GREEN GROWTH, JUST TRANSITION AND DECENT WORKS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND COMBATTING CLIMATE CHANGE

SÜRDÜRÜLEBİLİR KALKINMA VE İKLİM DEĞİŞİKLİĞİYLE MÜCADELE BAĞLAMINDA YEŞİL BÜYÜME, ADİL DÖNÜŞÜM VE İNSANA YAKIŞIR İŞLER

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ABSTRACT

Traditional economic growth models damage natural resources to which humanity depends, causing important environmental, social and economic problems, especially climate change. Today, it is understood by countries that a new growth approach should be applied in order to ensure the sustainable use of scarce natural resources, combatting negative effects of climate change and reduce poverty while realizing economic development. The view that environmentally friendly investments aren't cost effective is changing and countries want to take advantage of the opportunities offered by green growth. However, this process also requires a just transition. The aim of this study is to evaluate green growth, just transition and decent work concepts in the context of sustainable development and combatting climate change. In the study, it is concluded that if green growth and just transition processes are well managed,

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they provide significant opportunities for realizing UN-SDGs, combatting climate change and the creation of decent works.

Keywords: Green Growth, Just Transition, Sustainable Development Goals, Climate Change, Decent Works.

ÖZ

Geleneksel ekonomik büyüme modelleri insanlığın bağlı olduğu doğal kaynaklara zarar vermekte; iklim değişikliği başta olmak üzere önemli çevresel, sosyal ve ekonomik sorunlara neden olmaktadır. Günümüzde, ülkeler tarafından ekonomik kalkınma gerçekleştirirken; kıt doğal kaynakların sürdürülebilir kullanımının sağlanması, iklim değişikliğinin olumsuz etkileriyle mücadele edilmesi ve yoksulluğun azaltılması doğrultusunda yeni bir büyüme yaklaşımının uygulanması gerektiği anlaşılmış durumdadır. Çevre dostu yatırımların maliyet etkin olmadığı görüşü değişmekte ve ülkeler tarafından yeşil büyümenin sunduğu fırsatlardan daha fazla yararlanılmak istenilmektedir. Ancak, bu süreç aynı zamanda adil bir dönüşümü gerektirmektedir. Bu çalışmanın amacı, sürdürülebilir kalkınma ve iklim değişikliği ile mücadele bağlamında yeşil büyüme, adil dönüşüm ve insana yakışır iş kavramlarını değerlendirmektir. Çalışmada, yeşil büyüme ve adil dönüşüm süreçlerinin iyi bir biçimde yönetilebilmesi halinde, Birleşmiş Milletler Sürdürülebilir Kalkınma Amaçları'nın gerçekleştirilmesi, iklim değişikliğiyle mücadele edilmesi ve insana yakışır işlerin oluşturulması için önemli fırsatlar sunacağı sonucu elde edilmiştir.

Anahtar Kelimeler: Yeşil Büyüme, Adil Dönüşüm, Sürdürülebilir Kalkınma Amaçları, İklim Değişikliği, İnsan Yakışır İş.

INTRODUCTION

Today, environmental problems have increased significantly. Humanity uses 1.7 times more resources than the world can reproduce and generates more waste than the world's carrying capacity (Montt et al., 2018: 1). Activities carried out by people reveal environmental problems, especially climate change, as demonstrated by the Intergovernmental Panel on Climate Change (IPCC) (2014)

in the Fifth Assessment Report (IPCC, 2014). In 1992, United Nations (UN) Conference on Environment and Development (UNCED), also known as the Rio Conference, held in Rio de Janeiro and one of the most important output was UN Framework Convention on Climate Change (UNFCCC). In Convention, climate change was defined as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods." (UNFCCC, 1992: 7). Many problems such as extreme weather events, prolonged forest fires, desertification, floods, rising sea levels, lack of water and food security, melting of glaciers, agricultural yield losses, heat waves affect the world and disasters are occurring due to climate change (IPCC, 2018). The fact that the world economy has entered the integration process in parallel with the globalization process in the post-1980 period paves the way for the effects of disasters caused by climate change in any region of the world to be effective all over the world. Climate change increases the struggle for scarce resources and there are climate migrants (Modéer, 2019).

The Paris Agreement was adopted at the 21st Conference of the Parties (COP21) of the UNFCCC held in Paris in 2015 and has started to guide global climate change policies in 2020. The main objective of the Agreement is "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels, and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change." (UN, 2015: 3). Today, global average temperatures have already increased by 1°C compared to the pre-industrial period and it is predicted to reach 3°C in 2100. As stated in IPCC 1.5°C Global Warming Special Report (2018), climate change and environmental problems are factors that significantly affect economic development, employment and social structure and need to be taken urgent measures (IPCC, 2018). In terms of economic activities and employment, environmental conditions are clearly critical. In this line, in many international multilateral environmental agreements and documents economy related issues have begun to take place beside environmental issues (ILO, 2018: 2; Montt et al., 2018). The Climate Action for Jobs Initiative, an action plan, was presented at UNFCCC COP25 in 2019, in line with International Labour Organisation (ILO) decision at UN Climate Summit in New York in 2019. Under this plan, political and social tools of successful transition processes to low-carbon economy have been negotiated in the context of more responsive economies to climate change (ILO, 2020a).

According to ILO (2018) studies, every year between 2000 and 2015, due to disasters, there was a loss equivalent to 0.8% of a year's work time on a global scale. It is envisaged by the ILO that by 2030, the total working time on a global scale will be reduced by 2% and adverse conditions will affect all economic sectors,

especially the agricultural sector, depending on the increase and spread of climate-related extreme weather events (ILO, 2018: 1).

The above-mentioned reports of international organizations show that while the negative consequences of climate change increase economic losses will also increase, gross domestic product (GDP) and productivity will decrease, and human health and working conditions will be negatively affected. Therefore, countries' active participation in combating climate change is important in terms of achieving the UN 2030 Agenda and Sustainable Development Goals (SDGs), increasing economic welfare, progressing in social processes and fighting poverty. In addition, the policies to be developed should not leave anyone behind and should be inclusive (Robins et al., 2018:6; UNFCCC, 2016:14). Today, within the scope of these policies, sustainable, environment-friendly and innovative production methods, transition to low-carbon economy and green growth approach are evaluated.

Within the scope of green growth many practices such as integrated resource management, climate-friendly agriculture practices, energy efficiency and renewable energy use, low-carbon transportation, eco-buildings, smart infrastructure technologies (smart-grid) are considered by countries (REN21, 2016). However, it is seen that while these approaches offer new job opportunities, on the other hand, they show results affecting fossil fuel-based economies and employees in many countries. In this regard, it is very important that the transition to an environment-friendly and sustainable economy is fairly realized for all, and that the process is managed well. For these reasons; decent works[2], ending poverty, and environmental sustainability are identified as the three most decisive challenges of the 21st century by the UNFCCC Secretariat (UNFCCC, 2016: 19).

Accordingly, the aim of this study is to evaluate green growth, just transition and decent works concepts in the context of sustainable development and combating climate change. Within the scope of the study, answers are sought to the research questions below:

- What are the environmental, social and economic sustainability dimensions of green growth?
- What are the contributions and possible problem areas of low-carbon development activities to combatting climate change within the scope of green growth?

[2] A decent work is a job that ensures productive, adequate wages, safe working conditions, job security, reasonable career development and employee rights (ILO, 2020b).

- What are the relationships between green growth, just transition and decent work concepts and what are the opportunities and new problem areas created by them?

To address to research questions above, the study is discussed in four parts (1) First, the relationship between green growth and sustainable development is discussed. In this context, historical development of this relationship and how green growth today can be handled in the context of realization of SDGs is examined within this section. (2) Then, in the context of green growth and climate change, the opportunities and possible problem areas offered by different sectors in connection with low-carbon development are discussed. (3) In third part, just transition and decent works are evaluated in the context of social inclusion and green growth. In this section, how these concepts are handled in the international arena, especially by the UN and the European Union (EU), in order to combat climate change and develop sustainable and environment-friendly economic policies are also examined. (4) The findings from these sections are evaluated in the Conclusions section.

