carry out the works in these fields. Increase in the number of green enterprises will increase the number of green jobs and the number of people working in these areas. The increase in the number of green jobs will contribute to the development of sustainable economic systems such as green economy. Therefore, the increase in green enterprises in metropolitan areas, where environmental problems arising from economic production activities are most common, will contribute to the improvement of life quality in metropolitan areas such as Istanbul.

3.1.2 Green economy in the world

The first discussions that formed the basis of the green economy were related to the fight against the climate crisis. Regarding that, some legal regulations to combat the climate crisis and environmental problems will be discussed below.

The first legal regulation in the world, which is related to the climate crisis and global warming, came to the fore in order to prevent the depletion of the ozone layer.

The issue of ozone depletion was first discussed in the UNEP in 1976. The first intergovernmental contacts regarding the reduction of ozone depleting substances started in 1981 and this initiative resulted in the adoption of the Vienna Convention for the Protection of the Ozone Layer in 1985. The Vienna Convention encouraged intergovernmental cooperation in research, systematic monitoring of the ozone layer, monitoring of chlorofluorocarbon production and information sharing. The contracting

parties are tasked with taking general measures against human-induced activities that change the structure of the ozone layer and to protect the environment and human health. It is a framework agreement that does not contain legally binding controls or targets. Following the agreement on the convention, a protocol began to be drawn up, which would ensure the control of the use and production of ozone-depleting substances. As a result of these studies, the Montreal Protocol, which 196 countries were parties, was adopted in 1987. The Protocol, which assigns obligations to the parties to phase out the production and consumption of substances that deplete the ozone layer, also provides funds to developing countries in order to fulfill these obligations. Since 1991, approximately 4.2 billion United States Dollar (USD) of funds have been provided to developing countries. With the works carried out under the Montreal Protocol between 1990 and 2010, 135 billion tons of CO₂ equivalent emissions were prevented from being released into the atmosphere. (Türkiye Cumhuriyeti Çevre, Şehircilik ve İklim Değişikliği Bakanlığı, 2022c, 2022e)

After the Vienna Convention and the Montreal Protocol, the United Nations Conference on Environment and Development, also known as the Rio Conference or the Earth Summit, was held in Rio de Janeiro in 1992. At the Rio Conference, it was emphasized that different social, economic and environmental factors are highly related to each other. It was stated that in order for the success of one sector to be sustainable, it is necessary to act in other sectors. The aim of the Conference was to create an agenda and a plan for an action between nations about environmental and developmental subjects. The concept of sustainable development was mentioned and it was concluded that sustainable development is an attainable goal for the whole world at the Conference. One of the most important results of the Rio Conference was Agenda 21. Agenda 21 is an action plan which calls for achieving sustainable development all around the world in the 21st century. New types of educational technics, protecting the environment and to participate in sustainable economy were some of the suggestions of the Agenda 21. As the results of the Rio Conference, the Convention on Biological Diversity and the Declaration on the principles of forest management were announced, the Rio Declaration and its 27 universal principles was published, the Commission on Sustainable Development was established and the UNFCCC was signed. (UN, 2022c)

UNFCCC is the first intergovernmental environmental agreement on global warming signed under the leadership of the UN. The Convention was brought to the agenda at the Rio Conference and entered into force in 1994. In the convention, it has been accepted that human-induced environmental pollution has dangerous effects on the climate. The Convention aims to reduce greenhouse gas emissions and keep them at a certain level by minimizing the negative effects of these gases. In this regard, general principles, action strategies and obligations of countries are regulated in the Convention. (UNFCCC, 2022f)

Decision making part of the UNFCCC is the Conference of the Parties (COP). The COP generally meets every year. The first meeting was in 1995 in Berlin. The COP reviews the implementation of the UNFCCC, the Kyoto Protocol and the Paris Agreement, and take new decisions to develop them. (UNFCCC, 2022a, 2022d)

One of the most important COP meetings was held in Kyoto, Japan in 1997 and the Kyoto Protocol was signed at the Conference. The Kyoto Protocol entered into force in 2005. It ensures the practical implementation of the UNFCCC. The Protocol imposes some restrictions on industrialized countries and economies in transition to limit and reduce greenhouse gas emissions. (UNFCCC, 2022e)

The Paris Agreement was signed under the UNFCCC in 2015 at the United Nations Climate Change Conference in Paris (COP 21) and entered into force in 2016. It was adopted by 196 parties. The agreement is about climate change mitigation, adaptation and financing. It is the first universal and legally binding global climate change agreement. The Paris Agreement aims to limit global warming below 2°C, preferably to 1.5°C. The agreement aims to increase the ability of the parties to adapt to the adverse effects of climate change and to ensure a coherent flow of finance towards low greenhouse gas emissions and climate resilient development. (European Commission, 2022c; UNFCCC, 2022b)

SDGs, which are a universal call to action to eradicate poverty, protect the planet and ensure that all people live in peace and prosperity, are one of the important elements that contribute to the transition to green economy and these goals are adopted by many institutions such as universities, private companies and public institutions. The Millennium Development Goals (MDGs) create the basis of SDGs.

Following the adoption of the United Nations Millennium Declaration, The MDGs aiming 2015 were established in the Millennium Summit of the UN in 2000. The MDGs established a universal framework for development and enabled developing countries to cooperate with developed countries. The Goals were:

- Eradicate extreme poverty and hunger
- Achieve universal primary education
- Promote gender equality and empower women
- Reduce child mortality
- Improve maternal health
- Combat hiv/aids, malaria and other diseases
- Ensure environmental sustainability
- Develop a global partnership for development

(Türkiye Cumhuriyeti Dışişleri Bakanlığı, 2022; UN, 2022b; UNDP, 2022)

As a continuation of the MDGs, Agenda 2030: United Nations Sustainable Development Goals was adopted as 17 goals and 169 targets in 2015 in New York. Environmental issues such as climate change, combating drought and protecting biodiversity were included in the sustainable development agenda with the SDGs. The Sustainable Development Goals are:

- End poverty in all its forms everywhere
- End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Ensure healthy lives and promote well-being for all at all ages
- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Achieve gender equality and empower all women and girls
- Ensure availability and sustainable management of water and sanitation for all
- Ensure access to affordable, reliable, sustainable and modern energy for all

- Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Reduce inequality within and among countries
- Make cities and human settlements inclusive, safe, resilient and sustainable
- Ensure sustainable consumption and production patterns
- Take urgent action to combat climate change and its impacts
- Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Strengthen the means of implementation and revitalize the global partnership for sustainable development

(Türkiye Cumhuriyeti Dışişleri Bakanlığı, 2022; UN, 2022c)

The European Green Deal is one of the most important actions taken in recent years that can enable the transition to green economy in the world. European Union (EU) approved European Green Deal in 2021 to reach zero net carbon emissions by 2050 and to reduce carbon emissions by at least 55% by 2030 compared to 1990 levels. The deal aims to make the EU the first climate neutral continent in the world. European Green Deal aims to achieve a just and inclusive transition in economy; a clean, affordable and secure energy supply; a modernised EU industry; a clean and circular economy; the protection of biodiversity; sustainable, resilient and smart mobility; a fair and healthy food system. European Green Deal is a set of policy initiatives by the European Commission aimed at making the European Union's economy sustainable and green. (European Commission, 2022b)

The term green economy was first used in a report titled Blueprint for a Green Economy prepared for the United Kingdom (UK) Government in 1989 in the world. The report was briefing the UK Government on the impact of sustainable development on the economy. The term green economy came to the fore again after years in 2008 and UNEP talked about green stimulus packages and launched the Green Economy Initiative. The purpose of the Initiative was to provide policy support for investments in green sectors and to make sectors which are not environmentally friendly green. UN made a statement expressing that the green economy is a solution to solve many crises in 2009, before the UN Climate Change Conference in Copenhagen. (National Organizing Committee Rio+20, 2022)

In 2010, world leaders began to recognize that the green economy could solve many environmental problems and support sustainable development. UN General Assembly announced in 2010 that a green economy in the context of sustainable development and poverty eradication would be one of two main themes for Rio+20 and the other theme was the institutional framework for sustainable development. This event increased the interest in the concept of green economy and led to many publications about the concept. (National Organizing Committee Rio+20, 2022)

UNEP Green Economy Initiative published first green economy report named 'Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication' in 2011. In the following years, many publications on the green economy were made by organizations such as UNEP, United Nations Conference on Trade and Development, United Nations Department of Economic and Social Affairs and the United Nations Conference on Sustainable Development Secretariat. Besides, many non-governmental organizations and partnerships occurred to support green economy. (UN, 2022a)

With the effect of the Covid-19 pandemic, awareness about the fight against the climate crisis has increased. People started to adopt sustainable and nature-friendly production and consumption processes. Along with this, the importance given to green jobs has increased and the concept of green economy has started to gain visibility. A green recovery is needed to mitigate the effects of the pandemic and transition to green economy is one of the key solutions on this path. (Lewney et al., 2021)

Two indexes have been created that can be relevant with the green economy by different institutions. These indexes can be used as tools to show and compare the green economic performance of countries.

The first index is the Environmental Performance Index (EPI). It measures the sustainability of countries and reveals most environmentally friendly countries in the world. The index was developed by Yale University. It uses 32 performance indicators, from ecosystem services to pollution emissions and from climate change to water resources, across 11 issue categories such as air quality, drinking water and waste management. 180 countries were ranked according to the EPI index in 2020 (Figure 3.1). The top ten countries on the list are, in order: Denmark, Luxembourg, Switzerland, United Kingdom, France, Austria, Finland, Sweden, Norway and Germany. Turkey is 99th on the list and the last country is Liberia. While the Global Western countries are at the top of the list, Sub-Saharan African countries are at the bottom. (Wendling et al., 2020)

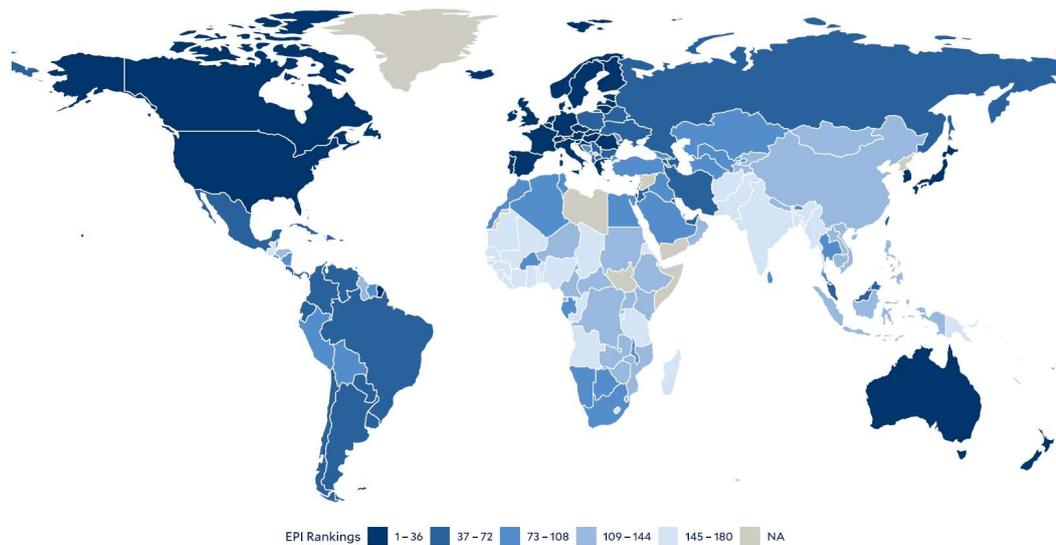


Figure 3.1: Rankings in the Environmental Performance Index for 180 countries (Wendling et al., 2020, p.17).

It can be said that the countries at the top of the list are high-income and developed countries. When the relationship between GDP per capita and the EPI is examined, it is seen that the index is also high in countries with high GDP per capita (Figure 3.2). (Wendling et al., 2020)

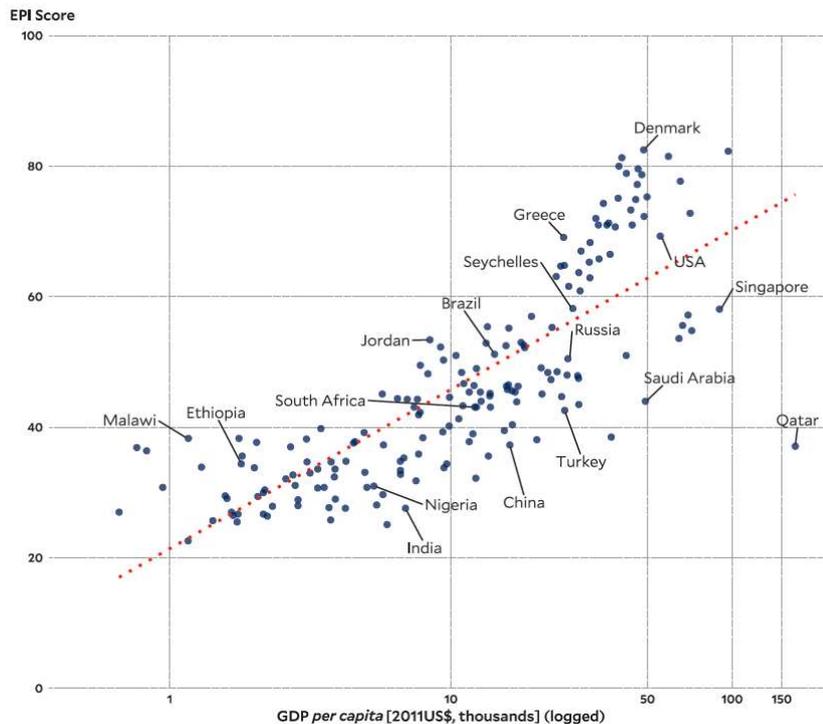


Figure 3.2: The relationship between 2020 Environmental Performance Index and GDP per capita in 2018 (Wending et al., 2020, p.39).

The other important index about green economy is The Global Green Economy Index (GGEI). GGEI measures the green economy performance of 160 countries across 18 indicators including climate change and social equity, sector decarbonization, markets and environment social governance investment and environmental health. The index was developed by Jeremy Tamanini, the founder of Dual Citizen. The top ten countries on the list according to the 2022 GGEI results are, in order: Sweden, Switzerland, Norway, France, Denmark, Iceland, Austria, United Kingdom, Ireland and Portugal. Turkey is 140th on the list and the last country is Oman. Similar to EPI, the countries with higher GGEI are developed ones. (Dual Citizen, 2022)

While Sweden, Switzerland, Norway, France, Denmark, Austria and United Kingdom are in top ten in both index's lists, Switzerland, France and Denmark are in top five.

The green economy policies and situation of France and UK will be examined in more detail below. The reason for choosing these two countries is they are both top ten by EPI, GGEI and GDP in the world. According to World Bank's GDP (current USD) in 2020 data, UK is the fifth and France is the seventh country in the rankings in the world (The World Bank, 2022). It can be said that it is more difficult to achieve green economy in large economies. Therefore, examining the green economic policies of

these two countries will be more guiding for a country like Turkey with a growing economy. In Table 3.1, the rankings of France, UK and Turkey in EPI, GGEI and GDP is given.

Table 3.1: Rankings of France, UK and Turkey in EPI, GGEI and GDP (Prepared by the author).

	EPI		GGEI		GDP	
1	Denmark	1	Sweden	1	United States	
2	Luxembourg	2	Switzerland	2	China	
3	Switzerland	3	Norway	3	Japan	
4	United Kingdom	4	France	4	Germany	
5	France	5	Denmark	5	United Kingdom	
6	Austria	6	Iceland	6	India	
7	Finland	7	Austria	7	France	
8	Sweden	8	United Kingdom	8	Italy	
9	Norway	9	Ireland	9	Canada	
10	Germany	10	Portugal	10	South Korea	
99	Turkey	140	Turkey	19	Turkey	

When the green economic situation in England is examined, it is seen that there is a special Environment Team established in the UK parliament to reduce environmental problems and raise awareness about green issues (UK Parliament, 2022). The UK parliament has an environment policy statement based on sustainability and environmental performance. Within the scope of this policy statement, principles such as reducing carbon emissions, protecting the environment, and adaptation to climate change have been adopted (UK Government, 2013). Many of the most important organizations in the country have policies adopted for environmental protection and combating climate change. Many organizations aim to cause minimum damage to the environment while carrying out their activities. For example, the British Council which is the UK's largest organization responsible for international education and cultural opportunities has a global environmental policy statement. Within the scope of this policy statement, there are targets such as reducing water and energy use and the amount of waste, monitoring and improving the environmental impact of business travel, and continuing the business in a sustainable way (British Council, 2022).

The UK has a Green Economy Council, which brings together business leaders from various sectors to advise the government on green policies such as infrastructure, innovation and investment. The Green Economy Council was established in January 2011 to support the government in transitioning to a green and low carbon economy.

It works with three different departments to minimize operating costs and maximize opportunities. These departments are; Business, Innovation and Skills; Energy and Climate Change and Environment, Food and Rural Affairs. (UK Government, 2022a)

The UK Government provides support to green jobs in the development of the green economy. The government which supports the private sector helps companies to promote abroad, develop cooperation, to export and to improve their infrastructure. The government charges less taxes on low-carbon businesses. The government buys sustainable and environment friendly goods in all kinds of public goods purchases. The Green Investment Bank under the government invests faster and more in sectors that provide green growth such as offshore wind power plants, energy efficiency, and waste recycling. (HM Government, 2011)

Around a third of UK economic growth in 2011-2012 came from green jobs. In 2010-2011, 1,061,900 people worked in financial services, 518,400 people worked in motor trade manufacturing and retail, 212,900 people worked in telecom business while 963,600 people worked in low-carbon and environmental businesses. While £3.1 billion was spent on high-carbon projects, £23 billion was spent on low-carbon projects. (Green Alliance, 2012)

According to a report published by Local Government Association on 11 June 2020, the UK has the potential to create 700,000 new green jobs by 2030 and 1,118,000 by 2050. (Local Government Association, 2021)

In 2020, the Ten Point Plan for a Green Industrial Revolution was announced by the UK government. The plan aims to achieve its goals by 2030 and to make the UK more sustainable, resilient and greener. (HM Government, 2020)

The UK government released the Green Jobs Taskforce on 12 November 2020 as a part of the Ten Point Plan for a Green Industrial Revolution, which will support the creation of 2 million new green jobs to create more environmentalist structure and achieve net zero emissions by 2050. (UK Government, 2022b)

The other country which has good green economy policies is France. France works for the modernisation of production facilities, great investments are made on new technologies, especially the green ones, the country lowers production taxes for green and new technologies and supports are given for training, development and research of skills. (Gouvernement, 2020)

47.5 billion Euros were spent for environmental protection in 2012 and approximately 1 million jobs were created by green economic activities in 2011 (The French Republic Ministry of Ecology, Sustainable Development and Energy, 2015). France has approximately 1 million green jobs and this means 3-4% of the country's total employment. The number of green jobs in the country increases continuously. While production in all sectors in the country grew by 3.4% from 2016 to 2017, green economy production grew by 4.7%. Renewable energy, water sanitation, environmental research and development and organic agriculture sectors were the ones that grew the most in terms of green jobs. (Savolainen, 2020)

Policies about transitioning to green economy gained importance in the beginning of 2000s in France. The French government launched a national plan for green economy in 2009. Green growth legislation which aims to create 100,000 new jobs in renewable energy and energy efficiency sectors entered into force in 2015. The law was updated in 2019 and it clearly aimed at achieving carbon neutrality until 2050. The government announced the national climate plan in 2017. The plan includes measures to support sectors affected by the transition to a green economy, such as the construction sector and coal power plants. (Savolainen, 2020)

France announced the recovery plan of France named 'Plan de Relance' in 2020 to cope with the economic difficulties caused by the Covid-19 pandemic and to improve the country's economy. The aim of the plan is to make France greener, more innovative and competitive and to provide a carbon-neutral economy until 2050. The pandemic recovery stimulus package has €100 billion budget and €30 billion which means 4% of the national GDP will be spent on transitioning to a greener economy. €1.2 billion will be spent on the energy efficiency of equipments and low-carbon heat installations, €500 million will be spent on creating a circular economic model, recycling and other green technologies and €7 billion will be spent on green hydrogen development. France gives great importance to green hydrogen and the French Green Hydrogen Plan 2020-2030 was prepared to make the hydrogen the most important and used fuel in the country. (Business France, 2021; Savolainen, 2020)

France believes that laws are very important to combat climate change and to cope with environmental issues. Democracy and participation are crucial in making law processes in the country. Regarding that, the Citizens' Convention on Climate was

established first in 2019. It is an assembly of 150 citizens. The assembly discusses for reducing carbon emission 40% compared to 1990. (Business France, 2021)

The citizens came up with 149 proposals, including forbidding internal flights if the trip can be made by train in less than 2.5 hours; offering vegetarian meals in schools; banning city centers for the vehicles that emit the most greenhouse gases; renovating the “thermic sieves” on the real estate market. (Business France, 2021)

The bill passed in the National Assembly on May 4, 2021. (Reuters, 2021)

It is unclear how much green jobs policies and practices contribute to the development of green jobs. So, to be able to measure this, the French Government established a body named ‘The National Observatory for Green Job’. The Observatory works to produce transparent and publicly available data on the contribution of policies to green jobs and green jobs to the green economy. (Savolainen, 2020)

It is thought that raising public awareness has an important role in transition to green economy in France. Educational activities are also given importance in this regard. Economic actors and especially small and medium-sized enterprises are provided with training on green economy. Diplomas were renewed for adapting ecological transition and the number of diplomas dealing with the protection of environment were increased by the government. There are training programs about energy saving for entrepreneurs and artisans in the building sector. The Ministry of Education in France works hard to raise public awareness on environmental issues. For example, all lower secondary vocational diplomas have a module called ‘environment and health prevention’ since 2009 and this module contributes a lot for raising awareness in environmental problems. (Cedefop, 2018)

3.2 Concept of Green Entrepreneurship

Entrepreneurship is the transformation of economic opportunities into new values by bringing together the factors of production for the production of an economic good or service, and an economic value is produced as a result. There are many different types of entrepreneurship such as commercial entrepreneurship, women's entrepreneurship, social entrepreneurship, virtual entrepreneurship, technological entrepreneurship, sustainable entrepreneurship and green entrepreneurship.

Small- and medium-sized enterprises mostly contribute to the basis of economies. They provide employment and contribute to GDP growth. Entrepreneurial activities create innovation and economic and social development. (ILO, 2014) Entrepreneurship activities that take care of the benefit of society tend to be environmentally oriented and produce goods and services that are compatible with the environment. In this direction, green entrepreneurship, which makes a great contribution to the creation of a green economy environment, serves the purposes of performing green jobs to protect the environment and green and ensure their sustainability, and harmonizing the economy and the environment. In addition to social responsibility and awareness, the basis of green entrepreneurship activities is to grow in a clean and environment friendly direction. Green entrepreneurs create green jobs, green products and green technologies and they boost the green economy (ILO, 2014).

“Green entrepreneurship means doing cleaner jobs on behalf of society and individuals, seeing environmental values as a part of innovation and creativity and using renewable energy sources” (Gökçen Kapusuz and Çavuş, 2017, p.109). The main difference that distinguishes the green entrepreneur from the classical entrepreneur is the environmental protection target that he/she puts at the core of his/her business and activities. In order for a business to be considered within the scope of green entrepreneurship, it should support sustainable development, contribute to sustainable production, meet its energy needs from renewable resources, should not cause environmental pollution and should not harm ecosystem diversity. In the principles, policies and practices of green entrepreneurs, the aim of increasing the quality of life of their customers, employees, society and the environment is in the first place. Green entrepreneurs are people who seek and find innovative solutions in the production and consumption of goods and services, taking into account social, environmental and economic factors. Green entrepreneurship requires awareness of environmental issues, technical knowledge, legislation and market knowledge in related fields. Green entrepreneurs are also defined as those who want to transform a sector by establishing a business in order to ensure sustainability and protect the environment. (Gökçen Kapusuz and Çavuş, 2017; Keskin, 2015)

Green entrepreneurs create social impact as well as their activities aimed at protecting the environment. They make people think more environmentally and encourage them to buy green and sustainable products. Thus, they raise awareness about climate crisis

and environmental issues. (ILO, 2014) Green entrepreneurship has a higher influence on the social and environmental dimensions of sustainable development than other types of entrepreneurship (Alwakid et al., 2021).

