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Analysing the Global Fight Against Climate Change and the Turkish Context

Selçuk Gürçam[a]

[a] PhD, independent researcher from Iğdır, Turkey

ABSTRACT

After the Industrial Revolution that took place in the eighteenth and nineteenth centuries in Europe, increases in the machinery used, population and the need for energy have boosted the reliance on fossil fuels and the release of greenhouse gases. As a result of this, global temperatures, which had been in balance with the natural greenhouse effect, have increased, and the problem of climate change emerged. The search for a solution to this across boundaries phenomenon started to attract international attention in the 1970s. Since parochial actions cannot prevent climate change, the main arguments have concentrated on the fact that a solution is possible not through local or regional efforts but global ones, and each country's contribution in proportion to its capabilities is necessary. Recent research has shown that if no solution is found, the temperatures will continue to increase even more, resulting in a severe threat to the living on earth. This article examined the factors that bring about climate change as a global problem, the symptoms and efforts related to this, and Turkey's stance within this global effort.

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Introduction

Climate is one of the essential elements making life on earth possible. The Industrial Revolution, which started in the eighteenth century, is regarded as a milestone in the future of earth. The Anthropocene, the era when the human being has had his most significant influence on earth, thus started (Crutzen, 2016). One of the most striking results of this influence is global climate change that threatens the living on earth, food production and water resources. Possible effects of global climate change such as desiccation, rising sea levels, and extreme weather conditions negatively influence the lives of millions of people. In this respect, the Intergovernmental Panel on Climate Change (IPCC), as the United Nations (UN) body for assessing the science related to climate change, prepared a report in 2001 and emphasised that the main reason for global climate change is human activity. According to the report, human activity increases global warming due to its effect on the natural temperature and inflicts irreversible damage on the planet. Since global climate change affects a vast population, it will significantly impact many fields such as economy, politics and social structure. This undesirable situation also strengthens the expectations for implementing precautions against global climate change (Jones and Mann, 2004; Wigley 2005; Anderson, 2010; Mertz et al., 2009; Anshori, 2020).

The increases in the number of research studies and in the data obtained have made understanding and fighting climate change easier. To begin with, the studies on the effects of climate

CONTACT Selçuk Gürçam selcukgrcm@gmail.com

change concerning specific countries as well as on its general effects and efforts to prevent it provide some insight to the issue.

To illustrate, Baba (2010), in his research, examines the effects of climate change on Sri Lanka, which is an island country in Southern Asia. He suggests that global climate change has not only environmental but also economic, medical and social effects. In addition, he mentions the reaction of Sri Lanka to the reduction and adaptation of greenhouse gases.

Measey's (2010) study concentrates on the reasons for Indonesia's high-level greenhouse gas emission, which is the third biggest greenhouse gas producer in the world. The study shows that climate change is a threat to Indonesia with increasing temperature, excessive precipitation, rising sea levels and damaging food production. It also includes detailed information about the impacts of climate change on the economy, poor people, health system, and Indonesia's biological and environmental ecosystem.

Çakmak et al. (2017) include the role of Turkey in the efforts to combat climate change. Within the framework of the Paris Agreement, expectations and the current situation regarding Turkey's adaptation to the process of reducing greenhouse gas emissions and combating climate change are evaluated. The study by Eraktan et al. (2010) also tries to reveal Turkey's position, duties and responsibilities within the scope of the Kyoto Protocol, which was signed in 1997 and entered into force in 2005.

In Cao's (2003) study, it is revealed that various types of greenhouse gases, primarily carbon dioxide, are discharged due to the use of fossil fuels and these greenhouse gases are claimed to be the possible cause of climate change in the country. The paper provides the emerging economies with a vision about energy pricing, encouragement for energy efficiency and the use of renewable energy sources.

Mendelssohn et al. (2006) deal with the impacts of global change on wealthy and emerging countries. Two scales, namely the impact per person and the impact per gross domestic product, are used in the paper. The study shows that the classification of climate change following per capita income has a significant impact in terms of distribution in the countries. The paper suggests that the majority of resources in emerging countries would be damaged by global climate change.

Konuralp (2020) points out the negative impact of growth strategies adopted by neoliberal politics on the environment. He stresses the increasing intensity of carbon dioxide since 1958, and the difficulty humanity will have in stopping this intensity if this increase continues. As a result, it is emphasised that carbon dioxide concentration would endanger the living organisms on earth, which is one of the main arguments related to the prevention of climate change, unless serious policies aimed at preventing climate change are adopted or if the threat posed by ambition for growth is overlooked.

A major contradiction of neoliberalism is also becoming more visible in the context of climate change. Anti-social state policies function as a method of eroding national sovereignty by neoliberalism, which is the doctrine of the global elite to replace the embedded liberalism of the post-war period in which the nation-state assumed a more effective and interventionist role against the market failures. Those policies leave public services to market actors and philanthropic activities. However, in the fight against a globally devastating market failure such as climate change, there is no alternative but to assume the leading role of the states (Gürçam et al., 2021; Gürçam and Konuralp, 2021; Konuralp, 2021; Konuralp and Bicer, 2021). This theoretical approach will be used throughout this study to clarify the state's role in combating a global failure of the market mechanism.

Drawing on this insight provided by recent literature on climate change, this study is also based on the information in the sixth evaluation report of the IPCC published in 2021 within the scopes of factors that cause global climate change, evidence on it and its possible effects, course of global efforts to combat it. In addition, the study analyses the Turkish state's position about the international

agreements to fight against climate change and the possible symptoms and consequences of global climate change on Turkey.