1. SUSTAINABLE DEVELOPMENT AND GREEN GROWTH RELATIONSHIP

Discussions on the green economy have maintained their importance in the international arena since the 90's. Reducing the pressures on the environment in the processes of achieving and sustaining economic growth has been discussed since UNCED. In Rio Declaration, it is seen that the principles regarding the handling of environmental costs and economic instruments together (Principle-16) and the development of sustainable production and consumption patterns (Principle-8) are included (UN, 1992a). In Agenda 21, another important output of UNCED, these issues are detailed and the environment and development are addressed in an integrated manner. Activation of economic tools and market mechanisms in line with sustainable development is also included to the document (Section-1/Paragraph-8) (UN, 1992b).

In the international meetings held after UNCED, it has continued to be underlined that it is important to consider the carrying capacity of the environment in ensuring economic and social growth and sustainable use of resources and supports efficient production processes (UNDESA, 2012). Essentially, it is a difficult to achieve all of these goals together, and green growth concept has been put forward and considered as a key element in achieving sustainable development (Capasso et al., 2019: 390).

The concept of green growth is described by the UN Environment Program (UNEP) as an approach that reduces environmental risks and excessive resource consumption, as well as enhances equality and welfare and includes

environmental, social and economic benefits (Fedrico-Fazio and Ten Brink, 2012).

Pioneering work on the concept of green growth was carried out at the UN Economic and Social Commission for Asia and Pacific Region (UNESCAP) 5th Ministerial Conference on Environment and Development held in Seoul in 2005. The Seoul Initiative Network on Green Growth, a ministerial declaration, and a regional implementation plan were adopted by 52 government representatives at the conference, agreeing not only to ensure sustainable development, but also to achieve green growth (UNESCAP, 2005). Thus, the vision developed by UNESCAP has started to be discussed more widely in line with the realization of the UN Millennium Development Goals (UN, 2020a).

However, the financial crisis in 2008 had a great impact on the global spread of the concept. The increase in unemployment rates reduced demand, prompting governments to turn to areas that have not reached market saturation, and in this context, economic activities such as development of green technologies to ensure environmental sustainability have provided this area (Capasso et al., 2019: 390). As the Republic of Korea announced its low-carbon green growth approach as the new development vision of the country and published the related strategy documents in the following period, the use of the concept became widespread, and green growth was put on the agenda in the Council of Ministers meeting held by the OECD in 2009 (UN, 2020a). As a result of the meeting, the Green Growth Declaration was accepted by 34 countries representing 80% of the world economy and green growth approach was adopted in response to the global economic crisis. In this direction, another study was carried out by UNESCAP countries. In 2010, Incheon Declaration of Green Growth was adopted and Global Green Growth Institute (GGGI)[3] was established as a non-profit foundation in June 2010 (OECD, 2011a; UN, 2020a).

At the G20 Summit held in Seoul in November 2010, it was emphasized that green growth is an important and inherent part of sustainable development. Within the scope of green growth, G20 countries encouraged public investments in environmental protection, energy efficiency and renewable energy, and investments in carbon capture and separation (UN, 2020a).

In 2011, Towards Green Growth package was declared at the OECD Council of Ministers Meeting (OECD, 2011a). In 2012, the World Bank, UNEP and GGGI established the Green Growth Knowledge Platform (GGKP, 2020). In 2012, Inclusive Green Growth: The Pathway to Sustainable Development study published by the World Bank and it is stated that although the recent economic

[3] GGGI gained international organization status at the Rio+20 Conference held in June 2012 (UN, 2020a).

development is important in getting people out of poverty and increasing their income levels, this has a significant impact on the natural capital of the world and its consequences will adversely affect sustainable development in the long term and it will cause negative results in societal context. In this direction, green growth was considered as a necessary, effective and affordable solution. The role of green growth was seen as vital in achieving the goal of sustainable development, so should have three pillar structure that includes sustainability in economic, environmental and social dimensions (World Bank, 2012: xi).

By 2017, a set of green growth indicators (GGIs) (Table-1) was put forward by OECD. GGI were identified to make an objective assessment during the implementation in the field of green growth, raise awareness and identify different risks and opportunities in this area. GGIs are dynamic and flexible, so continues to be developed by OECD. The main purpose of GGIs is to support the countries adapt to green growth more comfortably under the developing conditions and that GGIs can be improved with new conditions in the coming period (OECD, 2017a: 135).

Table.1: The OECD set of GGIs (OECD, 2017a:135-137).

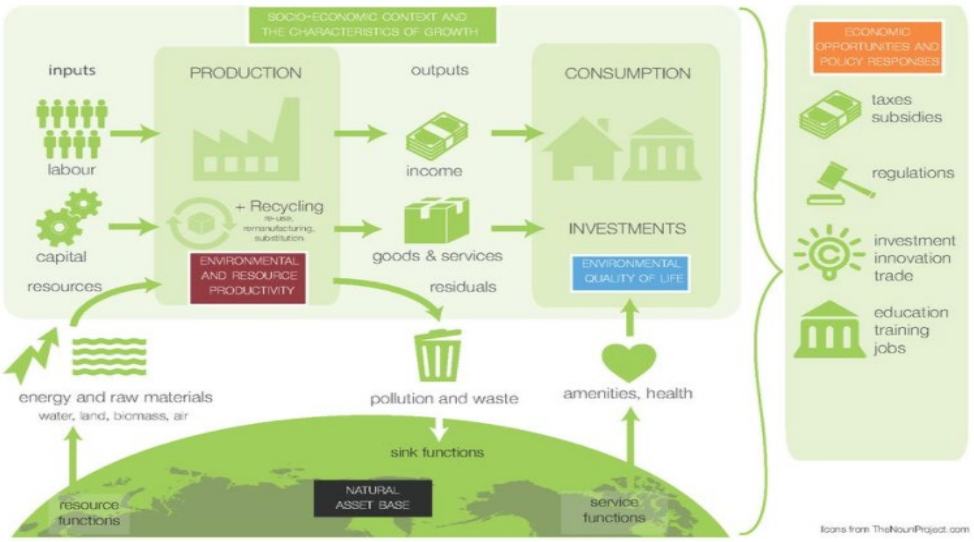
Group/Theme	**Proposed indicators**
The socio-economic context and characteristics of growth	
Economic growth, productivity and competitiveness	Economic growth and structure - GDP growth and structure - Net disposable income (or net national income)
	Productivity and trade - Labour productivity - Multi-factor productivity - Trade weighted unit labour costs - Relative importance of trade (exports+imports)/GDP
	Inflation and commodity prices - Consumer price index - Prices of food; crude oil; minerals, ores and metals
Labour market, education and income	Labour markets - Labour force participation - Unemployment rate
	Socio-demographic patterns - Population growth, structure and density - Life expectancy: years of healthy life at birth - Income inequality: GINI coefficient - Educational attainment: level of and access to education
The environmental and resource productivity of the economy	
Carbon and energy productivity	1. CO_2 productivity 1.1. Production-based CO_2 productivity (GDP per unit of energy-related CO_2 emitted) 1.2. Demand-based CO_2 productivity (Real income per unit of energy- related CO_2 embodied in final demand)
	2. Energy productivity 2.1. Energy productivity (GDP per unit of TPES) 2.2. Energy intensity by sector (manufacturing, transport, households, services)