Fresh Paper, which makes natural and chemical-free food saver sheets that reduce food waste by keeping fruits and vegetables fresh for longer; Impossible Foods, which helps reduce the negative environmental impacts of meat production processes and develops plant-based substitutes for meat products; Biopipe, which produces a biological sewage treatment system and treats water in pipes without any waste such as pludge or anything else are the good examples of green entrepreneurship. (Url-1, Url-2, Url-3)

According to Joseph Schumpeter, one of the most important figures of entrepreneurship theory, entrepreneurs are innovative. According to Schumpeter, innovations increase the competitive power of economies by producing a new value that consumers do not know, applying a new production method, opening a new market, obtaining new raw materials and resources, and realizing a new organization. Schumpeter argues that entrepreneurs can completely transform existing business and business processes through creative destruction. Creative destruction is defined as the replacement of existing products, processes, ideas, systems and businesses with better ones that have emerged with innovation over time, and as the emerging innovation completely eliminating the previous item. (Keskin, 2015) Innovation or creative destruction introduces new ways of tackling problems. In this context, there is a call for innovation in solving environmental problems. Green entrepreneurship creates value with innovative solutions and activates the creative destruction process (EKOIQ, 2015, p.44). Innovation is a very effective tool in approaching environmental problems and finding sustainable solutions. Green entrepreneurship is a phenomenon that can be realized through new product design, new technologies and new organizational arrangements.

Like any business, green initiatives also need support to carry out their activities. Awareness on environmental issues has only just begun to increase with the impact of the climate crisis and the effect of the Covid-19 pandemic. Green enterprises may need more support than other businesses in today's world, where the awareness of the work they do is just beginning to increase. Policies, laws, regulations, financial aids can help green enterprises to do their job more efficiently and these kind of incentives also

direct enterprises to be green. Governments, private sector, venture capitals, universities, non governmental organizations and local authorities can encourage green entrepreneurs via different types of support. “Government policies help to establish conditions for boosting environmentally friendly entrepreneurship” (as cited in Alwakid et al., 2021, p.3). Policies supporting green entrepreneurship are not common in many countries. Incentives for green businesses are mostly provided by general environmental policies, but some developed countries have specific incentives for green entrepreneurs. Incentives and policies specific to green entrepreneurship in some countries and cities will be discussed in the next section. Another factor that ensures the growth of the green entrepreneurship ecosystem and supports green entrepreneurs is training programs. Green entrepreneurship trainings both enable green entrepreneurs to develop themselves and create new green entrepreneurs. Thanks to the training programs, young entrepreneurs can be enabled to establish green ventures and green entrepreneurs are assisted in how they can improve their businesses. ILO and UN cooperate with various partners in various parts of the world to organize training programs on green entrepreneurship (ILO, n.d; UN PAGE, 2018). ILO has a lot of important work on promoting green entrepreneurship and it also has an Enterprises Department for promoting decent work through supporting sustainable enterprises (ILO, 2022b). (ILO, 2014)

Green entrepreneurs come up with business ideas that do not pollute the world in different areas. However, they need R&D and innovation in order to develop effective solutions in these areas. Sectors such as renewable and clean energy technologies, energy efficiency and waste management are the leading areas where green entrepreneurs are particularly interested and where high potential will be created through technological innovation. The foundations of a new entrepreneurship system are being laid globally with the increase in green entrepreneurship activities and R&D studies in the field of environment, and the spread of studies on cleaner production and sustainable consumption to wider masses. New technologies developed to protect the environment and new products and services created thanks to these technologies will bring new job opportunities along, and thus employment will be increased.

Green entrepreneurship, which is an important potential for an ecological society and a sustainable world, will initiate the creative destruction process, trigger

socioeconomic transformation, and enable us to reach healthier environments with a clean and sustainable consumption approach.

3.2.1 Green entrepreneurship in metropolitan cities

Cities are one of the places that cause climate change and where the effects of climate change are felt the most. Especially the coastal cities are very vulnerable to water related disasters. The relation between economy and environment is more appreciable in cities. Green growth should be provided in cities to minimize the effects of climate change and cope with environmental problems. Cities contain advanced firms, skilled people and high capacity innovation, so they give opportunity to formation of eco-product markets and large-scale green infrastructure investments. They are also important drivers for national economic growth. Economic activities are very dense, carbon emissions and energy consumption are high in cities. Almost two-thirds of the world's energy demand and carbon emissions come from cities. So, cities are suitable places to realize green growth. (Hammer et al., 2011)

Policies about regulatory authority, government spending, financial incentives and information and advocacy are the key factors for green growth in cities. (Hammer et al., 2011)

Local government authorities have responsibilities such as land use planning, master planning and service provision. Local governments work to implement the policies decided by other public institutions and they also can establish and enforce internal rules for environmental protection. As an example to local authority sanction, on-site implementation of renewable energy technology for building permit approval in London can be given. This implementation by London local authority increased the number of solar panels in the city and the usage of renewable energy. Local authorities can regulate permitting processes and reduce costs for environmentally friendly projects. This support can help to create faster results for the projects. For example, San Diego started an accelerated permit programme which reduces the permit periods for projects that comply with green building standards. As a result of the programme, the number of green buildings increased in the city. (Hammer et al., 2011)

Big amounts of government spending are used for cities to provide green growth. Spendings on transportation systems, buildings or environmental protection studies require large budgets for the government. Public spendings on cities should be wise

and promote renewable energy technologies, trigger innovation, work for minimizing waste and energy consumption. So, the green growth in cities can be provided with such smart spendings. (Hammer et al., 2011)

Financial incentives are another crucial support for green growth in cities. Tax and fee regulations are used for encouraging or discouraging institutions for implementations in the fields of transportation, land using and housing. Some good practices about financial tools in different cities and countries around the world will be mentioned as follows. (Hammer et al., 2011)

- Loans are provided to homeowners for purchasing and installing solar panels in Berkeley, California.
- There is a loan for supporting local authorities to implement in energy efficiency projects in New Zealand. The local authorities borrow funds from the government and repays in five years. 23 million USD were spent for the loan, 230 projects realized, 60 million USD saved and 23,000 tons of carbon emissions per year were saved.
- In Greece, national government cooperates with municipalities and help families who have incomes of less than 60,000 Euros a year and live in the building built before the 1980s to make their houses energy efficient.
- Excise taxes on gasoline and diesel are collected by provincial governments and metropolitan regions besides federal government in Canada. This is a good example of metropolitan governments have a say to regulate green growth separately from the central government and contribute to green economy in metropolitan borders too.
- In addition to taxes, traffic congestion charges and parking fees are also practices aimed at reducing vehicle use in cities. Congestion charges in London, Singapore and Stockholm reduced traffic congestion, led people to use other modes of transport and reduced greenhouse gas emissions. In London, revenue from the congestion charge is used to finance public transport.
- Los Angeles charges more for parking during peak hours.

- When it is easier to develop on empty lands in cities, urban sprawl occurs and the sprawl is not good in terms of environmental protection and green growth. To prevent urban sprawl, the land value is taxed more than the buildings on it in Sydney, Hong Kong, Pittsburgh and Harrisburg and in some cities in Denmark and Finland.

(Hammer et al., 2011)

Public awareness and information studies are very important for greening cities. With a project that raising awareness and giving information about solar power use in Blacktown, Australia, it was seen that many people changed their energy usage habits and began to shift more sustainable and energy sufficient choices. Some cities around the world increase local awareness by giving education programmes. Changing consumption habits with education and awareness activities is extremely important to increase the entry of green goods and services into the market. Different stakeholders such as private sector, non governmental organizations, universities and individuals can come together in cities to protect environment and achieve green economy. Mayors can create formations to support this. For example, in Seattle, the mayor established a commission consisting of leaders from the city's academic, labour, government, non-profit and business sectors. This commission works for environmental protection and tackling climate change. Participation and cooperation is very important to sustain green growth. Support programs that include multi-level governance coordination between national, regional and local governments make green investments less costly and more effective. (Hammer et al., 2011)

The above-mentioned policies and relationships between cities and green growth make cities and metropolitan areas suitable places for green entrepreneurship activities.

Metropolitan areas compete to attract capital and labor. In order to compete by attracting capital and workforce, metropolitan areas have to make a difference in the attractiveness and location selection in the space. Green areas, accessible housing areas, educational opportunities, job opportunities, and the presence of all kinds of social and infrastructure services for the headquarters of companies to be located in metropolitan areas are the factors that make metropolitan areas more attractive and therefore more competitive. (Hammer et al., 2011)

The advanced services offered to attract capital and labor in metropolitan areas also enable new entrepreneurs to choose a location in metropolitan areas. While entrepreneurs who produce economic value contribute to the economic growth of metropolitan areas, metropolitan areas provide the services that entrepreneurs need. Thus, a mutually beneficial relationship is established between the entrepreneur and the metropolitan area.

In the current situation, economic growth in metropolitan areas is perceived as development, especially in developing countries, but economic growth does not provide economic development and this leads to many physical and socio-economic problems, especially environmental problems arising from intensive production and consumption. The current economic system that causes environmental disasters with the effect of climate change should be changed and be sustainable and environment friendly economic systems such as steady state economy, solar economy, circular economy, localized economy, low carbon economy, blue economy and green economy should be adopted. As the economic system changes, the types of enterprises should also change in order to support the new sustainable and environment friendly economic system.

The natural environment is constantly damaged due to human production and consumption activities, and economic activities are at the root of many environmental problems. One of the factors that contribute to preventing environmental problems and improving the natural environment is green entrepreneurship. The field of green entrepreneurship, which has a place in many sectors, related to environmental technologies has started to gain importance in many metropolitan areas in recent years. Environmental problems arising from economic activities that we encounter more, especially in metropolitan areas, can be solved to a certain extent with sustainable economic models, green jobs, technology and innovation.

Rapid and uncontrolled economic growth in metropolitan areas often causes environmental damage. In this case, the regions where sustainable economic models are most needed are the metropolitan areas. Just as classical entrepreneurship contributes to economic growth, green entrepreneurship also contributes to the development of sustainable economic systems such as green economy without harming the environment.

In the following pages of this section, green entrepreneurship practices in some metropolitan areas and cities will be discussed.

Firstly, London metropolitan area can be a good example for green entrepreneurialism. London is a metropolitan area that makes up a very large part of the UK economy. London accounted for 33% of the UK economy, with a gross domestic product of approximately 1 trillion USD in 2018 (Office for National Statistics, 2019). The vast majority of UK startups are based in London. In the UK, 660,000 new companies were created in 2017, of which 216,000 companies, corresponding to 32.7%, were located in London (Goldsmith, 2018).

The metropolitan area of London, which contains the majority of economic and entrepreneurial activities in its own country, is also home to a large part of green entrepreneurship related activities.

In the London Environment Strategy document of the London Municipality, there are targets and strategies determined to combat problems such as environmental pollution, noise pollution and climate change, as well as the goal of transitioning to a low-carbon circular economy. Within the scope of these targets, at least 150 businesses that develop solutions to environmental problems are supported, low-carbon business projects are developed, students and young people are supported to develop and implement their ideas about green entrepreneurship in London. (Greater London Authority, 2018)

The Mayor of London, Sadiq Khan, established the Green Deal Fund in 2020 to promote green jobs, combat climate change, improve air quality and reduce inequalities. This fund is an important actor for London to achieve its goal of becoming a zero carbon city by 2030. A stake of £10 million has been earmarked for the first phase of the fund. It is aimed that this money will be used to reduce carbon emissions in the built environment, to provide green transportation and public space, and to establish green institutions. For example, Enfield Municipality's district heating company, Energetik, has received a £1.2 million stake in the Mayor of London's Green Deal Fund. London Municipality also has a fund called the London Community Energy Fund. Within the scope of this fund, investments are made for efficient and clean energy resources. A total of £ 500,000 support has been provided to 48 projects since 2017 within the scope of this fund. In this way, 1500 tons of annual carbon

emissions were prevented and 81 public buildings were enabled to work with renewable energy. Another work of the municipality is doing on renewable energy is Solar Together London which is a group buying program that allows Londoners to install solar panels in their homes at affordable prices. Thanks to this program, solar panels have been installed on the roofs of 1000 houses in London so far. (Energetik, 2022; Greater London Authority, 2022a, 2022b, 2022c)

When the supports given to entrepreneurs and green entrepreneurs in London is examined, it is seen that the London Enterprise Panel which provides consultancy and financing to entrepreneurs in terms of financing, working area and developing business relations; London Green Fund which is a £100 million fund established in 2009 to invest in projects that will reduce London's carbon emissions and The London Waste and Recycling Board which supports businesses that recycle waste with the funds it receives from the central government stand out. In addition, it can be said that the £20,000 award-winning competition organized by London Municipality every year and attended by students who develop green jobs projects encourages green enterprises in the city. Various centers and institutes within the universities in the city also contribute to the development of the green entrepreneurship ecosystem in London. (Greater London Authority, 2022a; London Enterprise Panel, 2022; ReLondon, 2022)

Bio-bean which transforms the city's coffee waste into bio fuel for heating and transportation, Aeropowder which converts waste fluff into many types of materials such as building insulation material, Carbon Clean which is a carbon capture technology developer, EnvopAP which produces paper and packaging materials from agricultural wastes and weeds, Highview Power which cools and liquefies the air to -196°C, stores spare energy and frees it to run wind turbines and generate clean electricity and Whitefox Technologies which produces a filtering technology that efficiently removes excess water from biofuel production are the examples of green enterprises in London. (LLB, 2022)

Another good example of green entrepreneurialism in a metropolitan area could be Paris. France has a growing economy and it is one of the most attractive countries for international investors. The country is one of the leading business centers in Europe. There were 691,000 start-ups in 2018 in France and the number of enterprises increased 28% in the same year. The period of creating a business in France easier than other European countries because the entrepreneurialism ecosystem is well developed

in the country. The capital of the country, Paris became the leader in venture capital in Europe in 2018 and it became the top capital investment market in 2016. (The French Republic Ministry for Europe and Foreign Affairs, 2019)

The entrepreneurialism ecosystem is very developed and supportive for new businesses in the city. It can be said that the green entrepreneurship ecosystem in Paris is highly developed as a result of the combination of green economy and green growth policies and the growing economy of both the city and the country. Paris hosted to the biggest share of green job opportunities in France in 2016 (Savolainen, 2020).

Paris Region supports the development of businesses making a positive social impact. Social and green entrepreneurship is growing in the city and different accelerators provide support for the development of such entrepreneurial activities. Venture capital investments in start-ups continues to grow. Paris especially supports the investments in startups helping the world a better place such as circular economy, sustainable agriculture and renewable energy. There are different types of investment funds in the city and it can be said that this kind of variety and abundance in investments has a great impact on businesses to develop their works and be global. Public government and companies in private sector encourage businesses to develop themselves and there are different types of funds both provided by the public and private sector. For example, the president of France made a statement about that they created a €5 billion public-private investment fund for startups to improve themselves in 2019. French Government provides some special financial aid to small and medium sized companies working on such topics that environmental design, agrifood, renewable energy, circular economy, waste management. The government gives subsidized or low-interest loans to these companies and provides tax and social security exemptions. The government also gives financial support about R&D activities. 30% of R&D expenditures up to €100 million and 5% of expenditures over €100 million are covered by the government. (Choose Paris Region, 2021)

Paris also hosts to important national and international events creating green and social impact. These events create social impact on citizens, help to reduce negative effects on environment and stimulate economy. Different events like forums, conferences, trade shows and sustainability weeks are held in the city. As an example to these kind of events, International Conference on Sustainable and Green Startups and Ecosummit can be given. While Ecosummit18 was held in Paris, Ecosummit17 was held in

London. These kind of events contribute to the development of green entrepreneurship ecosystem in the cities. (Ecosummit, 2022; World Academy of Science, Engineering and Technology, 2022)

The academic studies on green entrepreneurship is also developed in Paris. The School of Business Administration of Paris (HEC Paris) has important studies about green entrepreneurialism. The studies not only cover Paris, however the opportunities and the advanced entrepreneurialism ecosystem in the city help the school to realize its studies and even make them international. HEC Paris initiated a programme on environmental and sustainable solutions to climate change in 2020 and the school brought together different stakeholders such as entrepreneurs, mentors, investors and scientists. The programme covered both Europe and Africa. The aim of the programme was to improve science and technology startups working on developing sustainable solutions to environmental problems. (Takouleu, 2020)

Another international work of HEC Paris is about supporting women green entrepreneurs. HEC Paris cooperates with different important partners for the programme and the programme covers not only France or Paris, it covers the Europe. 18 women entrepreneurs will be supported in the program and green entrepreneurship ecosystem will gain women entrepreneurs and will be even better with women power. (HEC Paris, 2021; Women's Forum for the Economy and Society, 2022)

As mentioned in the 3.2. Concept of Green Entrepreneurship section, training programs are important for the development of the green entrepreneurship ecosystem. There are different green job and entrepreneurship programs around the world. For example, Silicon Valley Climate Prosperity Initiative works for expanding the expertise in renewable energy technologies, carbon abatement and energy efficiency in California. San Antonio Mission Verde Initiative in Texas aims to stimulate economic growth by focusing on a range of green initiatives. The initiative does training activities about solar panel installations, green buildings and green entrepreneurship. Small and medium-sized firms have more difficulty in providing in-house training than large and corporate firms. To deal with this problem, the government in Korea has initiated a support program for small and medium-sized companies. These companies were provided with financial support and contacted universities, research institutions and industry. With this program, 1228 projects related to green jobs were supported. (Hammer et al., 2011)

Innovation and technology are very important in transition to green economy. Green entrepreneurs use technology as a tool and many activities of them are innovative. Being technological and innovative contributes to being green. For example, it is seen that the developed, technological and innovative entrepreneurship ecosystem in Austin, which has been going on for decades, has evolved into environmental entrepreneurship in recent years. Innovative and green entrepreneurial activities in the city have recently focused on the development of clean energy technologies. It can be said that environmentalization in urban entrepreneurialism is a recent trend and integration of entrepreneurship into urban governance made cities a place where social and cultural life are regulated by environmental inventions. (M Levenda and Tretter, 2019)

Cities and metropolitan regions can provide support to green enterprises for green innovation, educating local workers to meet the demands of the new green economy, and researching innovative and new green technologies. (Hammer et al., 2011)

Metropolitan areas, where the problems caused by excessive production and consumption activities and climate change are experienced heavily, need green enterprises. Cities and metropolitan areas are the places where access to technological resources, R&D and innovation is easiest and at the highest level. For these reasons, green enterprises often prefer metropolitan areas. Green enterprises work to minimize environmental damage from climate change and economic activities, and reduce greenhouse gas emissions. Green enterprises create green jobs and encourage the creation of a green economic order. When the examples are examined, it can be said that central government and local government policies affect and encourage green entrepreneurship activities in metropolitan areas. If enough importance and support is given to green enterprises, it is certain that these enterprises will make metropolitan areas greener, cleaner, more livable and more sustainable in the future.

4. GREEN ECONOMY AND GREEN ENTREPRENEURSHIP IN TURKEY

4.1 Green Economy in Turkey

Turkey is a developing country and its economy gets bigger day by day. In order to show the change of the Turkish economy over the years, some TURKSTAT data have been examined. Since the same type of data is available between 2011 and 2021, a brief assessment of the change in the economic situation in Turkey between 2011 and 2021 has been made.

While Turkey's gross domestic product at current prices was 1 trillion 294 billion 893 million Turkish Lira (TL) in 2011, it increased by 456.7% in 2021 to 7 trillion 209 billion 40 million TL. Between 2011 and 2021, GDP increased every year compared to the previous year. It is stated that the Turkish economy grew by 11% in 2021 compared to the previous year. (TURKSTAT, 2012a, 2022a)

In November 2011, the unemployment rate in Turkey was 9.1% and the employment rate was 44.9%. 24.7% of those employed in November 2011 were in agriculture, 19.4% in industry, 6.9% in construction and 49% in services. In November 2021, the unemployment rate was 11.2% and the employment rate was 46.6%. In the period of November 2021, 17.1% of those employed were in agriculture, 21.6% in industry, 6.1% in construction and 55.2% in the services sector. While the employment rate in agriculture and construction sectors decreased, it increased in industry and services sectors. While the biggest decrease was in agriculture, the biggest increase was in services sector. (TURKSTAT, 2012b, 2022b)

Yıldız (2021) states that the agriculture, forestry and fishery sector grew by 4 times, manufacturing industry 7.2 times, construction 8.6 times, services 6.2 times from 2004 to 2018 in Turkey. Sectoral sizes in 2004 from large to small were services; manufacturing industry; agriculture, forestry and fishery; construction. In 2018, it was services; manufacturing industry; construction; agriculture, forestry and fishery. The total of sectors in Turkey has grown 6.38 times from 2004 to 2018. (Yıldız, 2021)

The Turkish economy has grown in TL terms over the years, but when the recent depreciation of the TL against the USD and the increasing inflation rates are examined, it can't be said that this economic growth is very healthy and fair. Turkey's economy is growing but not developing. While annual inflation was 19.9% in October 2021, it nearly tripled in March 2022, 6 months later, to 61.1% (Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2022).

GDP in TL terms increased by 1.8% in 2020 compared to the previous year, but decreased by 3.22% in USD terms. (TURKSTAT, 2021b; Url-4)

In Turkey, as in every country, various studies are carried out on the transition to green economy but these studies are not detailed and comprehensive yet.

The transition process to green economy in Turkey is developing within the scope of international agreements and harmonization with the EU. In the 7th and 8th Development Plans, the relationship between economy and environment has been given a large extent. The relationship between economy and environment in the 9th Development Plan has changed and started to be regulated within the scope of harmonization with the EU. In the 10th Development Plan, the concept of green growth was referred for the first time. (Yıldız, 2021)

The relationship between Turkey and some legal regulations in the world, which will enable to combat the climate crisis and accelerate the transition to green economy, is examined in the following lines.

Turkey became a party to the Montreal Protocol on 19 December 1991 and accepted all its amendments (Türkiye Cumhuriyeti Çevre, Şehircilik ve İklim Değişikliği Bakanlığı, 2022c). The country is party to the UNFCCC and it became a Party to the Kyoto Protocol on August 26, 2009. (Republic of Turkey Ministry of Foreign Affairs, 2022; Türkiye Cumhuriyeti Çevre, Şehircilik ve İklim Değişikliği Bakanlığı, 2022b)

Turkey signed the Paris Agreement on April 22, 2016 in New York together with the representatives of other countries. The Law on Approval of the Paris Agreement (Paris Anlaşmasının Onaylanmasının Uygun Bulunduğuna Dair Kanun) entered into force on October 7, 2021. Turkey was one of the first countries that signed the Paris Agreement, but the agreement was ratified 5 years after it was signed in the Turkish Grand National Assembly. The reason for this 5-year delay was that Turkey did not want to be in the same category with the countries that polluted the world the most and

which refused to take the responsibility. (Euronews, 2021; Türkiye Cumhuriyeti Çevre, Şehircilik ve İklim Değişikliği Bakanlığı, 2022d)

If the countries that approve the European Green Deal do not regulate the carbon emissions of the products and services they sell to the European market according to established standards, they will have to pay an additional tax between 30 and 50 Euros per ton. Turkey makes more than 50% of its exports to Europe. Therefore, the Green Deal will directly affect the Turkish economy. If Turkey cannot meet certain carbon emission standards in the products and services it sells to the European market, it will have to pay heavy taxes. So, Turkey must fulfill the conditions of the Green Deal and accelerate transition to green economy. Otherwise, the country will face heavy economic damage. (Duran, 2021)

There are many laws and regulations regarding the protection of the environment in Turkey, such as the Environmental Law (Çevre Kanunu), the Coastal Law (Kıyı Kanunu), the Air Quality Control Regulation (Hava Kalitesi Kontrol Yönetmeliği), the Regulation on the Reduction of Substances that Deplete the Ozone Layer (Ozon Tabakasını İncelten Maddelerin Azaltılmasına İlişkin Yönetmelik). In addition, references have been made to the protection and sustainability of the environment, especially in the development plans of recent years. (Özen et al., 2015)

Government policies continue to improve in the context of environmental protection and the transition to a green economy. For example, Zero Waste Project of the Ministry of Environment, Urbanization and Climate Change, Project for Strengthening the Management of Forest Protected Areas of the Ministry of Agriculture and Forestry, policy measures taken by the Ministry of Industry and Technology to improve industrial efficiency and environmental performance in parallel at the level of small and medium sized enterprises (SMSEs) and the energy efficiency policies of the Ministry of Energy and Natural Resources contribute to transition to green economy. However, in Turkey, the inability to implement the projects, the decisions and policies taken or the various difficulties encountered in the implementation processes cause these projects and policies to remain in words, and this slows down the transition to green economy. While some policies and decisions in Turkey support the green economy, some decisions are in the opposite direction. Greenhouse gas emissions continue to increase in the country and one of the most important reasons of this is the energy sector.