Global Climate Change

A certain amount of the shortwave radiation coming from the sun is absorbed by the earth, whereas some are absorbed by the greenhouse gases which constitute the troposphere. Some are also reflected by both the atmosphere and the earth's surface without being absorbed.

The radiation absorbed in the earth's surface and the atmosphere is scattered and recirculated around the world via the atmosphere and the oceans, and it is reflected as longwave radiation. The longwave radiation re-emitted by the earth's surface is absorbed by the atmosphere and re-emitted to regions with relatively less sunlight through oceanic and atmospheric circulation. As seen in Figure 1, gases in the atmosphere are permeable to the sunray, whereas they are less permeable to the longwave radiation re-emitted by the earth's surface. This natural process, which makes the heating of the earth possible and provides a certain balance, is called the greenhouse effect (Ni et al., 2013; Charlson and Wigley, 1994; Lindzen, 1990).

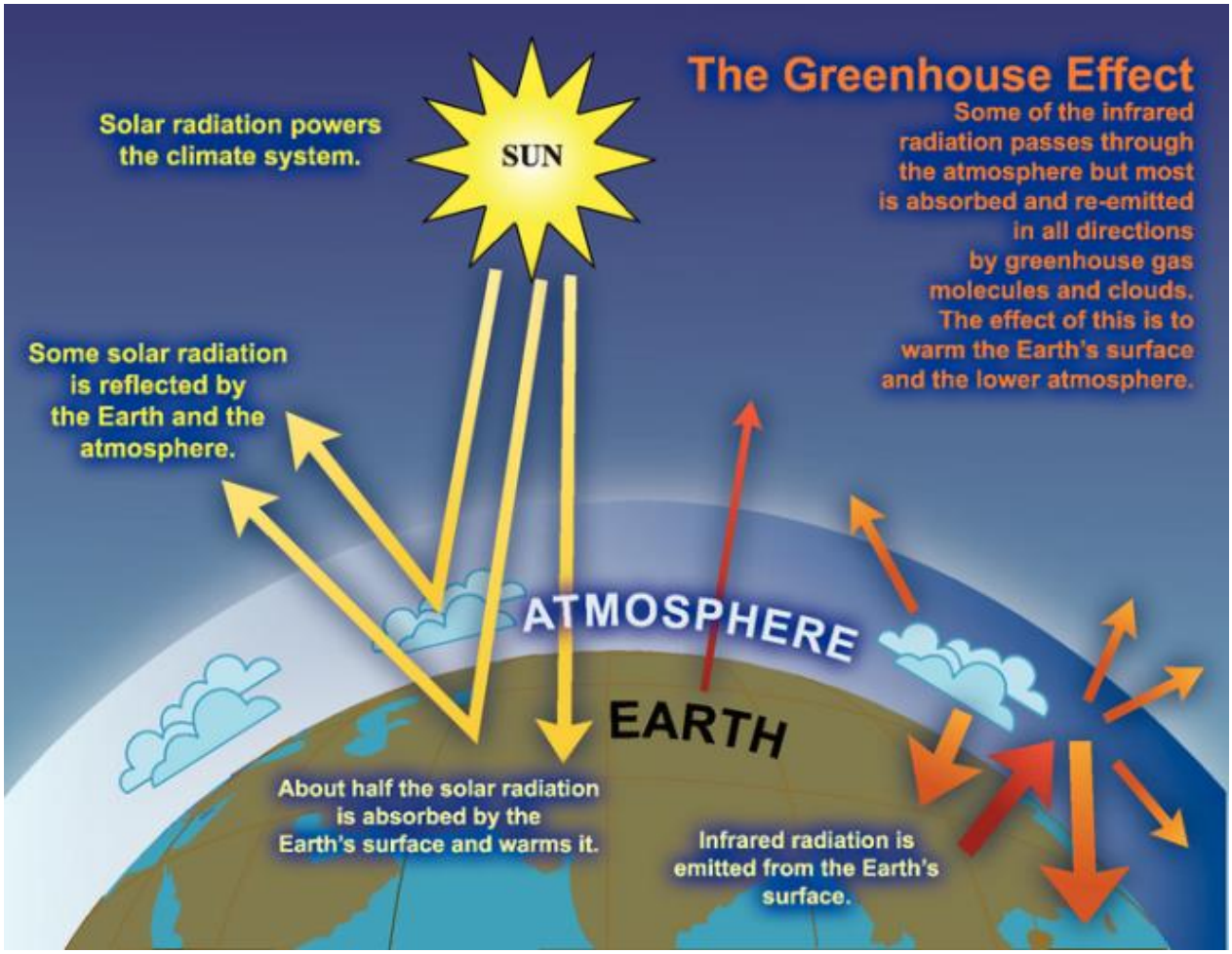

Figure 1. Greenhouse Effect
Source: IPCC (2007a)

Naturally emerging greenhouse gases such as carbon dioxide, coal gas, nitric oxide and halogenated compounds absorb the infrared radiation coming from the sun and maintain it in the atmosphere. The naturally emerging greenhouse effect makes life on earth possible through heating the surface of the earth. If it had not been for the natural greenhouse effect, the world's average temperature would have been below 0°C (IPCC, 2007b; Stępniewska and Kuźniar, 2013). In natural

conditions, there is a balance between the shortwave solar radiation affecting the earth's surface and the atmosphere and the longwave solar radiation reflected by the earth's surface. However, a factor (intensity of greenhouse gases) could distort both the climate system and this balance, in other words, the natural flow of energy between the atmosphere, earth or oceans (Kweku et al., 2017).