	2.3. Share of renewable energy sources (in TPES, in electricity production)
Resource productivity	3. Material productivity (non-energy) 3.1. Demand-based material productivity (comprehensive measure; original units in physical terms) Real income per unit of materials embodied in final demand, materials mix 3.2. Production-based (domestic) material productivity GDP per unit of materials consumed, materials mix - Biotic materials (food, other biomass) - Abiotic materials (metallic minerals, industrial minerals) 3.3. Waste generation intensity and recovery ratios (by sector, per unit of GDP or value added, per capita) 3.4. Nutrient flows and balances (N, P) - Nutrients balances in agriculture (N, P) per agricultural land area and change in agricultural output
	4. Water productivity (Value added per unit of water consumed, by sector- for agriculture: irrigation water per hectare irrigated)
Multifactor productivity	5. Environmentally adjusted multifactor productivity (comprehensive measure; original units in monetary terms)
The natural asset base	
Natural resource stocks	6. Index of natural resources (Comprehensive measure expressed in monetary terms)
Renewable stocks	7. Freshwater resources (Available renewable natural resources (groundwater, surface water) and related abstraction rates (national, territorial) 8. Forest resources (Area and volume of forests; stock changes over time) 9. Fish resources (Proportion of fish stock within safe biological limits-global)
Non-renewable stocks	10. Mineral resources (Available (global) stocks or reserves of selected minerals: metallic minerals, industrial minerals, fossil fuels, critical raw materials; and extraction rates)
Biodiversity and ecosystem	11. Land resources (Land cover conversions and cover changes from natural state to artificial state) - Land use: state and changes 12. Soil resources (Degree of topsoil losses on agricultural land, on other land) - Agricultural land area affected by water erosion, by class of erosion 13. Wildlife resources (to be further refined) - Trends in farmland or forest bird population or in breeding bird populations - Species threat status, in percentage of species assessed or known - Trends in species abundance
The environmental dimension of quality of life	
Environmental health and risks	14. Environmentally induced health problems and related costs (e.g. years of healthy life lost from degraded environmental conditions) - Population exposure to air pollution, and the related health risks and costs 15. Exposure to natural or industrial risks and related economic losses
Environmental services and amenities	16. Access to sewage treatment and drinking water 16.1. Population connected to sewage treatment (at least secondary, in relation to optimal connection rate) 16.2. Population with sustainable access to safe drinking water
Economic opportunities and policy responses	
Technology and innovation	17. Research and development expenditure of importance to green growth

	- Renewable energy sources (% of energy-related R&D) - Environmental technology (% of total R&D, by type) - All-purpose business R&D (% of total R&D) 18. Patents of importance to green growth (% of a country's patent families worldwide) - Environment-related and total patents - Structure of environment-related patents 19. Environment-related innovation in all sectors
Environmental goods and services	20. Production on environmental goods and services (EGS) - Gross value added in the EGS sector (% of GDP) - Employment in the EGS sector (% of total employment) - To be complemented with: Environmentally related expenditure (level and structure)
International financial flows	21. International financial flows of importance to green growth (% of total flows and % of GNI) 21.1. Official development assistance 21.2. Carbon market financing 21.3. Foreign direct investment
Prices and transfers	22. Environmentally related taxation and subsidies - Level of environmentally related tax revenue (% of GDP, % of total tax revenues; in relation to labour-related taxes) - Structure of environmentally related taxes (by type of tax base) - Level of environmentally related subsidies 23. Energy pricing (share of taxes in end-use prices) 24. Water pricing and cost recovery
Regulations and management approaches	25. Indicators to be developed
Training and skill development	26. Indicators to be developed

Issues such as energy, infrastructure, natural resources, water and waste management, low-carbon development (Figure-1) emphasized in the GGIs are not only essential for green growth but also important for the realization of UN SDGs (OECD, 2017b; 2019).

Figure.1: Green Growth Framework (OECD, 2017a)



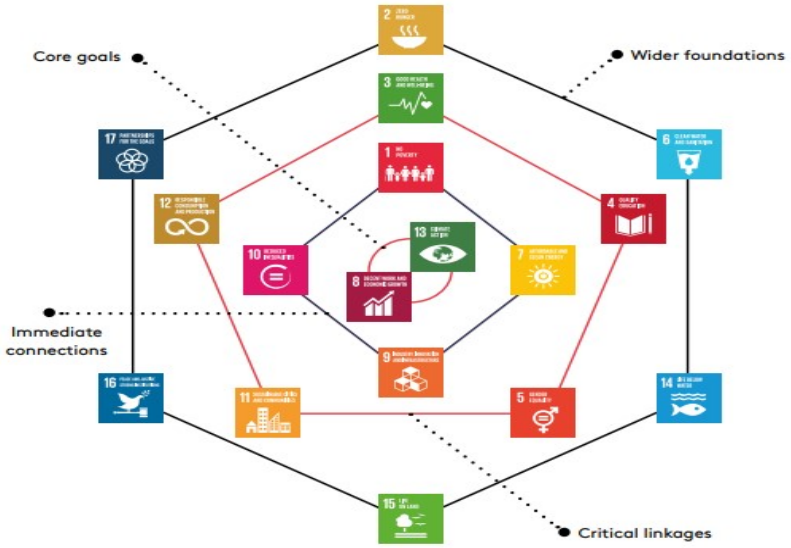
Under SDGs, adopted at the UN General Assembly held in 2015, there are 17 goals and 169 targets. All countries are expected to contribute SDGs within their own capacities and development priorities. The targets represent the structure of SDGs, which includes the economic, environmental and social dimensions of sustainability focused in Our Common Future Report (Brundtland Report). Thus, SDGs are described as integrated and 'indivisible whole'. The basic logic of SDGs is that goals and targets are interdependent and interrelated. SDGs are handled according to the national policy priorities of the countries and within the scope of green economy applications, they also direct the studies that reveal the importance of natural capital as one of the basic production factors in the economic system (Falk et al., 2019; Nilsson, 2016).

Folke et al. (2016) states that the classical production factors in the economy, consisting of land, labour, and capita, are handled as natural capital, human/social/cultural capital and human made capital in the green economy. In this context, while economy is a sub-system of society, both of them are also sub-systems of biosphere. The relationship between SDGs considered in this context and discussed in a scheme on the basis of the biosphere as shown in Figure-2. Therefore, it is inevitable that the actions and policies developed for one of the SDGs will affect the others (Folke et al., 2016). Scharlemann et al. (2020) stated that, for example, SDG7: Affordable and Clean Energy; SDG13: Climate Action on energy security and SDG3, 11, 12, which are the subject of air pollution, are related and that their integrated treatment, rather than separate studies, will lead to cost-effective results when evaluated economically (Scharlemann et al., 2020).

Figure.2: SDGs and Their Relationship with Biosphere, Society and Economy (Folke et al., 2016).

Different models have been developed that address the relationship between SDGs and their relationship with green growth. In the model developed by Robins et al. (2018) (Figure-3), the issue is considered in the context of green growth and SDGs relationship as well as just transition. In the study, it was stated that the emphasis on just transition and decent work in green growth was also addressed within the scope of SDGs and SDGs are related to economic sectors, green economy[4] and transition to green employment[5]. According to Robins et al., SDG8: Decent Work and Economic Growth and SDG13: Climate Action are the basis of this connection (Robins et al., 2018:13). SDG8 is about to support decent works, creativity, innovation, entrepreneurship, to adopt development-oriented policies and to develop the micro, small and medium enterprises. In addition, the importance of enabling all segments of society, especially socially vulnerable groups, to receive equal pay for equal work and access to job opportunities under equal conditions are emphasized (UNDP, 2020). Robins et al. states that the activities carried out within the scope of SDG8 and SDG13 in line with green growth and just transition will support the SDG1: No Poverty, SDG2: Zero Hunger, SDG3: Good Health and Well Being, SDG4: Quality Education, SDG5: Gender Equality, SDG7: Affordable and Clean Energy, SDG9: Industry, Innovation and Infrastructure and SDG10: Reduced Inequalities, SDG11: Sustainable Cities and Communities, SDG12: Responsible Consumption and Production (Robins et al., 2018).

Figure.3: Green Growth, Just Transition and SDGs (Robins et al., 2018: 13).



[4] Green economy described by UNEP as low carbon, resource efficient and socially inclusive economic activities (UNEP, 2020).

[5] Green employment opportunities contribute significantly to the preservation or recovery of environmental quality, low carbon development in agriculture, manufacturing, construction, installation and maintenance, and scientific and technical, administrative and service-related activities (EC, 2019a).