Total greenhouse gas emissions in Turkey increased by 3.1% in 2020 compared to the previous year and by 138.4% compared to 1990 (Figure 4.1).

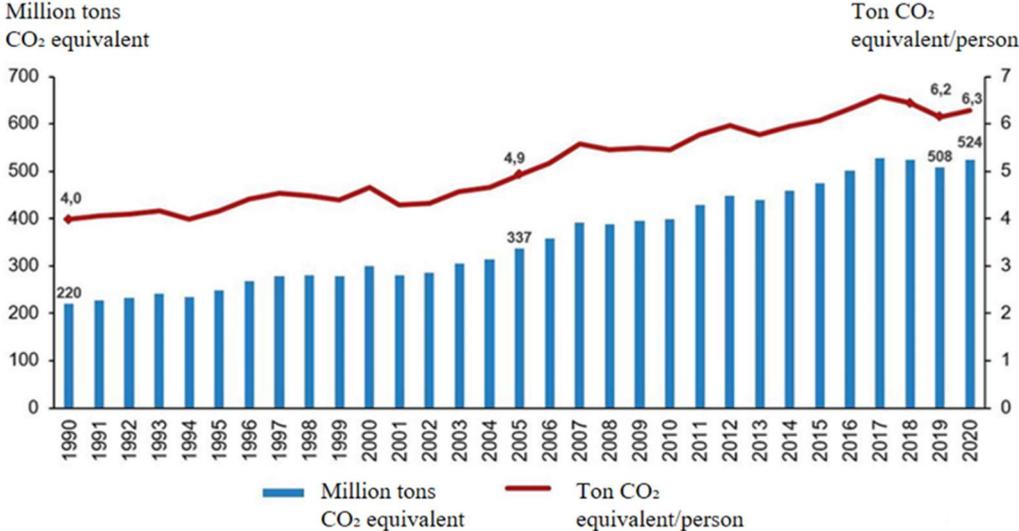


Figure 4.1: Total and per capita greenhouse gas emissions between 1990 and 2020 (TURKSTAT, 2022d).

Energy-related emissions had the largest share in total greenhouse gas emissions in 2020 with 70.2%, followed by agriculture with 14%, industrial processes and product use with 12.7%, and waste sector with 3.1%. Energy sector emissions increased by 163.3% in 2020 compared to 1990 and by 0.6% compared to the previous year. Emissions from industrial processes and product use increased by 190.5% compared to 1990 and by 14% compared to the previous year. Agricultural sector emissions increased by 58.8% in 2020 compared to 1990 and by 7.5% compared to the previous year. Waste sector emissions increased by 48% compared to 1990 and by 2.1% compared to the previous year. The amount of greenhouse gas emissions by sectors in Turkey between 1990 and 2020 are shown in Table 4.1. (TURKSTAT, 2022d)

Turkey is below the average of Organisation for Economic Co-operation and Development (OECD) countries in terms of energy efficiency and continues to invest in coal as an energy source. This wrong decision about energy resources is one of the reasons for the slowdown in the transition to green economy. In order to prevent this situation, Turkey should focus entirely on renewable energy sources in its new energy investments. (Seher, 2022)

Table 4.1: Greenhouse gas emissions by sectors (million tons CO₂ equivalent) between 1990 and 2020 (TURKSTAT, 2022d).

	1990	2000	2010	2015	2016	2017	2018	2019	2020	1990-2020 change (%)	2019-2020 change (%)
Total emissions	219,7	299	398,7	474,5	500,8	528,3	524	508,1	523,9	138,4	3,1
Energy	139,6	216	287,8	342	361,7	382,4	374,1	365,4	367,6	163,3	0,6
Industrial processes and product use	23	26,3	49	59,2	63,5	66,4	68	58,6	66,8	190,5	14
Agriculture	46,1	42,3	44,4	56,1	58,9	63,3	65,3	68	73,2	58,8	7,5
Waste	11,1	14,3	17,4	17,1	16,7	16,3	16,6	16,1	16,4	48	2,1

On the other hand, the transition to green economy in the country continues to progress, albeit slowly. Among the studies carried out within the scope of the transition to the green economic order in Turkey, legal regulations and investments in the field of renewable energy have come to the fore (Yıldız, 2021). Interest in renewable energy sources has increased in recent years in Turkey as well as in the world. While the renewable energy installed power in Turkey was 11,288 Megawatt in 2000, it increased 3.4 times to 38,742 Megawatt in 2017. Due to the legal regulations and the devastating effects of the climate crisis, it is possible that industries with high potential to pollute the environment will be closed in order to protect the environment in the coming years. In order to prevent the increase in unemployment, environmental policies will create employment in green jobs. Therefore, employment in the renewable energy sector is expected to increase in Turkey as well as in the world. (Güllü and Kartal, 2021)

In addition to the energy sector, one of the business areas that accelerates the transition to green economy in Turkey is the studies related to green buildings. Since the building sector in Turkey is one of the largest sectors in terms of carbon footprint, almost 40% of the total carbon emissions originate from the building sector (ILO, 2015, p.11). In order to reduce this negative impact of buildings on the environment, studies on green buildings in the country are increasing day by day. As of 2022, there are 586 certified green buildings in Turkey and the number of green buildings is increasing every year (ÇEDBİK, 2022). The increase in the number of green buildings over the years can be seen in Figure 4.2.

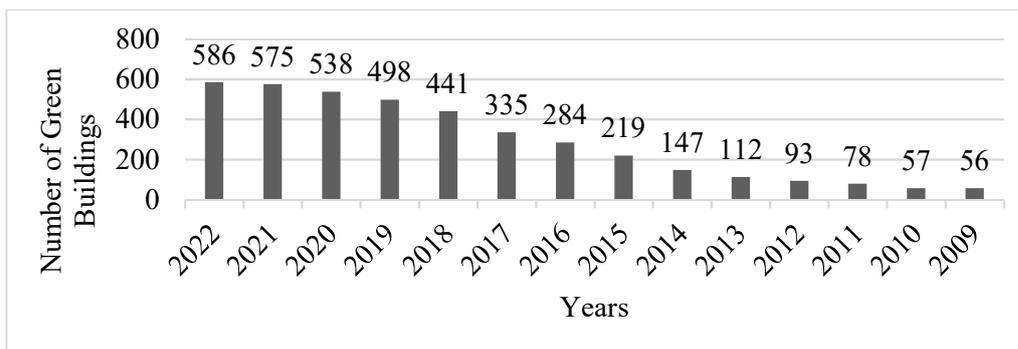


Figure 4.2: Number of green buildings by years in Turkey (Prepared by the author with the data of ÇEDBİK, 2022).

Another sector that accelerates the transition to the green economy can be the jobs related to waste recycling. Contributing to the circular economy by recycling waste and reusing wastes ensures the formation of a green economic order. In this regard, the number of enterprises in the fields of activity related to the waste recycling sector in Turkey has been examined. These economic activity classes are NACE 38 (waste collection, treatment and disposal activities; materials recovery) and NACE 39 (remediation activities and other waste management services). As seen in Figure 4.3 the number of enterprises in NACE 38 and NACE 39 increased continuously between 2010 and 2020. (Url-5)

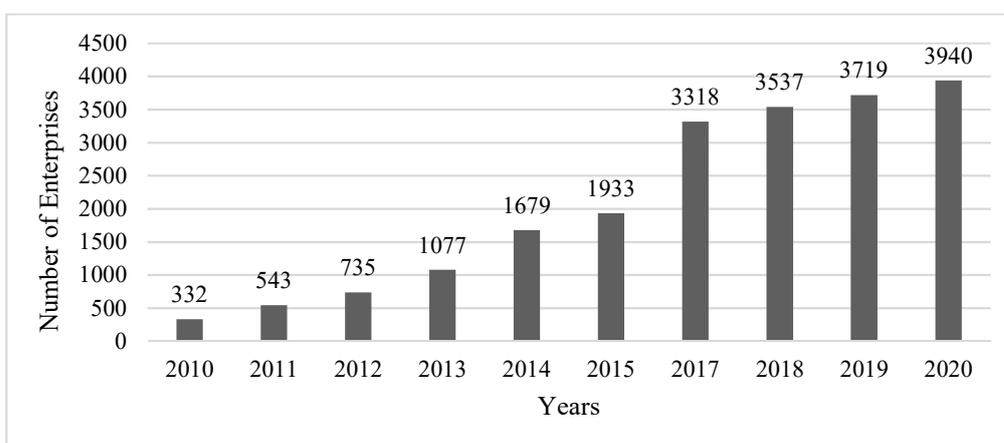


Figure 4.3: Number of enterprises by years in NACE 38 and NACE 39 in Turkey (Prepared by the author with the data of TURKSTAT).

Waste collectors working informally in Turkey contribute to the recycling of most of the waste in the country and to the re-input of the waste into the economy. However, poor working conditions and the absence of a certain status don't comply with the principle of decent work of the green economy concept. Although environmental problems are prevented by the collection and recycling of waste, the unfair working

conditions of the people who do this job make this job far from being green. Regarding this issue, with the statement made by the Minister of Environment, Urbanization and Climate Change in April 2022, it was stated that necessary studies are carried out to improve and legalize the occupational status of informal waste collectors, to make working conditions healthier and to increase their reputation, and that these studies will be implemented very soon. If the improvement work in question is put into practice, another important step will be taken in the transition to green economy in the country. (Türkiye Cumhuriyeti Çevre, Şehircilik ve İklim Değişikliği Bakanlığı, 2022)

In the study named “Sustainable Development and Green Economy: An Index Proposal for Turkey”, Turkey's green economy performance was evaluated by creating a green economy index consisting of 22 variables belonging to economic, social and environmental dimensions. According to the results obtained, it has been determined that Turkey's green economy performance between the years of 2002-2015 has increased. (Al, 2019)

Various associations and non-governmental organizations in Turkey continue their studies and activities to support the transition to green economy. For example, Green Thinking Association has been organizing Green Economy Conferences since 2009 together with the Heinrich Böll Stiftung Association. The purpose of these conferences is to bring together activists, Non Governmental Organization (NGO) representatives, academicians, politicians, researchers and students who work on the ecological, economic and social problems that people are exposed to in Turkey and the world, and discuss system alternatives and solution proposals. (Yeşil Düşünce Derneği, 2022)

The activities carried out by the private sector in the country regarding the green economy have an important place, but the insufficient support provided by the public to the private sector slows the pace of the transition to the green economy. A case study was conducted in Turkey as part of the "Decent Work in the Green Economy" project carried out by the International Labor Organization. Within the scope of this study, it was aimed to support the competence of the government and social partners in Turkey to assess the scope of green jobs and to prepare, monitor and evaluate gender sensitive strategies, policies and programs. As part of the case study, face-to-face interviews were held with Ezcacıbaşı Yapı Gereçleri Sanayi ve Ticaret A.Ş., Boyner Group, Schneider Electric, Arçelik, Pastoral Vadi Ecological Life Farm, Recydia Hereko, Soyak Holding, Ekol Logistics and Siemens. The working report includes the

experiences of these companies in transitioning to a greener business model. The study also aimed to guide policy makers that companies can be the leading role of change through green practices and the green employment they create. According to the results of the study, all the companies interviewed stated that the incentives to be provided by the public would support them in the transition to the green economy. According to the study report, it can be said that sufficient public support for green practices is not provided to the private sector in Turkey. Incentives to be given by the government will encourage companies to make and implement new green practices in the context of financial and motivation, and thus the transition process to green economy will be facilitated. (ILO, 2015)

In this context, it can be said that the transition process to green economy in Turkey has started and continues, but it definitely needs to gain speed. There is no doubt that the development of green technologies, the increase of public support, the implementation of policies, the transition to renewable energy sources and the efficient use of natural resources will accelerate the transition to green economy in the country.

4.2 Green Entrepreneurship in Turkey

Turkey has a growing economy and the entrepreneurship ecosystem in the country shows a rising trend in last years despite the pandemic, high inflation rates and currency volatility. The situation of the entrepreneurship ecosystem in Turkey will be evaluated according to the results of a survey conducted by Global Entrepreneurship Monitor (GEM) in 2021.

The survey is based on interviews with 150,000 individuals across 50 countries around the world. The countries are divided into three parts by their GDP per capita rates. Turkey is in the middle class with Belarus, Chile, Croatia, Cyprus, Greece, Hungary, Kazakhstan, Latvia, Lithuania, Oman, Panama, Poland, Romania, Russian Federation, Slovak Republic, Slovenia, Spain and Uruguay. Some evaluations were made on a class basis, while some evaluations were made between 50 countries in general. (GEM, 2022)

In the survey, 13 conditions, called Entrepreneurial Framework Conditions (EFCs), which determine whether there are suitable conditions for entrepreneurship in

countries, were determined. These conditions and the questions they seek answer to are given in Table 4.2 below. (GEM, 2022)

Table 4.2: Entrepreneurial Framework Conditions and the questions they seek answer to (GEM, 2022, p.6).

Entrepreneurial Framework Condition	Question
Entrepreneurial Finance	Are there sufficient funds for new startups?
Ease of Access to Entrepreneurial Finance	And are those funds easy to access?
Government Policy: Support and Relevance	Do they promote and support startups?
Government Policy: Taxes and Bureaucracy	Or are new businesses burdened?
Government Entrepreneurial Programs	Are quality support programs available?
Entrepreneurial Education at School	Do schools introduce entrepreneurship ideas?
Entrepreneurial Education Post-School	Do colleges offer courses in starting a business?
Research and Development Transfers	Can research be translated into new businesses?
Commercial and Professional Infrastructure	Are these sufficient and affordable?
Ease of Entry: Market Dynamics	Are markets free, open and growing?
Ease of Entry: Burdens and Regulation	Do regulations encourage or restrict entry?
Physical Infrastructure	Is this sufficient and affordable?
Research and Development Transfers	Can research be translated into new businesses?

According to the survey conducted by GEM, while the percentage of adults (aged 18 – 64) who starts a new business was 14.2% in 2018, it increased to 15.7% in 2021 and while the percentage of adults (aged 18 – 64) who owns or manages an established business was 8.7% in 2018, it raised to 14.2% in 2021. These increases in the rates can mean Turkey has a relative resilience in entrepreneurial sector but in fact, there are many risks for entrepreneurship ecosystem that threaten the future entrepreneurial activities in the country. (GEM, 2022)

Although Turkey has a growing economy, many people have financial struggles and influenced by the pandemic and high inflation. 54% of the interviewers in Turkey stated that their household lost income because of the pandemic. This rate is one of the highest ones in Turkey's class. These kind of challenges caused reduction of business confidence in the country. 44% of people said that they see good opportunities to start

a business in Turkey but this rate dropped off to 31.9% in 2021. Despite this decrease, 59.3% of Turkish interviewers stated that they have enough skills to start a business. This dilemma proves that people have enough entrepreneurial skills but there aren't any qualified and supportive entrepreneurship ecosystem in the country. It can be said that if opportunities and supports to start a business increase, entrepreneurial activities will increase.

Entrepreneurs in Turkey point out to decrease in entrepreneurial opportunities. 33.2% of adults who starts a new business stated that it was more difficult to start a business than in the previous year in 2018. The rate increased sharply to 62.4% in 2021. On the other hand, some evaluations of the survey showed that Turkish entrepreneurs want to grow their business. If a more stable economy could be provided, entrepreneurship ecosystem will expand in Turkey. (GEM, 2022)

Turkey's EFCs can be seen in Figure 4.4 below. Scores are between 0 and 10. 0 means very inadequate insufficient status and 10 means very adequate sufficient status. If the score below 5, this means that EFC is not sufficient.

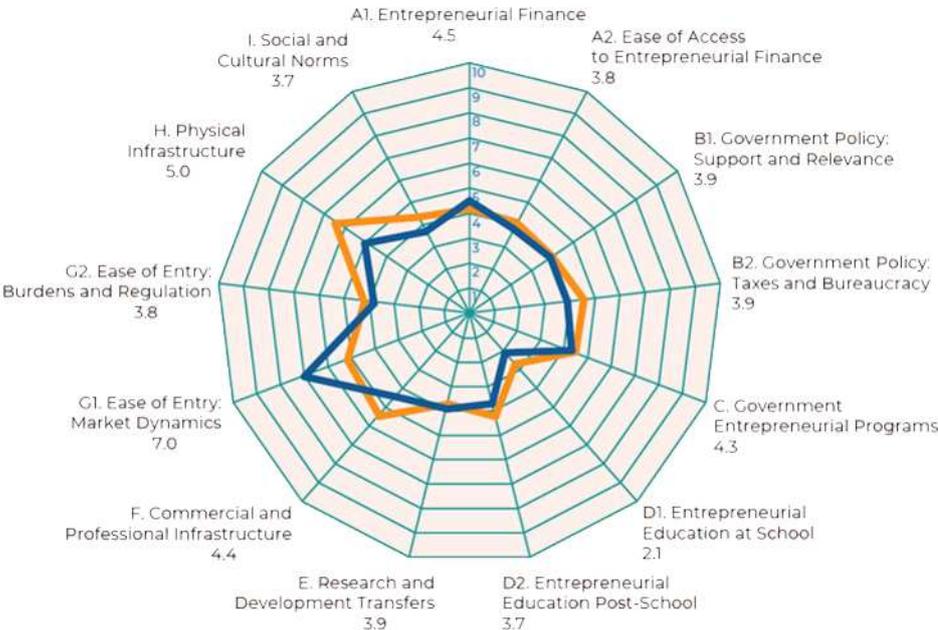


Figure 4.4: Entrepreneurial Framework Conditions in Turkey (GEM, 2022, p.182).

Turkey only has two sufficient EFCs and they are Physical Infrastructure and Ease of Entry: Market Dynamics. Turkey has the highest Ease of Entry: Market Dynamics score in its class. This can mean that Turkey's consumer market is more accesible than the other countries in its class. On the other hand, as a contrast, Ease of Entry: Burdens

and Regulations score is one of the lowest ones in the class. This shows us that there aren't enough encouraging regulations for businesses' entry to market in Turkey.

Turkey has low scores in conditions related to entrepreneurial finance. These low scores show that it is hard to find financial support in such an atmosphere with high inflation rates. The state should support entrepreneurs financially. Turkey has the lowest support for women entrepreneurs in its class. In the general evaluation in this subject, Turkey was the second from the last and Iran was the last.

Entrepreneurial Education at School and Entrepreneurial Education Post-School scores are under 5 in Turkey. This means entrepreneurial education is not sufficient in the country. Government Policy: Support and Relevance, Government Policy: Taxes and Bureaucracy, Government Entrepreneurial Programs are governance-related EFCs and all have low scores. (GEM, 2022)

GEM researchers calculated the average of 13 EFCs and they created National Entrepreneurial Context Index. Countries with a score close to 10 have generally better conditions for entrepreneurship, while countries with a score close to 0 have worse conditions. Countries with insufficient number of EFCs were found to have lower National Entrepreneurial Context Index scores. Turkey is below the National Entrepreneurial Context Index score average of 4,682 with two inadequate EFCs and a score of 4.2. It is 34th in the general ranking of 50 countries, and 11th in its class of 19 countries. As a result of all this evaluation, it can be said that there is a need for more policies to support the development of the entrepreneurship ecosystem in Turkey. (GEM, 2022)

Several institutions and programs support enterprises in Turkey. The Ministry of Industry and Technology has different supports such as tax reductions, various credit supports, insurance premium support, custom duty exemption, investment location allocation, depending on the technology level of the work done, the sector, the region and the size of the investment. It can be said that investments in organized industrial zones, technology development zones and technoparks are privileged to receive incentives. (Türkiye Cumhuriyeti Sanayi ve Teknoloji Bakanlığı, 2022)

The Scientific and Technological Research Council of Turkey (TUBITAK) provides various grant programs to support research and development studies. TUBITAK also

have funding programs to increase the number of innovative small and medium sized enterprises and to make them new technology-based firms. (Ulutaş and Alkaya, 2012)

Small and Medium Enterprises Development Organization of Turkey (KOSGEB) have the main support programs for SMSEs. KOSGEB provides some privileges to women and youth in entrepreneurship programs and provides various trainings across the country to support entrepreneurship. (KOSGEB, 2022c)

The Ministry of Commerce has various supports for product design, digital activities at market entry, credits, customer finding and product promotion abroad, export and making the company a world brand. (Türkiye Cumhuriyeti Ticaret Bakanlığı, 2022c)

Regional Development Agencies have financial support programs opened at different times. Financial support is provided to startups through these programs. (Ulutaş and Alkaya, 2012)

Technology Development Foundation of Turkey (TTGV) promotes technology entrepreneurship. The Foundation provides financial support to technology development, commercialization, advanced technology, environment, energy efficiency and renewable energy projects. (Url-6)

Entrepreneurs in Turkey can be a member of the chambers of industry and commerce in different cities. The chambers give network support, such as building partnerships with public and private organizations and informing the members about national and international business opportunities, to entrepreneurs to improve their jobs. (Ulutaş and Alkaya, 2012)

The Turkish Industrialists and Businessmen Association (TUSIAD), Turkish Foundation for Small and Medium Businesses (TOSYOV), The Union of Chambers and Commodity Exchanges of Turkey (TOBB), The Women Entrepreneurs Association of Turkey (KAGIDER) and Turkish Entrepreneurship Foundation are other organizations supporting enterprises with various support programs including financial support and capacity building trainings. (Ulutaş and Alkaya, 2012)

Turkish entrepreneurs can also benefit from international entrepreneurship supports. The support programs of the World Bank, the European Union, Consulates or the support of international organizations operating in Turkey, such as Endeavor and Social Impact Award, can be given as examples.

Private equity, venture capital and angel investors are other important finance supporters of private sector for entrepreneurs in Turkey.

