Süleyman Demirel Üniversitesi Sosyal Bilimler Enstitüsü Dergisi Yıl: 2024/3, Sayı: 50, s. 132-160
Journal of Süleyman Demirel University Institute of Social Sciences Year: 2024/3, Number: 50, p. 132-160
Alınış/Recieved: 10.08.2024 Kabul/Accepted: 04.11.2024 Online Yayın/Online Published: 31.12.2024

The GEOPOLITICS of GLOBAL WARMING: GREENHOUSE GAS EMISSIONS, WARS, MILITARY ACTIVITIES and the EXAMPLE of ISRAEL'S WAR on GAZA

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ABSTRACT

One of the major problems the world faces today is global warming, which is significantly increased by human activity, especially through greenhouse gas emissions. From these human activities, military activities, despite not having been discussed enough, have a considerably significant impact. This research examines the effects of military activities, wars, conflicts and military operations on greenhouse gas emissions and global warming; and discusses Israel's Gaza attack that started in October 2023, and its effects on military greenhouse gas emissions. Finally, it examines the extent to which military greenhouse gas emissions are included in international conferences, treaties and agreements. Unfortunately, the most devastating effects of wars are on people. In addition, military activities, wars and military operations leave great and permanent effects on the environment. In this article, I examine the effects of countries' military activities on greenhouse gas emissions and global warming, and argue that Israel's war on Gaza has great effects in the context of greenhouse gas emissions and global warming, as well as all its humanitarian effects. I also argue that military greenhouse gas emissions have not found a satisfactory place in international conferences, treaties and agreements and that countries avoid taking responsibility on this issue.

Keywords: *Military Greenhouse Gas, War, Gaza*

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KÜRESEL ISINMANIN JEOPOLİTİĞİ: SERA GAZI SALINIMI, SAVAŞLAR, ASKERİ FAALİYETLER ve İSRAİL'İN GAZZE SALDIRISI ÖRNEĞİ

ÖZET

İnsan faaliyetleri, özellikle sera gazı emisyonlarını artırarak günümüz dünyasının en büyük sorunlarından biri olan küresel ısınmayı önemli ölçüde artırmaktadır. Bu insan faaliyetleri arasında etkisi oldukça büyük ancak yeterince tartışılmamış olan askeri faaliyetlerdir. Bu araştırma her türlü askeri aktivitenin, savaş-çatışma ve askeri operasyonların sera gazı salınımı ve küresel ısınma üzerindeki etkisini irdelemekte; Ekim 2023'te başlayan İsrail'in Gazze saldırısının askeri sera gazı salınımı ve küresel ısınma üzerindeki etkilerini tartışmaktadır. Son olarak uluslararası konferans, anlaşma ve sözleşmelerde askeri sera gazı salınımının ne ölçüde yer bulabildiğini irdelemektedir. Savaşların en yıkıcı etkisi ne yazık ki insanlar üzerine olandır. Bunun yanında askeri aktiviteler, savaşlar ve askeri operasyonlar çevreye de büyük ve kalıcı etkiler bırakırlar. Bu makalede ülkelerin askeri aktivitelerinin sera gazı salınımı ve küresel ısınma üzerindeki büyük etkisi irdelenerek İsrail'in Ekim 2023'te başlayan Gazze saldırısının tüm insani etkilerinin yanı sıra sera gazı salınımı ve küresel ısınma bağlamında büyük etkilerinin olduğu savunulmaktadır. Ayrıca uluslararası konferans, anlaşma ve sözleşmelerde askeri sera gazı salınımının kendine tatmin edici şekilde yer bulamadığı ve ülkelerin bu konuda sorumluluk almaktan kaçınmaları tartışılmaktadır.

Anahtar Kelimeler: *Askeri Sera Gazı Salınımı, Savaş, Gazze*

1. INTRODUCTION

Global warming and greenhouse gas emissions are among problems that the world faces in the modern age; these certainly will become more important in the future. Nearly half of the sun's energy is absorbed by the earth's surface and 23% is absorbed by the atmosphere. The rest of the solar energy is reflected into space (Khoroshunova, 2022). Greenhouse gases such as carbon dioxide, methane, nitrous oxide, and water vapour are gases that are found naturally in certain amounts in the composition of the atmosphere and fulfill vital functions for warming the world. Greenhouse gases such as water vapour, carbon dioxide, methane, nitrogen oxide and ozone naturally exist in the atmosphere at only 0.1%, and they play a vital role in the continuation of human life. These gases perform important functions for the continuation of life by ensuring that the necessary amount of heat is kept in the atmosphere and by preventing harmful rays from reaching the world (ozone layer). However, the release of these gases into the atmosphere has gradually increased since the

Industrial Revolution as a result of human activities which are another source of greenhouse gases such as carbon dioxide, methane, nitrous oxide and fluorinated gases (F-gases) (EPA, n.d.; Uzmen, 2007: 46). Human activities have the largest share in the emission of greenhouse gases, especially due to various land use types such as energy, industry, agriculture and forestry, and the increase and spread of transportation in the last century. Human activities such as non-stop industrial production, increase in consumption, burning of fossil fuels in large quantities and on a global scale, destruction of forests, production and use of various chemical products, air, water and soil pollution increase greenhouse gas emissions. These gases act like a greenhouse cover, blocking the heat energy that needs to go out of the earth's atmosphere and increasing the temperature, causing global warming and climate change. According to climate scientists, the reason for the increase of the world's average temperature in the last 200 years is almost entirely due to human activities (Edenhofer et al., 2014; UN, n.d.; Uzmen, 2007: 47).