The basic logic of the green growth approach is the sustainable use and protection of environmental resources for economic development. In this respect, it is important to support activities within the scope of SDG6: Clean Water and Sanitation, SDG14: Life Below Water, SDG15: Life on Lands and SDG13: Climate Action, which constitute environmental pillar of SDGs, and should be handled in an integrated manner. Collaborations between strong institutions and countries are essential for the implementation of green growth policies, actions and all SDGs. In this respect, SDG16: Peace, Justice and Strong Institutions and SDG17: Partnership for the Goals will contribute to all SDGs. In addition, all activities carried out within the scope of SDGs should support the realization of the targets included in SDG11: Sustainable Cities and Communities and integrate green growth processes into sustainability plans developed for cities and communities in order to achieve resilient cities (Nilsson, 2016).

Within the scope of green growth, the conditions to be met in line with achieving the targets specified in the SDGs are as follows (GEC, 2016):

- It should be ensured that all stakeholders, especially local communities, who are most likely to be affected by the transition to green economy, are included in the processes and the processes that prevent the realization of SDGs should be analysed well,
- In line with the approach to combating poverty and inequality, which is the basis of SDGs, policies in which no one is left behind should be developed within the scope of green growth,
- In this direction, a just transition process should be operated, which especially reveals green and decent works opportunities, ensures gender equality and includes socially sensitive groups,
- It is necessary to develop policies in line with the protection of nature and human health, and to ensure investment priorities to practices that reduce fossil fuel use.

2. CLIMATE CHANGE AND GREEN GROWTH: TURNING THE THREAT INTO AN OPPORTUNITY OR NOT?

The pressure of traditional economic growth models on the environment threatens sustainable growth. In order for states to strengthen their economies and not to experience economic losses due to the effects of climate change, they should collectively make a decisive transition towards low-carbon economies (OECD, 2017b:19). As stated by ILO (2015, 2020b), making economy more environment and climate change sensitive will have benefits in terms of ensuring sustainability of natural resources, increasing energy efficiency, reducing waste, pollution,

inequalities and increasing resilience. Accordingly, supporting green jobs[6] will encourage more competitive, innovative, low-carbon, environment-friendly, sustainable economies, and will also contribute to combating climate change by ensuring sustainable production and consumption. However, active participation and cooperation of all stakeholders is important in achieving to these goals (ILO, 2015: 9, 12, 16; 2020b; UNFCCC, 2016).

In the context of low-carbon development, green growth has been an important model in reducing the negative impact of climate change. In the Incorporating Green Growth and Sustainable Development Policies into Structural Reform Agendas Report, submitted by OECD, World Bank and UN for G20 Summit held in 2012, the concern about the serious increase in greenhouse gas emissions in the atmosphere was expressed. It was emphasized that delay in developing new policies related with green growth will slow down economic development (OECD et al., 2012). After the publication of this report, by means of the scientific studies in the field of climate change, harmful effects of global warming on entire ecosystem have better understood. Today, policies to combat climate change are basically covered in two main categories: mitigation and adaptation. While mitigation actions targeted the reduction of greenhouse gas emissions; adaptation actions include adapting to the existing effects of climate change. However, within the scope of climate change negotiations under the UNFCCC, in addition to these two subjects, negotiations continue through the subjects of technology transfer, capacity building and financial support. The level of realization of the commitments of the countries in the fulfilment of the goals of the Paris Agreement is considered within the framework of transparency (OECD, 2017b; UNFCCC, 2016).

Essentially, mitigation and adaptation activities are both interrelated and affect each other, as well as affecting economic sectors and employment. In other words, economic sectors are very vulnerable to the effects of climate change. For example, the agricultural sector is one of the economic sectors with the largest number of labour force globally and climate change directly affects this sector. It is seen that the said problem of exposure to environmental risks are experienced to different degrees among countries. Poor and low-income countries are at a higher risk, as they have a lower capacity for climate change adaptation and preventing damage caused by extreme weather events (Montt et al., 2018:11). By UN (2016), the effects of mitigation and adaptation policies on economic sectors and employment are discussed under four headings (ILO, 2020a; UNFCCC, 2016: 13):

1. Creating new business areas,

[6] According to ILO, green jobs contribute to improving environmental quality and avoiding harming ecosystems around the world (ILO, 2000d).

2. Job substitution,
3. Termination of activities of some existing employment areas,
4. Redefining the transition and its scope in existing works.

Given that 1.2 billion jobs today are directly related to maintenance and effective management of a healthy environment, the impact of green growth and activities under climate action is more clearly understood. When green jobs are handled especially in the agriculture, fisheries and forestry sectors, it is seen how much they are intertwined with natural processes. The efforts such as water and air purification, soil renewal, feeding, pollination, pest control, and adaptation activities to extreme temperatures, storms and tsunamis are considered as green growth and climate action sectors by ILO. In the current situation, green employment opportunities in basic economic sectors are concentrated in renewable energy, energy efficiency, buildings and construction, transportation, basic industry, agriculture and forestry sectors. However, a wide variety of green employment opportunities will be possible in the coming period through climate action and practices (Evans, 2015; ILO, 2018:1, 2020d; Montt et al., 2018: 13).

The fact that the active workforce in such fossil-based sectors can be shifted to new and environmental-friendly employment areas is considered as an important solution. However, especially in developing countries, new employment opportunities created as a result of mandatory or voluntary sectoral transformations due to climate change and environmental destruction may not be decent works. The negative examples are the situation of the workers of electronic recycling in Asia and Latin American countries and the working conditions of workers in bio-fuel raw material fields (ILO, 2018; UNEP et al., 2008).

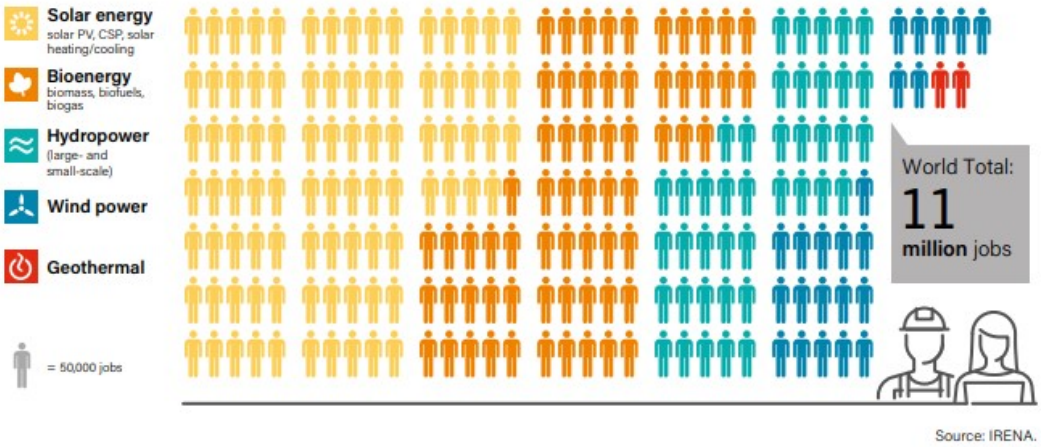
These issues reveal the importance of addressing the concepts of just transition and decent work in green growth policies and actions. It also shows the necessity of financing, technology transfer and capacity building supports for the integration of developing countries into green growth process. These issues are included in the UNFCCC and the Paris Agreement (Paris Agreement, 2015; UNFCCC, 1992). The importance of structural reforms and effective climate policies and cooperation between states in the integration of climate and growth processes has been also emphasized by OECD (2019). It is stated by the OECD that these studies will reveal many opportunities in the context of enhancing low-carbon infrastructure market, technology and services, increasing market confidence and financial opportunities, innovation and energy sector (OECD, 2017b: 21)

Within the scope of the following sub-titles, in the context of climate change the current situation of green growth, the main issues considered at the sectoral and policy level, possible problem areas and opportunities are discussed.