Venture capital is one of the types of investment financing that enables young startups that do not have sufficient financial capacity, to realize their ideas. Venture capital provides financing, experience and knowledge to entrepreneurs with growth potential, while providing high income to investors in the long run. Venture capital is a risky investment form due to the risk of creating a new product and keeping it in the market. But at the same time, the profit made in venture capital is as high as the risk taken. (Gökçen, 2017)

Private equity is a form of investment where investors with surplus funds invest in companies in need of financial support, owning a stake in this company, and selling their shares in the company as the company grows, and making a profit. Private equity investment process is very similar to venture capital. (Koç, 2016)

It can be said that the private equity investment method is less risky than venture capital. While private equity mostly invests in mature established companies, venture capital mostly invests in new startups. If the companies that venture capital invests in are successful, they can bring more income in a shorter time than the companies in which private equity invests. (Investopedia, 2022; Koç, 2016)

Angel investors are people who invest in young startups and provide them with mentorship and networking support by sharing their sectoral and professional experience and business connections, in addition to providing funding for the growth of startups. Although the venture capitalist and the angel investor seem to be the same in theory, there are some differences in practice. Differences between angel investors and venture capitalists are those: angel investors invest smaller than venture capitalists; while angel investors invest from their own savings, venture capitalists manage funds brought together by different stakeholders such as pension investments, individuals and companies and they turn these funds into investment; venture capitalists oversee the startups they invest in and intervene when appropriate, but angel investors support entrepreneurs in their decisions as the entrepreneur's partner or mentor; while angel investors are generally people who expect both material and moral satisfaction, venture capitalists mostly only care about financial return. (Gökçen, 2017; Türe, 2017)

Vestel Ventures can be an example of venture capital in Turkey. It was established in 2015 and it invests in 19 companies currently. Another venture capital example could be Anadolu Efes. The company provides funding support to 3 different startups every year. It also gives mentorship support to startups and organizes events that contribute to the development of the entrepreneurship ecosystem. İş Girişim Sermayesi (İş Private Equity) is an example of private equity in Turkey. It was established in 2000 with the support of the World Bank and has investments in 6 companies, including one of Turkey's leading holiday websites, tatilbudur.com, currently. (Url-7, Url-8, Url-9, Url-10, Url-11, Url-12)

TUBITAK, one of the institutions of the Ministry of Industry and Technology, announced the Tech-InvesTR Venture Capital Support Program in 2018. Within the scope of this program, a total of 10 venture capitalists, including 500 Startups, Collective Spark, and Diffusion Capital Partners, received support from the Ministry of Treasury and Finance. Within the scope of the program, it is aimed to create a fund of 1.8 billion TL in total and to support entrepreneurs. (TUBITAK, 2022a) Another organization that supports entrepreneurs in Turkey is startup acceleration programs. Various supports provided by startup acceleration programs to entrepreneurs are summarized in Figure 4.5 below.

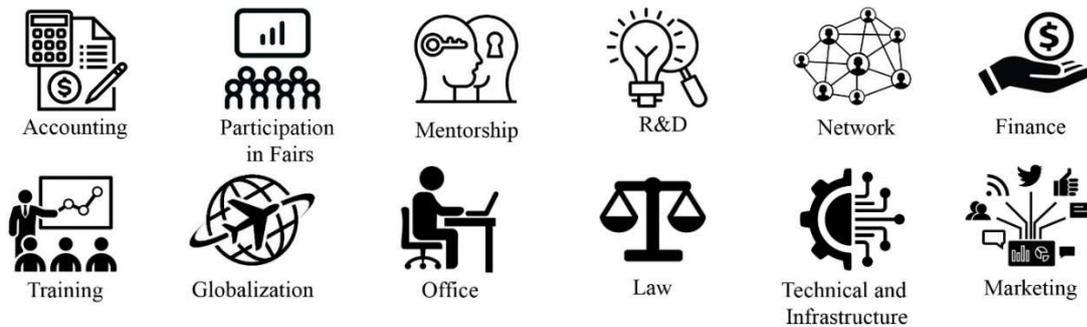


Figure 4.5: Supports provided by startup acceleration programs (Prepared by the author).

Vestel Ventures' Z-Port, Garanti BBVA Partners, Hackquarters, Impact Hub Istanbul, İşbank Workup Entrepreneurship Program, imece, The Hamdi Ulukaya Initiative by Chobani and Zorlu Holding's in-house entrepreneurship program Parlak Bi Fikir are among the startup acceleration and support programs in Turkey. Since all of these programs take place in Istanbul, some of these programs' details which are related to green entrepreneurship will be given in 4.4.Green Entrepreneurship in Istanbul section.

Green entrepreneurship is a new concept that has gained importance in Turkey in recent years. Therefore, apart from a few educational projects, there are no support programs and incentives directly related to green entrepreneurship in the country. Support for green entrepreneurs mostly proceeds through programs related to environmental problems. For example, TUBITAK has various support groups dealing with topics such as environment, engineering, social sciences, biology, electronics and agriculture (TUBITAK, 2022a, 2022b). When green entrepreneurs want to benefit from TUBITAK supports, they can apply to the call of the support group suitable for their field of work. However, in these applications, green entrepreneurs race in the same league with large-scale corporate and professional companies. Green entrepreneurs are not granted any privileges in applications.

TUBITAK also has a separate support program for entrepreneurs called 1512 Entrepreneurship Support Program. Entrepreneur candidates who do not have a company with a technology and innovation-oriented business idea can apply to this program. The fact that energy and clean technologies and sustainable agriculture are among the priority areas supported within the scope of the program promises more hope in raising green entrepreneurs. (TOBB ETÜ Garaj, 2022)

The high-budget supports given by TUBITAK to entrepreneurs in Turkey are mostly related to the advanced technology of the work. Therefore, the grant received by a business that does not use advanced technology but can create a social impact and be more beneficial to society and nature is less than the grant received by a business that does not create social impact but uses advanced technology.

KOSGEB, another institution that supports entrepreneurs in Turkey, started the Green Transformation Support Program in April 2022 to reduce the carbon emissions of SMSEs and increase their energy efficiency. Within the scope of this program, a grant of up to 100 thousand liras will be given for the replacement of inefficient electric motors used by SMSEs operating in the field of industry with efficient ones, and up to 400 thousand liras for efficiency-increasing expenses. This support is not a support given directly to green entrepreneurs, even green entrepreneurs may not be able to provide the necessary conditions to receive this support, since they already consider energy efficiency in their work. However, this support program will contribute to the progress of initiatives towards becoming green initiatives. Thus, awareness of green entrepreneurship and green initiatives will be supported. In addition, KOSGEB has

announced that new support mechanisms will be created on issues such as reducing emissions, transitioning to a cleaner and circular economy, eliminating polluting industry, and increasing energy efficiency in order to adapt green development to its supports. (KOSGEB, 2022b)

The Ministry of Trade has been providing financial assistance to companies since 2016 to obtain accreditation certificates such as ISO 14001, 14064, 22000, 50001 related to international environmental standards on issues such as environmental quality, greenhouse gas emissions, energy efficiency and food safety (Türkiye Cumhuriyeti Ticaret Bakanlığı, 2022a, 2022b). This support is not only specific to green entrepreneurship, but it can be said that it also covers green entrepreneurs due to the fact that the entrepreneurs who receive these certificates do environmentally related works.

Large corporate firms in Turkey have sufficient resources to reduce their carbon emissions, but the same is not true for SMSEs. SMSEs in Turkey constituted 99.8% of the total number of enterprises and 72.4% of employment in 2019 (TURKSTAT, 2020). SMSEs, which constitute the vast majority of the Turkish economy, do not have sufficient financial resources and information to reduce their carbon emissions. SMSEs in Turkey need to take action to adapt to the processes that will affect the Turkish economy, such as the Green Deal, along with the changing world order, otherwise they will suffer financial losses. Therefore, entrepreneurs in Turkey should be supported with the necessary financial and mentorship tools to become green entrepreneurs. However, any large-scale action has not been taken in this regard yet. (Duran, 2021)

In the process of harmonization with the Green Deal, Turkey has prepared the Green Deal Action Plan 2021. In this action plan, it is stated that studies will be carried out to raise awareness of enterprises about the environment and waste management. (Türkiye Cumhuriyeti Ticaret Bakanlığı, 2021)

In line with this information, it can be said that the awareness about green entrepreneurship and the number of green entrepreneurs in Turkey will increase in the future.

One of the most important factors for the spread of green entrepreneurship is education. Raising awareness and teaching green entrepreneurship through

educational activities will increase the number of green entrepreneurs in the country and ensure the development of the ecosystem.

Trainings given by Arkhe Project in Izmir on food, agriculture, green technologies, sustainability, social impact, system transformation and social entrepreneurship; trainings given at the International Green Entrepreneurship and Innovative Employment Center opened by Büyükçekmece Municipality in Istanbul as part of an EU project; and green entrepreneurship training given by The Association of Enterprising Business Women to women entrepreneurs in Mersin between 2011-2013 within the scope of an EU supported project are the examples of green entrepreneurship training programs in Turkey. Apart from these trainings, no training activities directly related to green entrepreneurship were found in the literature review. (Arkhe Projesi, 2022; GİŞKAD, 2013; İhlas Haber Ajansı, 2012; Türkiye Ulusal Ajansı, 2018)

It can be said that important progress in green entrepreneurship in Turkey has made in recent years. Studies on the subject have been increasing from year to year, but still have not reached a sufficient level. Compared to developed countries, it is seen that support for green jobs is insufficient in Turkey. This situation also slows down the development of green entrepreneurship.

There is a lack of policies and financial support to green entrepreneurs. There isn't any governmental incentives specifically for green entrepreneurship. Partnership and cooperation between institutions is weak and awareness about green jobs and environmental goods and services is not enough. The central government and the private sector lead to supports in entrepreneurship ecosystem in Turkey but these supports are not enough. The diversity and number of institutions supporting entrepreneurship should be increased, and institutional coordination should be ensured. In addition, the incentives given by the private sector and the state to entrepreneurs should be increased. Much more innovation and support is still needed in the overall entrepreneurial ecosystem.

On the other hand, there are opportunities for the green entrepreneurship ecosystem. For example, the recent increase in legal regulations, supports and activities related to renewable energy sources in Turkey, which is mentioned in the 4.1.Green Economy in Turkey section, is a good opportunity for the growth of green entrepreneurship. The

adaptation process to the Green Deal and the approval of the Paris Agreement, and the promise of institutions such as KOSGEB to increase their work on green transformation will support the development of green entrepreneurship. With the effect of the pandemic, people now want to consume more sustainable and nature-friendly products. This increase in demand in the market will also increase the number of green entrepreneurs in Turkey in next years.

If awareness and training activities are increased, special incentives are provided specifically for green entrepreneurs, and financial aid and support programs are increased, it can be said that green entrepreneurship will grow faster and more effectively in Turkey.

4.3 Green Economy in Istanbul

Istanbul is the country's largest metropolitan area, constituting a large part of the Turkish economy. In 2017, Istanbul made up 31% of the Turkish economy with its gross domestic product of \$257 billion (Özdemir, 2019).

While the employment rate was 45.2% and the unemployment rate was 12% in Turkey in 2021, employment was 47.3% and unemployment was 12.3% in Istanbul. The employment rates in Turkey in 2021 were 17.2% in agriculture, 27.5% in industry and 55.3% in services. The employment rates in Istanbul in 2021 were 0.5% in agriculture, 31.9% in industry and 67.7% in services. While the employment rate in the agriculture sector in Istanbul is well below the Turkey average, it is above the average in the industry and services sectors. (TURKSTAT, 2022b)

Istanbul is a center of attraction for industrial and commercial activities in Turkey due to its strategic location, growing population and rapid urbanization. The proportion of the services sector in Istanbul's economy is gradually increasing. Finance, logistics, culture and tourism activities cover the majority of the services sector. (İSTKA, 2014)

In the 2014-2023 Istanbul Regional Plan prepared by the Istanbul Development Agency, “City of Innovation and Culture with its Creative and Free People; Original Istanbul” vision has been adopted and this vision has 3 basic components. One of them is “The Global, High Added Value, Innovative and Creative Economy”. In this plan, a globally competitive economy model which focuses on the services sector has been adopted for Istanbul. (İSTKA, 2014)

In the Istanbul Environmental Plan, which was approved in 2009 and targeting 2023, similar to the Istanbul Regional Plan, it is aimed for the city economy to reach high competitiveness and economic growth based on finance, information and technology sectors. (İBB, 2009)

In none of the plans that make important decisions about the future of the city, such as the Istanbul Environmental Plan and the Istanbul Regional Plan, no analysis or proposal has been made regarding the adoption of the green economic model for Istanbul. The decisions made for Istanbul's economy are about making the city economy competitive at the international level and to ensuring growth through the services sector. On the other hand, in both plans, it is seen that decisions are made on the protection and development of natural assets in the city and the fight against climate change.

Istanbul ranks high at some globalization indexes. According to the Global Cities Index, Istanbul became the 27th global city among 156 cities in the ranking in 2021 but it was 34th in 2020. The city became one of the fastest risers. "The Global Cities Index measures how globally engaged cities are across five dimensions: business activity, human capital, information exchange, cultural experience and political engagement" (Kearney, 2021, p.4). (Kearney, 2021)

According to the Globalization and World Cities Index, which measures cities according to economic factors more than other factors, Istanbul's global connections became stronger towards the end of the 2000s compared to the previous years. (Globalization and World Cities Research Network, 2022)

Istanbul's GDP is growing steadily and has the largest share in the country. The services sector has the highest share in Istanbul's total GDP. GDP per capita in Istanbul increased continuously between 2018 and 2020 in TL but decreased in USD terms. (TURKSTAT, 2021a)

While the Gini coefficient, which measures income inequality, was 0.408 in Turkey in 2018, it was 0.444 in Istanbul. When the Gini coefficient approaches one, inequality in income distribution increases, when it approaches zero, inequality in income distribution decreases. It can be said that the inequality in income distribution in Istanbul was more than Turkey average in 2018. (TURKSTAT, 2019)

There are some international indexes to be able to understand the life quality in cities. The life quality in Istanbul will be evaluated according to these international indexes below.

Istanbul is 205th between 241 cities in terms of Life Quality Index. Purchasing power, safety, property price to income ratio, traffic commute time and pollution in the city are far below the average. Istanbul's Life Quality Index has decreased steadily in last three years. (Numbeo, n.d.)

According to Global Power City Index which evaluates 48 major cities in the world according to their attractiveness in terms of economy, research and development, cultural interaction, livability, environment, and accessibility functions, Istanbul became the 34th city in comprehensive ranking in 2020. The city became 10th in cultural interaction, 20th in accessibility, 29th in liveability, 35th in R&D, 36th in environment and 42nd in economy ranking. This low economy ranking shows that the city's economy is not fair and well developed. Also, the other low rankings such as environment and liveability show that the life in Istanbul is not perfect. (The Mori Memorial Foundation, 2020)

Congestion costs are dominant in Istanbul and the city features diseconomies of agglomeration. Bigger doesn't mean richer always. Correlation between the city size and income can become negative just like in Istanbul. (OECD, 2006)

Istanbul is the 25th city between 30 cities in European Green City Index. The index measures cities in terms of environmental governance, waste management, energy efficiency, greenhouse gas emissions, efficiency of transportation, water consumption, air quality and efficiency of buildings. Istanbul's ranking is relatively poor compared to other cities. (Economist Intelligence Unit, 2009)

Greenhouse gas emissions in Istanbul increased between 2010 and 2019 but it decreased in 2020 (Figure 4.6). This decrease could be because of the decisions and practices of the new metropolitan municipality administration which was elected in the 2019 local elections. Some new and good practices such as opening new renewable energy facilities and improve green areas in the city to combat climate change has begun to apply in the city recent years.

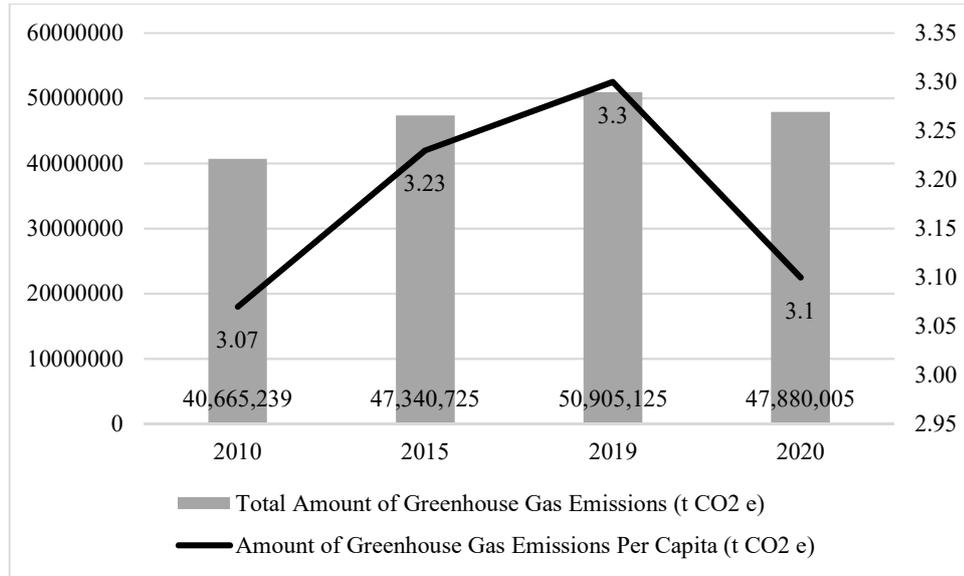


Figure 4.6: Change of Greenhouse Gas Emissions in Istanbul between 2010 and 2020 (Prepared by the author).

Contrary to Istanbul, it is observed that the greenhouse gas emissions of metropolitan cities in developed countries such as Paris and London have decreased gradually in recent years (Greater London Authority, 2022c; Paris Climate Action, 2020). Istanbul is a global city that competes with other major metropolises in the international arena. So, it should keep the decrease in greenhouse gas emissions, provide better life quality and healthier economic conditions.

When we examine the international indexes and economic and environmental indicators, we can say that Istanbul's economy is growing but not developing just like Turkey's economy. The economic situation in the city need to be developed. Transition to green economy can be helpful to solve problems about economy and life quality. Economic and environmental conditions in Istanbul lag behind metropolises in developed countries, but this does not mean that there is no hope. Recently, there have been some developments that can contribute to the transition to green economy in the city. For example, the main theme of the 5th Istanbul Economy Summit held in December 2021 was the green economy. The methods, policies and practices in transition to green economy were discussed at the summit. (EKOIQ, 2021; Url-14)

Istanbul has a more developed economic infrastructure than other cities in Turkey. The population density in the city and the intensity of industrial activities have made the city to need a more sustainable economy model. When these conditions come together,

it is possible that the transition process to the green economy model in Istanbul will be faster than in other Turkish cities.

Istanbul is a city that has a climate change action plan and greenhouse gas inventory, and is a member of important international combating climate change networks such as C40. In the Istanbul Climate Change Action Plan published in 2021, it is aimed that the city will become carbon neutral by 2050 and green and fair economic development will be provided. (İBB, 2021)

Macro-scale studies that contribute to combating climate change and green development in Istanbul are generally carried out by the Istanbul Metropolitan Municipality. The municipality exhibits good practice examples in many areas from water and waste management to urban transformation, from supporting agricultural production, to green area management and energy efficiency. (İBB, 2021)

All stakeholders need to work in cooperation to ensure green and fair economic development in Istanbul. It is sometimes difficult for the decisions taken regarding the cities to be implemented due to the political conditions in Turkey. When the central government and local government are not from the same political party, conflicts of interest can occur and city rights can be ignored. When the political conflicts of interest are put aside and the devastating effects of the ongoing climate crisis are fully accepted by all stakeholders, the transition to green economy in Istanbul will not be grueling.

4.4 Green Entrepreneurship in Istanbul

The vast majority of startups in Turkey choose their location in Istanbul. According to TOBB data, 111,125 new companies were established in Turkey in 2021, and 44,028 companies, corresponding to 39.62% of them, preferred to continue their activities in Istanbul. (TOBB, 2022)

Istanbul also hosts the vast majority of green entrepreneurship related activities in Turkey.

When the Istanbul metropolitan area is examined, it can't be said that the green entrepreneurship ecosystem in the city is as advanced as the metropolitan areas in developed countries. The activities carried out in Istanbul regarding the green economy and green entrepreneurship are still in their infancy. The only organization in the city that is directly related to green entrepreneurship is the International Green

Entrepreneurship and Innovative Employment Center established by Büyükçekmece Municipality as part of an EU project. This center focuses on green entrepreneurship education and supports green entrepreneurship activities. International Green Entrepreneurship Ideas Competition was held in this center in 2019, and 3 green startups from Istanbul (Pulsec, Paksumatik, Avus) participated in the competition. (GEO, 2019; Türkiye Ulusal Ajansı, 2018)

The Tech Istanbul project, implemented by Istanbul Metropolitan Municipality with the aim of making Istanbul a center for positive technologies, supports entrepreneurship activities in the city. In the competition held to select the best startups within Tech Istanbul in 2020, 3 of the 6 startups selected among 159 startups were green startups. (Url-15)

Zemin Istanbul under the Istanbul Metropolitan Municipality, which supports green entrepreneurship activities in the city is another platform that aims to attract entrepreneurs with topics such as environment, energy, transportation and social innovation within the thematic field of city and urban science, and to bring the smart city understanding to the people of Istanbul, especially to the youth. (Url-16)

Universities also contribute to the development of the green entrepreneurship ecosystem in Istanbul. It can be said that organizations such as Istanbul Technical University (ITU) Ginova, ITU SEED, ITU Magnet and ITU Arı Teknokent within ITU and Yıldız Technopark within Yıldız Technical University support all entrepreneurs in realizing their ideas and projects with finance and network support. (Url-17, Url-18)

There are many startup incubation, acceleration and support programs in Istanbul. The number of these programs increase year by year. Green entrepreneurs are supported in these programs with other entrepreneurs. The programs are supported by various stakeholders.

The importance given to sustainability and green jobs is increasing. It can be said that this also affects startup support programs. For example, recently programs that only support green and sustainable jobs have started to emerge. Examples of these are Workup Agri, which supports initiatives for the agriculture sector, which started in 2021, and the Sustainable Growth Program, which started in 2020. While all initiatives supported in Workup Agri are green initiatives, only one of the initiatives supported

in the Sustainable Growth Program is not a green enterprise. The number of all enterprises and green enterprises supported by these programs is given in Table 4.3 below.

Table 4.3: Entrepreneurs and green entrepreneurs supported by the programs in Turkey and Istanbul (Prepared by the author).

