Yayın Geliş Tarihi: 18.10.2022
Yayına Kabul Tarihi: 16.12.2022
Online Yayın Tarihi: 28.12.2022
http://dx.doi.org/10.16953/deusosbil.1190923

Dokuz Eylül Üniversitesi
Sosyal Bilimler Enstitüsü Dergisi
Cilt: 24, Özel Sayı, Yıl: 2022, Sayfa: 100-130
E-ISSN: 1308-0911

Araştırma Makalesi

ASSESSMENTS ON THE EUROPEAN GREEN DEAL AND EU TAXONOMY

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Abstract

The sustainable development perspective, that left its mark on the 21st century, has significantly affected global economic policies and investment strategies. The linear economy approach, which left its mark on the process from the existence of capitalism to the 1970s, when environmental awareness increased, was completely interrupted by the economic contraction created by the Covid-19 process and left its place to circular economies. In this context, the European Green Deal published in 2019 is a circular economy roadmap that puts global environmental goals at the center of the economy and thus aims to increase the efficient use of resources. In the same year, the European Commission adopted the EU Taxonomy to integrate its financial system in line with its cyclical economic, social and environmental targets. EU Taxonomy aims to reveal environmentally compatible-incompatible activities in global financial markets with the rules it brings to EU financial market instruments. At the same time, Taxonomy aims to eliminate transaction costs, green laundering and information asymmetry caused by economic activities incompatible with sustainable cyclical activities.[1]

Keywords: *Linear Economy, Circular Economy, European Green Deal, Sustainable Economic Growth, EU Taxonomy.*

Bu makale için önerilen kaynak gösterimi (APA 6. Sürüm):

Güney, G. & Saraç, Ö. (2022). Assessments on the European Green Deal and EU Taxonomy. *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 24,* Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü I. Uluslararası Sosyal Bilimler Kongresi, ‘‘Sürdürülebilirlik ve Toplumsal Dönüşüm’’ Özel Sayısı**,** 100-130.

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[1] Bu çalışma 22-24 Haziran 2022 tarihlerinde gerçekleştirilen Dokuz Eylül Üniversitesi ev sahipliğinde, Sosyal Bilimler Enstitüsü Koordinatörlüğünde düzenlenen ‘‘Sürdürülebilirlik ve Toplumsal Dönüşüm’’ temalı I. Uluslararası Sosyal Bilimler Kongresi’nde sunulmuş olan bildirinin makale formatına dönüştürülmüş olan halidir. Bu çalışma için etik kurul izni gerekmemektedir.

AVRUPA YEŞİL MUTABAKATI VE AB TAKSONOMİSİ ÜZERİNE DEĞERLENDİRMELER

Öz

Yirmi birinci yüzyıla damgasını vuran sürdürülebilirlik, küresel ekonomi politikalarını ve yatırım stratejilerini önemli ölçüde etkilemiştir. Kapitalizmin var olduğu süreçten çevresel bilincin arttığı 1970'lere kadar olan sürece damgasını vuran doğrusal ekonomi yaklaşımı, Covid-19'un yarattığı ekonomik daralmayla tamamen sekteye uğramış, yerini döngüsel ekonomi yaklaşımına bırakmıştır. Bu bağlamda 2019 yılında yayınlanan Avrupa Yeşil Mutabakatı, küresel çevresel hedefleri ekonominin merkezine koyan ve böylece kaynakların verimli kullanımını artırmayı amaçlayan bir döngüsel ekonomi yol haritasıdır. Avrupa Birliği Komisyonu, aynı yıl döngüsel ekonomik, sosyal ve çevresel hedefleriyle uyumlu olarak finansal sistemini de entegre edecek şekilde AB Taksonomisini kabul etmiştir. AB Taksonomisi, AB finansal piyasa araçlarına getirdiği kurallarla küresel finansal piyasalarda çevreyle uyumlu/uyumsuz faaliyetleri ortaya çıkarmayı hedeflemektedir. Aynı zamanda Taksonomi, sürdürülebilir döngüsel faaliyetlerle uyumsuz ekonomik faaliyetlerin neden olduğu işlem maliyetlerini, yeşil aklamayı, bilgi asimetrisini gidermeyi amaçlamaktadır.

Anahtar Kelimeler: *Doğrusal Ekonomi, Döngüsel Ekonomi, Sürdürülebilir Ekonomik Büyüme, Avrupa Yeşil Mutabakatı, AB Taksonomisi.*

INTRODUCTION

Twenty first century indicates the period that we henceforth started to reach the border of resource consumption. The World Bank in their 2018 report predicted that yearly municipal solid waste global consumption will reach 3,40 billion tons from 2 billion tons by 2050 (Worldbank, 2018). The comparison that is being made is impressive when the positive correlation between income level and waste amount is taken into account. Such that, in the report it is being predicted that while daily waste production in high income countries will increase 19 percent, it will increase 40 percent or more in low- and middle-income countries. In the circular economy model, which is presented as a solution to this problem, the principles of the waste management hierarchy are applied at every stage from the production stage to the consumption stage.

Considering high-income countries are predominately located in Europe, the studies of EU member states towards circular economy are important. It can be said that studies on sustainable growth and waste management prepared by the EU Commission accelerated after the 2008 crisis. "Europe 2020: A European Strategy for Smart, Sustainable and Inclusive Growth" report, which sets out the ten-year development vision for the 2010-2020 period, is the first study that the vulnerabilities of the linear economy are decisive in terms of growth and development. Following this study, "Roadmap to a Resource Efficient Europe", in which key sectors for sustainable production and consumption were determined was published in 2011 by the European Commission and it was aimed at increasing

resource efficiency nationally and internationally. EU, starting with the principle of "less waste, more value" accepted fifty-four implementations within the scope of the first "Circular Economy Action Plan" in 2015. EU took a concrete step in 2019, with the publication of the "European Green Deal", and make a commitment of net-zero greenhouse gas emissions until 2050, separating economic growth from resource destruction, and providing subsidies and technical assistance to sectors that may be adversely affected by the transition to green economy with the "Just Transition Mechanism". The last step taken by EU towards sustainable growth is "EU Taxonomy", which highlights sustainable investment opportunities in the capital market in 2019 (EC, $2020_{URL\ 20}$).

Firstly, the study aims to reveal the national and international regulations that have come to the fore in recent years and combine the circular economic approach with environmental sustainability. Secondly, the study provides a framework of practice examples to increase global benefit for countries that want to establish and develop circular economic standards. Thirdly, The European Green Deal and EU Taxonomy, which stand out in circular economic approach of the European Union and are thought to create major changes in international trade and finance structure, are included.

CIRCULAR ECONOMY

Increasing global environmental awareness since the 1990s makes national and international sustainability an imperative goal of economic growth and development. While the perspective of sustainable development, which will leave its mark on the twenty-first century was started to be developed in the international conjuncture, it was deemed insufficient because industrial ecology only deals with the industrial sector and neglected other sustainability dimensions, especially the socio-ecological dimensions.