Green Growth and Energy Sector

According to UN (2016), three sectors of world economy; electricity generation, fuel supply and transportation are directly responsible for about 40% of all global greenhouse gas emissions, although the employment rate in these carbon intensive sectors is not very high. It is envisaged that the realization of actions to be carried out within the scope of green growth in these sectors will contribute to actions and employment in other sectors (OECD, 2017a, 2019; UNFCCC, 2016). According to International Renewable Energy Agency (IRENA), low-carbon and renewable energy sectors created approximately 11 million new employment opportunities globally in 2018 and labour productivity has also increased (Figure-4). In 2018, especially solar energy and PV production caused the highest increase in employment (REN21, 2019: 46).

Figure.4: Jobs in Renewable Energy, 2018 (REN21, 2019:47).



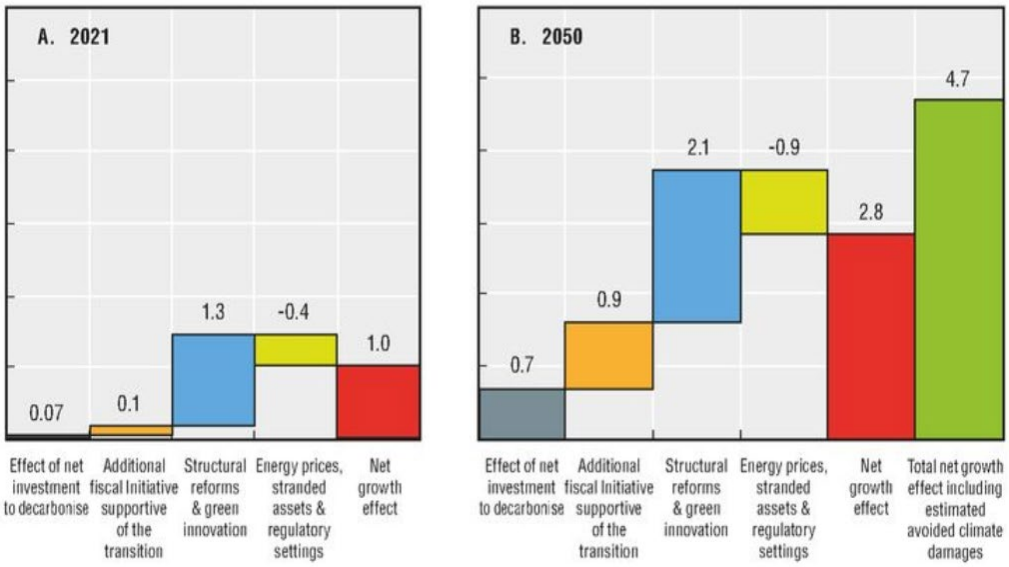
Structural changes involving the transition to a low-carbon economy will have a major impact on employees and will result in losses as well as gains for business community (UNEP et al., 2008). Today, the economic activities of many countries are based on the extraction of fossil-based natural resources. The energy transition process is taking place to a decarbonized and low-carbon future. This situation may result in termination of operations in certain sectors or imposing restrictions in production amounts within the scope of combating climate change in the future. This is likely to happen, especially in sectors that consume large amounts of energy and natural resources (Mitrova et al., 2019: 8).

In this context, Social Outlook of Employment in the World 2018 Report, published by ILO (2018), predicts that there will be 6 million job losses with the measures to be taken regarding energy production and use in the context of combating climate change, but the amount of new jobs that will be created by the green economy will be 24 million jobs (ILO, 2018:1; Montt et al., 2018:5; UNEP et al., 2008).

Green Growth and Trade, Investment and Incentive Mechanisms

It is important to ensure that within the scope of green growth, policies and incentives to be formed are consistent with climate policy and include strong financial and structural reforms. In this way, the effects of climate change will be significantly reduced, and gains will be achieved in the fields of economy and employment. It was stated by the OECD (2017b) that such a policy package could increase GDP by an average of 2.8% in the long term in 2050 across G20 countries (Figure-5). Given the positive effects of efforts to minimize the damage caused by climate change, G20's net impact on GDP across developed and emerging economies is projected to increase to 4,7% in 2050.

Figure.5: Positive Growth Effects for G20 by Combining Climate Action with Economic Reforms in a Decisive Transition (50% probability of achieving 2°C) (OECD, 2017b)



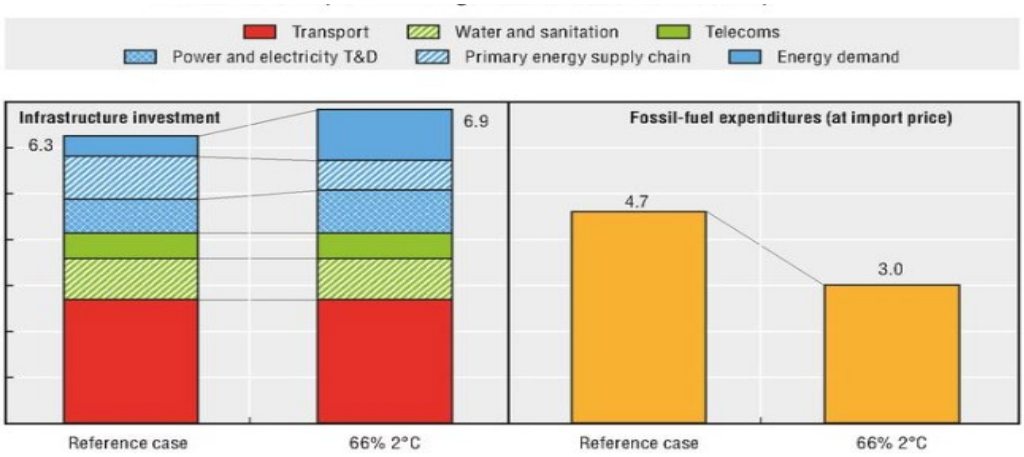
Although green growth and green economy have a potential positive effect on sustainable development, there are also concerns about structural changes that will occur in many countries within the scope of trade and investments. It is seen that these concerns are particularly focused on competitiveness. In the areas of transportation, infrastructure, waste and wastewater, billions of dollars investment news about environment-friendly products taken from countries such as EU, China, and the United States of America (USA) are positive developments, considering the volume of trade activities of these countries and especially in terms of combating climate change. However, it is a fact that there are countries whose national economies are not at a level to make such investments. In addition, the level of social protection for employees considered within the scope of green growth or protection from the effects of regulations and restrictions caused by the

transition from environmentally harmful products to environmentally sensitive products are other concerns for national economies (Acharya and Sequeira, 2012; Barbier, 2016; UNCTAD, 2013:1). For these reasons, it is important to take into consideration the conditions in order to make investment and trade mechanisms more climate-friendly and sustainable in line with green growth and to provide appropriate financial resources and supports in international arena.

Green Growth and Clean, Resilient Infrastructure Investments

OECD (2017b) anticipate that to reach an average of USD 6.3 trillion of infrastructure investment between 2016 and 2030 to realize UN SDGs on a global level (Figure-2). Reference case in Figure-6 assumes no further action by governments to mitigate climate change. Sensitization of these infrastructure investments to climate change creates an additional investment requirement of USD 0.6 trillion per year in the same period. According to the OECD, the amount of such additional investment is relatively low considering the returns to be received and is likely to be offset by meeting fuel savings from low-carbon technologies and infrastructure over time (OECD, 2017b). According to World Bank and Global Facility for Disaster Reduction and Recovery (GFDRR), by 2030 the delay in investing to urban resiliency may cost cities worldwide USD 314 billion annually due to climate change related disasters and 77 million more citizens may live in poverty (UNFCCC, 2016; World Bank, 2016).

Figure.6: Annual Infrastructure Investment Needs and Fuel Savings in a Low-Carbon Future, 2016-2030 (OECD, 2017b).