Program	Partners	Start Year of the Program	Total Number of Enterprises Supported in Turkey	Number of Green Enterprises Supported in Turkey	Number of Green Enterprises Supported in Istanbul
Vestel Ventures	Vestel	2015	27	2	1
Garanti BBVA	Garanti	2015	40	4	4
Partners Workup	İşbank	2017	99	8	7
Workup Agri	-Hackquarters -İşbank	2021	6	6	6
Visa Innovation Program	-Hackquarters -Visa	2019	15	0	0
Sustainable Growth Program	-Hackquarters -HSBC -WWF (partner in 2021 and 2022) -TÜRKONFED (partner in 2020)	2020	31	30	17
InvenDO Up	-Hackquarters -Doğuş Group	2022	5	1	1
G4A	-Hackquarters -Bayer	2018	25	4	2
Mercedes Benz StartUP	-Impact Hub Istanbul -Mercedes Benz	2017	80	31	18
Social Impact Award	-Impact Hub Istanbul -Anadolu Efes	2019	25	15	10
Empowering Women in Agrifood	-Impact Hub Istanbul -EIT Food -Foodback -Topraktan	2020	20	20	8
We Heal the Future	-Impact Hub Istanbul -Abdi İbrahim -Ashoka Turkey -Mikado	2021	4	1	1
Accelerate 2030	-Impact Hub Istanbul -UNDP Turkey -GIZ -GIRVAK -Anadolu Efes (partner in 2019)	2017	22	15	10

Some platforms and competitors contribute to the development of green entrepreneurship ecosystem in Istanbul. ‘imece’ can be a good example of these platforms. It is a social innovation platform and supports social entrepreneurs from

both Istanbul and other cities in Turkey. The platform works for creating a good and sustainable impact on earth. Several workshops, competitions and training programs are organized in the platform. The platform has different works for circular economy, carbon footprint, water and sustainability. Mostly young people are supported within these programs and a better future for all of us are improved in addition to contribution to green entrepreneurship. (Url-19)

Red Bull Basement is another important entrepreneurship platform in Istanbul. It was born in 2015 in Sao Paulo, Brazil. Red Bull Basement supports young university students over the age of 18 to develop projects that will create a positive social impact by using technology. Since the day it was founded, it has been organizing various festivals and programs around the world to train young entrepreneurs. The purpose of Red Bull Basement is to support entrepreneurs with an incubation program that mainly focuses on mentoring and training support. (Url-20)

The most important national and international events of the platform in Turkey are held in Istanbul. In 2017, Red Bull Basement Hatch Istanbul, and in 2019 Red Bull Basement University programs were held, and the winners were encouraged to develop their enterprises by participating in the global meetings in Sao Paulo in 2017 and in Toronto in 2019. 2019 winner project SMARTTLE is a green initiative project that aims to reduce the plastic bottle consumption of university students and produces reusable smart water bottles. (Url-20)

Red Bull Basement has been organizing worldwide competitions since 2018, and entrepreneurs selected from different countries are entitled to represent their country in the global final. Turkey's global finalists in 2020 and 2021 have been green initiative projects. The 2020 winner, PLANTRIC, is a compost project that turns food waste into fertilizer. The 2021 winner, Topla Gel, is a sustainable recycling and waste collection project. Red Bull Basement 2021 Global Final, attended by finalist students from 44 countries, was held in Istanbul. Red Bull Basement Global Final winners receive a custom package of resources to realise their project idea. (Url-20)

Istanbul Development Agency is another organization that supports entrepreneurial activities in the city. When the Financial Support Programs between 2010 and 2018 are examined, it is seen that the Entrepreneurship Financial Support Program was created in 2016 and 2018. Within the scope of this program, 10 projects were supported

in 2016 and 16 projects in 2018. Istanbul Development Agency does not have a separate support program for green entrepreneurship, but in 2014, it has put two support programs on the agenda that can enable the development of the green economy and green entrepreneurship ecosystem in the city. (İSTKA, 2016, 2018, 2022b)

Financial support was given to 14 projects under the program called Efficient and Clean Energy Istanbul Financial Support Program, and 8 projects within the scope of Efficient and Clean Energy Istanbul / Enterprises Financial Support Program. With these programs, it was aimed to reduce the energy intensity and greenhouse gas emissions of Istanbul by generalizing energy saving, energy efficiency and clean energy applications. (İSTKA, 2014)

Istanbul Development Agency started the International Entrepreneurship Center Istanbul project in 2022. With the project, infrastructure, methodology, consultancy and mentoring services are provided for international entrepreneurs to enter the market easily in Turkey. It has been reported that more than 50 entrepreneurs were brought to Istanbul in the first 3 months of the project. (İSTKA, 2022a)

Istanbul is a metropolitan city with strong global connections, aiming to have a say in the global economy and carrying its entrepreneurial activities to the international platform. In the Startup Blink entrepreneurship index, Turkey is 44th out of 100 countries and Istanbul is 69th out of 1000 cities in terms of entrepreneurship development. Istanbul's ranking in this index has showed a positive momentum 11 spots since the previous year. (Startup Blink, 2022)

Turkey became the fourth startup hub in the world and Istanbul became the fourth emerging startup hub city in 2017 according to a ranking sorted by venture capital fundings in the countries and cities (CB Insights, 2017). Istanbul has a growing global entrepreneurship ecosystem. So, the changing economic order and entrepreneurial activities in the world also affect Istanbul. Based on this interaction between the world and Istanbul, it can be said that green entrepreneurship activities in Istanbul will follow world trends.

There is no data on how many green enterprises there are in Istanbul. An approximate calculation of this number has been made within the scope of this thesis. Firstly, the number of enterprises reached through the support programs and competitions mentioned above was calculated. Secondly, for the preparatory work of 5. Empirical

Study on Green Entrepreneurship in Istanbul section, a detailed web search was done to specify green enterprises by using social media accounts, news sites and journals. Some startups were found to be inactive or went bankrupt. As a result, a total of 75 active green enterprises in Istanbul were reached finally.

It can be said that the green entrepreneurship ecosystem in Istanbul has developed together with other entrepreneurial activities, and an ecosystem specific to green entrepreneurship has not developed yet. The supports given to green entrepreneurship are mostly gathered under the same roof with the supports given to other entrepreneurial activities. Green entrepreneurship is supported as a sub-branch of social entrepreneurship and has not yet manifested its own existence. Istanbul lags behind the metropolises of developed countries such as Paris and London in terms of the development of green entrepreneurship. On the other hand, Istanbul is one of the largest metropolises in the world, located in a developing country, and develops entrepreneurial activities on the international platform, attracting international investors and entrepreneurs.

The economic order in the world has started to change with the effect of some sustainability and green-oriented legal regulations and the pandemic mentioned in the previous sections. Entrepreneurs are also affected by this change. The number of entrepreneurs who create a social impact and strive to create a better world for future generations is increasing day by day. Since Istanbul is a global metropolis, it is inevitable that it will be affected by the changing world order. Therefore, the number of green enterprises in Istanbul will possibly increase in the coming years.

Before moving on to the next chapter which is about the empirical study in Istanbul, the following deductions can be made as a general assessment of the literature review.

It can be said that the necessary institutional capacity has started to be established for the realization and development of green economy and green entrepreneurship in Turkey, and Istanbul which is the city where this capacity is most developed in the country. However, this capacity is insufficient when compared to developed countries and their metropolitan cities.

The reason why the concept of green entrepreneurship is used together with the concept of ecosystem throughout the thesis is to show that the green entrepreneurship concept is a holistic structure with different components. As a result of the literature

review and examinations carried out so far, it is seen that these components of the green entrepreneurship ecosystem appeared. The concept of green entrepreneurship itself doesn't constitute the whole green entrepreneurship ecosystem. Green economy, green jobs, green entrepreneurs, platforms, competitions, large corporate firms, technoparks and R&D centers, startup support programs, associations and chambers (TTGV, TUSIAD, TOBB etc.), government supports (ministries, TUBITAK, KOSGEB etc.), international supports (World Bank, EU etc.), investors (private equity, venture capital, angel investors), training programs and mentorship programs are the components of green entrepreneurship ecosystem (Figure 4.7).



Figure 4.7: The components of green entrepreneurship ecosystem (Prepared by the author).

5. EMPIRICAL STUDY ON GREEN ENTREPRENEURSHIP IN ISTANBUL

In order to better understand the green entrepreneurship ecosystem in Istanbul, interviews were held with the founders or representatives of 22 green enterprises between 14 February 2022 and 21 April 2022. The interviews were held online via Zoom due to the Covid-19 pandemic conditions. The length of the interview varied with each interviewer, but lasted an average of 30 minutes. The questions were prepared by questionnaire and in-depth interview technique, and qualitative research technique was adopted.

Of the 22 interviews, 18 were made with the green entrepreneurs who were the founders of the company directly, 3 interviews were made with the company representatives directed by the founder entrepreneur, and 1 interview was made by asking questions during 2 online interviews which the founder entrepreneur was attended. Some enterprises have two or three partners. Some interviews were done with all of the partners, while others were with one or two of them. Interviewed entrepreneurs were determined as a result of detailed web research. The work done by each of them was evaluated according to whether it is suitable for the green job definition or not.

It has been extremely challenging to reach the entrepreneurs and set an interview date. Due to the busy schedules of some entrepreneurs, the meeting dates have been changed several times. In total, the founders of 36 green enterprises were contacted, 22 of them were interviewed, 7 entrepreneurs did not respond, 7 entrepreneurs refused the request for the interview because they were not available or were not interested in such a study (Table 5.1).

Table 5.1: Contact status with green enterprises (Prepared by the author).

Contact Status	Number of Green Enterprises
Contacted	36
Did not respond	7
Refused to interview	7
Interviewed	22

Response times for the interviewed entrepreneurs generally ranged from one week to one month, but there were also a few entrepreneurs who responded quickly in just a few days. Entrepreneurs were reached via company e-mail addresses or phone numbers and LinkedIn or Instagram accounts.

A total of 40 questions were asked to the interviewees. The questions are grouped under 8 sections: entrepreneur profile, enterprise profile, entrepreneur’s driving force and motivation, performance of the enterprise, effect of the enterprise, entrepreneur’s goals, challenges encountered in the establishment phase and in the business process, and entrepreneur’s future foresight and expectations. The interview questions, both in English and in Turkish can be found in Appendix A.

During the interview, the questions were asked in a mixed and different order according to the flow of the interview, and 8 section titles were not shared with the entrepreneur. Some questions that were answered as a result of the pre research were not asked to the entrepreneur.

Within the scope of this empirical study, a research question was determined for each of the 8 question sections and answers were sought to these research questions. . The research questions and the relevant section are given in Table 5.2.

Table 5.2: Sections of the interview and related research questions (Prepared by the author).

Section	Research Question
Entrepreneur Profile	What is the profile of green entrepreneurs in Istanbul?
Enterprise Profile	What is the green enterprise profile in Istanbul?
Entrepreneur’s Driving Force and Motivation	What is the motivation and driving force of green entrepreneurs in Istanbul?
Performance of the Enterprise	How is the performance of green enterprises in Istanbul changing economically?
Effect of the Enterprise	How do green enterprises in Istanbul affect their environment?
Entrepreneur’s Goals	What are the business goals of green entrepreneurs in Istanbul?
Challenges Encountered (in the Establishment Phase and in the Business Process)	What kind of difficulties do green entrepreneurs in Istanbul experience?
Future Foresight and Expectations	What are the predictions and expectations about the future of green entrepreneurship in Istanbul?

With this study, the current situation analysis of the green entrepreneurship ecosystem in Istanbul is made on a small sample and what should be done to improve the ecosystem is determined.

The profiles of 22 green enterprises and entrepreneurs are analyzed, what drives the green entrepreneur to do this business is researched, the performance and impact of the enterprise is measured, the goals of the entrepreneur are learned, the challenges faced by the enterprise during the establishment and operating process are identified, the expectations of entrepreneurs about their business and their predictions were learned and it is determined what should be done to develop and support their work.

The 22 green enterprises work in different sectors and do different jobs from each other. The name of the entrepreneurs and the companies will be anonymous within this study and letter codes from A to V will be used to identify them. To be able to separate the entrepreneur and the enterprise, e.g. 'Entrepreneur A' and 'Enterprise A' will be used. The sector of the enterprises and the work they do are shown in Table 5.3.

When the sectoral features of the enterprises are examined, it is seen that almost half of the enterprises are in environmental technologies sector and textile and fashion sector.

11 sectors which are shown in the Table 5.3 are gathered under the main headings according to the features of the work done by green entrepreneurs and so, a sectoral categorization for 22 green enterprises has been made.

According to this categorization, Biotechnology and Environmental Technologies sectors are grouped under the title of Environmental Technologies. Software (Food) and Software sectors are grouped under the title of Software Services. Agriculture (Software), Permaculture, Permaculture (Training and Consultancy) and Urban Agriculture sectors are grouped under the title of Sustainable Agricultural Practices and Consultancy Services.

Sectoral categorization of the enterprises according to sub-sector and upper-sector grouping can be seen in Figure 5.1. There are 11 sub sectors and 6 upper sectors within this categorization and according to upper sector categorization, 55% of the green enterprises are in environmental technologies sector and textile and fashion sector.

Table 5.3: Sectors and activities of the enterprises (Prepared by the author).

Enterprise	Sector of the Enterprise	Activities of the Enterprise
A	Environmental Technologies	Composting machine production that converts organic waste into efficient fertilizers
B	Environmental Technologies	Production of software and hardware solutions to increase efficiency and minimize financial and environmental costs in recycling waste collection processes
C	Software (Food)	Bringing the fresh food that businesses, such as markets and restaurants, cannot sell to customers at a discount through an application and thus preventing food waste
D	Permaculture	Production of Bokashi compost kits that convert organic waste into compost
E	Biotechnology	Bioplastic production from bread waste
F	Transportation	Production of mini mobility smart transportation vehicles with clean energy and digital services
G	Product Design	Production of upcycled materials from organic waste with sustainable production methods
H	Biotechnology	Bioplastic production from olive pits
I	Software (Food)	Production of software and hardware systems that enable food businesses to create economic and social value from excess demand products by effectively managing their unsold product stocks.
J	Software	Software production that brings together the products of ecologically and socially fair producers in many categories with customers who are aware and give importance to goodness, people and nature
K	Environmental Technologies	Production of bioengineering products and solutions, especially biological wastewater treatment systems, for the sustainable use of natural resources
L	Environmental Technologies	Production of reverse vending machine
M	Textile and Fashion	Production of minimal, comfortable and functional clothing for everyone, adhering to ethical, sustainable and slow fashion principles
N	Urban Agriculture	Healthy hydroponic agriculture systems and micro greens production and providing training on healthy food and sustainable agricultural practices
O	Permaculture (Training and Consultancy)	Providing education and consultancy services to adults and children on ecological and sustainable life, especially permaculture
P	Product Design	Production and design of recycling products such as recycling bins
Q	Textile and Fashion	Production of bags, wallets and phone cases with vegan leather obtained from cork oak bark
R	Agriculture (Software)	Providing software and consultancy services to increase productivity in agricultural production and support farmers
S	Environmental Technologies	Producing technologies, such as making afforestation works by planting seeds with drones, against the global climate crisis
T	Textile and Fashion	Sustainable, modern, minimal and handmade bag, notebook and wall decoration production
U	Textile and Fashion	Creating sustainable income models for disadvantaged communities with upcycling projects and collaborations such as producing new products like eyeglass strings and hair clips from textile waste
V	Textile and Fashion	Clothing production with sustainable, cyclical, fair and slow production principles

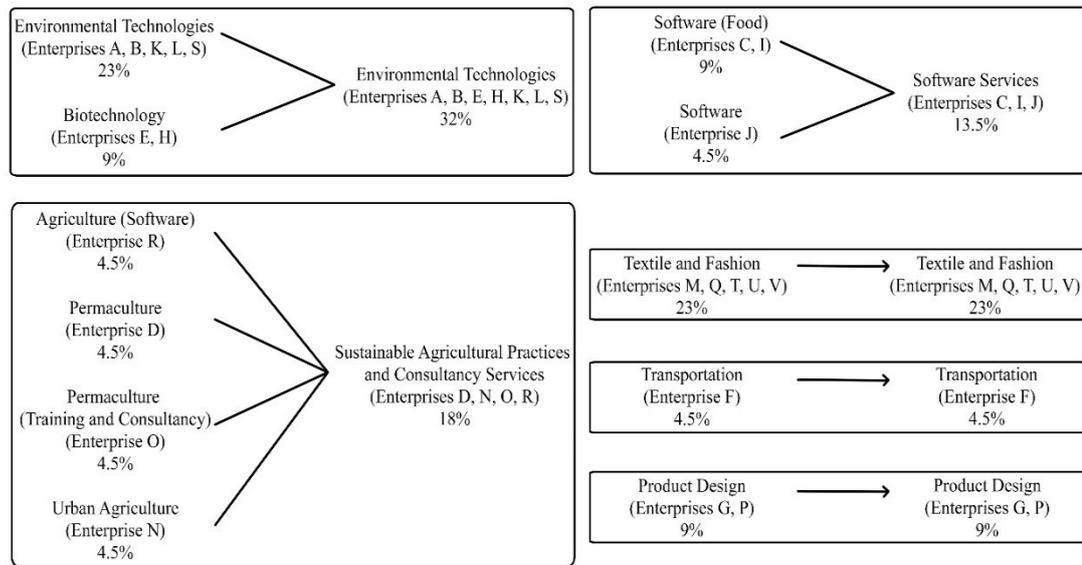


Figure 5.1: Sectoral categorization (Prepared by the author).

There are 33 green entrepreneurs of 22 green enterprises due to the partnership of some enterprises. 16 of these green entrepreneurs are female and 17 of them are male. The fact that the ratio of women to men is almost the same is promising in terms of the development of women's employment in the ecosystem.

The oldest green entrepreneur is 60 years old and the youngest is 22 years old. 17 green entrepreneurs are between 22 and 32 years old, 10 of them are between 33 and 42, 5 of them are between 41 and 52 and one of them is 60 years old. According to McCrindle Research Center, the people who are born between 1995 and 2009 are Generation Z (McCrindle, 2022). According to this information, 8 green entrepreneurs are in Generation Z. 5 of these green entrepreneurs are university students. It is important for the ecosystem to remain dynamic that young people prefer to start their own businesses. Generation Z have the passion for making positive change and social conscience, they are also seen as world changers (The Atlantic, 2022). Seeing the Generation Z enter the green entrepreneurship ecosystem in Istanbul is promising that the economic order in Istanbul can change and the climate crisis can be tackled faster. 17 green entrepreneurs have bachelor's degree, 8 have master's degree, 2 have PhD degree, 1 is high school graduate and 5 of them are undergraduate students. The highest education level ratio belongs to bachelor's degree with 52%.

When the occupational distribution of entrepreneurs is examined, it is seen that 14 of them are engineers. 8 entrepreneurs have professional qualifications related to

management, marketing and commerce, 4 entrepreneurs have studied science, 3 entrepreneurs have studied design, 1 entrepreneur is a psychologist but has a master's degree in renewable energy, 1 entrepreneur is a political science graduate, 1 entrepreneur is a computer science graduate, and 1 entrepreneur is a landscape architect. The predominant occupational group is engineering with a rate of 42%. Engineering is followed by the professional group related to management, marketing and commerce with a rate of 24%. While the green enterprise is the first job for 11 out of 33 green entrepreneurs, it is not the first job for 22. Of the 22 entrepreneurs, 20 had previously worked in the private sector and 1 worked in an association. One of them had experiences in academy, consultancy in the public sector and working in different positions in NGOs. The table which shows detailed information about features of entrepreneurs can be found in Appendix B, Table B.1 and the summary of the features of the entrepreneurs can be seen in Table 5.4 below.

Table 5.4: Entrepreneur profile (Prepared by the author).

	Number of Entrepreneurs	Share of Total (%)
Age		
22-32	17	52%
33-42	10	30%
43-52	5	15%
60	1	3%
Gender		
Female	16	48%
Male	17	52%
Education Level		
High school	1	3%
University student	5	15%
Bachelor's degree	17	52%
Master's degree	8	24%
PhD graduate	2	6%
Profession		
Engineer	14	42%
Management, marketing and commerce	8	24%
Science	4	12%
Design	3	10%
Other	4	12%
Is This His/Her First Job?		
Yes	11	33%
No	22	67%
Previous Job		
Private sector	20	90%
Association	1	5%
Academy, public sector and NGOs	1	5%

When the interviewees were asked how they describe themselves as an entrepreneur, 20 out of 33 entrepreneurs said that they define themselves as social entrepreneurs. This means 12 out of 22 enterprises are defined as social enterprises. Only 1 entrepreneur defines herself as a green entrepreneur. Interviewees' descriptions about kind of entrepreneurship can be found in Table 5.5 below.

Table 5.5: Interviewees' descriptions about kind of entrepreneurship (Prepared by the author).

How Does He/She Describe Himself/Herself as an Entrepreneur?	Number of Entrepreneurs	Share of Total (%)
Social entrepreneur	20	61%
Green entrepreneur	1	3%
Entrepreneur	3	9%
Other	9	27%

It can be said that social entrepreneurship is a more popular concept than green entrepreneurship. Social entrepreneurship aims to solve priority social problems without prioritizing financial benefits and profits, it focuses on achieving wider social, environmental and community objectives. Social entrepreneurship and green entrepreneurship have the same goals about benefiting society. Social entrepreneurship also includes non-green jobs. For example, an enterprise that produces solutions facilitating the lives of the blind people or an enterprise that enables individuals to support social solidarity through sports does not develop solutions to prevent the climate crisis by reducing carbon emissions. These kind of enterprises are not green but social ones. In this context, it can be said that social entrepreneurship is a top concept that includes green entrepreneurship. (Ashoka Turkiye, 2018; European Commission, 2022a; SosyalUp, 2022)

There are more studies, solidarity, networks and communities related to social entrepreneurship rather than green entrepreneurship both in Turkey and in the world. When the academic studies on social entrepreneurship and green entrepreneurship are examined through Scopus, 15,954 document results on social entrepreneurship have been reached, while 664 document results on green entrepreneurship have been reached. Also, green entrepreneurship is a much newer concept than social entrepreneurship. While the year of the first publication about green entrepreneurship in Scopus is 1991, the year of the first publication about social entrepreneurship is 1922. Since social entrepreneurship is a more inclusive and well-established concept,

it is not surprising that 61% of the green entrepreneurs interviewed describe themselves as a social entrepreneur, while 3% describe themselves as a green entrepreneur. (Scopus, n.d.)

The interviewed entrepreneurs take some precautions to minimize their negative effects on the environment in their daily lives as well as their work (Figure 5.2). All of these green entrepreneurs contribute to combat climate crisis and formation of green economy with their work styles and productions. They care about environment, employee rights and sustainability. They do their best to reduce carbon footprint both in their business and private lives. They maintain their respect for nature in their private lives apart from their work. In order to reduce their negative effects on the environment, they carry out many activities from separating and recycling their wastes to choosing sustainable transportation modes, from consuming less to working for raising public awareness.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
Using environmentally friendly modes of transport										X	X	X				X	X					X
Waste separation and recycling	X	X				X		X	X		X	X		X	X	X		X	X	X	X	
Not wasting food			X						X		X											
Consuming less (minimalism)		X					X	X					X		X				X			X
Not using plastic or disposable items	X						X							X								X
Consuming nature-friendly foods / vegetarian diet	X							X								X						X
Making compost									X					X	X					X	X	
Saving water				X						X		X										
Raising awareness					X				X	X	X				X							
Second hand shopping						X									X							
Not using real leather								X								X						
Using a cloth bag								X								X						
Carrying a thermos	X	X													X							
Caring about energy efficiency									X													X
Producing own food										X					X							

Figure 5.2: Green entrepreneurs' ways to reduce their negative impact on the environment (Prepared by the author).

The most preferred methods to save the world are separating waste and recycling, consuming less and adopting environmentally friendly transportation modes. The founders of 14 enterprises do waste separation and recycling, the founders of 7 enterprises consume less and the founders of 6 enterprises prefer environmentally friendly transportation modes. For example, Entrepreneur Q stated that she moved her home closer to her work because she wanted to go to job by walking to reduce her carbon footprint. Entrepreneur L stated that he frequently travels between Ankara and Istanbul for work and he prefers to travel by train rather than by car or plane to save the environment.

In addition to the measures in Figure 5.2, Entrepreneur D stated that she does not waste clothes, buys less clothes and gives importance to sustainable fashion; Entrepreneur E tries to reduce her waste and to do this, for example, she orders less food from outside because too many packages are used for the ordered food; Entrepreneur H makes her own cosmetics and they do not use business cards as a company to avoid waste of paper, Entrepreneur N and Entrepreneur O shop from local manufacturers; Entrepreneur Q uses animal and nature friendly products and Entrepreneur U stated that in order to shop for less clothes, she exchanges clothes with her friends and buys second-hand leather and jeans.

Some entrepreneurs said only two or three precautions to save the environment but I am sure that they take many other precautions that they might not have thought of during the interview. All green entrepreneurs interviewed do their best to save the environment and to leave a better world for future generations.

The green entrepreneurs' work styles are compatible with the principle of green job is decent job. They care about employee rights and people rights. They reward their employees for their hard work. They care about disadvantaged groups such as women and children. Some of them especially care about women employment and give priority to women in employment. Especially the entrepreneurs in the textile and fashion sector give importance to slow and fair production processes, give priority to women's employment and cooperate with women's cooperatives. One of the reasons for the importance given to women's employment in the textile and fashion sector is that most of the women in Turkey do handicrafts such as sewing clothes and knitting. Regarding that, when Entrepreneur U was asked how this business idea came about, she stated that *"What I wanted to do was to reach women with my work. Almost all*

women in Turkey knit and sew. These handicrafts are the work of every woman in Turkey, regardless of any social status and education level. That's why this (textile and fashion) is the sector with the highest potential for women and I chose it”.