The circular economy is a production and consumption model that includes repairing, recycling and keeping existing raw materials and products in-service as much as possible. The circular economy, which was first mentioned by K. E. Boulding (1966) in the study named "Economics of the Coming Spaceship Earth", with the metaphor of *spaceship*, is now on the agenda of developed and developing countries. Two types of economy are fictionalized in the study. These are *the cowboy economy* and *the spaceship economy*. The economy, that is defined as the open economy of the past and where resources are seen as unlimited and exploited, is the cowboy economy. As for the spaceship economy, which is defined as the closed economy of the future, it describes the circular ecological system in that the extraction and pollution of resources is limited, and the existing inputs are constantly reused and recycled (Boulding, 1966, p.4). On the other hand, B. Commoner (1971) included four ecological rules that he associated with

thermodynamics in his work called "The Closing Circle" (Commoner, 1971, pp.16-24).

1st Rule: Everything Is Connected to Everything Else: An ecosystem consists of multiple interconnected parts that interact on each other. The cycle that is called the law of internal dynamic equilibrium, is considered to be spontaneous in nature. In Cybernetic[1] systems the route is not rigid but flexible. But external intervention can turn this effect into a harmful one. It is possible to understand this situation mostly by looking at the population of living species. For example, when there are many rabbits, the lynx develops, as the lynx develops, the number of rabbits decreases and after a while both become scarce. The decrease in the lynx population causes the rabbit population to start increasing again.

2nd Rule: Everything Must go Somewhere: According to the law of conservation of matter, which is one of the laws of physics, "what exists does not cease to be existed, what does not exist cannot be created". This can be interpreted in terms of ecology as "waste by one organism is food for another". For example, while the carbon dioxide produced by animals is the food of plants, the oxygen produced by plants is the vital need of animals. It's important to know where everything is going here. Undoubtedly, resources that are fully recyclable and have minimal external damage to the environment are sustainable.

3rd Rule: Nature Knows Best: Even the claim that human rule over nature and exploited it by the claim of basic needs such as food, clothes, shelter, communication is real, the nature is full of obscurities and unpredictability. Nature somehow managed to survive until today. Just as the continuity of man depends on the continuity of nature, the fate of natural life also depends on the activities of humanity.

4th Rule: There Is No Such Thing as a Free Lunch: In ecology, such as it is in the economy, every gain has a price. This ecological law concretizes the three laws that preceded it. Accordingly, when something is borrowed from nature, the thing that was removed from the equation must be replaced. Humanity cannot avoid paying this price, one can only delay it.

In today's world, rapid population growth and uncontrollable global market instabilities cause environmental problems to acquire a global dimension and make it necessary to solve ecological problems in a reasonable way. The first years of the 1970s were the years of high energy prices and high unemployment. The increase in resource costs in all areas of the economy creates a motivation towards reusing what is available, recycling what cannot be reused, repairing what is broken, and reproducing what cannot be repaired. These years also bring the closure of an era

[1] Cybernetics, which is derived from the Greek word kybernétes (steerer) and is also known as the science of guidance today, is a science that examines the control and management of all complex systems, animate and inanimate.

into agenda: The target of GDP growth, which was the only rule of economic growth before, is replaced by the protection and continuity of existing opportunities with the circular economic approach (Hysa et al, 2020, p.3-4).

There are three basic strategies for industrial ecology's resource cycle such as: (i) slowing down resource cycles, (ii) closing resource cycles, and (iii) narrowing resource cycles. It includes all kinds of services and designs for slowing down resource cycles and using products for a longer period of time. This ensures the product lifecycle to be as long as possible (Bocken et al, 2016, p. 309). Closed cycles include a five-dimensional process as: (1) use, (2) innovation, (3) natural resources, (4) production, (5) distribution. The dimension of use is controlled by the buyers/owners/consumers of the product or the short-term managers who hold the ownership and sell the products as a service. Decisions on reuse, repair and remanufacturing of products are made here. After the decision is made, the innovation dimension is being passed to. In order for the products used to be "like new", the separation process is designed and recycling strategies are developed in the innovation dimension. In terms of natural resources dimension, natural resources such as water and energy, which are expected to provide maximum benefit and minimum harm to the environment, are supplied in order to enter the production process. Renewing used products is important as it reduces the waste of resources and waste that results from making it from scratch. At the production dimension, resource losses are tried to be compensated by making use of industrial symbiosis. In the distribution dimension, ownership passes from the producer to the consumer with the sale (Stahel, 2016, p. 436). Closed cycles are more inclusive as they can encompass a wider range of products than other resource cycles. These cycles form the infrastructure of today's sustainable economic model. Shrinking cycles aim to use less resources per product in order to increase resource efficiency (Bocken et.al, 2016, p.309).

The circular economy is the key to sustainable growth and development. Extending the shelf life of products with innovative methods and designs, introducing new products to the market by providing less resource input with the feature of re-usability increases resource efficiency. In this context, the main features of the circular economy can be listed as follows; being inclusive, ensuring resource efficiency, being durable, having sustainability (UNIDO, 2017).

Circular economy model applications are being addressed at national and international level and the model is tried to be placed in an institutional framework through both national and international regulations.

NATIONAL REGULATIONS TOWARDS CIRCULAR ECONOMY

It is almost impossible to determine a universal roadmap with the same methods in developed, developing and underdeveloped countries for the circular economy, which has a geographically, socially and politically variable structure,

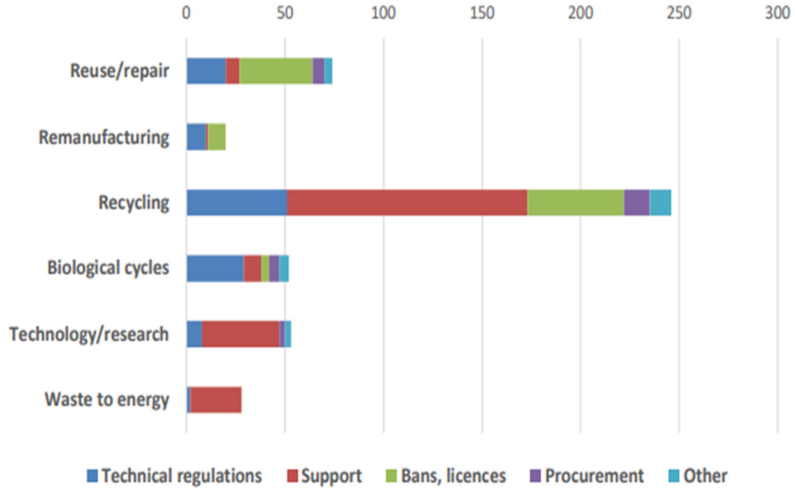
that can be applied simultaneously. However, in the global economic conjuncture, where global parameters significantly affect national policies, a change towards the circular economic model is inevitable.