The global climate has also changed since the world's beginning 4.6 billion years ago (Türkeş, 2013). Nevertheless, the main agenda today is man-made climate change since there is an apparent link between the societal phase of humanity has reached and the increase in the use of fossil fuels and lands following industrialisation between the years 1750 and 1914 (Hansen et al., 1981). The main reason for the changes in human life and global climate change has been technological advancements. The increase in the greenhouse gases in the atmosphere observed after the Industrial Revolution continues. The intensity of gases in the atmosphere, led by this increase, has been causing a significant increase in the temperature since the Industrial Revolution (IPCC, 2001; Solomon et al., 2007; Türkeş, 2008, 2012).

According to Solomon et al. (2007), recent studies suggest an increase in global temperature levels and that this linear increase reached up to 0.74 °C in 100 years, covering the years between 1906 and 2005. In addition, among the years whose average global climate rates were observed and recorded between 1990 and 2000, 1998 was the warmest year (Türkeş, 2003, 2008).

Scientists obtain evidence from their studies on old glaciers that the intensity of greenhouse gases in the atmosphere has been rapidly increasing since the 1750s. In the last hundred years, the coal gas accumulated in the atmosphere has increased 50%, whereas carbon dioxide 31% and nitric oxide 16%, respectively (El-Fadel et al., 2003). As can be seen in Figure 2, the earth has been warming continuously since 1860. Also, the 30-year period covering the years between 1960 and 1990 was hotter than the previous average 1200-year period, and the temperature increase has reached the highest levels since 1960.

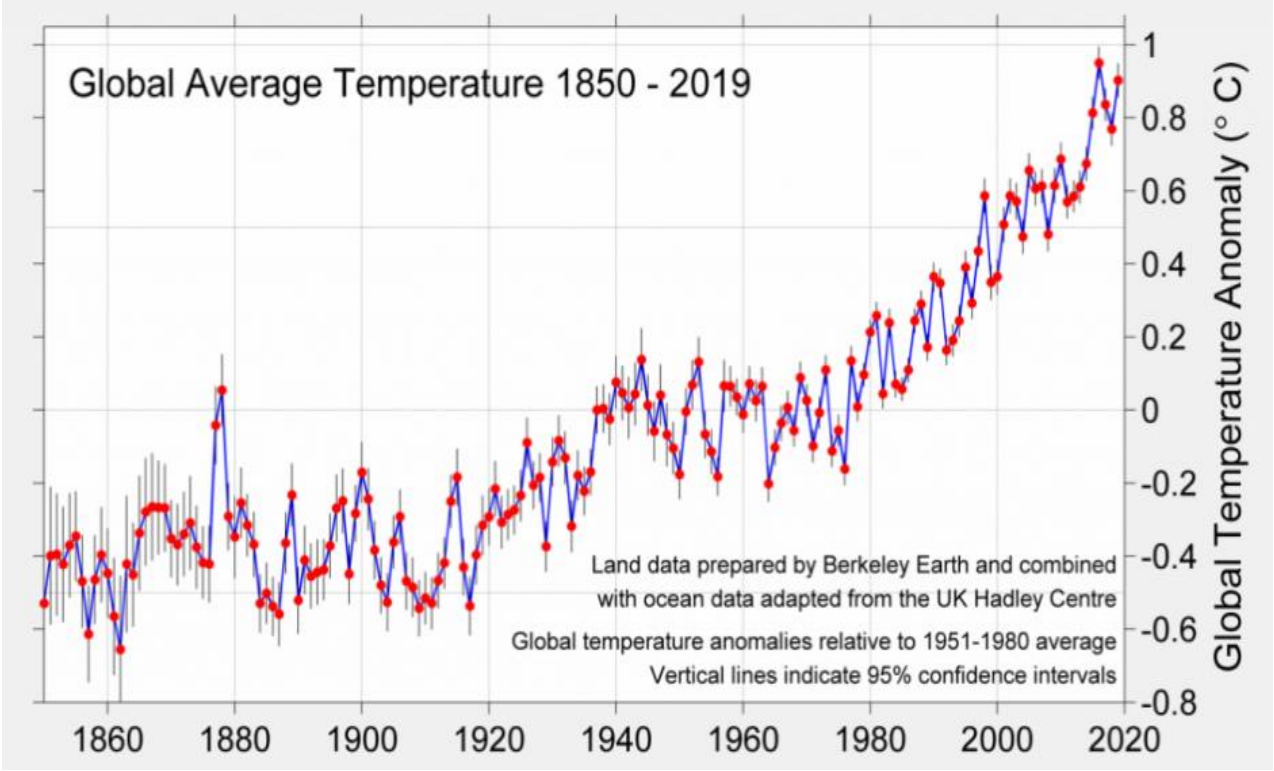

Figure 2. Annual Temperature Anomaly
Source: Berkeley Earth (2020)

Global temperature levels have increased, as also reflected in observations by NASA. Figure 3 shows abnormal global temperatures from 1885 to 1889, 1925 to 1929, 1945 to 1949, and 1995 to 1999, respectively. The intensity of carbon dioxide observed in the atmosphere before industrialisation had been 280 ppm while it was determined as 379 ppm in 2005. The rate of carbon dioxide determined exceeded the natural limits between 180 and 300 ppm. Moreover, whereas the rate of increase in carbon dioxide in the atmosphere between 1960 and 2005 had been 1.4 ppm, it became 1.9 ppm between 1995 and 2005. Similarly, coal gas, a significant factor in global warming and climate change, had been 715 ppb before the Industrial Revolution, while it was determined as 1774 ppb in the 1990s. The intensity rate of another greenhouse gas, nitrogen monoxide, increased from 270 ppb to 319 ppb in 2005 (IPCC, 2007b).