According to the UN Intergovernmental Panel on Climate Change (IPCC), human activities are estimated to cause a warming of approximately 0.8°C to 1.2°C compared to the pre-industrial period. According to an optimistic estimate, if global warming continues to increase at this rate, the amount of warming will reach 1.5°C between 2030 and 2052 (Masson-Delmotte et al., 2022: 4). Between 2011 and 2020 the global average surface temperature reached 1.1°C above the temperature it was between 1850 and 1900 (IPCC, 2023: 4) . However, in order not to exceed the 1.5°C of warming limit, current emissions must be halved by 2030. Considering the current policies, it is estimated that the amount of warming by the end of this century will be 3°C (UN, n.d.). Global warming from human activities has increased by 0.1°C to 0.3°C per decade due to past and ongoing emissions (IPCC, 2022: 4). Many UN reports state that global temperature rise should be limited to no more than 1.5°C to avoid the worst climate impacts and maintain a livable climate. A global warming above 1.5°C will lead to major changes in weather/climate conditions resulting in heat waves, droughts and floods, rising sea and ocean levels, increasing world temperatures; causing the polar ice caps to melt, the extinction of many species in addition to the species currently under threat, an increase in the risk of drought and famine, and an increase in the number of displaced people. Everything on earth is interconnected, therefore any changes caused by global warming will affect all areas of life (Shackleton, 2023b; UN, n.d.). As a result of all of these, with global warming and climate change, the world is becoming increasingly uninhabitable for the human species.

There is another factor, although not emphasized as much, that causes the emission of greenhouse gases, global warming and climate change; military activities and wars. Armies, military vehicles, weapons, bombs and gases, nuclear research, wars and conflicts, military operations and all kinds of military activities cause large amounts of greenhouse gas emissions and consume large amounts of fossil fuels. Militaries are among the largest consumers of fossil fuels and energy in a given country.

The aim of this study is to explain the impact of militaristic activities on greenhouse gas emissions and global warming, and to analyze with critical approach how countries overlook, knowingly or unknowingly, the important impact of military greenhouse gas emissions on global warming. Very little research and analysis on global warming focuses on military greenhouse gas emissions. Unfortunately, in many international conferences, agreements and state policies this issue is approached from the perspective of ideological and national interests.

Since the subject of the article is a current and relatively new one, there have been limited studies on the subject in Europe and the USA, except for the United Nations and non-governmental organizations. This is one of the motivations for preparing this article. In this article, available, although limited, Western primary sources, other than newspapers, news websites, the United Nations and non-governmental organizations, have also been used. In addition, publications on this subject in Israel are also limited and at the level of newspaper articles. We find this situation natural and it is not surprising that we do not come across Israeli sources on this subject. However, we still made use of Israeli newspaper articles as sources for our article.

This article is structured in 5 parts. In the first part, where the theoretical dimension is explained, a comparative explanation of classical-traditional geopolitics and critical geopolitics is included, and the analysis of the impact of militarist activities on global warming is placed within the critical geopolitical and postcolonial framework. The second part explains the effects of military activities and includes their effects on global warming. In this context, the ways military activities cause greenhouse gas emissions and global warming are detailed within the framework of Scope 1, Scope 2, Scope 3 and Scope 3+ (Cottrell, 2022: 10-12; WBCSD & WRI, 2004: 25). The third part analyzes the parallels between the countries that spend the most on military and the countries that cause the most greenhouse gas emissions. Additionally, this part examines to what extent wars increase military greenhouse gas

emissions. The fourth part examines the impact of Israel's war on Gaza, which is one of the most important events affecting the world in recent months, on greenhouse gas emissions. This impact is evaluated through Israel's military expenditures related to the Gaza war, the military vehicles and equipment it uses, the operations it carries out, the methods it applies and the emissions that will be caused by the reconstruction as a result. This part also examines the place of environmental disasters caused by Israel's war on Gaza in international law. The last chapter includes the non-transparent attitude of countries in reporting military greenhouse gas emissions, the place of military greenhouse gas emissions in international conferences, agreements and contracts, and a general evaluation of the approach to the issue.

2. THEORETICAL FRAMEWORK

The fact that states legalize their military operations and the results by defining these acts as a "war on terror" has openly fueled the classical-traditional (uncritical) geopolitical analysis that evaluates these operations in a militaristic and imperialistic language (Boal et al., 2005: 28, 82-83; Kuus, 2017: 8). In this respect, the analyses and explanations of traditional geopolitics are state-centric, interest and power-oriented. It ignores aspects of events other than state, power and interest (e.g. individual, society, environment, etc.). In contrast, critical geopolitics mostly problematizes statist understandings of power in the social sciences and is concerned with a level of analysis that moves away from state-centric analysis of world politics (Kuus, 2017: 8).