The circular economy addresses resource use with a sustainable approach and aims to increase global benefit. However, the benefits of the circular economy to developed countries with high capital power may exceed the benefits it provides to developing and underdeveloped countries. While developed countries reduce their dependence on imported inputs and products with the 3R principle (re-use, re-pair-, re-cycle) practices in resource use, developing countries, which are their suppliers, may experience reduce in demand. Also, the lack of information and technology that can accelerate the circulation in developing countries contributes to the fact that environmental awareness in these countries is low compared to developed countries and their solid waste management is weak. However, developing countries also suffer from rapid population growth, rapid industrialization, deforestation, water scarcity and pollution, etc., so their demand for natural resources is constantly increasing, they need a circular economic model. Besides, sustainable energy supply also helps strengthen national security. The circular economy model is ready to provide benefits regardless of the capital accumulation of countries for these and many similar reasons (UNIDO, 2017, p. 6).

In the period from the 1980s to the present, more than two hundred and fifty multilateral environmental agreements, most of which include developed countries, have been signed. Twenty of these are at a level that can affect international trade (Steinfatt, 2020, p. 3). The increasing interest in the circular economy requires national and international trade policies that are designed and implemented in this direction. Because the development of international circular economic standards creates an environment where products that comply with these standards will be demanded, and those who do not will be excluded from the market. The policies and measures taken towards the circular economy differ significantly depending on the national priorities of the countries. According to the World Trade Organization (WTO), the measures specified in the reports[2] of the countries for the period between 2009 and 2017 clearly show this situation. Measures taken in country reports are categorized as technical regulations, government aids, prohibitions, licenses, supplies and said government aids are classified as grants, direct payments, loans, income and interest support. In addition, the focus of the measures that are being taken are also indicated separately.

[2]The report concerns about three hundred and seventy measures taken by sixty-seven WTO members. In terms of development level, developing members of the WTO represent about 55 percent of measures for cyclical economic activities. The share of measures taken by developed countries is 41 percent, and the share of measures taken by underdeveloped countries is 4 percent.

Figure 1: National Measures About Circular Economy (Number of Measures Notified to the WTO (2009-2017)



Source: (Steinfatt, Measures Related to the Circular Economy, 2020, p. 5).

As can be seen from (Figure 1), recycling among the measures taken by national governments constitutes more than half of the total measures taken and the general measures that are being taken are incentives. The use of incentives in technology/research and energy waste is very common. Among the measures related to the circular economy, re-use also has a certain place.

Among the successful country practices within the scope of the circular economy, China is one of the first countries to work on a national scale. With a population of approximately 1.4 billion as of 2021, the country is the world's most populous country and the largest producer of plastic waste[3]. It has been stated with the strategic energy plan prepared for the first time in 2005 that, serious measures will be taken in order to save energy and water with a circular approach in the country that has come to the limit of natural resource use (NDRC, 2021). The Circular Economy Development Law, accepted in 2008, referred to the priority of implementing the circular economy in a technically appropriate, economically rational and resource-conserving way (Worldbank, 2021). In the Thirteenth Five-

[3]China accounts for about 1/3 of global plastic waste production. In 2018, revenue from the plastic products industry was over US$ 468 billion. With the bans brought in China, personal plastic waste consumption has been reduced compared to other countries, but the increase in plastic waste consumption has not been prevented. See; (Statista, 2021).

Year Development Plan, which was recently published after this law that the institutions and rules for the functioning of the circular economy were determined, the objectives of developing practices (industrial parks, improving recycling networks, waste management) that would encourage the circular use of resources between producers and consumers were mentioned (NDRC, 2021). The July 2021 Report, published by the National Development and Reform Commission (NDRC), encourages the use of green designs with clean production technologies and upgrading recycling facilities, with the aim of contributing to the circular economy by 2025. The report, which includes that plastic products will be reduced and harmonized with the circular economic system by 2025, aims to reduce carbon emissions at the highest level until 2030 and includes a commitment to neutralize carbon emissions by 2060 (https://english.www.gov.cn/, 2021).

Another country that carries out important studies in the circular economy is the Netherlands. The country, which has been developed in recent years with its Sustainable energy[4] policies, also draws attention with its work in the field of green economy. The Government, which determined a circular economy strategy that also includes local governments in 2016, aimed to reduce the use of primary raw materials by 2030 and to reach zero waste level by 2050 (https://www.government.nl/, 2021). The Government has created a Circular Economy Accelerator Portal in order to address questions on information sharing, network partnerships, legislation and financing (https://www.tno.nl/en, 2021). The government has implemented the Partnering for Green Growth and the Global Goals 2030: P4G program in order to fund circular projects (https://english.rvo.nl/, 2021). PG4, by creating public-private partnerships to accelerate green growth, brings companies, non-governmental organizations and the government together (https://p4gpartnerships.org/, 2021). PG4, which is serving the five key goals of sustainable development: (i) food and agriculture, (ii) clean water, (iii) clean energy, (iv) sustainable cities and (v) circular economy, has funded more than thirty partnerships in 2020 (https://stateofgreen.com/, 2021).

Italy is also one of the successful countries that take early measures in waste management. The Sustainable Development Foundation: COREPLA, which provides information and supports municipalities, companies and various organizations for the collection and recycling of plastic packaging, was established in 1997 (COREPLA, 2021). In 2018, the Italian Circular Economy Stakeholder Platform (ICESP) affiliated to the European Circular Economy Stakeholder Platform (ECESP) on the subjects of measuring the circular economy, sustainable production-consumption-design policies and practices and eco-innovation. The

[4]The Netherlands is ranked thirteenth in the 2020 Global Sustainability Index, which includes important variables such as climate change, environmental policies, pollution, oceans, biodiversity, energy within the scope of the circular economy. See; (https://earth.org, 2021).

government has included the public investment fund, which it created to encourage the circular economy and related activities, within the scope of the 2020 Budget Law (EC, 2020)URL14.

While European countries are making rapid progress in the studies on circular economy, the fact that France needs to make progress in this direction is revealed. The urgency of the circular economy in France can be easily understood when the waste management data is being looked at, which is low compared to many developed countries in Europe. The recycling rate of domestic waste in 2014 is 39 percent. However, the same rate is 65 percent in Germany and 50 percent in Belgium. In France, 20 percent of rubber packaging is actually recycled. The EU average of this transformation is 30 percent. More than 90 percent of plastic bottles are recycled in Scandinavian countries, compared to 55 percent in France. The first important regulation in which innovative steps regarding the circular economy took place in France is the Energy Transition Law for Green Growth, which was enacted in 2015. This law is designed to reduce energy consumption, to fight unemployment through green growth, to support renewable energy and clean transportation. Furthermore, other targets set in the Law are as follows (https://www.gouvernement.fr/, 2021):

- Reducing greenhouse gas emissions by 40 percent by 2030 compared to 1990 levels, in order to contribute to the EU's goal of reducing emissions,
- Reducing fossil fuel consumption of France by 30 percent by 2030,
- Reducing the share of nuclear energy in electricity generation to 50 percent by 2025,
- Increasing the share of renewable resources to 32 percent of final energy consumption and 40 percent of electricity generation by 2030,
- Reducing France's final energy consumption by 50 percent by 2050, and
- Reducing the waste that is going to sanitary landfills by 50 percent by 2050.