The most apparent effect of the greenhouse gases accumulating in the atmosphere is the increase in the temperature of the earth's surface and atmosphere. In the last century, global temperature increased at a rate of 0.6°C while it increased at a rate of 0.8°C compared to the period before the Industrial Revolution. This global increase in the temperature is suggested to be between 1.8°C and 7.1°C (Justus and Fletcher, 2003). If this increase is between 2.0°C and 2.5°C, it will have irreversible effects on human beings (Stern and Antholis, 2008). The EU, for this reason, aims to maintain the increase in global temperature below a level of 2.0°C in proportion to the period before the Industrial Revolution, stating that problems resulting from the increase in global temperature should be urgently prevented (Tol, 2007).

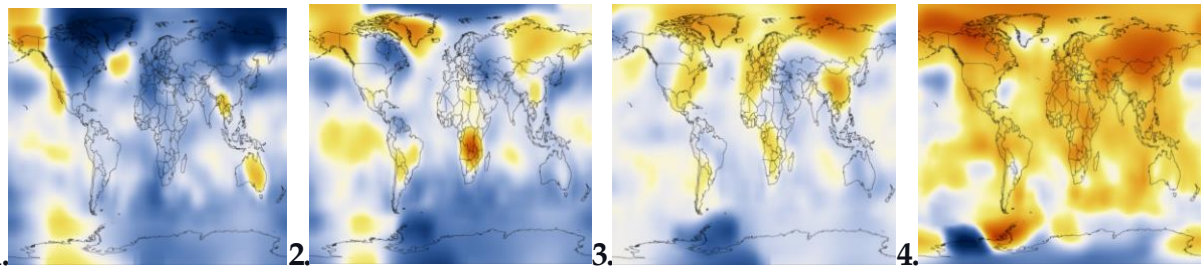

Figure 3. Average Temperature Anomalies
1. From1885 to 1889,
2. From 1925 to 1929,
3. From 1945 to 1949,
4. From 1995 to 1999
Source: NASA (2010)

As observed by NASA, the temperature conditions of the earth are different at certain time intervals (Figure 3). Likewise, the World Meteorological Organization (WMO) and the United Nations Environment Program (UNEP) in 1988 prepared and evaluated scientific data on climate change. In addition, the evidence supporting human-induced climate change has been put forward in the IPCC reports since 1992. The major findings on global climate change stated in the IPCC (1992, 1995, 2001, 2007c, 2014, and 2021) reports are as follows:

(1) Global temperatures continue to rise and the warmest levels from 1850 have been encountered in the last 30 years.
(2) With the melting of glaciers because of increasing global temperatures, the sea levels have started to rise rapidly since the second half of the twentieth century.
(3) In the last 800 years, the accumulation of gases such as carbon dioxide, methane and nitric monoxide in the atmosphere has reached up to such a level that has not been witnessed before.
(4) The precipitation in the eastern parts of North and South America, the northern parts of Europe and the northern and central parts of Asia has increased while it decreased in the

northern parts of Africa and the Mediterranean and the southern parts of Africa and Asia, and areas affected by global drought have increased since 1970.

(5) Due to the absorption of the carbon emerging from fossil fuels by the oceans at a level of 30%, there has been acidification in the seas.

The Sixth Evaluation Report of the IPCC published in 2021 states that the increase in global temperatures between 2010 and 2019 was more than 1°C compared to the 1850-1900 period. The IPCC, which includes four different scenarios regarding temperature increases (1.5°C, 2°C, 3°C and 4°C), attributes the leading cause of increases in temperature to human-induced greenhouse gases and lists the possible effects in case of possible scenarios (Table 1).

Table 1. The IPCC Scenarios on Temperature Increases

1. Scenario	If global temperatures increase by 1.5°C on average, approximately 3 billion people will continue to live under high temperatures until 2070, and people living in North Africa, the Middle East, South America, South Asia and Australia will be affected by high temperatures. The current 20% loss in food production will continue to increase in the following periods. Rising sea levels will cause greater damage to coastal cities, and more than 350 million people living in cities will face water scarcity caused by drought. The world economy will experience an average of 10% depreciation until 2050.
2. Scenario	If global temperatures increase by 2°C on average, approximately 37% of people will be affected by heat waves once every five years. With global temperatures causing drought, approximately 410 million people living in cities will have problems with water supply. Considering today's conditions, 180 million more people will have to face hunger. Floods will affect more than 300 million people, especially with the rise in sea levels. The global Gross Domestic Product (GDP) will fall by 11%.
3. Scenario	If global temperatures increase by 3°C on average, approximately 96 thousand people in Europe will lose their lives due to heat and humidity. There will be an average of 5% to 20% shrinkage in agricultural areas. The rise in sea levels will cause 35% to 50% soil loss in cities. The global Gross Domestic Product will shrink by 18%.
4. Scenario	If global temperatures increase by 4°C on average, approximately 1.5 billion people will die due to heat and humidity. Agricultural lands will shrink between 10% and 30%. The rise in sea levels will cause more damage to coastal cities. The number of people who have problems with the water supply will increase even more. The global economic income average will cause a 23% loss due to temperatures alone. Adaptation to the conditions that would exist in the world would be unlikely.