Classical geopolitics emerged from a state and power-centric perspective. It is filled with explanations and methods that many Western intellectuals, academics, elites and statesmen follow in order for their states and empires to gain world hegemony. In this respect, classical geopolitics is imperialist and colonialist. As Tuathail states, within this tradition, imperialism, regional expansionism and militarism are depoliticized by portraying them as natural processes, rather than as highly controversial political, economic and social processes. In fact, although the classical geopolitical literature in question is extremely political and sees itself as such, it has created a tradition based on the apparent depoliticization of geographical and political processes (Tuathail, 2005: 41-42). This tradition with a Western perspective, created by theorists such as Mackinder, Mahan and Spykman, constituted the dominant perspective of the geopolitical texts of the 19th century and the first half of the 20th century. According to Agnew (2004), while the dominant geopolitical approach in the early 19th century was seen as a

tool to justify European supremacy, the approach in the late 19th and early 20th centuries focused on the privileged claims on the territories and empires of rival states with racialized identities in pursuit of economic interests. Therefore, based on Foucault's argument, Tuathail and Agnew state that geography as a discourse is a form/derivative of the power/knowledge duo, and essentially define geopolitics as the examination of hegemonic powers' spatialization of international politics (Tuathail, 2005: 46; Tuathail & Agnew, 1992: 192). By opposing the dominant militarist geopolitical understanding of '(imperial) geopolitics' (Tuathail, 2005: 47) and its spokespeople, the critical understanding of geopolitics has begun to strengthen by interpreting geopolitics to include different voices such as minority civil rights, indigenous, postcolonial, feminist and trade unionist (Tuathail, 2003: 3). This understanding is getting stronger as it rejected the monopolistic approach of the classical geopolitical understanding by evaluating it within its own imperial and colonial context. Thus, critical geopolitics deconstructs the useful information produced by the classical geopolitical understanding for the dominant powers within the framework of the power relations and brings geopolitical knowledge and the production of this knowledge into question.

The article discusses military greenhouse gas emissions and the impact wars and conflicts have on these military greenhouse gas emissions, which are known to contribute significantly to global warming but their effects are often ignored. The focus of the study will be on the major contribution of Israel's war on Gaza, which started in October 2023, to military greenhouse gas emissions and global warming. It examines to what extent countries act irresponsibly and in line with their interests when it comes to military activities regarding global warming and greenhouse gas emissions, and the indecisive and contradictory policies countries follow regarding military greenhouse gas emissions depending on the context. Therefore, this research is based on critical geopolitics and post-colonial approach and perspective. Our approach within the framework of critical geopolitics also benefits from the postcolonial geographical perspective, which is based on the critique of colonial discourse in which knowledge and power are produced together (Ryan, 2004: 473). Therefore, this research examines the subject of 'Geopolitics of Global Warming: Greenhouse Gas Emissions, Wars, Military Activities and the Example of Israel's War on Gaza' in the context of knowledge, environment, and power.

The inspiration for this research comes from the fact that while the effects of wars and military activities are primarily related to the loss of life, this is only one of the devastating consequences of these activities. Although, on the one hand, sovereign states express in various discourses their sensitivities about global warming and the environment, and from time to time turn this into a tool of pressure to be applied on the countries of the Global South; on the other hand they destroy the land, the environment and the living spaces of the societies where war is waged, with the wars and military activities they conduct themselves or often support in various ways which leads to the destruction of the world and makes it uninhabitable and contributes greatly to global climate change. Therefore, the source of inspiration for this research is the desire to analyse and demonstrate through critical theories and with the case study of the war on Gaza, the strong contrast between the discourses of these sovereign states on global warming and the environment, and the wars/military operations they conduct/feed.

3. WARS, MILITARY ACTIVITIES and GREENHOUSE GAS EMISSIONS

Wars have many effects including but not limited to political, economic, and sociological However, undoubtedly the most important out of these is the devastating effect on people and societies. The destruction caused by wars has reached new heights with today's advanced technology that enables the production of weapons of mass destruction such as nuclear, chemical, biological and conventional weapons. This is in stark contrast with the progress society claims to have made in terms of civilisation, development and human rights in the 21st century. While developed countries hold the largest share in the production of these weapons, the increasing arms sales to all parts of the world increases the levels of their economic welfare. In fact, the military expenditures of many countries are enormous even during periods when there are no wars and conflicts. It is a fact that all these produced and purchased weapons, military materials and vehicles will be used when their time comes. Therefore, unfortunately, their use causes the death of thousands, perhaps millions of people, and affects many more.

The most important impact of military activities and wars is their impact on people's lives. Military activities, wars, conflicts and military attacks lead to the death and injury of large numbers of people, the breakup and destruction of families, the burden of people having to live the rest of their lives with the effects of war, the destruction of living spaces and many other destructive results that affect the daily lives of

innocent people. While it is secondary to the effect military activities have on people's lives, it is the focus of this study to discuss the impact military activities have on the environment. While the armed forces cause greenhouse gas emissions with their constant exercises, training, production of weapons, bombs, gas and military equipment and many other activities during peace periods, the use of weapons, gas and bombs and all sorts of other military activities that take place during periods of war cause enormous amounts of greenhouse gas emissions. It is also necessary to add the effect of both the fossil fuels used by military vehicles and the effect of the heat generated and released into the atmosphere by military vehicles such as aircrafts, tanks, etc. Therefore, while industrial activities, transportation and other human activities after the Industrial Revolution have already greatly increased greenhouse gas emissions, military activities on an increasingly larger scale are also added to these.

However, while countries try to limit the activities that cause greenhouse gas emissions and global warming and switch to more sustainable methods through various international cooperations and domestic law, they ignore the impact of military activities, wars and conflicts on greenhouse gas emissions. While renewable energy, waste management, limitation of greenhouse gas emissions, environmental protection and sustainable development policies are becoming more common; ignoring all kinds of increasing military activities, production and use of weapons-gas-bombs, wars and conflicts that affect global climate change ultimately undermines any potentially useful measures.

According to Conflict and Environment Observatory (CEOBS) and World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) military greenhouse gas emissions are classified as follows:

• Scope 1: Fixed fuel consumption caused by heating, cooling or generators, and fuel consumption caused by mobile equipment such as aircraft, marine vessels, land vehicles and spacecraft; greenhouse gases such as methane from waste management and disposal; emissions from the use of various chemicals in air conditioning, refrigeration, radar and electrical equipment; direct greenhouse gas emissions resulting from the detonation of ammunition during training and operations or the destruction of end-of-life ammunition (Cottrell, 2022).