In France, a report that is being called A Roadmap for a Circular Economy was prepared in 2018, in which waste management and responsibilities of producer and consumer were determined (EU, 2020: 4 URL 25). In 2020, the law “Circular Economy and Waste Prevention Law: Promoting Social Inclusion and Eliminating Wastage”, which includes circular economy and waste prevention, was adopted. This law beside the adoption of circular practices to eliminate wastage, also emphasized the implementation of a solidarity economy in order to realize the social transformation in France. The law also included innovations such as “banning the destruction of unsold goods” and "the repairability index", which are

the first applications in the world (https://ellenmacarthurfoundation.org/, 2021, p. 5). In addition to all these, another important practice for France was to end its dependence on nuclear power plants[5] in electricity generation within line with EU's neutral carbon policy.

Germany is also one of the pioneer countries in waste management. The first regulation that emphasizes the producer responsibility of the waste management policy was being made in 1991 with the Packaging Regulation. Producer responsibility was reorganized in line with the Closed Substance Cycle and Waste Management Law in 1996 and polluter pays principle. Because of the Circular Economy Law enacted in 2012, producer responsibility was included in the scope of binding measures these measures were made applicable by voluntary commitments by producers and distributors (BMU, 2021). It can be said that in Germany, there are still serious studies are being carried out in order to adapt to modern circular economy studies. The Circular Economy Initiative Deutschland: CEID was being established in 2019. CEID shapes issues such as circular business models, standardization, R&D, economic stimuluses' that include investment and tax incentives, regulatory instruments, eco-design, nationalization, institutionalization and knowledge transfer within the scope of the country's goals of 2030 (EU, $2021_{URL\ 24}$) Anti-nuclear countries such as Luxembourg, Austria, Portugal and Denmark joined the side of Germany[6], which wanted nuclear energy and natural gas to be added to the EU Taxonomy[7], which is a current issue (BMU, 2021).

INTERNATIONAL REGULATIONS FOR CIRCULAR ECONOMY

Local and regional policies are as important focal points as national policies for the development of sustainability and transition to circular economy. It is predicted that by 2050, two-thirds of the world's population will live in the cities, people will consume 75 percent of the world's natural resources, produce 50 percent of global waste and more than 60 percent of greenhouse gas emissions that had been produced so far (https://ellenmacarthurfoundation.org/, 2021). Most of the international regulations in the circular economy have been made by the UN and its affiliated institutions and organizations. "2030 Sustainable Development Goals" published by UN Development Program (UNDP) in 2015 is a universal call to action that includes economic, environmental and social sustainability, which is

[5]Today, about 70 percent of electricity in France is obtained from nuclear energy. For more information, see; (https://world-nuclear.org, 2021).

[6] In accordance with energy supply security and green growth in Germany, legal arrangements have been made to close all nuclear power reactors starting from 2011 until 2022. For more information see; https://www.bmu.de/meldung/joint-declaration-for-a-nuclear-free-eu-taxonomy-de, (Accessed: May 10, 2021).

[7] In the next part of the study, EU taxonomy is examined in detail.

considered a premise among them (UNDP, 2021). The circular economy has not fallen off the global agenda because of this call to action and has been strengthened by projects developed by many institutions and organizations in terms of financing. Interest in these projects is increasing day by day.

One of the international organizations that carry out comprehensive projects for the circular economy is the World Economic Forum (WEF). Platform for Accelerating the Circular Economy[8] (PACE), established by the WEF in 2017, aims to accelerate collective action and make public and private sector leaders make commitments towards the circular economy (WEF, 2017). It can be mentioned in the 2020 PACE report that, there are regional projects that also include regional alliances and intersecting attempts besides including global projects classified as plastics, electronics, textiles, food, capital equipment (PACE, 2021). Other global partnerships supported by WEF are Global Plastic Action Partnership (GPAP) and Circular Electronics Partnership (CEP).

Global circular economy practices involve a number of financial costs that involve the use of information and technologies. Global cooperation and global funds are effective in reducing the burden of financial costs. In 2019, UNDP aimed to share the experiences gained in plastics management through the "Plastics and Circular Economy: Collective Solutions" report and the Global Environment Facility[9] (GEF) share experience by means of "Small Support Programme". The program aimed to contribute to the development of the circular economy through the application of the 3R rule to the plastic waste problem (UNDP, 2019).

The Asia-Pacific Economic Cooperation (APEC), another global actor that represents 60 percent of the world GDP, also sees the circular economy as a tool for economic growth. APEC emphasizes the importance of studies on regional basis with a circular approach on solving the crisis of waste with its report "The 2020 Circular Economy: Don't Let Waste Go to the Trash" and within the scope of projects of Committee on Trade and Investment (CTI), Policy Partnership on Science, Technology and Innovation (PPSTI) (APEC, 2020).

The need of pollution policy to be well managed important as waste policy in the development of circular economy. Water in Circular Economy and Resilience (WICER) report prepared by the World Bank in 2021 involves the transition from a linear approach to a circular approach in the planning, design and operation of water infrastructure in the cities. Seeking a solution to the global water

[8]PACE consists of more than two hundred members, including world-famous brands such as Coca Cola Company, Pepsi Co, Nestle, who support eighteen projects around the world.
[9]Founded by the World Bank in 1991, GEF is a pilot program that provides grants and concessional financing to support development projects with environmental benefits. GEF separated from the World Bank in 1994 and became a separate institution. For more information see; (World Bank, 2021).

crisis, WICER has focused on three main objectives which are: (i) providing flexible and inclusive services, (ii) designing waste and pollution, and (iii) protecting and renewing natural systems. Emphasizing the economic and financial benefits of investing in circular systems, WICER also aims to contribute to the financing of public services by the private sector (WICER, 2021, p. 8).

Starting a circular economy in cities, which are a resource- and capital-intensive, can yield significant economic, social, and environmental benefits. In 2020, the "European Circular Cities Declaration", which is the first international regulation, was announced in order to contribute to the development of the circular economy in the cities. A large number of European countries and cities that are planning to develop circular economy practices locally and regionally have adopted this declaration (https://circularcitiesdeclaration.eu/, 2021). In the same year, the following two projects, financed by European countries and developed on a city basis, were carried out:

- ***City Loops:*** It has been put into practice for the conversion of construction and demolition wastes and biological wastes, which constitute the two important waste stream cycles of Europe, in order to create circular cities[10] (https://cityloops.eu/, 2021).