All these four scenarios, to varying degrees, reveal how great threats the neoliberal growth strategy poses to the living and human life in the world. Therefore, if serious measures are not taken in the international arena, and these are not implemented decisively by the states, it is not difficult to envision the picture of the disaster that awaits the world.

International Negotiations on Struggle with Global Climate Change

We can analyse the international initiatives on global climate change in four periods. The first period was between 1972 and 1992, when climate change gained a global dimension, and scientific evidence was collected. The second period was between 1992 and 1997, during which various action plans were prepared as a result of the collected data and interviews. The third period was between 1997 and 2007, when the obligations against global climate change and the mechanisms were established to ensure the implementation of these obligations (Ediger, 2008). The fourth period is the post-Kyoto era, in which the obligations given within the framework of the Kyoto Protocol covering 2016 and beyond were stretched, and negotiations were mostly left to the initiative of the states.

In the first period, the environment was put on international agenda in the early 1970s. The UN Conference on the Human Environment (UNCHE), which was first organised in Stockholm in 1972, drew attention to environmental degradation and encouraged the international community to take the necessary precautions (UN, 1972; Linnér and Selin, 2013). The WMO held the First Global Climate Conference in 1979 because petroleum crises brought the environmental problems back on the

agenda. However, there were not any significant steps in the global sense until 1987, when the term "sustainable development" was put on the agenda. The concept of "sustainable development" was defined by The World Commission on Environment and Development (WCED) in its "Brutland Report," or as it was called "Our Common Future" report, as "meeting the needs of this generation without risking the capability of next generations to meet their needs" (WCED, 1987; Burton, 1987). Establishing efficient structures or institutions to struggle with global climate change ensures that this struggle is coordinated. To that end, the WMO and the United Nations Environment Programme made the establishment of the IPCC possible in 1988. The IPCC aims to research the impacts of global climate change and evaluate the possible precautions based on the scientific, technical and socio-economic data provided **(**Pachauri, 2004; Bolin, 2007). It focuses on the issues, which were put on the agenda by the countries party to the Conference of Parties (CoP) established within the United Nations Framework Convention on Climate Change (UNFCCC) framework, as a global appeal (Siebenhüner, 2003).

In the second period, a roadmap for the actions and strategies aimed at struggling with global climate change was determined in The United Nations Conference on Environment and Development (UNCED) held on 3–14 June 1992 in Rio de Janeiro. This conference, which was called Earth Summit, also legitimised the concept of sustainable development. It was 20 years after the conference organised in 1972 in Stockholm, the first conference that protected natural sources, prevented environmental pollution and searched for possible solutions to these problems. The UNFCCC, which was a milestone in efforts concerning global climate change, was signed by 189 countries and put into effect on 21 March 1994. The UNFCCC succeeded in ensuring the acceptance of its findings in two fields. These findings were as such (Hens and Nath, 2003; Houghton, 1994; Okada, 2007):

(1) Climate change and its adverse effects are among the common concerns of humanity.
(2) Human activity increases the emission of greenhouse gases in the atmosphere at a significant level, and this leads to an increase in the natural greenhouse effect, and consequently, to an additional increase in the temperature, which would have adverse effects on the temperature of the earth's surface and atmosphere, the natural ecosystem as well as humanity.

Even though the convention was not binding in terms of emissions, it emphasised an urgent need for the parties to maintain their emissions at a certain level in 1990. The obligation of each party was to share its successful practices aimed at decreasing the emissions through submitting its annual emission inventory and national notice. In addition, as shown in Table 2, the convention was divided into two as Annex I (developed countries) and Annex II (developing countries). After this division, the countries included in Annex II were provided by the countries in Annex I with financial and technological support to reduce greenhouse gas emissions. The CoP, which became active after the convention as a decision-maker in the struggle with climate change since 1995, organises a conference annually (UNFCCC, 1992).

In the third period, the CoP, which was established with the UNFCCC, organised its third conference in Kyoto, Japan, on 1-12 December 1997. As a consequence of the conference, Kyoto Protocol was accepted and opened for signature. The protocol initiated a new period in terms of struggle with climate change. It put into effect various obligations about reduction of emissions which were binding for the developed countries. To put it more clearly, it included a provision, added to Article 3.1 of the protocol, in which the countries included in Annex I of the UNFCCC are defined as countries in Annex B and ensuring that they would decrease their emission levels between 2008 and 2012 at a level of 5.2% in proportion to the emission level of 1990. Moreover, the protocol ascribed certain reduction levels to certain parties. For example, for the years between 2008 and 2012, the reduction level was set as 8% for the European Union (EU), Bulgaria, Czechia, Estonia, Latvia, Liechtenstein, Lithuania, Monaco, Romania, Slovakia, Slovenia and Switzerland, as 7% for the USA