Another interesting phenomenon measured by this empirical study is the driving force and motivation of entrepreneurs to do this business. As I mentioned above, all of the green entrepreneurs interviewed care about nature, sustainability, environmental protection and combating climate crisis. They take measures to reduce their carbon footprint, they act for increasing awareness about environmental issues and they try to provide sustainability in their daily lives and in their businesses. So, they all have motivation for creating a better and healthier world for future generations and for fighting against climate crisis. They think that world is changing in recent years with the effects of the pandemic and international environmental regulations but they have doubts that this change can happen fast enough and that it can be completed before the world's resources are depleted. They have hope to change the world order. It is not surprising that they are optimistic and hopeful people, otherwise it could be impossible to do such a job that needs labor, patience and understanding. They all stated that they try to do the maximum with minimum capital and money. Despite their hard work, their earnings are minimal. If they took part in other entrepreneurial ecosystems such as games or software and put the same effort, their earnings would be much higher and their business would grow much faster. Despite knowing this, they chose to be green entrepreneurs because they have hope to create a better and greener world. When I asked if they think that they have privileges compared to other jobs because they do a green job, they said that they do not have any financial privileges, but they experience great emotional satisfaction and motivation. They stated that their customer satisfaction is high, they are appreciated for doing a job that respects nature, and they have a positive public perception about themselves.

There are several reasons why green entrepreneurs started their own businesses (Table 5.6). They all want to do something to save the world, combat climate crisis and provide sustainability. While some of them only want to be beneficial for the environment and the society, some of them wanted to be their own boss, realized a potential need in their industry or they were tired of being white-collar in their previous jobs and the difficulties of the private sector and corporate life.

Table 5.6: Motivation and driving force to be a green entrepreneur (Prepared by the author).

Main Motivation and Driving Force		
	<ul style="list-style-type: none"> - Creating social impact - Combating climate crisis - Protecting environment 	
The Reasons to be Green Entrepreneur	Number of Entrepreneurs	Share in Total (%)
To be beneficial for the environment and the society	7	21%
To be own boss	7	21%
Realizing the potential need in the industry	4	12%
Dissatisfaction with previous employment	7	21%
To be own boss and realizing the potential need in the industry	4	12%
Realizing the potential need in the industry and to be beneficial for the environment and the society	2	6%
To be own boss and to be beneficial for the environment and the society	1	3%
Dissatisfaction with previous employment and to be beneficial for the environment and the society	1	3%

When green entrepreneurs were asked how their business ideas came to mind, they stated that they found their business ideas during the application process for entrepreneurship-related competitions such as Red Bull Basement, during the courses they took in their education life, during their previous business life, during the events they attended, when they saw examples of the same work abroad, when they were thinking about solutions to the problems they saw, and when they were researching what I can do to be beneficial to the environment and people. The story of two green entrepreneurs is more different and interesting than the others. Entrepreneur H who produces bioplastic from olive pits said that *“I was not satisfied with working in corporate life, I wanted to start my own business, but I did not know what to do. When I talked to my father about this issue, my father told me that he and many people around him swallow olive pits because it is beneficial for health. He said that what he was doing might be something unconscious and he advised me to research this subject since I am a food engineer. Then I started researching olive pits and saw that tons of olive pits come out as waste every year. Later, we thought with my partners if we could produce plastic from olive pits and started R&D studies”*. Entrepreneur Q who

produces bags, wallets and phone cases with vegan leather obtained from cork oak bark said that “Earlier, a friend of mine abroad told me that leather can be made from the bark of cork oak, but at that time I was not very interested in this subject. Then, one day at my workplace, they cut down a cork oak because it was dry and threw it away, but actually the bark could be used to make leather. Seeing this waste made me thought of my friend mentioning that vegan leather can be made from cork oak. I called my friend and confirmed that the tree from which leather can be made is cork oak. Then I started researching about the subject and started my business”.

Majority of the enterprises are sole proprietorship, while the rest have two or three partners. All enterprises were established in 2000s (Figure 5.3). 15 enterprises (68% of total) were established between 2015 and 2020. Considering that the concept of green entrepreneurship gained importance in the 2000s, it is not surprising that all of the green enterprises were founded in the 21st century. The establishment of the enterprises has intensified in the years after 2015, when the effects of the climate crisis began to increase and serious agreements were made around the world, such as the Paris Agreement and the European Green Deal. A significant part of the enterprises (28% of total) have been established in the last 3 years, where the respect for nature has increased and the fight against the climate crisis has gained importance with the effect of the Covid-19 pandemic, which came to the fore in 2020.

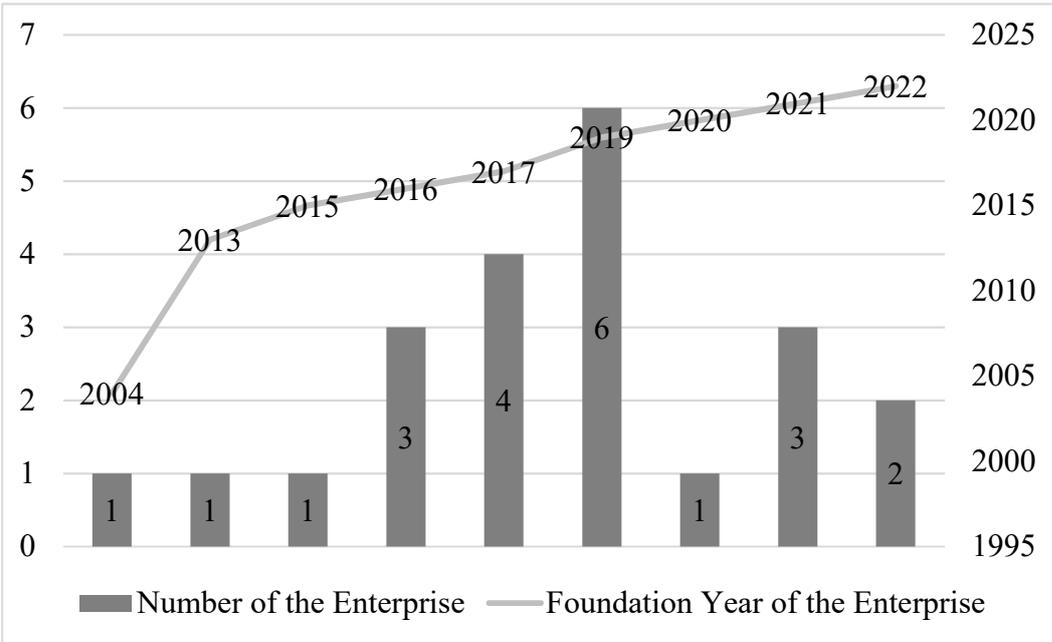


Figure 5.3: Establishment years of the green enterprises (Prepared by the author).

According to KOSGEB's definition, enterprises with less than 10 employees are micro enterprises, enterprises with less than 50 employees are small enterprises, and enterprises with less than 250 employees are medium-sized enterprises (KOSGEB, 2022a). According to this information, 10 green enterprises are micro, 11 are small and 1 is medium-sized.

Age range of employees differs but it can be said that most of the enterprises have a young employee profile. 13 enterprises (59% of total) have employees who are between 18 and 35 years old. The age profile of employees is young just like the entrepreneurs.

Professional distribution of the employees is another similarity to the entrepreneur profile since the workers are generally engineers, software developers, marketing staff, managers and designers.

Many companies around the world changed their manner of work with the effects of the pandemic. The companies adopted online or hybrid work styles. It can be said that this change in working styles also affects green entrepreneurs. An important part of the employees of green enterprises (41% of total) works hybrid. 14% works only online and 45% works from office generally. The green enterprises have a young employee profile generally, they can use technology well and they can adopt technological changes quickly. The entrepreneurs stated that even if they work from office, they work online as well when it is needed.

Except for one, the performance of all enterprises are increasing in terms of endorsement, profit, number of customers and sales. The performance of Enterprise D increased in first six months, then began to decrease. Entrepreneur D stated that pandemic conditions affected the performance of her business. She also stated that since she is a university student she does not have much time to continue the business. So, she took a break from work but she will continue the job with new projects and ideas after her graduation.

The table which shows detailed information about features of enterprises can be found in Appendix B, Table B.2 and the summary of the features of the enterprises can be seen in Table 5.7 below.

Table 5.7: Enterprise profile (Prepared by the author).

	Number of Enterprises	Share of Total (%)
Proprietorship		
Sole proprietorship	13	59%
Shareholder – 2 partners	7	32%
Shareholder – 3 partners	2	9%
Foundation Year of the Enterprise		
2020-2022	6	28%
2015-2019	15	68%
2004	1	4%
Number of Employees		
1-5	6	28%
6-10	7	32%
11-15	4	18%
16-20	2	9%
21-30	2	9%
82	1	4%
Age Range of Employees		
18-35	13	59%
18-65	9	41%
Manner of Work		
Office	10	45%
Online	3	14%
Office + Online	9	41%
Performance of the Enterprise		
Increase in first six months, then decrease	1	4%
Increasing	21	96%

When green entrepreneurs were asked why they established their companies in Istanbul, 15 entrepreneurs (68% of total) stated that they established the company in Istanbul because they already live in Istanbul. However, they said that they benefit from Istanbul in terms of developed entrepreneurship ecosystem, economic and business relations, good network, advantages of the metropolitan area, size and population of the city, and large market size in the city. The interviewers think that the presence of incubation centers, acceleration programs and a developed network in Istanbul provides advantages to their business.

Entrepreneur D stated that in addition to the development of entrepreneurship infrastructure in Istanbul, entrepreneurship related to sustainability is also developed in Istanbul. As a result of the literature review in the previous sections, it was stated that almost all of the limited number of studies on green entrepreneurship in Turkey

were carried out in Istanbul. This statement of Entrepreneur D confirms the findings obtained as a result of the literature review.

Entrepreneur E said that *“I founded my company in Istanbul because I live in here, but even if I didn't live here, I would still establish the company in Istanbul because all the support for entrepreneurship is here, the center of the business world is Istanbul”*.

As mentioned in the previous sections, Istanbul is a crowded and complex metropolis with high economic inequality but on the other hand, it is a global metropolitan city with strong economic connections and it is the heart of the business world in Turkey. Regarding this situation of Istanbul, which has both advantages and disadvantages, Entrepreneur G said that *“There are problems in Istanbul, such as everything is expensive and no one is trusting each other, etc. but the wide and efficient network and dynamism of the city provide benefits for my business”*.

It was mentioned that there is a mutual relationship between green entrepreneurship and metropolitan areas and the places where green economy and green entrepreneurship are most needed are metropolitan areas in 3.2.1 Green entrepreneurship in metropolitan cities section. In connection with this inference, Entrepreneur O, who works for providing education and consultancy services to adults and children on ecological and sustainable life, said that *“We established our company in Istanbul because we live here, but we actually think that Istanbul needs the work we do. Since training and consultancy are about changing the practices in daily life, we think that a change to be made in a big city like Istanbul will have a greater impact”*.

Another example of the mutual relationship between green entrepreneurship and metropolitan areas came from Entrepreneur T. The entrepreneur stated that she contributes to the circular economy in the city. She produces sustainable bags and notebooks and she gives her production waste to other producers or takes recycled raw material from them. On the other hand, she stated that Istanbul contributes to her business to become greener because all the material suppliers and producers that she needs locate in Istanbul. She said that she can buy materials from near producers and she can keep the carbon footprint low for the production process.

7 entrepreneurs (32% of total) stated that they established their company in Istanbul for several reasons other than living in Istanbul.

Entrepreneur C who works for preventing food waste stated that he established his company in Istanbul due to the big size of Istanbul, its large population and the high waste of food in the city.

Entrepreneur F who produces ecologic mini mobility smart transportation vehicles lives in Izmir and the production place of the company is in Izmir but he has an office in ITU Magnet. He stated that he travels frequently between Izmir and Istanbul for work. The reason of he has an office in ITU Magnet is that he graduated from ITU and he benefits from ITU's opportunities. He stated that Istanbul is Turkey's leading city in terms of economy and he has many business contacts in Istanbul.

Entrepreneur J who has a website that brings together the products of ecologically and socially fair producers in many categories with customers who give importance to goodness, people and nature said that Istanbul is a center for entrepreneurship. They work with entrepreneurship foundations such as Ashoka Fellow and Impact Hub and these foundations locate in Istanbul, many producers are in Istanbul, so starting the business in Istanbul was a logical choice for them.

Entrepreneur L who produces reverse vending machines stated that he founded his business in Istanbul because his employees and the technology he needs are in Istanbul.

Entrepreneur Q who produces bags, wallets and phone cases with vegan leather said that she started her business in Bodrum at first but she moved it to Istanbul later. The reason of this move was she had problems for production in Bodrum. She chose Istanbul because Istanbul has the capacity, capital, source and technology for the production processes of her business.

Entrepreneur R, who provides software and consultancy services for increasing productivity in agricultural production and supporting farmers, started the business in Istanbul, then moved to Aydın for a smart village project but they still have a virtual office in Istanbul. The entrepreneur said that *"Istanbul is a corporate network for us. It is easier to reach the world from Istanbul"*. The fact that Istanbul is a global metropolis supports entrepreneurs to carry out their business abroad. The city provides global connections to entrepreneurs.

Entrepreneur S who produces technologies against the climate crisis stated that he started his business in Istanbul because the entrepreneurship ecosystem is well

developed and accessible in Istanbul, he also said that the human capital that he needs to start the business was in Istanbul.

All the green entrepreneurs interviewed think that their work contributes to the fight against climate crisis and the creation of a green economic order. All of the entrepreneurs have adopted fair and sustainable production techniques.

Companies dealing with waste recycling have stated that they contribute to the fight against climate change by preventing the formation of methane gas, a harmful gas that triggers climate change, or by converting this gas into biogas or electrical energy.

The vast majority of enterprises contribute to the increase of recycling and upcycling, thus enabling the development of the circular economy model.

In addition to the work they do and the products they produce, the enterprises contribute to the green economy and the fight against the climate crisis with the operations they develop. For example, Enterprise B performs waste recycling and at the same time, thanks to the waste collection system they have developed, they prevent the unnecessary circulation of garbage trucks, save fuel and thus reduce carbon emissions. Thanks to the application they have developed, Enterprise C both prevents food waste and reduces inputs such as water consumed during the production of food and energy spent for logistics.

Green entrepreneurs prevent climate change by developing and using renewable energy applications, producing models that prevent food waste, producing healthy food, producing efficient agricultural practices and innovative environmental technologies. They state that they enable the development of sustainable economic models such as circular economy, green economy and sharing economy.

All of the green entrepreneurs think that their work creates social impact and awareness, apart from combating the climate crisis and contributing to the green economy. Four out of twenty two enterprises also have studies to increase women's employment such as cooperating with women's cooperatives.

All green entrepreneurs think that they have a positive impact on the economic order in Istanbul and Turkey. However, they stated that they could not lead major changes due to the fact that the current dominant economic system is capitalism and their companies are still small businesses. They stated that they have started to change the economic system but they are at the bottom of the ladder. On the other hand, there are

also green entrepreneurs who think that they can take action faster than large corporate firms because they have smaller structures and teams, do not have a hierarchical order, can work more flexibly and can adapt to changes quickly, and thus they can affect the change of the economic system more quickly.

When green entrepreneurs were asked about their business goals, all of them stated that they want to grow their business. Business goals of entrepreneurs are grouped under three main headings: growing nationally, growing globally, and increasing product and business diversity. Figure 5.4 shows which group the business goals of entrepreneurs belong to. While the first largest majority of entrepreneurs want to grow both globally and nationally, the second largest majority want to grow both globally and nationally and want to increase their product and business diversity.

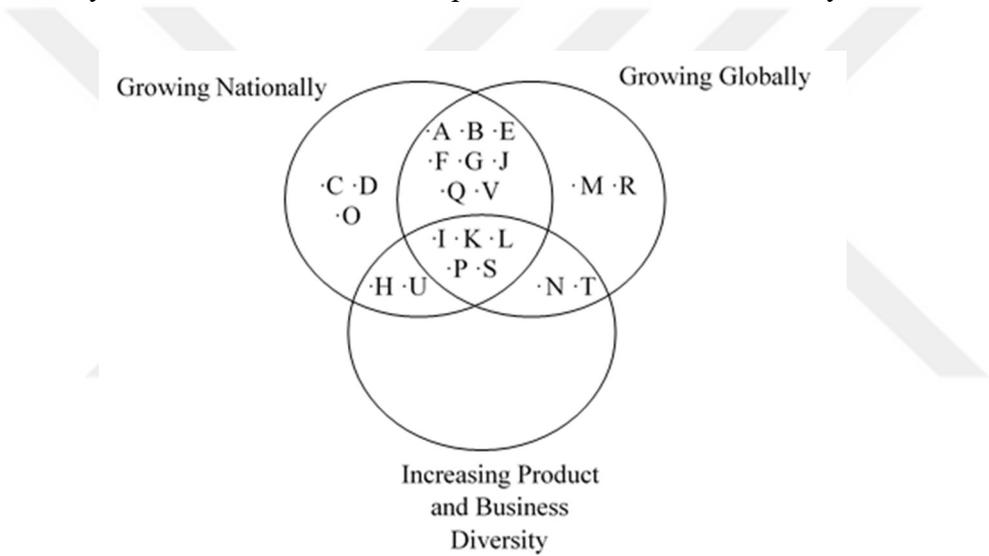


Figure 5.4: Growth targets of green entrepreneurs (Prepared by the author).

Except of their growth targets, all green entrepreneurs want to continue the social impact and awareness they have created by increasing. In addition, they want to continue to achieve and draw attention to the SDGs. They want to set an example for the formation of new initiatives and to be a pioneer, and to spread the business model they have produced.

Green entrepreneurs have faced and continue to face many challenges during the establishment and operating process of their companies. Finding financing, bureaucracy, legal regulations, low awareness about climate change and green jobs in Turkey are the main problems they face.

The challenges faced by green entrepreneurs are discussed in two separate categories: in the establishment phase and in the operation phase.

Four of the 22 founders of green enterprises stated that finding financial capital to start their business was difficult. One of these four entrepreneurs stated that she had difficulties in finding capital because she was young and female. Other entrepreneurs stated that they did not have much difficulty in finding the capital. The founders of an enterprise established their company with the award and sponsorship they won from an entrepreneurship competition, the founders of an enterprise set up their business with the government support for young entrepreneurs and grants from the startup acceleration programs, the founder of an enterprise established his company with the TUBITAK support and the founders of an enterprise started their business with the grant they received from a venture capitalist. The founders of 7 enterprises established their companies with equity capital.

Most of the entrepreneurs said that bureaucracy and legal regulations did not cause much difficulty during the establishment phase, but that the costs of establishing a company are high and the paperwork is too much.

Explaining and promoting their business to the public and customers because they are doing a new and unknown business, difficulties arising from being young and inexperienced, difficulties arising from the lack of legal status of social entrepreneurship in Turkey, developing the product and doing R&D, finding human capital and establishing a team, working very hard, problems arising from the low awareness of environmental problems in Turkey have been the other main challenges faced by green entrepreneurs while establishing their companies.

Green entrepreneurs face extra difficulties compared to other entrepreneurs due to the fact that their work is climate sensitive, environmentally friendly, sustainable, that is, green. Since the concept of green job is a new concept and awareness of environmental issues has not reached a sufficient level in Turkey, green entrepreneurs face the difficulties they encounter during the establishment phase, as well as in the business process, and they have to struggle with other challenges specific to the business process.

All green entrepreneurs face specific problems that differ according to the work they do, but problems in six different areas are common problems of some entrepreneurs.

The founders of four green enterprises stated that they had difficulty in explaining their work to people. As an example to this case, the situation of an entrepreneur who works in the environmental technologies sector can be given. Entrepreneur K, who developed a natural and environmentally harmless product to solve the blockages in water drains, stated that environmental products produce solutions that are harmless to the environment in a longer time, but that people prefer faster but environmentally harmful chemical solutions. On the other hand, the idea that the method he developed works with the help of beneficial bacteria is alien to people. For this reason, it is difficult for him to explain his work to people and get it accepted.

Similar to the difficulty in explaining the work to people problem, Entrepreneur H said that she and her partners have difficulty in explaining sustainability to the companies they do business with. She stated that the adoption of sustainable production methods by companies has accelerated with the pandemic, and that green production is still something new for many companies.

Another common problem which two enterprises specifically face is the low awareness of green jobs and environmental issues in Turkey. In Turkey, not discussing the effects of the climate crisis enough and not taking precautions, not recycling enough, and the public's awareness of environmental issues reduce the efficiency of the work done by green entrepreneurs. If green entrepreneurs had done the same work in a more conscious society, they could have made a greater impact in a shorter time, but doing such a business in Turkey is more challenging for them.

Founders of two green enterprises stated that they cost more because they don't use plastic in their production processes such as packaging of products. They said that ecological products are always more expensive and plastic is always cheaper. Entrepreneur N stated that he pays three or four times more for packing his products because he chooses ecological materials rather than plastic ones. He also said that he can't pack and send some of his products since he can't find an ecological packaging solution for that type of product. In addition, he complained that ecological packaging is not very aesthetic for some people and that is why people sometimes do not prefer their products. The presence of a customer mass that gives up on an ecological product due to its packaging is not aesthetic proves that awareness of environmental issues is not at a sufficient level in Turkey.

Green entrepreneurs mentioned that some legal regulations and bureaucratic processes create difficulties while running a company in Turkey. Some green entrepreneurs are faced with problems such as the complexity and ineffectiveness of the processes related to taxes, supports or incentives, sometimes not being able to find the reward for their efforts to get a support, spending extra hours and researching to benefit from support and incentives, and difficult application processes.

The founders of nine green enterprises stated that bureaucracy and legal regulations create difficulties while doing their jobs. The slow and complex bureaucracy and regulatory processes are the main challenges. These processes can affect entrepreneurs directly or indirectly. For example, Entrepreneur B said that his own business has slows down because all of his customers are municipalities and the bureaucratic processes in municipalities runs very slowly.

Entrepreneur Q and Entrepreneur P stated that the application process for KOSGEB support is very complex. Entrepreneur Q said that she could not receive support because she made a small marking mistake on the form while applying for a KOSGEB support. Entrepreneur P stated that the processes are very complex and long. She said that she gets more efficiency and provides more economic benefits when she spends the time she would spend on getting KOSGEB support to improve her business.

Some entrepreneurs mentioned the problems they encountered specifically regarding legal regulations. Entrepreneur I, who works to prevent food waste, mentioned that they have problems with the recommended consumption date on food products. Under current law, a product past its recommended consumption date may continue to be sold. However, consumers think that the products past this date are spoiled and the grocery store clerk throws away the products that have passed the recommended expiry date because they are afraid of the consumer reaction. There is a law about products past the recommended consumption date can be sold, but sellers do not want to take responsibility because they are afraid of customer reaction. The law states that products past the recommended consumption date can be sold, but no one controls whether these products are actually sold. Entrepreneur I stated that the laws on this subject are prepared without considering the operational aspects. In order to prevent such situations, control mechanisms should be developed and deterrent penalties should be introduced. The lack of awareness and knowledge in the public continues to be an obstacle to green entrepreneurship in this case, again.

Entrepreneur N who produces healthy hydroponic agriculture systems and micro greens stated that there are not enough legal regulations about hydroponic agriculture and micro greens in Turkey. The uncertainty of the official institution responsible for his work and the lack of an exact equivalent in the law due to the fact that microgreens are a new product are the main problems faced by the entrepreneur regarding legal regulations.

Entrepreneur Q gave an example of another problem related to legal regulations. The entrepreneur makes regular tree planting donations. She wanted to plant cork oak, which is its own material, instead of the tree planted by the Ministry of Agriculture and Forestry this year but the ministry did not allow it. Because, they must have their own land in order to plant the type of tree they want. But cork oak is not a tree that can grow in all types of climate. Therefore, there is a limited number of suitable land for planting cork oak, and the land costs are quite high. Planting only the tree species determined by the Ministry affects the motivation of the entrepreneur negatively. The entrepreneur wants the Ministry to give green entrepreneurs flexibility in planting trees or allocate land to plant trees for them because they are doing a green job.