- ***HOOP:*** It is a project that produces city-oriented, innovative, bio-based products. HOOP is designed to conduct studies on a local and regional basis to provide municipal disposal of organic solid waste and polluted wastewater with circular methods and to identify and develop investments in bio-economy investment[11] (https://hoopproject.eu/, 2021).

While the opportunities that the circular economy will provide in the long run in Europe are important in terms of contributing to the development of cities on the one hand, it is important in terms of setting an international example on the other hand. Regulations under the scope of EU are striking in the way that they advance such opportunities.

EUROPEAN UNION CIRCULAR ECONOMY REGULATIONS

The EU's role in the circular economy is important in terms of influencing international trade relations. The main factor leading to the development of sustainable development strategies in Europe is the increased economic vulnerability because of to the 2008 crisis. Aiming to permanently eliminate the

[10]The locations where the City Loops Project has been implemented are: Bodø (Norway), Høje-Taastrup and Roskilde (Denmark), Porto (Portugal), Apeldoorn (Netherlands), Mikkeli (Finland) and Seville (Spain).

[11]In Bergen (Norway), Kuopio (Finland), Almera (Denmark), Münster (Germany), Porto (Portugal), Murcia (Spain), North Macedonia (Greece), Albana and Lazio (Italy) within the scope of the HOOP Project, cyclic bio- economy initiatives.

fragility caused by the crisis, the EU Commission adopted the perspective of "Europe 2020: Smart Sustainable and Inclusive Growth Strategy" in 2010. Within the scope of this perspective, priority was given into reducing greenhouse gas emissions by 20 percent compared to 1990 levels, providing 20 percent of energy from renewable sources and creating a 20 percent of increase in energy efficiency until 2020 (https://sustainabledevelopment.un.org, 2020).

In 2011, with the perspective of "Roadmap for a Resource-Efficient Europe", the EU underlined that it is possible to use resources more efficiently when the transition from a linear economy, in which increases waste generation by adopting sustainable production and consumption methods, to a circular economy, in which waste is turned into a resource (EUR-Lex, 2011, p. 13). The "Circular Economy Action Plan" published in 2015 made history as the first circular economy action plan (EC, $2020_{URL\ 1}$) The plan includes concrete stimuluses towards advancing Europe's transition to a circular economy, increasing global competitiveness, developing sustainable economic growth and creating new jobs. These stimuluses include production, consumption, waste management, secondary raw material market, sectoral studies (plastic, food waste, raw material, construction, biomass), innovation and investment plans (EUR-Lex, 2015, pp. 2-4).

The EU, advancing the circular economy studies, has developed an ambitious growth strategy that put the circular economy at the centre of all policies with the "European Green Deal" it formed in 2019, and they aim to make Europe a carbon neutral continent by 2050, to separate economic growth from resource use for a strong society that uses modern resources efficiently (EUR-Lex, 2019).

Europe's commitment to be a carbon neutral continent by 2050 has increased the need for private sector investments besides public sector financing. To achieve this, the "European Green Deal Investment Plan" was published in 2020. This plan, also called the Sustainable Investment Plan, aimed to activate the flow of private funds to the circular economy by mobilizing public investments and EU financial instruments. In the same year, a Just Transition Mechanism was established in order to assist the economic and social transformations that countries will undergo, and it is aimed to provide financial support and technical application support to workers connected to the fossil fuel value chain. The comprehensively designed Just Transition Law was supported by three main sources of financing: (i) the just transition fund, (ii) a specific just transition plan within the scope of InvestEu, and (iii) the public sector loan facilities of the European Investment Bank financed by the EU budget (EC, $2020_{URL\ 11}$).

The EU Commission, taking action to place the commitment of being a carbon neutral continent in the legislation in 2020, presented the "European Climate Law" proposal. With this law, the Commission, which plans to determine the compatibility and incompatibility with the carbon neutral target and develop strategies for, has also started a public opinion poll on the European Climate Pact,

which is aimed to be established. Other sustainable economic plans published in 2020-2021 in line with the European Green Deal are as follows, in chronological order:

- ***Europe Industry Strategy:*** It is designed to maintain the global competitiveness of the European industry internally and globally, to align with the 2050 carbon neutral continent commitment and to shape Europe's digital future (EC, 2020$_{\text{URL 15}}$). The goals that have been set within this context are as follows:

  - Creating an "intellectual property action plan" for the transition to green and digital activities,

  - Ensuring compliance of competition rules with the new growth strategy,

  - Strengthening the global rules on industrial subsidies, using new tools to prevent the negative effects of foreign subsidies in the EU Single Market,

  - Develop comprehensive proposals for the modernization and decarbonization of energy-intensive industries, supporting sustainable and smart mobile industries, promoting energy efficiency, strengthening existing carbon leakage detection tools, and ensuring low-carbon energy supply,

  - Advance industrial and strategic autonomy in Europe by creating an "action plan on critical raw materials and pharmaceuticals",

  - Benefitting from various platforms such as the Clean Hydrogen Foundation, Low-Carbon Industries and Industrial Clouds to accelerate industry decarbonisation,

  - Providing additional legislation and guidance services on green public procurement, and

  - Focus on innovation and investment skills.

- ***New Circular Economy Action Plan:*** It is aimed to develop urgent comprehensive measures for key sectors such as information and communication technologies, batteries and vehicles, packaging, plastics, textiles, construction and buildings, food, water and food stuffs (EC, 2020$_{\text{URL 4}}$).

- ***The Strategy of From Farm to Fork:*** Until 2030, the use of chemical pesticides and the risks they carry, and the use of very dangerous pesticides is requested to be reduced by 50 percent (EC, 2020$_{\text{URL10}}$).

- ***Hydrogen and Energy System Integration***: Circular energy system design includes electrification, i.e. increasing the use of electricity in all areas, promoting sustainable, renewable biofuels and clean fuels including biogas for sectors where electrification is difficult (EC, 2020$_{\text{URL 18}}$)

- ***2030 Climate Target Plan:*** It involves the reduction of EU greenhouse gas emissions by at least 55 percent by 2030 compared to 1990. It is thought that this target may be effective in reaching the carbon neutral target of 2050 and in the recovery of the EU economy, which has been shaken by Covid-19 (EC, $2020_{URL\ 23}$).

- ***Chemicals Towards Sustainability:*** It is aimed to reduce the use of harmful chemicals in a variety of products, such as toys, child care products, cosmetics, detergents, materials that contact food and textiles, unless proven necessary for society (EC, $2020_{URL\ 12}$).

- ***Methane Strategy:*** It includes measures to reduce methane gas use in energy, agriculture and waste sectors, where 95 percent of methane gas, which is the most damaging to the environment after carbon dioxide, is used (EC, $2020_{URL\ 21}$)

- ***Renewing Trend Strategy:*** It aims to at least double the renewal rates over the next ten years in order to improve the energy performance of buildings that are responsible for 40 percent of EU energy consumption (EC, $2020_{URL\ 22}$).