and as 6% for Canada, Hungary, Japan and Polonia. The protocol not only put forward the levels of reduction but also the types of emissions and their sectors. While it divided the greenhouse gases into six as carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride, it covered sectors such as energy, industry and agriculture as well as solvents and disposals in the list given in Annex A. It also ensured the establishment of various systems to reduce emissions and defined the carbon market, which was a new field (UN, 1998; Wigley, 1998; IGBP, 1998; Böhringer, 2003; Okada, 2007). Unfortunately, the Kyoto Protocol did not have much success as expected because of the following reasons: It imposed obligations only on 39 of the parties. It did not mention the issues such as adaptation to and cost of the harmful effects of climate change. It maintained the sector-based reduction limit. It did not make sure the acceptance of the protocol by the parliaments of the parties passed at the desired speed. Furthermore, the USA, which has a significant role in the implementation of the protocol and an outstanding share in the emission levels, declared that it would not approve the protocol in the mid-2001 (Grunewald and Martinez, 2016; Arıkan and Eralp, 2007; Khanna, 2001; Mckibbin and Wilcoxen, 2002; Olmstead and Stavins, 2006). Without the USA, the prerequisite for a minimum of 55 countries and a minimum emission level of 55% came into effect with the inclusion of Russia in the protocol on 15 February 2005. 175 countries approved the protocol through the end of 2007 (Walker et al., 2007; Böhringer and Löschel, 2003; Sunstein, 2007).

Table 2. UNFCCC Classification of the Parties as of Today

<table>
<tr><th>Annex I Countries
(Annex B in Kyoto Protocol)</th><th>Annex II Countries</th><th>Non-Annex I Countries</th></tr>
<tr><td>These countries are classified as industrialised countries and countries with economies in transition.</td><td>These countries are classified as developed nations which pay for costs of developing countries.</td><td rowspan="3">These are mostly developing countries. Certain groups of developing countries are recognised by the UNFCC as being especially vulnerable to the adverse impacts of climate change, including countries with low-lying coastal areas and those prone to desertification and drought. Others (such as countries that rely heavily on income from fossil fuel production and commerce) feel more vulnerable to the potential economic impacts of climate change response measures. The UNFCC emphasises activities that promise to answer the special needs and concerns of these vulnerable countries, such as investment, insurance and technology transfer.</td></tr>
<tr><td rowspan="2">Australia, Austria, Belarus, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czechia, Denmark, Estonia, EU, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom, United States of America</td><td>Australia, Austria, Belgium, Canada, Denmark, EU, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States of America</td></tr>
<tr><td>Turkey was deleted from Annex II by an amendment that entered into force 28 June 2002, pursuant to decision 26/CP.7 adopted at CoP7</td></tr>
</table>

Note: This table is prepared by the author based on the information provided by the Climate Change Connection (2015) and the UN (1992).

In the post-Kyoto era, the Paris Agreement was adopted at the Twenty-first Conference of the Parties (CoP/21) to establish the plan to combat climate change, which was planned to continue after the end of the Kyoto Protocol in 2020. The agreement entered into force with the approval of 55 countries, which account for 55% of global greenhouse gas emissions. This agreement aims to develop and advance the UNFCCC's articles on sustainable development and poverty eradication. The agreement's primary goal is to keep global temperatures below 2°C and below 1.5°C, if possible, compared to the pre-industrial revolution era. In line with this goal, adaptation to climate change, transition to economic development with low greenhouse gas emissions, and increasing climate resilience are to be ensured. However, while realising these targets, making food production in a way

that will not be damaged was set as another target. In line with these determined objectives, the agreement has adopted the principle of "common but differentiated responsibilities and relative capabilities." In other words, it states that the countries participating in the agreement should contribute to the agreement in line with their special means. In this direction, the parties are required to submit their "National Contribution Statements," which include greenhouse gas emission reduction plans every five years, in order to meet the objectives of the agreement such as reduction, adaptation, finance, technology transfer and capacity building (Republic of Turkey Ministry of Environment and Urbanisation, 2021; Republic of Turkey Ministry of Foreign Affairs, 2021).

Turkey within the Framework of Conventions on Struggle with Climate Change

Annex II countries of the UNFCCC are members of the Organisation for Economic Co-operation and Development (OECD). They accept their historical responsibilities regarding the emission of greenhouse gasses and pay for the costs of developing countries. In other words, they are obliged to provide the developing countries with financial and technological support. In the beginning, Turkey was included in both Annexes I and II as one of the OECD's founding participants. However, Turkey claimed that it had no historical responsibility for climate change due to its late industrialisation compared to the other countries in Annex II, and it cannot be regarded as capable of meeting its obligations. It avoided being a party to the convention for a long time, even if it wanted to take part in the process. Finally, it was excluded from Annex II with Decree no. 26/CP.7, which was accepted in the seventh Conference of Parties (CoP7) held in Marrakesh in 2001. It continues to be listed as an Annex I country with a different status since it is a party to the UNFCC. After that, Turkey ratified the UNFCCC on 24 May 2004. Turkey also avoided signing Kyoto Protocol, which was opened for signature in 1997, for a long time. The special status granted to Turkey in 2001 was recognised by Kyoto Protocol as well, and this protocol was approved by the Grand National Assembly of Turkey (TBMM) in 2009 (Türkeş, 2007; Berberoğlu, 2009; Binboğa, 2014).