• Scope 2: Acquired or purchased energy including electricity, steam, heating and cooling for use at buildings and military bases. This is an indirect pathway of greenhouse gas emissions (Cottrell, 2022).

•Scope 3: Extraction, production and transportation of raw materials for all major military equipment, civilian equipment and computer technology systems for land, sea, air and space activities, emissions from purchased goods and services (weapons, combat equipment, clothing, information technologies, office equipment and perishable items, logistics, maintenance, IT and telecommunications support, catering, etc.), building and construction activities, fuel and energy activities not included in Scope 1 and 2, transportation of various goods, waste management and disposal, transportation of personnel, operations related to leased assets not included in Scope 1 and 2, and emissions resulting from land and property management are evaluated under this heading (Cottrell, 2022).

•Scope 3+: International aviation, spacecraft launches, burning of fuels used in land and sea transportation that are not included in Scope 1 or Scope 2, construction of bases, buildings or other structures, management of military-related solid waste and wastewater caused by overseas military deployments and disposal, fires caused by various military operations and conflicts, fires and infrastructure damage and leaks-emissions resulting from these damages, management and disposal of debris resulting from war, conflict or other military operations, soil erosion and degradation caused by military activities and operations, desertification, damage to natural ecosystems due to changes in land use practices and landscapes, deforestation, impacts on agricultural lands and wetlands, fires, emissions resulting from remediation/restoration activities and the disposal or treatment of any contamination or hazardous waste, military and civilian casualties, medical equipment, logistics of facilities and personnel, medical waste management, civilian displacement and humanitarian aid and support, internally displaced persons and transboundary refugees, food, shelter and social assistance management and logistic, emissions from post-conflict reconstruction activities, any emissions resulting from events such as the extraction of raw materials, manufacturing and transportation of construction materials (Cottrell, 2022).

Accordingly, while all kinds of military activities detailed in Scope 1, 2 and 3 and the supply chain, logistics, energy consumption, waste management etc. required for the continuation of military activities continue uninterruptedly, activities detailed in Scope 3+ are mostly emissions resulting from activities such as wars-conflicts and military operations (Cottrell, 2022).

3.1. Military Greenhouse Gas Emissions of Countries

When we look at global greenhouse gas emissions, approximately 60% of these emissions originate from only ten countries: the USA, China, India, Indonesia, Russia, Brazil, Japan, Iran, Canada and Saudi Arabia. On the other hand, the contribution of the countries with the least emissions is less than 3% (Climate Watch, n.d.). China ranks first with 15.6 billion tCO2e (tons of carbon dioxide equivalent), accounting for 29.16% of the world's total emissions. The USA ranks second with 6,017.44 billion tCO2e, accounting for 11.19% of the world's total emission amount in 2022. India ranks third, with 3,943.26 billion tCO2e, accounting for 7.33% of the world's total emission amount. The European Union's share is 6.67% and Russia's share is 4.80% (Crippa et al., 2023; Crawford, 2019: 2). It can be seen that many countries on the list with the highest greenhouse gas emissions are also among the countries with the highest military expenditures. Therefore, there is a positive correlation between military capacity and expenditures and greenhouse gas emissions. For example, the total greenhouse gas emissions of the U.S. Department of Defense, between the fiscal years 1975 and 2018, was more than 3,685 million metric tCO2e. An optimistic estimate of total military greenhouse gas emissions (including installations and operations) during the operational period that began with the US invasion of Afghanistan from fiscal years 2001 to 2018 is 1,267 million metric tCO2e greenhouse gases. Greenhouse gas emissions from the USA's war-related Overseas Contingency Operations are estimated to be more than 440 million metric tons, including operations in Afghanistan, Pakistan, Iraq and Syria (Crawford, 2019: 2).

Another military operation, the Russia-Ukraine war, which took place on Ukrainian territory, also contributed greatly to military-related greenhouse gas emissions. Accordingly, approximately 150 million tCO2e were emitted during the 18-month period of the Russia-Ukraine war. A large part of this emission comes from reconstruction activities, a smaller part from active wars and fires. This amount is more than the annual greenhouse gas emissions of a country like Belgium. It is thought that 25% of this emission comes from active wars and conflicts, 15% from fires, 2% from refugee movements, 12% from civil aviation, 36% from reconstruction activities and 10% from damaged Nord Stream 1-2 (Klerk et al., 2023: 5, 11). Even if the war ends, emissions will reach much larger amounts due to the reparation of the damages caused by war, and the following construction and reconstruction activities.

An optimistic estimate by Scientists for Global Responsibility (SGR) and CEOBS for the operational greenhouse gas emissions of militaries worldwide in 2022 is 500 million tCO2e. This amount is 1.0% of global greenhouse gases. The global carbon footprint estimate is 2,750 million tCO2e, which is 5.5% of the global total. This calculation does not include greenhouse gas emissions due to the effects of war, such as fires, other damage to infrastructure and ecosystems, reconstruction after war and conflict, and healthcare for survivors. The total rate is estimated to be over 5.5%, especially when those directly related to wars and other military effects which are normally left out are taken into account. Accordingly, military activities alone produce the fourth largest total carbon footprint worldwide (Parkinson et al., 2022).