Today, it is observed that nature-based solutions (NBSs) and green infrastructures have started to be used in the context of sustaining climate change resilience and sustainability. NBSs offer important opportunities not only in the context of environmental and urban health, but also in terms of energy and resource efficiency. In this context green, blue and grey infrastructures should be

evaluated together and hybrid infrastructure systems should be created (EU, 2015; Kabish et al., 2017)

Green Growth and Financing

Another important issue in accelerating the transition to green and low-carbon economy is financing. A common but differentiated responsibilities and respective capabilities (CBDR-RC) principle has been introduced for all parties with a similar approach in UNFCCC (Article-3) and the Paris Agreement. In this context, the responsibilities and roles of developed and developing countries are defined differently. According to the Convention (UNFCCC, 1992):

- There is a CBDR-RC principle for all parties.
- Measures to be taken to combat climate change will not be restricted the international trade and will not be used for arbitrary or unfair discrimination.
- Measures related to climate change will be integrated with economic and social development and special needs of developing country parties, especially those who are vulnerable to adverse effects of climate change, will be considered.
- Developed countries have historical responsibilities in the context of climate change.
- In this direction, developed countries will provide financial support in meeting special needs of developing countries in the context of climate change.

It is also decided through the Paris Agreement that developed countries will provide financial, capacity building and technology transfer supports to developing countries for their mitigation and adaptation efforts (UN, 2015).

OECD (2017b) emphasizes the importance of providing various green financial instruments and supports by multilateral development banks (MDBs) and financial institutions in the context of investments with low-carbon and climate change resiliency (Figure-7 and Figure-8). These supports are also essential for SDGs and to reach the goals of the Paris Agreement (OECD, 2017b).

Figure.7: Share of MDB Commitments for Climate Related and Non-Climate Infrastructures by Sector, 2013-2015 Average, USD Billion (OECD, 2017b: 35)

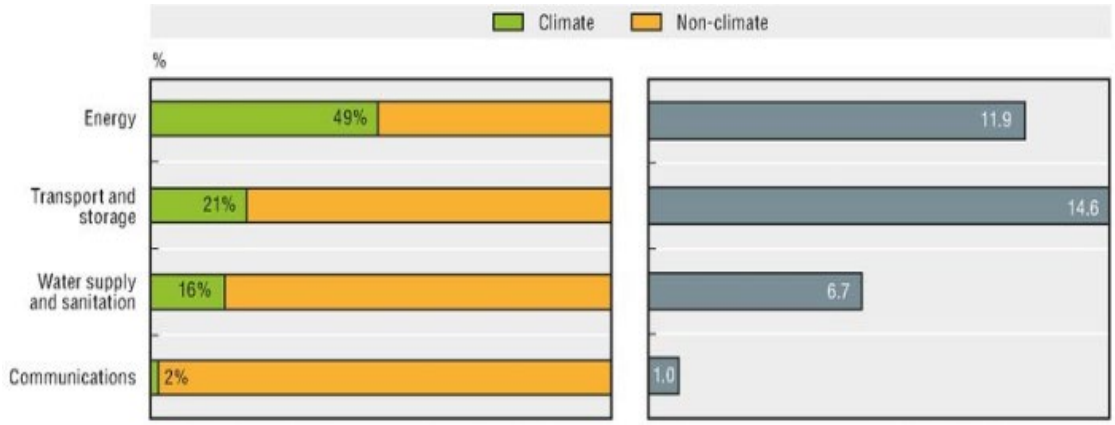
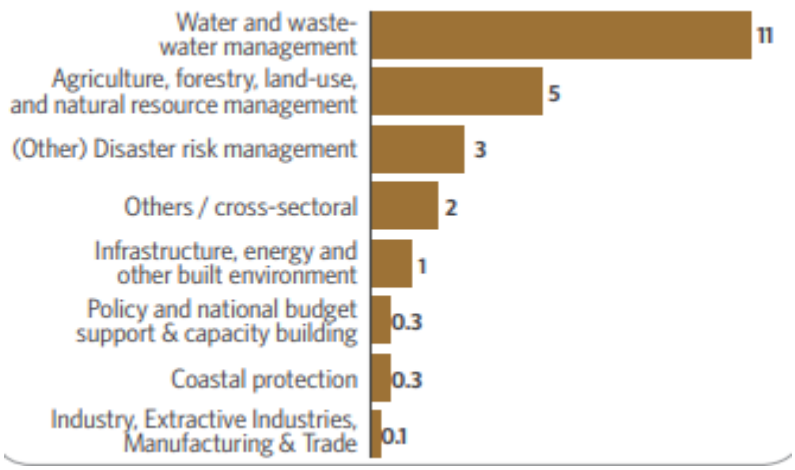


Figure.8: Climate Change Adaptation Finance (2015-2016, Average, in USD Billion) (Micale et al., 2018: 9)



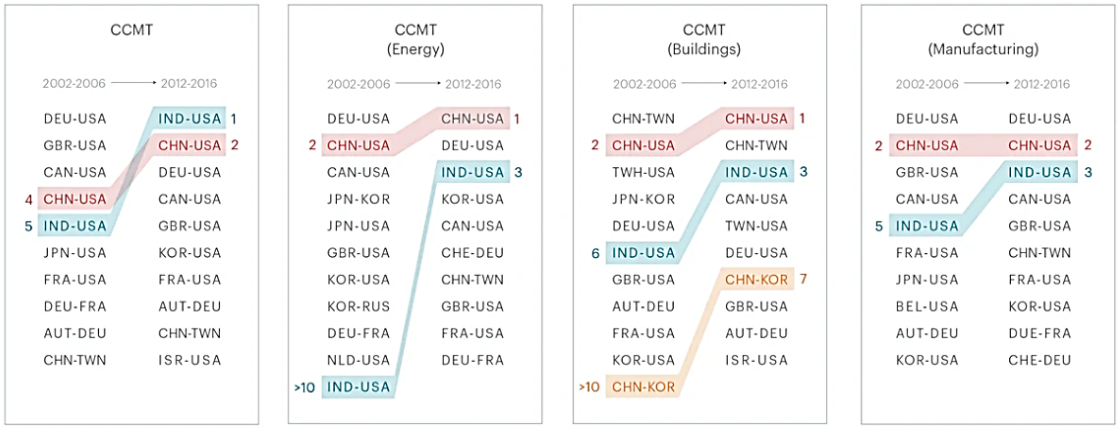
Even if the approaches and discussions on innovations and the scope and classification of environmental products and services vary with the effect of technological developments and current events, providing the necessary funding resources to these green business areas and related projects will remain valid as an important requirement. The key policy tools for developing employment in the sectors related to green products and services by the private sector and the public; subsidies are the use of carbon markets, tax reform, determination of energy alternatives, recovery of products upon completion of their lifetime, eco-label, adjustment of R&D budget and providing international assistance in this area (UNEP et al., 2008: 5).

Green Growth and Green Innovations

Another important element that will ensure the continuity of green growth are green innovations and inventions (Kijek and Kasztelan, 2013; Woo et al., 2014). Thanks to new inventions and innovations, new employment areas can be created. It is seen that many countries in the world are investing in green innovation and environmental industry towards environmental products and services to reduce their carbon footprint and become carbon neutral. Environmental industry includes a wide range of products and services, consisting of equipment for pollution control and pollution removal technologies, recycling, technical services and other professional services (Broniewicz, 2016; UNEP et al., 2008:5).

However, it is argued that the inventions made as a result of investments in these areas will only have national and global benefits and will have negative consequences in terms of trade and competition in the context of countries where there is no opportunity to invest in clean technology and inventions and R&D activities (UNCTAD, 2013:2). Contrary, there are also opinions in the literature suggesting that innovations offer significant opportunities for green growth, especially in developing countries (de Medeiros et al., 2014). The study of Rodriguez et al. (2019) shows the top-five country pairs for climate change mitigation technologies (CCMT) in different sectors between 2002-2006 and 2012-2016 (Figure-9). According to the study, research-oriented collaborations between developing countries and OECD countries, especially the USA, are increasing, and it is seen that these collaborations among environmental technologies, especially in the context of CCMT, are realized with India and China (Rodriguez et al., 2019).