Another legal problem faced by green entrepreneurs while doing business in Turkey is related to taxes. Entrepreneur R and U stated that the tax system is unfair. They do socially beneficial job but are still subject to the same taxation as other companies. Since their profits are not as high as other companies, the taxes they pay can sometimes be heavy for them. They want a fairer tax system commensurate with what they earn and that green entrepreneurs be given tax-related privileges.

Another main problem faced by green entrepreneurs is that social entrepreneurship is not defined as a legal status and there is not any specific support for social entrepreneurs. Entrepreneurs J and S state that they have difficulties due to the fact that social entrepreneurship is not defined as a legal status, while Entrepreneurs V and M have difficulties due to the lack of special support, incentives and policies for social entrepreneurs.

All green entrepreneurs find the policies, support and incentives related to green economy and green entrepreneurship in Turkey insufficient. The main problems mentioned by green entrepreneurs regarding policy and incentive mechanism are that the processes are very slow and multi-procedural, taxes are high, the supports are not

announced sufficiently and therefore no one knows about them, lack of cooperation and coordination between institutions, and the lack of innovative supports. Entrepreneurs mentioned that the incentives applied by the public sector are less than the ones applied by the private sector and that public supports should be increased. They want more support for green jobs and more innovative support models. As a summary to the support mechanism for green entrepreneurship in Turkey, Entrepreneur T said, “*I have received some support as an entrepreneur but I haven't received any extra support as a green entrepreneur*”. The main problems of the entrepreneurs and how many entrepreneurs said them are shown in Figure 5.5.

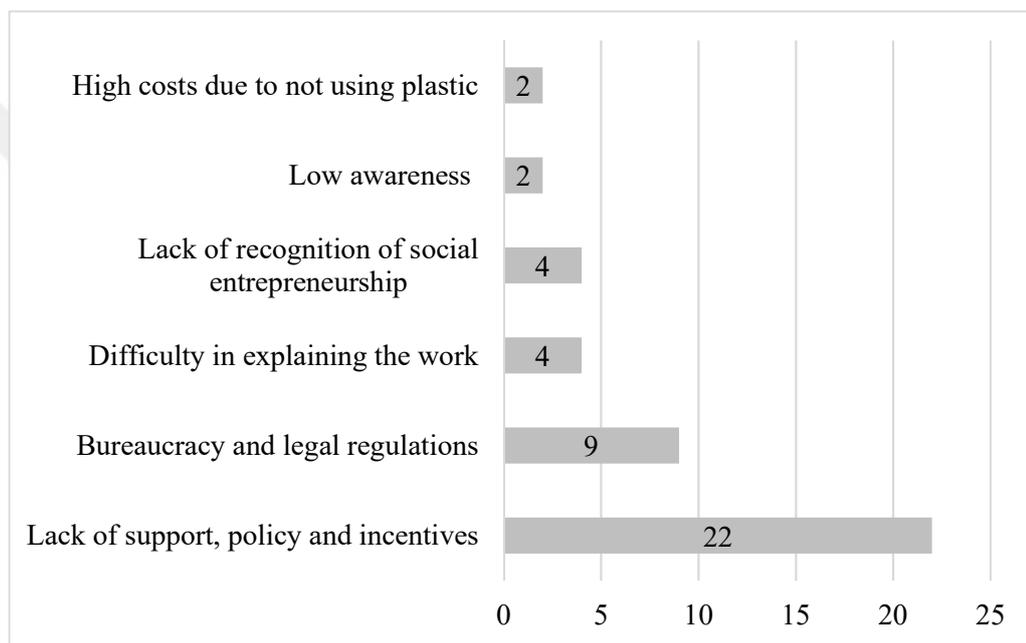


Figure 5.5: Main problems of green entrepreneurs (Prepared by the author).

The inadequacy of policies and incentives related to green entrepreneurship affects the business of green entrepreneurs in various ways. Entrepreneur C and Q said that they spend more money because they can not get enough support for their businesses, they have to finance themselves and their costs increase. Entrepreneur U stated that the lack of policies and incentives related to her business wastes her time and reduces her motivation. Entrepreneur L said that due to the lack of sufficient incentives for his business, the business grows more slowly, and that while they can be a global company, they can only do business within the borders of the country due to limited resources.

Related to this issue, Entrepreneur T said that *“Since I don't get enough support for my job, I progress more cautiously, difficultly and slowly. The climate crisis is advancing rapidly. If I could get more support, I could grow my business faster, make more impact, raise people's awareness more, and thus help prevent the negative effects of the climate crisis sooner”*.

Entrepreneurs B and S stated that the incentives in Turkey are very insufficient and they no longer seek support for their business, instead they focus on developing their business with the resources they have.

Entrepreneurs G and H stated that they stopped looking for supports originating from Turkey, they tend to seek funding from the EU and apply to projects such as Horizon.

Green entrepreneurs said that the lack of adequate policies and incentives for green entrepreneurship and green economy in Turkey make their work difficult, but they continue to work without giving up. Being hopeful and hardworking enables them to continue their work. Regarding this, Entrepreneur R said that *“If the support is sufficient, our work will be easier, otherwise our work will be difficult, but this is not a policy that intimidates us. Even if it is difficult, we continue to carry out our work”*.

Green entrepreneurs, unlike any entrepreneur, have to work more motivated because the climate crisis and the impact of the capitalist order make their work more difficult. In this regard, Entrepreneur J said *“There are moments when we are demotivated as we work towards the dream of a better planet. We see that we are progressing in what we do, people's minds change, but then things like the inability to experience the seasons due to climate change or the destruction of forests and natural areas demoralizes the team. We feel like we have come back just as we took a step forward, but despite everything, we focus on the good and continue on our way”*.

Another problem about green entrepreneurship is the misconceptions about the definition of green job in people's minds and the lack of understanding the value of the business. To explain this issue better, Entrepreneur O said that *“If you are dealing with ecology, it is thought that this work should be done for charity and should not be asked for money. We see that the work we do is not valued enough”*.

Interviews were held with the founders of 5 green enterprises from the textile and fashion sector. Being a green entrepreneur in the textile and fashion sector makes things even harder. Textile and fashion is one of the most prominent sectors of today's

capitalist economic order. With the effect of online shopping sites and social media, fast fashion production has increased recently. The most important problems of this sector are the use of cheap labor, the fact that the clothes are sold tens of times more expensive than the cost, child labor is employed in the production workshops and the workers are not paid for their labor. The green job approach, on the other hand, brings suggestions in the opposite direction to the current operating style of the sector. Therefore, being a green entrepreneur in the textile and fashion sector has a few extra and different challenges compared to being a green entrepreneur in other industries. As an example to the challenges of being a green entrepreneur in the textile and fashion industry, Entrepreneur V said *“There is a particular difficulty in the textile industry. It is difficult to be a small producer in this sector. It is difficult to work in the opposite direction of the flow of the industry. While polyester fabric is used in most of the products on the market, it is difficult for me to find non-polyester fabric. It is difficult for me to find 100 meters or 200 meters of non-polyester fabric at a reasonable price from a fabric seller which sells thousands of meters of fabric to big brands. There are many challenges to fair and sustainable production in this industry”*.

In addition to the difficulties that the green entrepreneurs face specifically because of the fact that their job is green, they also face the difficulties faced by other entrepreneurs such as financial problems, difficulties arising from the economic situation of Turkey, hiring a new person and teaching him/her about the work, and establishing a team. Some green entrepreneurs stated that they have to do a lot of work with few people and few resources due to being a startup, and it is very tiring. However, the fact that the work they do is beneficial to the society and the environment, witnessing the results of the work, and seeing how the product they produce touches people's lives motivates them to continue their work, no matter how tired they are.

Experiences about green entrepreneurship are not always negative. In the world order, which has begun to change with the effects of the climate crisis, awareness of environmental issues has begun to increase, albeit slowly. In addition to the challenges they face, green entrepreneurs sometimes enjoy the privileges of doing a green job. In addition to doing a green job, some entrepreneurs think that they have some advantages due to being a small-scale producer and a start-up. Being able to use technology actively, being young, having a small team, no hierarchy and easy decision making are

the advantages of being a start-up. The thoughts of green entrepreneurs about the privileges of doing a green job and being a start-up are shown in Figure 5.6.



Figure 5.6: Privileges of being a green entrepreneur (Prepared by the author).

The challenges faced by green entrepreneurs are more than their privileges. With the effects of the climate crisis, green jobs and awareness on this issue have started to increase, but how realistic this change is is debatable. Some international legal regulations such as the Green Deal and the Paris Agreement have brought some obligations to companies and governments that will make it mandatory to be green. However, it is not very clear whether some of the regulations that companies have made to make their production processes green are just for show or whether the system is really changing. While some companies, institutions and governments take real actions to be greener, some practices may remain ostensible or so-called. In both cases, green entrepreneurs' business increase because a company collaborates with a green entrepreneur whether it does greenwashing or actually strives to adopt green production processes.

Regarding this issue, green entrepreneurs were asked ‘Is it a difficult process for you to continue to exist in the current dominant capitalist order? Or do you think that the current order has started to change with the effects of the climate crisis and that green enterprises like you are accepted and supported?’ The founders of 10 green enterprises stated that the system changes, but this change has a lot to go through, while the founders of the two green enterprises stated that the system does not actually change, but is shown as changing. In order for the current economic system to turn into a green economy, both environmentally friendly and reasonably priced products and services should be offered.

Today, some ecological products are sold more expensive, environmentally friendly eating habits such as veganism and vegetarianism are adopted by the upper income group, people above a certain income level especially in Turkey can live more environmentally. Regarding this, entrepreneur C said, *“Awareness about environmentalism is increasing, but this is not enough. At the end of the day, everyone cares about the money they spend. It is not enough to offer an environmentally friendly solution without making a profit in the money that the customer spends”*.

Regarding the fact that the system does not actually change but seems to change and the concept of greenwashing, which is also explained in the 3.1 Concept of Green Economy section, green entrepreneurs were asked whether greenwashing creates an obstacle to green entrepreneurship or the work they do. 86% of green entrepreneurs know the concept of greenwashing. It is not surprising that the level of awareness about a concept closely related to the green economy is high among green entrepreneurs. While 59% of green entrepreneurs think that greenwashing does not create an obstacle for their business, 41% think that it does.

The existence of companies that do greenwashing creates obstacles in front of the green entrepreneurs' business in terms of customers and the companies they cooperate with. When companies without ecological concerns do greenwashing, it becomes difficult to distinguish them from companies with genuine ecological concerns. Customers struggle distinguishing who is doing truly sustainable business and who is doing greenwashing. This situation causes a trust problem in the customer. Because customers do not have enough awareness, they may believe that companies doing greenwashing really have ecological concerns. This fragile structure in the customer

profile and the negative impact of greenwashing on consumer perception creates obstacles for green entrepreneurs' businesses.

On the other hand, some companies want to use green entrepreneurs for greenwashing. Green entrepreneurs want to cooperate with companies that do not greenwashing. However, when a company contacts a green entrepreneur to do greenwashing, a fair job is done that ultimately reduces carbon emissions and preserves nature, since the green entrepreneur's work is really about developing a solution to protect nature and really cares about sustainability. The main problem with greenwashing is that it is done by large companies that reach larger masses and affect more people. For this reason, customers have more trust issues and also the companies that have the potential to have a greater impact on the fight against the climate crisis are not taken any real action.

Green entrepreneurs pay attention to whether they do greenwashing when choosing the companies they cooperate with, but this can sometimes be very difficult to distinguish. The absence of any official criteria to determine whether a company does greenwashing makes it difficult for green entrepreneurs. Regarding this, Entrepreneur S said that *"We try to cooperate with companies that do not greenwashing. It would be nice if companies had something like a greenwashing score. The subject is not well defined and it is not clear with which parameters it works. It is difficult to understand whether a company does greenwashing or not. It would be nice if there was a system or a checklist to determine this"*. However, Entrepreneur U said *"I wish companies had a greenwashing score. It could be a system where they are voted on by the suppliers"*.

Green entrepreneurship is a concept that has just begun to develop in Istanbul and Turkey. Green entrepreneurs face many problems. Incentive, policy and support mechanism should be developed in order to develop green entrepreneurship and facilitate the work of green entrepreneurs. All of the green entrepreneurs find the policies and incentives related to green jobs in Turkey insufficient. The green economy is an economic order that has not yet been formed in Turkey, but its foundations have begun to be laid in the country's megacity which is Istanbul.

Green entrepreneurs need many different policies and incentives related to green jobs. They find the existing supports and regulations regarding entrepreneurship and green entrepreneurship in Turkey deficient and problematic. Entrepreneurship support

programs in Turkey mostly only provide financial support and lack know-how and networking. The support given to the startups is usually given with the logic of how much money this business makes to the investor. Since the support programs are not announced well enough, no one is aware of the programs. Taxes and production costs are very high, conscious and awareness about ecological issues is very low. Policy makers and decision makers are not sufficiently conscious and visionary. Government subsidies are focused on growing larger companies rather than supporting SMSEs. The state guarantees itself in subsidies and does not take risks, so there is not much support for creative works such as design. The support mechanism often prompts entrepreneurs to change their businesses to receive existing supports. However, supports should be given without forcing the entrepreneurs to change the nature of their business.

When green entrepreneurs were asked what kind of policies and incentives they would like to have about green jobs in Turkey, they made many suggestions. These recommendations are listed below.

- Public awareness on ecological issues, climate crisis and green jobs should be increased.
- Social/green entrepreneurship should be defined as a legal status and there should be special supports for this status.
- Tax reduction should be provided to the companies which do green job.
- The government should equalize the costs with and without the use of plastic in production processes.
- Istanbul Metropolitan Municipality should provide e-bike support to companies doing green job to deliver their products to customers.
- The government should develop a comprehensive support program for green enterprises that includes know-how, network and financial support.
- The supports should be announced more through media channels.
- Supports such as the supports of TUBITAK and KOSGEB should be more.
- Enterprises should be given pre-activity funds in the first stages.
- Requirements for receiving incentives should be more clearly defined.

- The dialogue between policy makers and civil society should be increased, policy makers should make their decisions together with civil society, and participatory processes should be developed.
- It should be ensured that green entrepreneurs sell in the market places without paying any fees.
- There should be supports that will enable green entrepreneurs to enter the foreign markets and attend to fairs abroad.
- Large corporate firms should support small and medium sized enterprises more.
- A collaborative environment should be established in the procurement of materials.
- Green entrepreneurs should be given priority in the current support mechanism.
- There should be project-based funding support. According to the benefit analysis to be made, green entrepreneurs should be supported with the right funding sources.
- Entrepreneurial mentoring programs should be developed and increased.
- There should be supports that will facilitate the access of green businesses to customers and measure their social impacts.
- The monitoring mechanism on waste management should be developed.
- Women entrepreneurs should be given priority in the support mechanism.
- There should be state, civil society, private sector collaborations and there should be more collective and non-governmental movements.
- There should be support for green entrepreneurs to grow their teams such as insurance exemption for the employees.
- When enterprises are first established, they should be exempted from taxes for a certain period of time (this period can be at least 3 years). In this period, the insurance expenses of the employees should be covered by the state.
- Grants should be given to green enterprises to purchase equipment.
- Bringing machine parts from abroad for green businesses should be supported.
- The state should pay the insurance of the employees and R&D expenses during the initial establishment phase of the enterprises.

- The expenditures of green enterprises within the scope of R&D should be supported by the state.
- In order to benefit from EU supports, the state should provide free consultancy services to entrepreneurs.
- Areas such as Silicon Valley should be created where green businesses can come together.
- For green businesses, areas should be created to support R&D studies.

As mentioned above, green entrepreneurs need a wide variety of policies, incentives and supports to develop their businesses and increase their social benefits. But there are three elements that the majority of green entrepreneurs emphasize. These are tax reductions for entrepreneurs doing green job, increasing public awareness of ecological issues and the climate crisis, and defining social entrepreneurship as a legal status and giving special supports to social entrepreneurs. 61% of green entrepreneurs define themselves as social entrepreneur rather than green entrepreneur so they want social entrepreneurship to be defined within the legal status.

In addition to financial support, green entrepreneurs also attach importance to supports related to mentoring and networking. They also request supports that will facilitate their access to customers and improve their business connections. Information resources are as important as financial resources in the entrepreneurship ecosystem. Green entrepreneurs are aware of only financial supports are not enough to develop their business. Therefore, they also need support in accessing information resources.

Another demand of green entrepreneurs is their desire to work together. Entrepreneurs who need clustering spaces like Silicon Valley think that when they come together, they can transfer information and resources to each other and develop their business more. They also think that having a single institution where they can apply to solve their problems and where they learn what kind of support they can get will make their job easier.

Regarding this, Entrepreneur P said that *“It would be great if there was only one institution that green entrepreneurs can apply to for all kinds of support. Our problems may be similar. When we come together, we can exchange ideas, develop common solutions to our problems, and develop proposals together to change some laws. When we think together, our contribution to the change of the system can be better”*.

Industrial clusters have some benefits for firms and green entrepreneurs want to take advantage of clustering. Sharing the same input, suppliers, labor pool and knowledge are the basic benefits of clustering. Technoparks can be an example of clustering. Green entrepreneurs, who do business in sectors such as environmental technologies, where R&D activities are intense, need clustering areas such as technoparks that support R&D studies. However, they do not find the advantages of technoparks sufficient and they want technoparks to be developed to support green jobs.

Green entrepreneurs, who think that foreign resources are important in developing their businesses, especially benefit from EU funds and they need supports that will facilitate their access to these kind of foreign funds.

Entrepreneur L has made a proposal on this subject: *“There are direct applications for EU supports, but it would be nice if the state provides free consultancy service and guides us on this issue. Collaboration between universities and entrepreneurs can be ensured during the application processes for EU projects. For example, there is Horizon 2020, but the application process is very complex. Since we are in the private sector, we cannot spare time for this, but I believe that if we can apply for these funds, for example, by working in partnership with a university, we can get very good grants and create excellent projects.”*

When green entrepreneurs were asked whose support they would like to have in this support mechanism, 41% of the entrepreneurs stated that different stakeholders such as the state, municipalities, non-governmental organizations, universities, large corporate firms, ministries should work collectively to make policies and provide incentives. Entrepreneurs who make this choice stated that every stakeholder should do its part properly.

9% of the entrepreneurs stated that the state should lead the support mechanism because it is the rule maker and can reach and influence wider masses. On the other hand, there are green entrepreneurs who do not trust the state. The founders of one green enterprise specifically stated that the state should not interfere in the support mechanism. The lack of merit in public institutions and organizations is the main concern of these entrepreneurs. In addition, one green entrepreneur stated that she lacks much confidence in the state.

While 4.5% of the green entrepreneurs prefer the private sector as the leading stakeholder, 9% prefer the non-governmental organizations and the private sector as the leading stakeholders. The green entrepreneurs demand NGOs to carry out activities that will provide them with more network and raise awareness. 4.5% demand that universities provide R&D support to entrepreneurs as leading stakeholders.

A clear answer could not be obtained from 14% of the green entrepreneurs. On the other hand, 18% of the green entrepreneurs preferred ministries which are related to their work such as the Ministry of Industry and Technology, the Ministry of Trade, the Ministry of Environment, Urbanization and Climate Change, and the Ministry of Agriculture and Forestry as the institution they want to lead in the support mechanism. Green entrepreneurs' choices for support mechanism is shown in Figure 5.7 below.

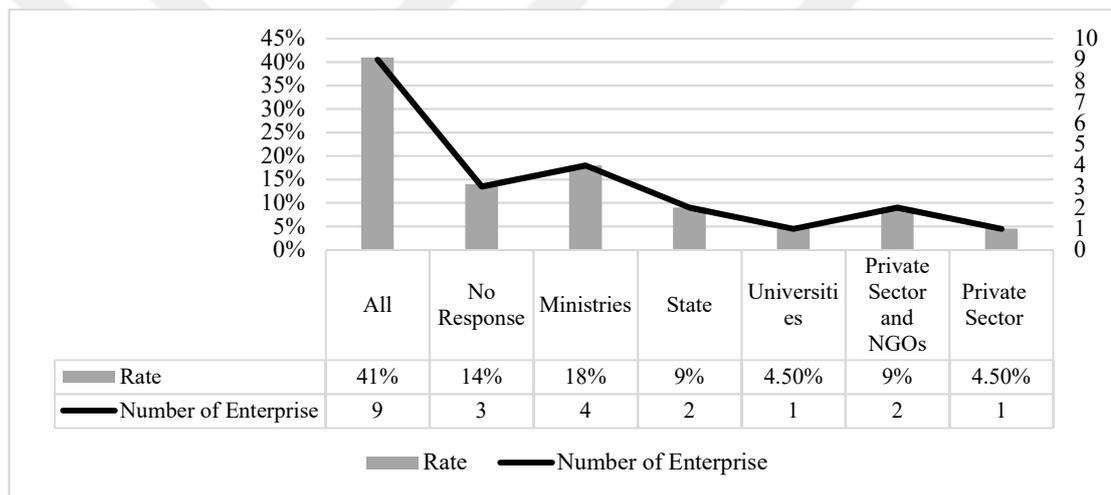


Figure 5.7: Green entrepreneurs' choices for support mechanism (Prepared by the author).

When green entrepreneurs were asked about their opinions about the future of the sector in which they do business, all but 1 entrepreneur stated that the sector would grow and develop. Entrepreneur who expresses the opposite opinion works in the textile sector. The entrepreneur is not hopeful about the future of her business because of the struggle of sustainable fashion brands with capitalist fashion brands, the increase in costs due to high inflation rates in Turkey, the fact that the majority of her customer profile is from the population that is aware of climate change but has recently migrated abroad and thus the reduction in the number of customers, and the devastating effects of the pandemic on economy.

Entrepreneurs, who are more hopeful about their business, think that the awareness and consciousness about the work they do is increasing over time, although it has not reached a sufficient level yet. They stated that the number of people who want to produce their own food, consume less water, minimize their negative effects on the environment, raise awareness of the people around them about the climate crisis and environmental issues, adopt sustainable transportation methods, and use products produced in fair and environmentally friendly conditions is increasing. They also stated that the pandemic has increased awareness of environmental issues. Interviewees think that the increasing effects of the climate crisis will increase the need for green jobs and green entrepreneurs.

In recent times, where the effects of the climate crisis have accelerated; fires cause the loss of millions of lives and property and destroys habitats, death rates increase due to extreme temperatures, respiratory diseases increase due to air pollution, biodiversity decreases, glaciers melt, fresh water resources disappears and there is a crisis of access to healthy food. The economic system based on intensive production and consumption brought by capitalism increases injustice, a good and sustainable life remains in the upper parts of the society and it is necessary to be rich in order to live well.

Despite everything, environmental, sustainable and fair measures are also taken that change the order. It is definitely not easy to do such work that takes these precautions today. Striving to improve the world order which is getting worse day by day requires hope and optimism. It is not surprising that 95% of green entrepreneurs see the future of their business as bright and hopeful. Otherwise, it will not be easy for them to do such environmentally friendly works. Working for making the world a better place requires patience and effort. The optimistic motivations and hard work of green entrepreneurs are guiding and promising for us to live in a greener, fairer and sustainable world in the coming years.

6. CONCLUSION

The Turkish economy has grown over the years, but inflation and unemployment rates have increased, the biggest loss of employment has been in the agricultural sector, in short, the economy has grown but not developed. The transition process to green economy in Turkey mostly develops within the scope of international agreements and the process of harmonization with the European Union. Turkey is a party to the Montreal and Kyoto Protocols and has signed the Paris Agreement. In the 7th and 8th Development Plans, the relationship between economy and environment has begun to be given wide coverage, and in the 11th Development Plan, green growth was mentioned for the first time. There are various legal regulations and projects for the protection of the environment such as the Environmental Law, the Coastal Law, the Air Quality Control Regulation, the Project for Strengthening the Management of Forest Protected Areas, the Zero Waste Project, and projects to increase the energy efficiency of SMSEs. Investments in renewable energy sources, green buildings and waste recycling have increased in the country recently. The work of NGOs and associations on green economy has also gained momentum recently.