Turkey's special status continued at the fifteenth of the CoP held in Copenhagen in 2009, and it remained neutral, avoiding any obligation. Although in the Paris Agreement, the annexes of the UNFCCC and the Kyoto Protocol were left and liabilities have been determined by referring to developed and developing countries without any definition, Turkey, being a developed country on paper, refrained from ratifying it. The possibility of not benefiting from the financing opportunities stipulated by the Paris Agreement accounts for this postponement until its approval by the TBMM in October 2021.[1] Also, with CoP decisions no. 19 and 20, the Ad Hoc Working Group on the Durban Platform for Enhanced Action requested the Intended Nationally Determined Contribution (INDC) of all the parties to be submitted without reference to the annexes specified in the UNFCCC. Consequently, Turkey presented its INDC plan within the scope of combating climate change. According to Turkey's INDC, the country aims to reduce greenhouse gas emissions by up to 21% by 2030 (İHKİB, 2021; Karakaya, 2016, pp. 5-6; UNFCCC, 2013, 2014).

As seen in Figure 4, the international arena urges Turkey to consider business-as-usual and mitigation scenarios to realise the trends that may lead to rapidly increasing greenhouse gas emissions due to making wrong decisions on its priorities.

[1] Reuters (2021) claimed that after the approval of the Paris accord, an international loan of 3.1 billion euro would be given to Turkey under the leadership of the World Bank, which will encourage the private sector in the field of green energy. For the CoP26 meeting, it was also claimed that Turkey has sent a proposal to UNFCCC Secretariat in Bonn to have its name removed from Annex I.

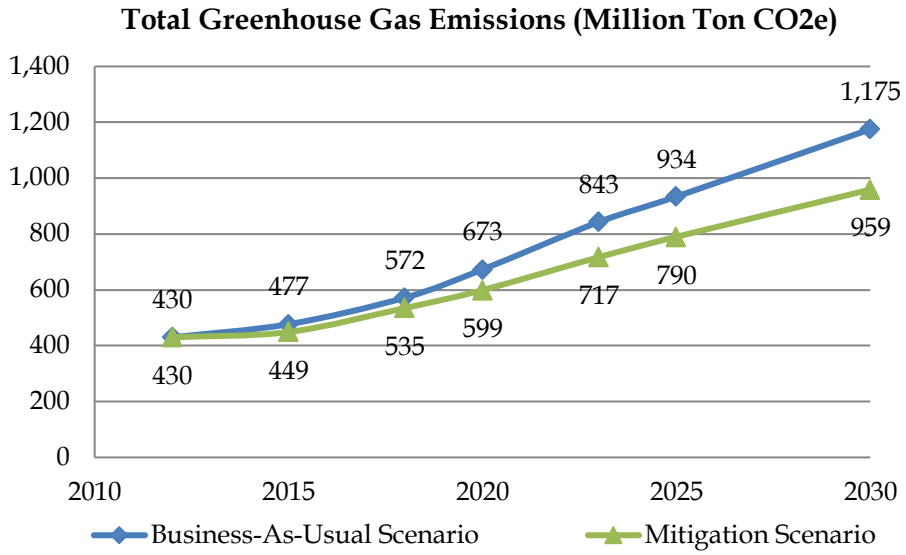

Figure 4. Comparison of business-as-usual and mitigation scenarios in the INDC of Turkey
Source: Republic of Turkey Ministry of Environment and Urbanization (2021)

In the neoliberal era, the concern for economic growth at all costs has adverse effects on the capacity to produce policies that are sensitive to public health and environmentally friendly. The new mission neoliberalism has imposed on the state has also deprived it of the necessary tools to steer the economy. Therefore, while the state continues to be the most crucial resort for market failures, its fragility against the economy has reached its peak. The case of Turkey presents us with the "inconvenient truth" that developing countries cannot introduce environmental measures to the market without the help of the international arena at the expense of the economic welfare of the people.

Climate Change and its Possible Impacts on Turkey

Global warming and climate change have varying effects on different regions of the world. While there are changes in the hydrologic cycle in some regions, a rise in sea levels, climate changes, and other significant changes that directly affect human life are expected to occur in other regions (Watson et al., 1996; Türkeş et al., 1999). There may be a number of differences among the effects of global climate change based on the temporal, regional and global aspects. Indeed, there will probably be tornados and storms in some parts of the world, whereas there will be heavy rainfalls, floods, overflows, and desertification resulting from drought in other parts soon (Türkeş, 1994). Turkey is seen among the countries that might be affected by climate change primarily because it has complex and different climatic features. There is a desert zone right in the south of the country, and this zone advances towards the north. Different climatic features in different parts of the country result from its geographical position. The facts that its three sides are surrounded by the seas and it is located in a fragmented topographical region and its average altitude of 1100 m are the most significant factors. Different climatic features of Turkey may cause the country to be affected by global climate change in different levels and varying ways. For example, global climate change will have adverse effects on dry and semi-dry regions such as South-eastern Anatolia, Central Anatolia, Mediterranean and Aegean regions due to the loss of water resources resulting from the increase in the temperature, forest fires, desertification and ecological distortions (Türkeş 1998; Türkeş, 1994; Aksay et al., 2005).

Changes in the temperature in Turkey may be different from changes in global temperature as well. The latest increase in global temperature started in 1980, whereas it started in 1990 in Turkey.

Even though it was later than the world, the increase in the temperature in Turkey started and continued to increase at a higher rate than the global rate (Şen, 2020).