It has now practically become a rule that almost all countries report their annual total greenhouse gas emissions to the United Nations. However, there is no obligation to calculate and report greenhouse gas emissions that result from military activities. Therefore, military-related greenhouse gas emissions are not taken into account in countries' greenhouse gas emission calculations. Although countries were requested to voluntarily report their military emissions by the Paris Agreement in 2015, very few countries comply. Therefore, there is often no regular and comprehensive data on greenhouse gas emissions that result from the military activities of states or global-regional military organisations. Although the United Nations has shared various standards in recent years by encouraging military-related greenhouse gas emission measurements and data sharing, countries believe that this will limit their military activities and that the emission data they share will endanger their security by providing information about their military activities.

Countries generally do not transparently share and/or measure their military greenhouse gas emissions within the framework of Scope 1 emissions resulting from fuel use, Scope 2 emissions resulting from energy use, Scope 3 emissions resulting from the supply chain and Scope 3+ emissions resulting from war/conflicts (Cottrell, 2022: 10-12). For this reason, inferences about countries' military greenhouse gas emissions can only be made from the known to the unknown. Creating a general list of the countries that spend the most on military will provide information about the countries that are at the forefront of military greenhouse gas emissions. Accordingly, the countries with the highest military expenditures in recent years are the USA, China, Russia, India, Germany, the United Kingdom, France, Japan, Saudi Arabia and South Korea (NATO, 2023; SIPRI, 2023; UNODA, n.d.). Therefore, the share of these

countries in the world's total military greenhouse gas emissions is much higher than many other countries in the world.

It is clearly seen that military activities, war, conflicts and military operations are highly effective in global greenhouse gas emissions. Wars, conflicts and military attacks cause much more greenhouse gas emission than normal military activities. In this case, especially countries that are in active war, conflict or military operations cause large amounts of direct and indirect military greenhouse gas emissions. The impact of Israel, which is actively carrying out military operations in the time period we live in, on military greenhouse gas emissions will be examined in the next part of this study.

4. ISRAEL'S WAR on GAZA

Although the subject of this part is Israel's war on Gaza that started in October 2023 and its impact on global warming and greenhouse gas emissions that result from military activities, Israel's military activities and operations in the region are comprehensive activities that go back much earlier. Therefore, Israel's military contribution to greenhouse gas emissions goes back much further. However, this section will be limited to discussing the Gaza war that started in October 2023.

Israel's most recent war on Gaza caused a major humanitarian crisis and the destruction of the living space of Palestinians. Accordingly, by the 100th day (January 15, 2024) of Israel's war on Gaza, which started on October 7, 24 thousand Gazans were killed by Israel and more than 60 thousand were injured (Al-Mughrabi & Shana, 2024; Alsaafin & Osgood, 2024; Bland, 2024; "Gaza Daily Deaths", 2024). In the sixth month of the war (April 7, 2024), the number of people killed by Israel exceeded 33 thousand, and approximately 14 thousand of them were children. The number of injured exceeded 75 thousand. It is estimated that thousands of missing people are under rubbles (Motamedi & Chughtai, 2024; Rouqa & Al-Mughrabi, 2024). The death toll has exceeded 40 thousand as of mid-August 2024 (Türk, 2024). The Israeli army kills approximately 250 Palestinians every day, displacing many more, forcing them to face hunger, thirst and cold. This number is much higher than the number of average deaths per day in Syria (96.5), Sudan (51.6), Iraq (50.8), Ukraine (43.9), Afghanistan (23.8) and Yemen (15.8), where armed conflicts have occurred recently. Since no part of Gaza is safe, almost half of the population of Gaza, one million people, have been forced to seek shelter in Rafah, on the Gaza-Egypt border. However, Israel has restricted aid access, closed the borders, besieged the region ("Daily Death Rate", 2024) and continues to fulfill all the requirements of

the definition of genocide and implement them on the Palestinian population in Gaza.

Israel has also caused a real environmental crisis with its military activities and war on Gaza. Israel, by turning the region into a pile of rubble with military operations, attacks and bombings, is causing global warming and release of large amounts of greenhouse gas emissions. When examined one by one, there are dozens of separate action topics regarding global warming, greenhouse gas emissions and environmental damage caused by Israel's war on Gaza. In this part of the article, these environmental damage headings and the impact of Israel's military operation against Gaza on global warming and greenhouse gas emissions will be examined.

Israel, one of the countries with the highest defence spending in the world, revised its war budget in the beginning of 2024 while its intense attacks on Gaza continued, and the Israeli government approved a very large war budget of 155 billion dollars (582 billion shekels) (Arnaout, 2024). The size of the war budget and spending gives us an idea about military greenhouse gas emissions. It is estimated that the Israeli defence budget, which was 20.34 billion dollars in 2019, caused a total of 6.99 megatons of CO2 emissions (Neimark et al., 2024). If no new additions are made, it can be estimated that the 2024 war budget, which is approximately seven and a half times the 2019 defence budget, will cause emissions much higher than 6.99 megatons of CO2. Considering that the post-war reconstruction constituted a large part of military emissions, it will not be a surprise that the military emissions in question will increase much more in the future.