- ***Offshore Renewable Energy:*** It aims to increase Europe's current 12 GW (gigawatt) offshore wind capacity to at least 60 GW by 2030 and 300 GW by 2050. The EU Commission has aimed to complement this target with 40 GW of ocean power and other advanced technologies such as floating wind and solar turbines by 2050 (EC, $2020_{URL\ 3}$).

- ***Europe Climate Pact***: It aims to guide local communities and regions, schools, non-governmental organizations and all segments of society to share knowledge in integrating them into sustainable systems (EC, $2020_{URL\ 19}$).

- ***European Battery Alliance:*** It includes efforts to modernize batteries sustainably throughout their entire lifecycle for green transportation, clean energy and a carbon neutral continent by 2050 (EC, $2020_{URL\ 13}$)

- ***New Europe Bauhaus Initiative:*** It includes an environmental, economic and cultural partnership that aims to combine design, sustainability, accessibility, affordability and investment to help realize the European Green Deal. It is a step towards establishing a New Europe Bauhaus pilot project in at least five EU member states with the help of EU funds at national and regional level (EC, $2021_{URL\ 16}$).

- ***Organic Action Plan:*** It defines strong support, research and innovation strategies for the common agricultural policy regarding the EU's target to achieve a significant increase in organic agriculture and organic aquaculture of

at least 25 percent of agricultural land by 2030, set in the Farm to Field Strategy (EC, 2021$_{URL\ 17}$).

- ***Zero Pollution Action Plan:*** It includes key strategies to reduce and prevent pollution for the year 2030. These are including some goals about; air pollution, reducing plastic waste in the sea, microplastics, reducing food losses and chemical pesticide, reducing transport noise, reducing waste (EC, 2021$_{URL\ 7}$).

- ***Sustainable Blue Economy:*** It offers a new sustainable approach to industries and sectors related to the oceans, seas and coasts (fishing, aquaculture, coastal tourism, shipping, port activities, shipbuilding, etc.). This includes studies such as offshore renewable energy activities, decarbonisation of marine transportation, use of ports as energy hubs, reduction of plastic and microplastic pollution, protection of biodiversity in marine habitats, development of green infrastructure in coastal areas, and sustainable food production and consumption (EC, 2021$_{URL\ 9}$).

The only starting point for all these listed sustainable growth and development strategies is the European Green Deal. The agreement is also important in terms of drawing the boundaries of the fight against climate change in the world and activating global markets in addition to reducing carbon emissions in the European continent. With the European Green Deal, the work of the transformation of the European Investment Bank into the European Climate Bank has also been started. The report titled "European Investment Bank Group: Climate Bank Roadmap (2021-2025)", published last year, contains the commercial, financial and financial prospects of this transformation (EIB, 2020).

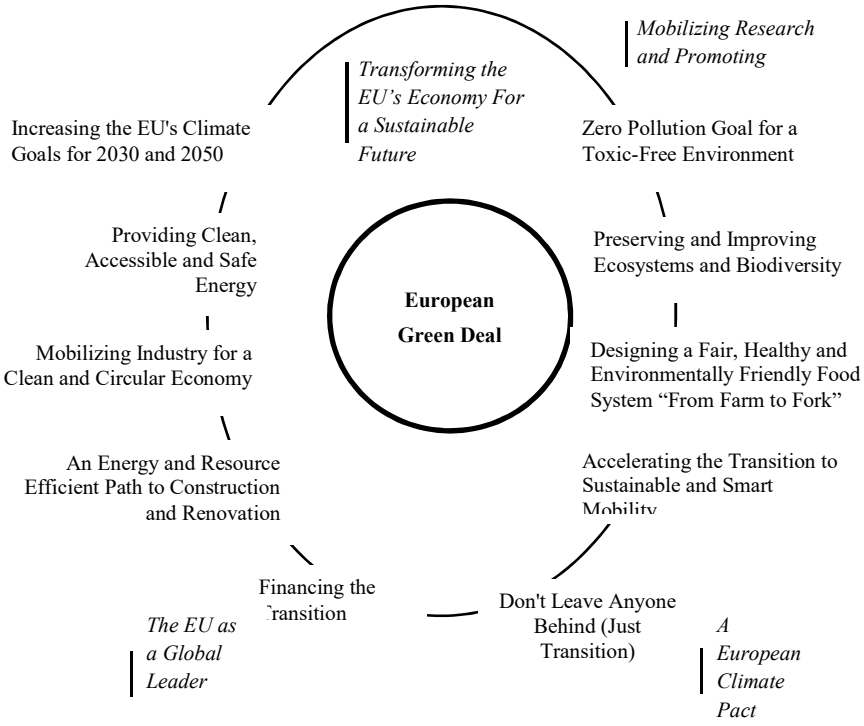
European Green Deal

This deal is a circular economy plan that seeks to stop climate change, reverse biodiversity loss, reduce pollution and thereby increase the efficient use of resources. This plan includes all sectors of the economy, especially industries such as transportation, energy, agriculture, construction, information and communication technologies, textiles and chemicals (EC, 2020$_{URL\ 4}$).

The Green Deal, which puts sustainability at the centre of the economy, is also compatible with the "UN 2030 Sustainable Development Goals". As is known, these goals are universal. However, the Green Deal only includes European countries. The Green Deal also has effects that across national borders. Because many of the environmental problems such as climate change, water scarcity, deforestation and reduction of biodiversity are global. EU, who is ready to direct all its resources towards sustainability, is also ready to lead and make partnerships with other countries in this regard. Also, considering that the EU, who is in a strategic position in global trade, will shape its commercial relations with this new economic approach, it is inevitable that global trade partners - such as the USA,

China and Japan, which are in other dominant positions - will also affect the sustainable economic approach more.

Figure 2: Goals of European Green Deal



Source: (www.yesildusunce.org, 2021, s.6).

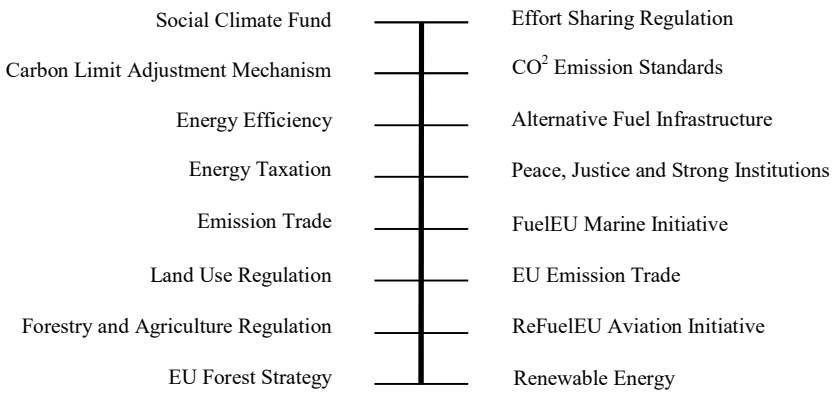
The EU, who putting present the European Climate Pact initiative with the aim of creating a greener continent because of the Green Deal, which is summarized in Figure 2, and reveals that it is making a pioneering effort in terms of achieving global environmental goals. The European Green Deal, while it is likened to the New Deal, the stabilization program implemented in the USA after the Great Depression of 1929, it is also eagerly awaited in academic circles as whether this new agreement will create *a new paradigm* shift for the global economy as before.