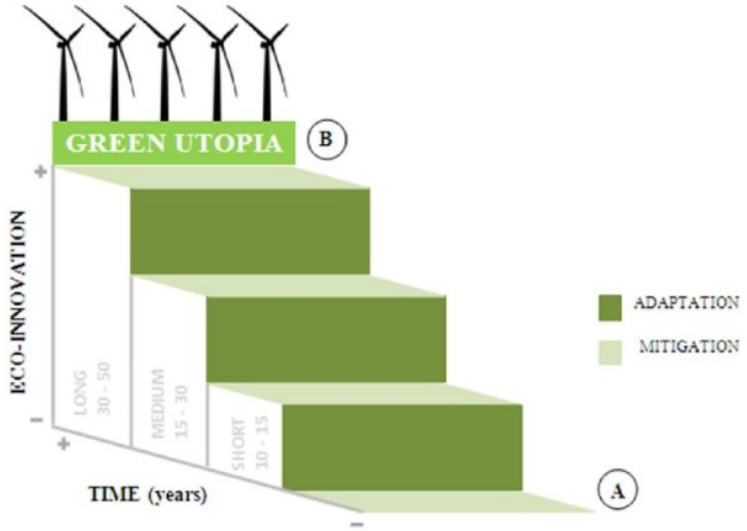
Figure.9: The Top-Five Country Pairs for CCMT in Different Sectors (Rodriguez et al., 2019).



Another issue of discussion is about injustices of a new technology introduced to the market and breaking the existing habits in the context of competition in the current market conditions. A new technology may become widespread very quickly, and its spread may be slow or limited depending on its cost (OECD, 2011b). In the literature, it appears that the benefits of investments in clean technology to reduce CO_2 emissions are also controversial. Therefore, R&D processes within this scope must be absolutely optimized (Bowen and Hepburn, 2014; de Medeiros et al., 2014; Fei et al, 2014).

It is predicted by UNEP and ILO that in the future, green growth will evolve into 'green utopia', that is, a process in which the whole society is moving in line with the green economy, through green innovations and inventions. Although this is a long-term goal, it is not a level that can be achieved without the transformation process. 'Green steps' that are passed until the level of 'pure green' is reached with technological innovations and mitigation and adaptation measures are shown in Figure-10. While point-A on the staircase represents the current conditions; the reference point at the top of the staircase (point-B) represents the level defined as green utopia, that is, an ideal situation where the economy does not create pollution or waste and is extremely efficient in the use of energy, water and resources (Fernandez et al., 2010: 21).

Figure.10: The Stairway to Green Utopia (Fernandez et al., 2010: 21).



Achieving green growth, achieving a low and/or zero carbon development and ensuring energy efficiency is a challenging goal that includes evaluating many factors together, but it also includes important opportunities for the future. In this context, it is seen that ensuring and sustaining international cooperation is inevitable. Although green growth has advantages in terms of creating

employment and using low-carbon energy, the process must be managed carefully. In this context, the just transition in which no one is left behind is essential for transition to a low-carbon and sustainable society that applies green growth principles.

3. JUST TRANSITION AND DECEND WORKS IN THE CONTEXT OF SOCIAL INCLUSION AND GREEN GROWTH

Just transition concept is used in the discussions of energy, environment and climate justice subjects (Heffron and McCauley, 2018:74). In the context of green growth, which is the focus of this study, just transition is defined by the International Trade Union Confederation (ITUC) (2017) as follows: "an economy-wide process that produces the plans, policies and investments that lead to a future where all jobs are green and decent, emissions are at net zero, poverty is eradicated, and communities are thriving and resilient." (ITUC, 2017:6).

As ILO (2020c) stated in the World Employment and Social Outlook: Trends 2020 Report, the unemployment amount calculated as 188 million in 2019 is expected to increase by 2.5 million people each year in parallel with the increase in the number of workforces. ILO states that there is a slowdown in global economic growth, and that despite the increase in the amount of labour force, the fact that there are not enough new job opportunities for those who are new to employment will make it difficult to realize the goal of ending poverty. In report, it is stated that income earning less than USD 3.20 per day, which is accepted as 'employee poverty' by ILO, affects 630 million employees and inequalities persist in terms of gender, age and geographic location (ILO, 2020c: 32; Montt et al., 2018).

The concept of just transition has become an increasingly widely used concept in conjunction with climate justice in efforts to create a low-carbon future. Within the scope of the concept, not only the effects of energy transition of fossil fuel-based economies, but also those who do not have access to energy resources and/or those who live in energy poverty are increasingly discussed in the policy development processes in the context of justice and equality (Healey and Barry, 2017; Newell and Mulvaney, 2013:132). According to ITUC (2017), with the just transition, the following factors are expected to happen (ITUC, 2017:6):

- Investing in new business areas that reduce greenhouse gas emissions and allow adaptation to the impacts of climate change,
- Not neglecting the contribution of workers working in fossil fuel related sectors to the economic level reached today; ensuring that older workers retire under safe conditions, while young workers are integrated into new processes with appropriate training tools,

- Safeguarding social protection and human rights,
- Investment in community transformation to gain the hope and trust of regions and settlements where industrial transformation, energy transformation will take place or climate impacts are in the foreground,
- Supporting innovation and technology sharing to operate a rapid process in the transformation in the trade and energy sectors, together with all economic sectors,
- Ensuring the participation of citizens in the sectoral plans prepared for the transformation of metropolitan cities,
- To formulate jobs such as increasing the resilience of the society, rescue and replacement in climate related disasters,
- Having collective meetings with workers and unions to have social dialogue with all relevant stakeholders and to improve workplace change, resource efficiency and skills.

In this approach, it is seen that the concept of just transition includes elements such as social justice, equality, creation of decent employment opportunities, participation in decision-making processes, capacity building and training opportunities, which are main elements of green growth. The aim is to improve employee rights and to obtain social content, where no one is left behind. Regarding just transition, Paris Agreement emphasizes the following statement: "Taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities." (UN, 2015:2).

At the International Labour Conference organized by ILO in 2013, the main elements that should be guaranteed in terms of ensuring just transition and developing environmentally sustainable economies are defined as follows (ILO, 2015; ITUC, 2017:11):

- Macroeconomic, sectoral and investment policies that provide employment and decent works,
- Rights, occupational safety and health,
- Social protection,
- Skill development,
- Active labour market policies,
- Social dialogue and tripartite coalitions between workers, unions and the state,
- Social transformation and economic diversification,

- A comprehensive and integrated approach that includes all these elements.

With the meeting held by ILO in 2015, the following issues were decided (ILO, 2015):

- Preparing guidelines based on country experiences and sectoral strategies, to encourage environmental sustainability, green investments, social integration and green employment,
- Setting out policies based on fair practice examples and lessons learned in the context of just transition,
- Establishing policy guidelines on practical implementation of guides at the country level to reach environmentally sustainable economies and communities.

In this context, the policy guidelines (Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All), which do not legally bind but comply with ILO's International Labour Standards, were published by ILO in 2015. The guidelines state that it is important to consider the four basic principles of the ILO's Decent Work Agenda. These include; (1) the development of social dialogue, (2) the expansion of social protection, (3) The securing of rights in the workplace, and (4) the creation of employment. It has been stressed that these principles should be defined as well as the principle of sustainable development. The policy guide of the ILO also gives priority to the principle of sustainable development in the references to green growth, investments and jobs (ILO, 2020b).

Green economies present significant opportunities in the context of social aims and represent potential new engines of growth. The guidelines underlined that social inclusion in addition to poverty reduction will be supported through green employment. Gender equality, on the other hand, cuts horizontally all four main objectives of the guidelines mentioned above (ILO, 2015, 2020b, 2020d).

ILO guidelines emphasize that negotiation with related countries is also important for people who have migrated between countries for different reasons and social protection should be provided for these people. The main goal here is protecting livelihoods and preventing involuntary migration. For this, the importance of adaptation of businesses, work places and communities to climate change is emphasized (ILO, 2015).

As mentioned above CBDR-RC is an important principle of UNFCCC. ILO (2015) stated that this principle should also be addressed within the scope of just transition and that there cannot be a single just transition solution suitable for all

countries. In this context, the policies and programmes for the countries should be determined according to the conditions and development level of the countries, the economic sectors and their size. In this way, vulnerable and poor workers won't be expected to meet the cost of the climate problem and just transition (ILO, 2015:6; UNEP et al., 2008).