All kinds of bombs and weapons used by Israel in its operations in Gaza cause greenhouse gas emissions. Among these, the white phosphorus bomb, which has been proven to be used by Israel in Gaza and Lebanon (Human Rights Watch, 2023; Khalil, 2023), is a flammable substance that harms humans, animals and plants, and also leaves great and long-term effects on the environment. One of the chemical hazards of phosphorus is that it spontaneously ignites when it comes in contact with air, producing toxic fumes called phosphorus oxides. White phosphorus, which spontaneously ignites when it comes in contact with air and burns at very high temperatures, produces a toxic gas called phosphine when it reacts with strong bases. White phosphorus is a rapidly burning substance that produces dense, white, irritating fumes when burned, and can reignite after being extinguished (CDC, n.d.). White phosphorus attacks cause fires in large areas, and these fires continue until there is nothing left to

burn. It also causes agricultural products to dry and disappear. It passes into water and soil, causing toxic effects on ecosystems, humans and other living creatures (Kallab & Mouawad, 2023: 5-6). Amnesty International has confirmed that Israel used white phosphorus bombs in Lebanon as well as in Gaza after October 7. According to Amnesty International, Israel has committed war crimes by using white phosphorus bombs many times in many parts of Southern Lebanon, and these illegal actions of Israel should be investigated as war crimes (Amnesty International, 2023).

The production and use of F-16 and F-35s also have a great impact on military greenhouse gas emissions. Just one of the Lockheed Martin-made F-35s emits approximately 28 tCO2e per fuel tank (Claußen, 2022). It is known that F-35s, which have such a large amount of greenhouse gas emissions, have a large place in Israel's military fleet. According to the calculation, the amount of greenhouse gas emissions from F-16 and limited F-35 flights in the first 60 days of Israel's operations in Gaza is 121,000 tCO2e (Neimark et al., 2024). It has been announced that the number of F-35s that Israel has will be increased to 75 with the purchase of 25 new F-35s from the USA, initiated by Israel in the second half of 2023 (Asmar, 2023b; Odenheimer, 2023). Additionally, on December 28, 2023, Lockheed Martin signed a $10.5 million contract to continue support for the F-35 fighter jet fleet for Israel's ongoing attacks on Gaza. Lockheed Martin, the supplier of the F-16 and F-35s that Israel used to bomb Gaza and is also the world's largest arms manufacturer, has further accelerated its cooperation and trade with Israel as of October 7, 2023. Apart from F-16s and F-35s to support the ground invasion in Gaza C-130 Hercules transport planes, AGM-114 Hellfire missiles for the approximately 2000 Apache helicopters used in air strikes against Gaza and delivered to Israel after October 7, the M270 Multiple Launch Rocket System (MLRS) were supplied to Israel by Lockheed Martin (AFSC, 2024).

Israel's war on Gaza is mostly based on air operations. Therefore, the emissions caused by flights within the scope of air operations and the large amount of fuel consumed by these warplanes are some of the most important issues causing military greenhouse gas emissions in the Gaza attack. According to the research conducted by Neimark and others a total of 281,000 metric tCO2e were released in the 60 days after October 7 during the Gaza attacks, 99% of which resulted from Israel's aerial bombardment and ground invasion of Gaza. Accordingly, of the 281,000 metric tCO2e released in Israel's war in Gaza, 254,650 came from flights,

21,289 from various munitions, and 5,663 from land transportation. Of the 254,650 metric tCO2e emissions resulting from flights, 133,650 came from US Supply Flights and 121,000 came from Israeli aircraft missions. Of the emissions released from ammunition, 13,600 came from Israeli artillery, 6,689 from Israeli bombs, and 713 from Hamas rockets. All of land transportation emissions (5,663) originate from Israeli tanks and armoured vehicles (Lakhani, 2024; Neimark et al., 2024). According to the press briefing published by Euro-Med Human Rights Monitor on November 2, 2023, from October 7 to early November, Israel dropped more than 25,000 tons of explosives on the Gaza Strip, equivalent to two nuclear bombs. The weight of the nuclear bombs dropped by the USA on Hiroshima and Nagasaki in World War II is estimated to be approximately 15,000 tons of explosives. As a result of technological developments regarding nuclear bombs in the intervening time, it is estimated that these bombs dropped on Gaza have twice the power due to their increased explosive effect. In addition, since the area of Hiroshima is 900 km², while Gaza is less than 360 km², it is estimated that the bombs dropped on Gaza had a much more destructive effect than those dropped on the Japanese cities (Euro-Med Human Rights Monitor, 2023). Moreover, this situation in Gaza covers only a 4 week period. Considering that the Gaza attack continues with all its speed and destructiveness, it can be estimated that a much more destructive effect than what is mentioned above is taking place. According to the Jerusalem Post, approximately 99 percent of the CO2 emissions resulting from the Israel-Hamas war comes from Israel's air and land operations in Gaza (Jaffe-Hoffman, 2024; Neimark et al., 2024).

The Iron Wall system built by Israel on the Gaza border, together with the wall itself and all its military equipment, is one of the factors that cause a large amount of military-related greenhouse gas emissions. The Iron Wall system, which extends for 65 km from the Egyptian border, consists of 140,000 tons of iron and steel. It is estimated that the Iron Wall system, which has a height of more than 6 metres above ground, also extends to a depth of several metres underground. This wall also includes a remote-controlled weapons system and a sea barrier with monitoring equipment to detect attacks from the sea (Popoviciu & Masarwa, 2021). Israel's construction of the Iron Wall system caused approximately 274,000 tCO2 emissions. The construction of the 500 km underground tunnel network made of concrete and iron built in Gaza to overcome these obstacles created by Israel and to transport goods, weapons and people caused an estimated 176,000 tons of greenhouse gas emissions (Lakhani, 2024; Neimark et al., 2024).