On the other hand, greenhouse gas emissions continue to increase every year. Turkey is below the average of OECD countries in terms of energy efficiency and still invests in non-renewable resources such as coal as the energy source. Policies and practices often remain in words. The government does not sufficiently support the private sector in making green investments. Green economy projects, practices and policies are quite inadequate compared to developed countries. Developing green technologies, increasing public support, implementing policies, transition to renewable energy sources and efficient use of natural resources will accelerate the transition to green economy in Turkey.

The entrepreneurship ecosystem in Turkey is growing, but this growth is slow due to the imbalance in the economic situation and insufficient support for the ecosystem. Green entrepreneurship is a very new concept that has been introduced in Turkey in recent years. There is not any comprehensive incentive or support program specific to

green entrepreneurship. Green entrepreneurs also benefit from the support given to other entrepreneurs by institutions such as KOSGEB and TUBITAK. Private sector incentives rather than government support green entrepreneurship more. In Turkey, financial supports and policies on green entrepreneurship, cooperation between institutions, public awareness on green jobs and environmental issues, private sector and government incentives are insufficient to develop and support green entrepreneurship. In the process of signing the Paris Agreement and harmonization with the European Green Deal, it is possible that green jobs will increase in Turkey and therefore green entrepreneurship will develop. The realization of policies related to the green economy will also enlarge the green entrepreneurship ecosystem. With the effect of the pandemic, people want more environmentally friendly and natural products. This demand will increase the number of green jobs and green entrepreneurs. In order to develop the green entrepreneurship ecosystem in Turkey, the number and diversity of institutions supporting green entrepreneurship should be increased and coordination between institutions should be ensured, a special incentive mechanism for green entrepreneurship should be developed, a more innovative perspective should be approached to the green entrepreneurship ecosystem and new support programs should be created in this direction, green jobs and social awareness on environmental issues should be increased through various educational programs.

When the green economy and green entrepreneurship in Istanbul is researched, it is seen that the situation is similar to Turkey, but it can be said that the studies on green economy and green entrepreneurship are mostly developed in Istanbul compared to other cities in Turkey, since Istanbul is Turkey's leading city in many subjects. Istanbul is a global metropolitan city that constitutes the largest part of the Turkish economy and the economic inequality in the city is above the Turkish average. Istanbul's economy is growing but not developing similarly to Turkey's economy. Except for the Vision 2050 Strategy Document prepared and published by the Istanbul Metropolitan Municipality in July 2022, there is not any comprehensive document which mentions green economy for Istanbul.

On the other hand; the main theme of the 5th Istanbul Economic Summit was green economy; while greenhouse gas emissions increased regularly until 2019, they decreased between 2019 and 2020; the green city-themed works of Istanbul Metropolitan Municipality increased and gained momentum. All of these are

promising developments for the creation of a green economic environment in Istanbul. Since Istanbul is a large metropolitan city, it is one of the cities in need of a green economy the most. A new green economy model should be produced and implemented for Istanbul by putting an end to political conflicts and ensuring that all institutions work in cooperation.

Istanbul is the most developed city of Turkey in terms of entrepreneurship ecosystem. In 2021, 39.62% of newly established companies in Turkey chose to locate in Istanbul. Istanbul also hosts the majority of studies on green entrepreneurship in Turkey. It cannot be said that the green entrepreneurship ecosystem in Istanbul is as large as in the metropolitan cities of developed countries. There is a growing global entrepreneurship ecosystem in Istanbul. The city's global connections are highly developed, and the changing economy and entrepreneurship trends in the world also affect Istanbul. Therefore, it is estimated that the green entrepreneurship ecosystem in the city will grow in the coming years. With the effects of the changing world order and the climate crisis, the number of people who want to do green jobs is increasing. It can be said that green entrepreneurship activities will increase in Istanbul, as Istanbul is a center of attraction for those who want to start a new business and the number of those who will do green jobs among new business owners is likely to increase.

The green economic order and green entrepreneurship ecosystem in Turkey and in Istanbul is still at the beginning of a long way compared to developed countries, but it continues to develop day by day. The development of new policies and incentives will accelerate this transition. The green economy is an economic model that helps mitigate the effects of the climate crisis. Regulations on green economy and green entrepreneurship need to be accelerated because otherwise the climate crisis will cause irreversible environmental and socio-economic damage. Green entrepreneurship has an important role in creating a green economic order and supporting green entrepreneurship will facilitate the creation of a green economic order.

When the results of the empirical study on green entrepreneurship in Istanbul are examined, it is seen that the majority of green entrepreneurs in Istanbul are young; has a bachelor's or higher degree; define themselves as social entrepreneurs rather than green entrepreneurs; and their main motivations are to protect the environment, fight against the climate crisis and create social impact. The vast majority of enterprises are small-scale companies established in 2015 and later, and their performance is

improving over time. All green entrepreneurs think that their work contributes to the fight against the climate crisis and the creation of a green economic order, has a positive impact on the economy of Istanbul and Turkey, and supports the formation of social awareness by creating social impact. Growing nationally and globally, increasing product and business diversity are the main goals of the entrepreneurs. In addition to these goals, they also want to increase social impact and social awareness, be an example and pioneer in the formation of new green enterprises, and expand their business model. Entrepreneurs face many challenges, but the lack of sufficient support, policy and incentives for green entrepreneurship in Turkey is the most challenging issue for them. The vast majority of entrepreneurs see the future of their business, sector and green entrepreneurship ecosystem as bright and they are hopeful that this ecosystem will grow. The optimistic motivation and hard work of green entrepreneurs guide us and give us hope to live in a greener, more equitable and sustainable world in coming years.

What should be learned from this study is that there is sufficient potential for the creation of a green economic order in Turkey and Istanbul, but the right policies and incentives are needed. The development of the green entrepreneurship ecosystem will trigger the creation of a green economic order.

Within this study, it is seen that green entrepreneurship ecosystem is a holistic structure with different components such as policies, incentives, support programs, green jobs, green entrepreneurs, governmental and private sector institutions. After these components are determined within the scope of the literature study, they are discussed with concrete examples in the final section where the empirical study is examined. How these components in the ecosystem affect green entrepreneurship, how green entrepreneurs benefit from them and what needs to be done to use these components more effectively are explained.

Green entrepreneurship is a value that will ignite the creative destruction process emphasized by Schumpeter and trigger socioeconomic transformation. It has been seen that the biggest obstacle to the realization of green entrepreneurship and green economy is insufficient supports, policies, incentives and social awareness. This thesis study guides policy makers. If a proposal is made about where policy makers should start, it can be said that first of all, social awareness on climate crisis, environmental problems and green jobs should be increased. If people want to live in a society where

green jobs are done, natural resources and biodiversity are protected, the destructive effects of the climate crisis are not seen, the environment is clean, and fair access to all fundamental rights is ensured, it will be inevitable to take action to meet this demand. Once social awareness is brought to a sufficient level, individuals will want to take action to live in a more sustainable world. For example, they will start using natural products, prefer sustainable transportation methods, recycle more and consume less. In order to respond to this desire for sustainable life in the society and to ensure the supply-demand balance, the importance given to green jobs will increase and sustainable economic models will have to be adopted.

Another recommendation to policy makers may be to increase the number of green entrepreneurs by creating various training and awareness programs for the dissemination of green entrepreneurship, which will form the basis of the green economy. Free green entrepreneurship training programs to be established by municipalities, NGOs or the central government will increase the number of green entrepreneurs in the society.

Developing networks that will enable entrepreneurs to find funds, creating publicly funded financial investment programs and tax reductions for green entrepreneurs, government incentives for green enterprises, and establishing inter-sectoral and inter-institutional cooperation will be driving forces for green entrepreneurs and improve the ecosystem. In addition, developing networks that will facilitate green entrepreneurs' access to information resources and preparing mentorship programs, and creating a single new institution for solving the problems of green entrepreneurs and for directing them to support programs and incentives to be created are other methods that will ensure the growth of the green entrepreneurship ecosystem.

Defining green entrepreneurship as a legal status and giving special support to this status can be another effective method that will enable green entrepreneurs to increase their positive environmental impact and grow the ecosystem.

Ensuring sustainable urban development is one of the main objectives of city and regional planning. It is ideal to create urban spaces where everyone lives in fair conditions, socio-economic balances are established for the benefit of society, and environmental values are observed. In addition to spatial designs, socioeconomic policies also greatly affect the living conditions in cities. The quality of life is higher

in cities which have strong and sustainable economic structure. Green economy and green entrepreneurship can also be used as a tool for making cities more livable. Creating green urban economies by increasing the number of green entrepreneurs in cities will also support sustainable urban planning.

In brief, investors' willingness to fund companies that care about environmental values, consumers' demands for environmentally friendly products, manufacturers' realization that environmentally friendly products bring competitive advantage, claims of non-governmental organizations and the public on environmental issues, and the government's green enterprise incentives will increase the number of green entrepreneurs and ensure the development of the green entrepreneurship ecosystem.

Ultimately, what needs to be done to live in a healthier and more sustainable world is clear: rebuilding the economy in a way that does not cause the climate crisis and resilient to the climate crisis. When the sufficient importance and value is given to green entrepreneurship, which will be the catalyst for this rebuilding process, the green entrepreneurship will initiate the creative destruction process, trigger socioeconomic transformation, support the fight against the climate crisis and ensure that the foundations of the green economy are laid in the most solid way.

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APPENDICES

APPENDIX A: The in-depth interview questions in English and Turkish

APPENDIX B: Tables about features of entrepreneurs and features of enterprises in detail



APPENDIX A: The interview questions in English and Turkish

In-Depth Interview Questions

1. Entrepreneur Profile

Name Surname

Age

Education Level

Profession

How would you describe yourself? (green entrepreneur, social entrepreneur, technological entrepreneur, entrepreneur etc.)

In what ways do you try to reduce your environmental impact as a green entrepreneur?

2. Enterprise Profile

Can you tell us about the work you do, what exactly do you do? (what is the product)

What industry are you in? (agriculture, industry, environmental technologies, green buildings, etc.)

When did you establish your company?

How many people work in the company?

What are the occupations, ages, education levels of the employees?

Does the company have partners, how many partners? (proprietorship)

Where is your company? Do you have a specific office location or do you work online?

Why is your company located in Istanbul?

3. Driving Force and Motivation of the Entrepreneur

Is this your first job?

What were you doing before this green enterprise?

How did this green enterprise idea come about?

Why did you choose to do this job, what kind of opportunity did you see in this business? (Combating climate crisis, making more income, being independent, the industry's development, etc.)

4. Performance of the Enterprise

How has your company's profit changed in recent years? (increased, decreased, same)

How has your company's endorsement changed in recent years? (increased, decreased, same)

How has the number of customers changed recently? (increased, decreased, same)

How have sales changed recently? (increased, decreased, same)

5. The Effect of the Enterprise

Do you think your work contributes to combat climate crisis? If your answer is yes, how do you do this?

Do you think that your work contributes to the formation of a green economic system? If your answer is yes, how do you contribute?

Apart from combating climate crisis and contributing to green economy, what kind of impact do you think your work has or will have on Istanbul, Turkey or the world?

Do you think green enterprises have positive or negative impact on the economic system in Istanbul and Turkey? If so, can you explain what kind of effect is that?

6. The Goals of the Entrepreneur

Do you have growth targets for your company? (Opening a second branch, opening branches in different cities, increasing the number of employees, increasing the product variety, etc.)

What are your other goals and strategies for your company?

7. Challenges Encountered

7.1. Challenges Encountered in the Establishment Phase

What difficulties did you encounter while establishing your company?

How did you find the capital, was it a challenging process?

Did bureaucracy and legal regulations cause difficulties during the establishment phase?

7.2. Challenges Encountered in the Business Process (Today)

What challenges do you face because you are a green business? (finding customers, being able to exist in the market, profit, cost, etc.)

Because you are a green job, do you have privileges and opportunities compared to other jobs? (People prefer your brand because it's green, etc.)

Do bureaucracy and legal regulations make it difficult for you to do your job?

Is it a difficult process for you to continue to exist in the current dominant capitalist order? Or do you think that the current order has started to change with the effects of the climate crisis and that green enterprises like you are accepted and supported?

Are you aware of the concept of greenwashing? Do you think greenwashing is an obstacle to green entrepreneurship or your business?

What do you think about policies and incentives on green economy and green jobs in our country? Do you think these policies and incentives are sufficient?

Could you explain how the inadequacy of these policies and incentives in our country affects your work?

8. Future Foresight and Expectations

What are your views on the future of your industry?

What kind of incentives and policies would you like to have regarding green jobs? Whose (central government, municipalities, non-governmental organizations, universities, big corporate companies, other, etc.) support would you like to have, why?

Derinlemesine Görüşme Soruları

1. Girişimci Profili

Ad Soyad

Doğum Yılı

Eğitim Seviyesi

Meslek

Kendinizi nasıl tanımlıyorsunuz? (yeşil girişimci, sosyal girişimci, teknolojik girişimci, girişimci vs.)

Bir yeşil girişimci olarak çevre üzerindeki etkilerinizi hangi yollarla azaltmaya çalışıyorsunuz?

2. Girişimin Profili

Yaptığınız işten bahseder misiniz, tam olarak ne yapıyorsunuz? (ürün nedir)

Hangi sektörde yer alıyorsunuz? (tarım, sanayi, çevre teknolojileri, yeşil binalar vb.)

Şirketiniz ne zaman kuruldu?

Şirkette kaç kişi çalışıyor?

Çalışanların meslekleri, yaşları, eğitim durumları nedir?

Şirket ortakları var mı, kaç ortak var? (proprietorship)

Şirketiniz nerede? Belirli bir ofis ve lokasyonunuz var mı yoksa online olarak mı çalışıyorsunuz?

Şirketinizin İstanbul'da yer almasının sebebi nedir?

3. Girişimcinin Motivasyonu

Bu ilk işiniz mi?

Bu yeşil girişimden önce ne iş yapıyordunuz?

Bu yeşil girişim fikri nasıl oluştu?

Neden bu işi yapmayı tercih ettiniz, bu işte nasıl bir fırsat gördünüz? (İklim krizi ile mücadele etmek, daha çok kazanç elde etmek, bağımsız olmak, sektörün gelişmekte olması vs.)

4. Girişimin Performansı

Şirketinizin son yıllardaki karı nasıl değişti? (arttı, azaldı, aynı kaldı)

Şirketinizin son yıllardaki cirosu nasıl değişti? (arttı, azaldı, aynı kaldı)

Son zamanlarda müşteri sayınız nasıl değişti? (arttı, azaldı, aynı kaldı)

Son zamanlarda satışlarınız nasıl değişti? (arttı, azaldı, aynı kaldı)

5. Girişimin Etkisi

Yaptığınız işin iklim krizi ile mücadeleye katkı sağladığını düşünüyor musunuz? Cevabınız evet ise iklim kriziyle mücadeleye nasıl bir katkı sağlıyorsunuz?

Yaptığınız işin yeşil ekonomik düzenin oluşmasına katkı sağladığını düşünüyor musunuz? Cevabınız evet ise nasıl bir katkı sağlıyorsunuz?

İklim krizi ile mücadele ve yeşil ekonomiye katkı haricinde yaptığınız işin İstanbul'a, Türkiye'ye ya da dünyaya nasıl bir etkisi olduğunu ya da olacağını düşünüyorsunuz?

Sizece yeşil girişimlerin İstanbul'daki ve Türkiye'deki ekonomik düzene olumlu ya da olumsuz bir etkisi var mı? Varsa bu nasıl bir etki açıklar mısınız?

6. Girişimcinin Hedefleri

Şirketinizin ile ilgili büyüme hedefleriniz var mı? (İkinci bir şube açmak, farklı şehirlerde şube açmak, çalışan sayısını arttırmak, ürün çeşitliliğini arttırmak vb.)

Şirketiniz ile ilgili diğer hedef ve stratejileriniz nelerdir?

7. Karşılaşılan Zorluklar

7.1. Kuruluş Aşamasında Karşılaşılan Zorluklar

Şirketinizi kurarken ne gibi zorluklarla karşılaştınız?

Sermayeyi nasıl buldunuz, bu zorlayıcı bir süreç miydi?

Bürokrasi ve yasal düzenlemeler kuruluş aşamasında zorluk çıkardı mı?

7.2. İşletme Sürecinde (Bugün) Karşılaşılan Zorluklar

Yeşil bir iş olduğunuz için ne gibi zorluklarla karşılaşıyorsunuz? (müşteri bulma, piyasada kendini var edebilme, kazanç, maliyet vb.)

Yeşil bir iş olduğunuz için diğer işlere göre ayrıcalıklarınız ve fırsatlarınız oluyor mu? (insanların yeşil olduğu için sizin markanızı tercih etmeleri vb.)

Bürokrasi ve yasal düzenlemeler işinizi yaparken zorluk çıkarıyor mu?

Mevcut hâkim kapitalist düzen içinde var olmaya devam etmek sizin için zorlu bir süreç mi? Yoksa artık iklim krizinin de etkileriyle mevcut düzenin değişmeye başladığını ve sizin gibi yeşil girişimlerin de kabullenip desteklendiğini mi düşünüyorsunuz?

Greenwashing (yeşil aklama) kavramından haberiniz var mı? Greenwashing'in yeşil girişimcilik ya da sizin işiniz önünde bir engel oluşturduğunu düşünüyor musunuz?

Ülkemizde yeşil ekonomi ve yeşil işler konulu politika ve teşvikler ile ilgili ne düşünüyorsunuz? Sizce bu politika ve teşvikler yeterli mi?

Bu politika ve teşviklerin ülkemizde yetersiz olması sizin işinizi nasıl etkiliyor açıklar mısınız?

8. Gelecek Öngörüsü ve Beklentileri

Bulduğunuz sektörün geleceği ile ilgili görüşleriniz nelerdir?

Yeşil işler ile ilgili ne gibi teşvik ve politikaların olmasını isterdiniz? Size bu konuda öncelikli olarak kimin (merkezi hükümet, belediyeler, sivil toplum kuruluşları, üniversiteler, büyük kurumsal firmalar, diğer) destek olmasını isterdiniz, neden?



APPENDIX B: Tables about features of entrepreneurs and features of enterprises in detail

Table B.1: Features of entrepreneurs

	Gender	Year of Birth	Education Level	Profession	Is This His/Her First Job?	Previous Job	How Does He/She Describe Himself/Herself as an Entrepreneur?
A	2 female 1 male	1999- 1999- 2000	University students	1 industrial design - 2 industrial engineering	Yes		Social entrepreneur
B	2 male	1996- 1996	Bachelor's degree	2 industrial engineers	Yes		Social entrepreneur
C	2 male	1991 - 1990	Bachelor's degree	Energy systems engineer - International trade graduate	No	Private sector	Social entrepreneur
D	1 female 1 male	1999 - 2000	University students	Management - Industrial engineering	Yes		Social entrepreneur
E	2 female	2000- 1992	High school - Master's degree	Physics drop out - Psychologist	No	Private sector	Entrepreneur
F	Male	1978	PhD graduate	Computer and control engineer	No	Private sector	Entrepreneur
G	Female	1994	Bachelor's degree	Industrial designer	Yes		Impact driven entrepreneur
H	1 female 2 male	1988- 1994- 1994	Master's degree	1 food engineering and chemistry double major - 2 chemistry graduates	1 no 2 yes	Private sector	Commercial entrepreneur with high social impact
I	2 male	1988 - 1988	Bachelor's degree	Management engineer - Computer science graduate	No	Private sector	Social entrepreneur
J	Male	1970	PhD graduate	Geological engineer	No	Academy, consultancy in the public sector and NGO	Social entrepreneur
K	Male	1984	Bachelor's degree	Molecular biology and genetics graduate	No	Private sector	Resilient environmental entrepreneur
L	Male	1985	Master's degree	Environmental engineer	No	Association	Sustainable entrepreneur
M	Female	1991	Bachelor's degree	Political science graduate	No	Private sector	Social entrepreneur

Table B.1 (continued): Features of entrepreneurs

	Gender	Year of Birth	Education Level	Profession	Is This His/Her First Job?	Previous Job	How Does He/She Describe Himself/Herself as an Entrepreneur?
N	Male	1983	Bachelor's degree	Landscape architect	No	Private sector	Ecological entrepreneur and social entrepreneur
O	2 Female	1984-1984	Bachelor's degree	Management graduate - Computer engineer	No	Private sector	Social entrepreneur
P	Female	1976	Master's degree	Chemical engineer	No	Private sector + Own business	Responsible entrepreneur
Q	Female	1976	Bachelor's degree	Management graduate	No	Private sector	Green entrepreneur
R	1 female 1 male	1982-1962	Master's degree - Bachelor's degree	Agricultural marketing graduate - Management graduate	No	Private sector	Social entrepreneur
S	Male	1994	Bachelor's degree	Computer engineer	Yes		Social entrepreneur
T	Female	1989	Master's degree	Graphics designer	No	Private sector	Green and social entrepreneur
U	Female	1990	Bachelor's degree	International trade graduate	No	Private sector	Social entrepreneur
V	Female	1977	Bachelor's degree	Economics and management double major	No	Private sector	Social entrepreneur

Table B.2: Features of enterprises

	Proprietorship	Foundation Year of the Enterprise	Number of Employees (Including the founders)	Age Range of Employees	Professional Distribution of Employees	Manner of Work	Performance of the Enterprise
A	Shareholder – 3 partners	2022	27	18-24	University students from different departments such as food engineering, law and economics	Office	Increasing
B	Shareholder – 2 partners	2019	8	18-24	Different majors such as statistics, ship designing and mostly industrial engineering	Office	Increasing
C	Shareholder – 2 partners	2021	10	25-33	Mostly software developers	Office + Online	Increasing
D	Shareholder – 2 partners	2020	2	22-23	Management and industrial engineering	Online	Increase in first six months, then decrease
E	Shareholder – 2 partners	2021	4	22-53	Chemical engineering and marketing	Office	Increasing
F	Sole proprietorship	2013	10	28-30	Technical staff, designers and engineers	Office	Increasing
G	Sole proprietorship	2021	4	24-45	Food engineering and industrial design	Office	Increasing
H	Shareholder – 3 partners	2017	30	23-33	Food engineering, material engineering, molecular biology, polymer engineering	Office	Increasing
I	Shareholder – 2 partners	2016	82	26-34	Food, industry, software and computer engineering	Office	Increasing
J	Sole proprietorship	2016	20	18-64	Communication officers, software developers, engineers	Online	Increasing
K	Sole proprietorship	2015	8	20-30	No specific occupational distribution	Office	Increasing
L	Sole proprietorship	2019	10	25-30	Industry, mechanical, environmental, software and geomatics engineers	Office	Increasing
M	Sole proprietorship	2017	6	20-50	Marketing adviser, stylist, tailor	Office + Online	Increasing
N	Sole proprietorship	2019	4	32-39	Software developer, mechanical engineer, archeologist	Office	Increasing
O	Shareholder – 2 partners	2017	6	37-42	Different majors such as agricultural engineering and French translatorship	Office + Online	Increasing
P	Sole proprietorship	2016	5	27-45	Mostly sales and marketing	Office + Online	Increasing

Table B.2 (continued): Features of enterprises

	Proprietorship	Foundation Year of the Enterprise	Number of Employees (Including the founders)	Age Range of Employees	Professional Distribution of Employees	Manner of Work	Performance of the Enterprise
Q	Sole proprietorship	2017	12	25-55	Craftsman and marketing and communications	Office + Online	Increasing
R	Shareholder – 2 partners	2004	15	18-30	Technology and agriculture professional groups	Office + Online	Increasing
S	Sole proprietorship	2019	17	23-32	Electronics, computer, environmental and mechatronics engineering	Office + Online	Increasing
T	Sole proprietorship	2022	1	32	Graphics designer	Office + Online	Increasing
U	Sole proprietorship	2019	15	24-30	Textile engineer, sociologist and designers	Online	Increasing
V	Sole proprietorship	2019	14	30-60	Craftsman and marketing and communications	Office + Online	Increasing

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