UNFCCC (2016) stated that, as a result of COP21; it has been decided to develop a forum that will create a work program to address the effects of the application of compliance criteria, and within this scope, the study topics were determined as follows: (1) economic diversification and transformation; and (2) just transition of the workforce and the creation of decent works (UNFCCC, 2016: 5).

In this context, Just Transition of the Workforce and the Creation of Decent Work and Quality Jobs, a technical document complementary to the ILO's guidelines on just transition was published by UNFCCC (2016) in relation to the implementation of countries' greenhouse gas reduction policies (also referred to as response measures). As highlighted in the document, the approaches of the parties to just transition are directly related to their national conditions. While just transition has advantages for enhancing the skills of the workforce, it is seen that developing countries face difficulties due to their weak institutional structures. The large number of young people seeking work in these countries is a factor that makes it difficult for them to be included in the labour market through training. Therefore, the lack of training required for the skills in green growth approach will constitute an important barrier for these countries and their citizens (Capasso et al., 2019: 393; IISD, 2016; UNFCCC, 2016: 8).

At this stage, it is also important that the green jobs to be created are of decent quality. As mentioned above, a decent work is a job that provides productive, adequate wages, safe working conditions, job security, a reasonable career development and employee rights. In addition, it should have a scope that provides adequate social protection to employees and their families, enables personal development and social integration, and offers employees the opportunity to express their thoughts. Otherwise, it will not be possible to describe these jobs as green jobs, even if they have positive contributions in the context of environment and climate change (ILO, 2020b; UNEP et al., 2008: 4).

In order to ensure just transition at the international level, the countries party to the UNFCCC have been invited to report the problems and their emerging needs arising from the implementation of response measures or the adverse effects of climate change within the scope of the communications they have to submit to the Secretariat. In this context, reporting is made through tools such as National Communications (NCs), Biennial Reports (BR) and Intended Nationally

Determined Contributions (INDCs[7]). Through these communications, it is observed that in their INDCs, some countries have stated that their economies are based on fossil fuel production and processing. However, it is also seen that there is no clear reference in their INDCs on how these countries will perform just transition processes in their country (UNFCCC, 2016: 5, 10; UNFCCC, 2020a).

In Article 14 of the Paris Agreement, it was stated that a periodic global stocktake would be organized in line with the review of the implementation of the agreement and it was emphasized that it would be done in a comprehensive and facilitative manner. In this context, mitigation, adaptation, means of implementation and support will be discussed in the light of equality and best available science (UNFCCC, 2020b). Following the first global stocktake in 2023 within the scope of the UNFCCC and Paris Agreement, the NDCs will be reviewed and submitted to the UNFCCC Secretariat every five years (Tollin et al., 2017). In this respect, it may be stated that countries should review their NDCs submitted to the UN Secretariat in line with the Paris Agreement's goal of keeping the global average temperature rise at 1.5°C, and also work towards the realization of the necessary sectoral transformations for just transition.

There are practices in which these processes are successfully operated and exemplary within the scope of just transition. Under the just transition subject, one of the most concrete and current documents is EU's European Green Deal (EGD) (EC, 2019a). By means of this document, it is aimed to be the first carbon-neutral continent by realizing the green transformation of Europe by 2050. An approach in which no one will be left behind is aimed within the scope of the document. Besides, it is aimed to protect human health and the environment by controlling greenhouse gas emissions through new investments, encouraging innovation and inventions and ensuring sustainability (EC, 2019a; Haines and Scheelceck, 2020; Lechtenböhmer and Fischedick, 2020).

Through the EGD, the EU aims to lead globally in combating climate change (EC, 2019b). The EU carries out the Just Transition Mechanism simultaneously within the scope of the objectives that wanted to be achieve through the EGD. In this direction, EU committed to create a EUR 100 billion fund to minimize the effects of the transition in the economic and social areas during the realization of the targets. Usage areas of the mentioned fund are as follows:

[7] The UNFCCC Conference of the Parties (COP), with its resolutions 1/CP.19 and 1/CP.20, invited all Parties to present their INDCs on the new climate agreement (Paris Agreement) prior to the COP 21 (in the first quarter of 2015 by those Parties ready to do so). INDCs have begun to be referred to as Nationally Determined Contributions (NDCs) in the documents after the COP22 and on the UNFCCC website as they have already been submitted to the UNFCCC Secretariat.

- Creating new employment opportunities from a green growth perspective,
- Development of the energy efficient housing sector,
- Investing in renewable energy and low-carbon technologies,
- Improving the skills of the workforce,
- Creating new investment opportunities and establishing new companies,
- Development of R&D activities (EC, 2019c).

As can be understood from the examples above, important studies are ongoing in this regard. A just transition is a transformation process that makes it possible to adapt to a fair and reasonable change that takes into account nature and people in the whole economic structure. However, the existence of comprehensive cooperation and coordination between states, local administrations, business and financial institutions, local people and non-governmental organizations is a very important condition for this to be achieved. The dimensions of the negative effects of climate change make it necessary to act fast in order to achieve green growth within the framework of a just transition.

4. CONCLUSIONS

The negative effects of climate change trigger extreme weather events and disasters that cause significant loss of lives and properties. It is observed that climate change slows down and even prevents efforts to achieve UN-SDGs. Whereas UN-SDGs have been determined to end poverty globally, improve conditions in the fields of health and education, protect natural resources, improve international cooperation, ensure good living conditions, good working conditions, ensure peace and prosperity, and protect the world (UN, 2020b).

Extreme weather events associated with climate change do not only cause an environmental crisis and also have significant economic and social consequences. Hurricane Sandy, which occurred in the USA in 2012, caused 150 thousand people to be unemployed. Thousands of small businesses were damaged in Bangladesh in 2007 with the effect of the Sidr Cyclone and 567,000 employees were affected. In November 2013, the Haiyan Typhoon hit the Philippines and 800,000 workers were negatively affected by the extreme weather event (Evans, 2015).

It is possible to increase these examples. It has been scientifically revealed that the negative effects that arise due to climate change will continue to be seen in daily life as well as the fact that it will continue to increase in the future. It is a must for all countries to take urgent measures regarding environmental crisis and climate change. As Anthony Giddens (2011) stated in his book The Politics of

Climate Change, humanity has moved away from the natural world as a result of advances in science and technology. In addition to tackling the climate crisis, more is needed than science and technology in terms of improving living conditions in the world (Giddens, 2011). This situation brings about an inevitable change in the economic sectors globally.

In the evaluation within the framework of the research questions of this study, it is seen that; slowing down and even reversing the negative effects of climate change, within the framework of sustainable development principles including environmental protection, social development and economic growth, it is very important to implement greenhouse gas mitigation and climate change adaptation measures and in this context, green growth approach offers important opportunities. Activities to be developed within the scope of green growth will contribute to green employment.

Economies resilient to climate change will make new employment opportunities by making large-scale investments in new technologies, equipment, energy efficient, smart buildings and infrastructure. It is important that the transition envisaged to be realized in the context of green growth are just and provide social justice. For this, it is necessary to train the workforce for new sectors and provide continuous training opportunities.

Given the urgent conditions of the environmental crisis, it is understood that the current developments and efforts towards green growth should go far and because of the necessity of large-scale changes in the international arena, cooperation and coordination among the countries should be developed.

It is important that countries provide contributions consistent with the objectives of the Paris Agreement. In this context, another responsibility of developed country parties is to provide financial support, capacity building and technology transfer supports to developing countries to create green economies and employment areas. In this way, they will lead to the creation of an environment where no one is left behind, and decent works are created.

These issues are also critical to the achievement of the global goals set out in the UN 2030 Agenda and SDGs. As the former Secretary General of the UN, Ban Ki-Moon, stated; "We have entered a new era of clean energy growth that will fuel a future of opportunity and prosperity for every person on the planet…Governments, businesses and investors around the world are realizing that the transformation to low-emission, climate-resilient growth is inevitable, beneficial and already under way." (UN, 2016).

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