Climate, energy, agriculture, industry, environment and oceans, transport, financial and regional development, research and innovation are priorities in the European Green Deal. In this context, efforts to increase the welfare of all segments of society and future generations in Europe are as follows (EC, 2019$_{URL\ 2}$):

- Clean air, clean water, healthy soil and biodiversity,
- Renovated energy efficient buildings,
- Affordable and healthy food,
- More public transport,
- Clean energy and clean technological innovation,
- More durable products that can be reused, repaired and recycled,
- Future-oriented studies and technical training in the transition to the circular economy, and
- Globally competitive and resilient industries.

EU has aimed to complete a significant part of the targets by 2030 in order to carry out an ambitious target such as a carbon neutral continent by 2050 at an affordable cost. The EU's primary goal is to ensure that all countries meet their climate change requirements by 2030. As it is agreed in the EU Climate Law, it is aimed to reduce net greenhouse gas emissions by at least 55 percent by 2030 – compared to 1990 levels. EU Commission submitted proposals in order to achieve the targets of the European Green Deal in 2021. The EU's 2030 Climate Goals are:

Figure 3: EU's 2030 Climate Goals



Source: (EC, 2021$_{\text{URL 8}}$).

It is possible and beneficial for EU to aim to improve the health and well-being of its citizens in the countries that including the Union, by the goal of reducing greenhouse gas emissions. EU, prioritizing the economic development of EU citizens in the next eight years, also wants to alleviate the effects of the economic constriction caused by the Covid-19 epidemic. Also, EU offers

privileged opportunities for sustainable investments that will mobilize the private sector as well as the public sector to compensate for the economic constriction caused by the unpredictable epidemic.

The European Green Deal Investment Plan is a plan that will mobilize EU funds and it is aimed to stimulate public and private investment that is needed for the transition to a climate-neutral, green, sustainable, competitive and inclusive economy. The European Investment Plan consists following three main parts (EC, $2020_{URL\ 20}$).

- ***Financing:*** It is aimed to make sustainable investments of at least 1 trillion Euros until 2030 within the scope of the Investment Plan. Because this reason, the part of the made expenditures that is more than the usual for climate and environmental activities from the EU budget will focus on private financing with the support of the European Investment Bank.

- ***Activation****:* The Investment Plan will provide stimuluses in order to mobilize public and private investments and direct them towards a sustainable economy. EU will offer new tools to investors by placing sustainable finance for private investments at the center of the financial system. For public investments, it will encourage green budgeting and purchasing, and will design methods that facilitate bureaucratic procedures related to state aid for just transition zones.

- ***Practical Support:*** The Commission will provide various support to public authorities and project supporters in the planning, design and execution of sustainable projects.

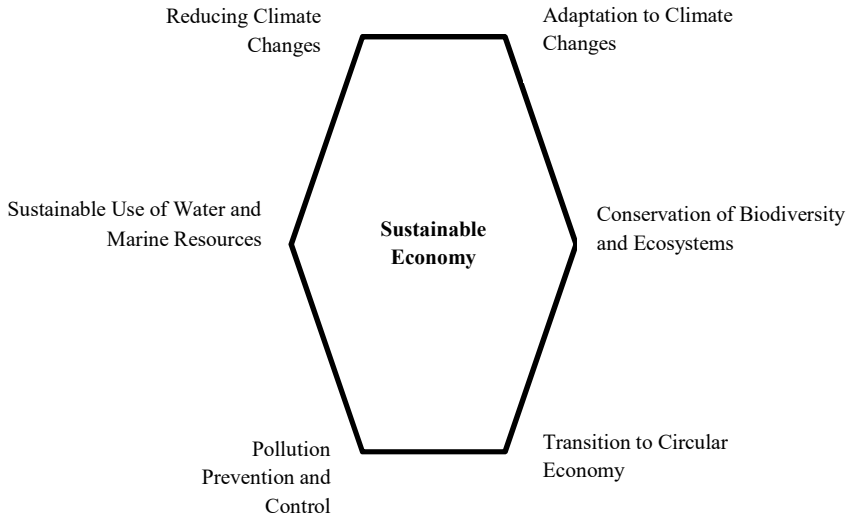
The EU mobilizes various investment channels in order to turn the climate crisis into an opportunity through investments. EU Commission, which needs a clear definition of what is sustainable, intends to subject sustainable economic activities to a common classification. The achievement that puts this intention into practice is the Sustainable Investment Classification, which is also called the "EU Taxonomy".

EU Taxonomy and Classification of Sustainable Investment

The EU Taxonomy is a classification system that came into force in 2020 and it includes a list of environmentally sustainable economic activities (EC, $2021_{URL\ 6}$). This classification system, which aims to contribute to the increase and development of sustainable investments in the EU, has an important role in strengthening European Green Deal. While classification offers investors a competitive advantage in line with their activities that are compatible with sustainability, it also provides them transparency because of the obligation of documentation it provides. EU Taxonomy also offers opportunities to facilitate the transition of the financial sector from linear perspective to circular perspective, to get

rid of greenwashing[12], which is a kind of disinformation, and to get rid of the lack of knowledge about sustainability. According to the regulations in force, investors who want to comply with their sustainability activities must meet the success criteria that include one or more of the following six environmental criteria that has been given in Figure 4[13]:

Figure 4: Sustainable Investment Criteria



Source: (EC, 2020$_{URL\ 5}$)

Adopting a broad sustainable financial approach, EU Taxonomy provides an opportunity to invest to economic activities with different environmental performance levels for different investment strategies, depending on reports such as Corporate Sustainability Reporting Directive: CSRD and Sustainable Financial Disclosure Regulation: SFDR provided by institutions. There are four basic conditions that any economic activity must meet in order to be considered as compatible with the EU taxonomy (EUR-Lex 2020, pp. 22-23):

[12]This concept, which is greenwashing in English, is summarized as the fact that companies display an environmentally responsible image and try to deceive the public, even though they are not. See; Oxford Dictionary.

[13]The first two criteria at the top of the figure are aimed at "mitigating climate change and adapting to climate change", which will come into effect at the beginning of 2022. The remaining four criteria are aimed at "sustainable use and protection of water and marine resources", which will come into force at the beginning of 2023.