The burning and destruction of a large city could release up to 10 million tCO2. Indirect emissions from the need to rebuild cities and infrastructures after the end of a war could easily exceed 100 million tCO2 if the conflict caused nationwide devastation (Michaelowa et al., 2022: iii). In other words, rebuilding and reconstruction activities cause much more greenhouse gas emissions. It is estimated that in the first 35 days of the Israel's war on Gaza, mostly the destruction and reconstruction of infrastructure caused approximately 60 million tCO2e emission. It is estimated that if the attacks continue for 12-13 months from October, total emissions could rise to 629 million tCO2e, most of which are caused by the destruction and reconstruction of infrastructure. It is estimated that rebuilding each destroyed unit would produce approximately 565 tCO2e. Accordingly, taking into account the need to rebuild 50 thousand structures and extensive damage, these construction activities are equates to a total of 28,25 million tCO2e (Tamimi, Shehadeh & Otoom, 2023). According to the figures given by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) (2024) on February 8, 2024, that is, on the 124th day of the attack, as a result of the Israeli attacks that started on October 7, more than 70 thousand housing units were destroyed in Gaza and more than 290 thousand housing units were partially damaged. While it is known that the reconstruction of these structures will cause a huge amount of greenhouse gas emissions, unfortunately, the impression arises that the attacks continue and these figures will increase even more. According to their study published at the beginning of January 2024, Neimark and others (2024) estimate that approximately 100 thousand buildings have been demolished in Gaza and their reconstruction will cause 30 million tCO2e emissions. After sixth months of the war had passed, the United Nations announced that 60 percent of the residential buildings in Gaza were damaged (Al-Hajjar, 2024; UN, 2024).

According to the Norwegian Refugee Council (2023), Israel's refusal to allow the entry of fuel into the Gaza Strip has caused the wastewater treatment facilities there to be completely closed. This situation causes a serious environmental hazard, as more than 130,000 cubic metres of sewage are released into the Mediterranean without treatment every day. Not only by preventing fuel from entering Gaza, but also predating October 7, Israel's various attacks on environmental infrastructures and treatment facilities in Gaza, such as water and sanitation facilities, sewage treatment facilities and water networks, rendered them unusable. This caused sewage to be pumped into the sea without being treated, causing major marine pollution on the coast (Al

Mezan Center for Human Rights, 2022). Another example of the environmental damage caused by Israel's activities in Gaza and the West Bank is the uprooting of trees, especially olive trees. According to the Palestinian Authority (PA) and the Applied Research Institute Jerusalem (ARIJ), Israel has uprooted approximately 800,000 olive trees in the West Bank and Gaza from its 1967 occupation to 2012 (Frykberg, 2015). Israel's activity of cutting down and uprooting olive trees carried out by its security forces and illegal settlers has been continuing. For example, on February 1, 2024, illegal Israeli settlers uprooted 450 olive and almond trees in one day in the village of Deir Sharaf, west of Nablus in the occupied West Bank ("Israel Settlers Uproot", 2024). Unfortunately, uprooting trees, which is one of Israel's environmentally unfriendly practices, has been continuing at full speed since October 7. The policy of uprooting trees is a widely practised method in Gaza, as it is in the West Bank. Israel has already devastated Gaza with its attacks to such an extent that it does not need to uproot trees. One example from December 2023 is the attack by illegal Israeli settlers on Palestinian farms and olive trees in the village of Qusra, south of Nablus in the occupied West Bank. Another incident is in December 2023, when illegal Israeli settlers attacked Palestinian farms and olive trees in the village of Qusra, south of Nablus in the occupied West Bank (Asmar, 2023a).

According to studies in the field, the Eastern Mediterranean is one of the most sensitive regions to climate change. While temperatures around the world have increased by an average of 1.1°C since the pre-industrial times, average temperatures in Israel/Palestine, where wars and conflicts are not lacking, have increased by 1.5°C between 1950 and 2017. It is estimated that there will be 4°C increase by the end of this century (Bishara, 2023). The main reason for the extra warming in the Israel/Palestine region, which has a warming value above the world's global warming temperature increase average, is the war, conflict and the Israeli attacks that have been going on here intermittently for many years.

Environmental crimes committed during wars and whether these actions can be subject to compensation to the perpetrator state have also been on the agenda of the Parliamentary Assembly of the Council of Europe. The decision dated 22 June 2023 and numbered 2506(2023)33 clearly states that the destruction of Ukraine's Kakhovka Dam by the Russian attack on 6 June 2023 constitutes a "war crime" and "ecocide" and "…the principle that Russia, as a State, provide full compensation to Ukraine once the war is over, and endorsing the idea that the Russian regime should face an international tribunal for its actions"

(Parliamentary Assembly of the Council of Europe, 2023). With these decisions, it is very important that the Parliamentary Assembly of the Council of Europe not only stated that Russia should pay compensation for the environmental damage caused in Ukraine, but also stated that Russia should be held accountable in an international court by bringing the concept of ecocide to the agenda. This decision and statement will set an example of what the international approach should be towards the environmental crimes committed by Israel in Gaza. But the fact that the functioning of the international law and justice is under the influence of influential states (Çatı & Çamlıdağ, 2023: 328) undermines the reliability of these institutions. Therefore, the military activities of Israel, which causes as great an environmental impact as Russia, must also be evaluated within the framework of legal rules in international courts.

5. COP28 and MILITARY EMISSION

It has been mentioned that there is no obligation for countries to report their military greenhouse gas emissions. The fact that reporting of military emissions is not mandatory but voluntary is largely due to pressure from the United States. Therefore, the few countries that voluntarily report to the UN Framework Convention on Climate Change (UNFCCC) (Lakhani, 2024), which organizes annual climate talks, also provide limited information. Israel is one of the countries that does not report its military emissions data. Countries that do not report or do incomplete reporting believe that measuring and reporting data transparently will create security problems.