Parallel to the increase in the temperature, Turkey, a part of the Mediterranean Sea and Southern Europe, is also facing a decrease in precipitation. The decrease in the amount of water sources which are vital in terms of food production has a potential to increase its regional differences from the western parts of the Eastern and the South-eastern regions. Along with frequently seen earthquakes, floods and landslips, the financial loss resulting from these natural disasters has put Turkey on the top of the list among the countries of the EU and the Commonwealth of Independent States. Floods and landslips in the country constituted 10% and 25% of the general natural disasters observed in Turkey. The tension about water supplies resulting from decreasing rainfall levels and increasing temperature will probably exacerbate the increasing demands of farmers. It is suggested that the surface water amounts in some basins will be lost at a rate of 20% by 2030 (UNDP, 2020).

In Turkey, which will be one of the countries that will be affected by climate change most, the possible effects of climate change arising from its location are as follows: (1) There may be an increase in the frequency, domain and duration of the forest fires according to the duration and severity of dry and hot periods. (2) A significant part of Turkey might undergo a scorching and dry climate in 2030. (3) There may be changes in its agricultural activities according to regional and seasonal differences. (4) It is highly possible that Turkey will be under the influence of dry and hot climates seen in the Middle East and North Africa due to the expansion of the climate zone in a direction from the equator towards the north. (5) The increase in harmful organisms and diseases might have adverse effects on agricultural production and land ecosystems. (6) There may be an increased need for irrigation and drinking water due to the drought. (7) Problems in reaching clear water resources will bring about various health problems. (8) In parallel with the expansion of dry areas, a possible increase in the duration and severity of hot summers may affect desertification, salinisation and the possibility of erosion. Moreover, soil moisture is envisioned to decrease at a level of 15-25%. (9) The increase in the temperature may increase the need for energy for cooling and air conditioning. (10) There may be changes in the number and severity of windy and sunny days. (11) There may be negative socio-economic impacts on the marine ecosystem and fishing. (12) There may be negative impacts of rising sea levels in coastal touristic areas, in river deltas that host many agricultural activities and in bays and rias. (13) Water levels in the Mediterranean basin are predicted to increase 12-18 cm until 2030, 14-38 cm until 2050, and 35-65 cm until 2100, respectively. (14) The decrease in the capacity to absorb and emit carbon dioxide may weaken natural reservoirs. (15) Decrease in the area and duration of snow and ice covers may trigger snowslides and sudden snow melting. (16) There may be an increase of 2^{o}C in winters and 2-3^{o}C in summers (Türkeş,1994, 1998; Aksay et al., 2005).

In addition to these possible effects, in the sixth evaluation report of the IPCC published in 2021, the Mediterranean belt, in which Turkey is located, will be among the regions most affected by climate change. The IPCC estimates that the Balkans, the Iberian Peninsula and North Africa, especially Turkey, will reach 40-50% higher than the global annual warming rates. When Turkey is considered separately, it is understood that more difficult conditions await this country in each of the four different scenarios of the IPCC given in Table 1 (Daşcıoğlu, 2021, pp. 2-3; IPCC, 2021).

Conclusion

The main problem caused by the increasing appetence for economic growth, overproduction, and fossil fuels is the gradual destruction of the world via global warming. The realisation of such a consequence has led the international community to undertake specific measures. Since the second half of the twenty-first century, international negotiations and then conventions have begun to emerge together with the determination of certain strategies at the global level. However, it has been

proved that negotiations and agreements are necessary but insufficient to cope with such a global phenomenon. While the determined emission reduction limits exempt certain countries, countries with intense emissions have not become parties to the agreements. Thus, the fight against climate change has remained far from being a total struggle.

The findings and predictions regarding global climate change, both in the global context and in the context of Turkey, do not seem heart-warming at all. If the states do not induce the market actors to take the necessary measures as soon as possible, humanity's difficulty can be unbearable. Therefore, rather than focusing on more growth and economic ambition, the need for self-sufficiency, nature-friendly lifestyles, ecological cities, residential areas and production facilities should gain prominence. However, the main arguments for the level of development of countries in the neoliberal international system continue to be growth, production, consumption and opening up to world markets. As long as these priorities exist, countries produce more than they need, they need more energy, and thus, greenhouse gas emissions exceed what the world ecosystem can handle.

The picture presented by the case of Turkey in this regard is very striking. This country is one of the first to adopt neoliberal structural adjustment policies in the early 1980s (Şenses, 2016; Yalman, 2010). It draws attention with its reserved stance on the fight against climate change and international conventions on the environment. Turkey, one of the founders of the OECD and a candidate for EU membership, is trying to be a part of the developed world, thus opening up to international markets more easily. On the other hand, this country fears the obligations required by the conventions for developed countries and argues that it is a developing country to receive financial aid. This ambivalent situation of Turkey actually stems from the fact that the neoliberal system has made nation-states more vulnerable to international capital. Developing countries, in particular, have been convinced that the way to increase their welfare is to become more integrated into the international system and thus become more dependent. For these countries, which are conditioned to produce more, the welfare of nature may be secondary.

The only way to end this deadlock is to replace the neoliberal policies prescribed by international organisations, such as the World Bank, International Monetary Fund, and World Trade Organisation, with policies that prioritise society and nature's benefit.

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Notes on Contributor

Dr. Selçuk Gürçam is an Independent researcher on international relations from Turkey. He specifically works on climate change, international organisations and conventions.

ORCID

Selçuk Gürçam https://orcid.org/0000-0003-0426-329X

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