1. Significantly contribute to at least one environmental goal[14],

2. Not causing significant harm to an environmental goal while contributing to another,

3. Comply with minimum social guarantees, and

4. To comply with technical scanning criteria.

As can be seen, the conditions of the EU taxonomy are in compliance with each other. It was aimed to not overlooking any other goal when one of the goals is the focus. It is predicted that green growth competition among companies will increase because of taxonomy and the public's interest in green investments will increase.

Financial products marketed or produced in EU, including pension products, must refer to taxonomy according to legal regulation. As for individual financial instruments, such as bonds, are not obligated to refer directly to the taxonomy. The products included in the EU Taxonomy can be viewed in Table 1.

Table 1: Financial Products That Have Obligation of Taxonomy Declaration

Retirement and Asset Management

- Undertakings for the Collective Investment in Transferable Securities Funds:
  - Equity Funds
  - Exchange - Traded Funds
  - Bond Funds
- Alternative Investment Funds
  - Fund of Funds
  - Real Estate Funds
  - Private Equity or SME Loan Funds
  - Venture Capital Funds
  - Infrastructure Funds
- Portfolio Management

[14] The Technical Expert Group (TEG), assigned for the standardization of the EU Taxonomy, uses the Code of Classification of Economic Activities in the European Union (Nomenclature des Activités Économiques dans la Communauté Européenne: NACE) in order to determine the effects of economic activities on a sectoral and statistical basis. NACE covers twenty-one sectors with four subcode levels. Six hundred and fifteen classes of economic activity have been determined at the fourth level, the final classification degree of NACE (EC, 2020: 10) **(URL, 26)**.

• Retirement - Pension Products - Pension Schemes - Pan-European Private Pension Products
Insurance • Insurance Based Investment Products
Corporate and Investment Banking • Securitization Funds • Venture Capital and Private Equity Funds • Portfolio management • Index Funds

Source: ($EU_{URL\ 26}$, 2021).

Among the funds in Table 1, the compatibility of funds other than EU funds with the EU Taxonomy can be observed by investors who care about green economy. Funds that are not compatible with taxonomy carry the risk of being excluded from the market and capital. EU taxonomy contributes to the determination of strategic preferences and in terms of directing financial flows to sustainable economic activities.

This classification, which is a pioneer in the development of a sustainable capital market on a global scale, has aspects that affect not only political actors but also commercial actors. As a matter of fact, in the last few years, some developed and developing countries also have mobilized initiatives for taxonomy. The report "Developing a National Green Taxonomy: A World Bank Guide" published by the World Bank includes various taxonomy applications such as Bangladesh Taxonomy, Chinese Taxonomy, Mongolia Taxonomy, Climate Bonds Taxonomy (WICER, 2021). A similar taxonomy plan, in which financial systems are mobilized for sustainable growth, was also included by the Canadian Government in 2020 (https://publications.gc.ca/, 2020). To help companies and investors to make informed green choices, the UK Government and the Green Technical Advisory Group are working together to develop the UK Taxonomy. The UK Taxonomy is planned to be built on top of the EU Taxonomy and other international taxonomies (https://www.greenfinanceinstitute.co.uk, 2021). In 2020, a support for sustainable investment financing, which refers to the EU Taxonomy with the "Green Bonds and Green Credit Sustainability-Linked Credit Guidelines", came from Japan (OECD, 2020, p. 27).

It is clear with the expectation of taxonomy efforts will gradually increase that; circular economy policies required be supported by financial policies. Taxonomy not only affects the strategic plans of large companies, but also provides an important motivation for the growth in the sustainable investments on a global scale. With a positive perspective in the future, it is expected that international taxonomy policies will resolve misclassifications and disinformation, reveal what sustainability really is, and increase the awareness of the society.

CONCLUSION

In recent years, there has been an intensity in the fight against global environmental problems, both nationally and internationally. This increases the need for global financing to ensure economic, environmental and social sustainability. Because the existing financial instruments could not contribute to sustainability, sustainable investment instruments have started to be offered to the global markets. This study provides an idea about the national and international regulations that have been on the agenda in recent years, linking economic and financial activities with global environmental targets. As a result of the regulations made, it is obvious that the measures to be taken by considering the structural characteristics of each country are different. However, it can be said that environmental externalities will be prioritized in terms of investment, especially with these new regulations.

EU created a concrete, comprehensive and ambitious action plan to make Europe a carbon neutral continent by 2050 with the Green Deal in 2019. It is expected that this plan will significantly affect the decisions and preferences of companies/investors who want to develop their commercial relations with EU in the near future. As a matter of fact, the EU Taxonomy was published in the same year in order to standardize and mobilize sustainable activities. The Green Deal, which started to receive support from all over the world under the leadership of EU, and EU Taxonomy, which is the first concrete output, aim to solve many global environmental problems, especially climate change, by concretizing them by net activity and investment classifications. EU Taxonomy aims to support such projects and activities by directing the investment preferences of companies/investors into sustainable channels. With this way, activities/investments that are unsustainable or ones that spread sustainability-related disinformation to the market are excluded from the market.

The Green Deal and EU Taxonomy, which want to guarantee the rights of future generations, will also shape the environmental goals of other countries that have close relations with the EU, especially member states, within the framework of their financial and legal infrastructures. The EU Taxonomy has been created to include the economic activities of green listed companies in most sectors with high greenhouse gas emissions. Investors are free on what to invest in. The aim here is

to promote sustainable investments and projects that comply with global environmental targets by supporting them. Fundamentally, the EU Taxonomy has become a model for other geographies of the world, China being in the first place, in a short time. For this reason, governments have a number of duties to align the investments to be made in their sovereignty areas with their national taxonomies. These responsibilities of governments are decisive. Accordingly, the content of national taxonomies should be designed in a way that does not disrupt the integrity of the market. Financial incentives and tax incentives can be applied in order to attract production and consumption to sustainable markets. In the meantime, taxonomy should be placed in a dynamic structure that is in a way that it can catch up with flexible and new information technologies and should be equipped with different investment types and policies. A successful taxonomy policy increases the transparency of the public while increasing its financial power. Also, since taxonomy increases reliability and comparability for sustainability, it will also eliminate the green laundering problem by ensuring the transparency of companies. Taxonomy should be seen as an important opportunity, espicially for developing countries. The planning of the taxonomy, which has the feature of making financial markets sustainable and gaining sustainable development advantage in the near future, will strengthen the global economy with a new movement.

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Yazar Katkı Oranı ve Çıkar Çatışması Beyanı: Bu çalışmaya 1. yazar %60 oranında, 2. yazar %40 oranında katkı sağlamıştır. Söz konusu çalışma ile ilgili herhangi bir kurum, kuruluş, kişi ile mali çıkar çatışması yoktur ve yazarlar arasında çıkar çatışması bulunmamaktadır.