Whether the issue of limiting military greenhouse gas emissions will be the subject of various agreements is also an important problem. Unfortunately, military carbon dioxide emissions have not been included in the scope of climate agreements such as the 1997 Kyoto Protocol and the 2015 Paris Agreement (Claußen, 2022; Schlanger, 2024) as a result of US pressure. In addition, no decision was taken at the recent COP27 or COP28 summits (UN Climate Change, n.d.) to discuss or limit military greenhouse gas emissions. Although the problems caused by military and conflict-related emissions are now being addressed during the side events held at COP28, these conversations were not made a part of the main conference and could only be included in the side events (Shackleton, 2023a). Therefore, the impact of military-related greenhouse gas emissions on the climate crisis, which was not included in the main conferences or discussions, was not included in any outcome documents. As a result of the conference, the need for "transition away from fossil fuels" was approved, which can be considered a small progress.

However, the result has not change, and the final text that was approved did not acknowledge the impact of military activities or armed conflicts on climate change and greenhouse gas emissions (Kinney, 2023).

At COP28, where countries committed to reducing their military budgets, even if insufficient, Israel and Russia, two of the countries that should have made the biggest commitments on this issue in the current period, refused make any commitments. The United States, on the other hand, pledged of $17,5 million, which is a very insignificant amount compared to its huge military expenditures of $876,94 billion in 2022 (Kinney, 2023). This attitude displayed by the states is far from satisfactory. In addition, the matter does not only concern states but international military organisations are equally responsible for military greenhouse gas emissions. Therefore, serious steps are needed, not only by the leading countries in military greenhouse gas emissions, but also by international military organisations such as NATO. These steps should be at the level of action rather than commitment. However, the international community is far from making satisfactory progress even when it comes to sufficiently and transparently reporting military greenhouse gas emissions. Likewise, the sensitive attitude towards the environmental crimes committed by Russia in Ukraine should also be displayed towards Israel's environmental crimes in Gaza and the West Bank. However, on the contrary, issues such as Russia-Ukraine war, Israel's war on Gaza and the US material and moral support behind it, arms races, etc. give the impression that states and organisations will not act very differently in the future in regards to limiting military greenhouse gas emissions. As Buxton puts it, placing solar panels on military bases is easy, but it does not help overcome the problems caused by the activities of military jets, ships and tanks, which are the main cause of greenhouse gas emissions (Buxton, 2022). Even if there is no conflict or war, states do not wish to reduce, limit or stabilise their military activities and capacities. It is necessary to add to this the great economic benefits brought by the arms trade.

6. CONCLUSION

Greenhouse gas emissions and global warming, some of today's most important global problems, have been caused almost entirely by human activities in recent centuries. The impact of military activities on greenhouse gas emissions and global warming has not been discussed sufficiently. Countries are reluctant to report their military greenhouse gas emissions caused by armament, tests, training, war, conflicts and attacks, that is, their military activities to the UN. Today, the total

military greenhouse gas emissions contribute more to global warming and greenhouse gas emissions than most countries in the world. With the addition of active war, conflict and military operations to existing normal military activities, the size of military greenhouse gas emissions increases. One of these is Israel's war on Gaza, which started in October 2023. Israel causes a huge amount of military greenhouse gas emissions with the military vehicles and equipment it uses, the air and land operations it carries out, the bombings, the methods it uses and the destruction it creates with these attacks that have been going on for months. The extent of Israel's emissions can be understood from the size of its military expenditures, all kinds of weapons, bombs, gas and military vehicles used, the destruction of all kinds of infrastructure facilities and the damage it causes to vegetation in Gaza.

Due to the pressure of countries such as the USA, international conferences, agreements and contracts can not sufficiently bring military greenhouse gas emissions to the agenda. Israel's war on Gaza is equally responsible for recent military greenhouse gas emissions, as is Russia's attack on Ukraine. Therefore, international law and environmental laws, which are being discussed with regards to Russia's attack on Ukraine, should also be applied in the same way regarding Israel's war on Gaza. The most important, destructive, sad and disappointing effects of wars are undoubtedly those on human life. In addition, military activities, with their contribution to greenhouse gas emissions and global warming, serve to make environmental conditions uninhabitable for survivors and for the rest of the world.

In this research, Israel's war on Gaza are discussed as a case study from the perspective of critical geopolitics, postcolonialism, global warming and climate change. The Israel’s war on Gaza which started in October 2023, have turned into a colonial policy in which environmental disasters are visible in addition to all the human disasters. Therefore, one of the areas where the colonial policies were implemented is the environment. In this study, many of the impacts on the environment have been critically discussed. However, analyzing the extent of the effects through field research, which is currently inaccessible, will be one of the most important studies that can be done on the environmental disasters and military greenhouse gas emissions caused by Israeli attacks in Palestine.

Global warming, one of the world's most important problems, is also a geopolitical issue. States that make seemingly sensitive statements and occasionally take precautions to prevent global warming ignore their

contribution to global warming when their political, military and economic interests are at stake. This article attempts to bring to the agenda that wars, conflicts and military activities, after their effects on people, also have important effects on the environment. Wars, conflicts and military activities not only cause loss of life and property in societies, but also make their surroundings uninhabitable and are perhaps used as a tool to force them to leave their uninhabitable lands. Thus, it is hoped that this study will contribute to the literature by trying to pave the way for the issue of global warming, which is mostly addressed from an environmental perspective, to be addressed from a political geography and geopolitics perspective.

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