

Research Article

CAN WAR IN UKRAINE BE A STEP BACK IN THE CLIMATE CHANGE FIGHT?

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Summary: 1. Introduction. – 2. Environmental Damages in Ukraine. – 3. Can the War in Ukraine Threaten Climate Change Targets? – 4. Legal Aspect – Armed Conflicts. – 5. Effects on the Global Market. – 6. Conclusion.

Keywords: Climate change, war in Ukraine, international law, energy.

ABSTRACT

Background: *The war in Ukraine, the major event of recent years in relation to public international law, is being challenged by the actions of the Russian side by interfering in the territory of a sovereign state with the intention to annex specific parts of the state of Ukraine. The special importance of this war is the international community's involvement, striving to uphold principles of international justice, preventing these situations from happening in Europe. Beyond the tragic loss of people's lives, a critical point is the degradation of the environment in these areas along with the possibility of destroying the states' efforts to fight climate change. This war has far-reaching consequences beyond the battlefield. It impacts numerous social aspects and has a direct impact on the social well-being of society. Besides this, the increase of inflation rates globally, an energy crisis, disruptions within the transport market of goods and services, as well as other interconnected aspects of social life in general, are being directly impacted.*

This research encompasses an analysis across different categories, starting with GHG emissions, the effects of bombing campaigns in the vicinity of nuclear reactors, and assessing the potential risks of meltdowns and their subsequent repercussions.

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We have also analysed the socio-economic aspect, global market movement, energy crisis, and inflation. A critical discussion revolves around shifting the focus from fighting climate change towards addressing the current situation created by the war in Ukraine. Moreover, part of the research encompasses gauging public sentiment on specific questions and comparing the results from two different groups to discern potential divergencies in viewpoints.

Methods: *Methodology used: collection of materials from books, articles, official data, and other scientific reports; analysing and structuring the collected material; surveys.*

Results and Conclusions: *Based on the research and analysis made throughout the study, we concluded that the war in Ukraine has been a step back in the fight against climate change.*

1 INTRODUCTION

Institutions with an international character, established to uphold 'world order' consistently encounter challenges stemming from different actors of the international community. These institutions and their mechanisms were created to avoid possible conflicts and address these general interest matters. By increasing economic cooperation, it was thought that major problems could be avoided, leading individuals with interrelated ties to avoid any conflicts. This idea has been challenged several times so far, but recent challenges have created a new moment of reflection for the civilised world. Such challenges like climate change or the war in Ukraine, has illuminated the fragility of international frameworks. Likewise, these confrontations have continuously hindered progress in the creation of a unified society.

In this article, we will build an analytical description of the new concepts that can emerge from these topics, emphasising how the war in Ukraine has impacted the increase in gas emissions. Additionally, we will explore its effects on the economic sphere and its disruptive influence on climate change mitigation agendas. We will also outline potential pathways forward.

The purpose of the research is to show:

1. If there is any possibility that the war in Ukraine will impact the targets set by international agreements?
2. To what extent is this war hindering the fight against climate change?
3. Should Ukraine be reconstructed ecologically in the future?
4. Should there be restraint in attacks around nuclear reactors?
5. Should Russia be held accountable for the destruction of the environment?
6. What are the repercussions on the global market brought on by the war?
7. Utilising these and other questions, we aim to pose and present our ideas regarding these issues.

Also, a good basis for discussion will be the examination of the legal dimension. This encompasses exploring the signed agreements and how the diverse approaches taken by different nations. Moreover, an assessment of public opinion will be measured on different topics. To

do this, a survey was distributed among two distinct groups of individuals. By comparing the data collected from these two groups through several analytical methods, such as the 'descriptive method' and the 'Chi-square' analysis, we aim to ascertain significant differences in attitudes between the two groups.

The questions raised in the questionnaire were devised to help us understand individuals' ideas, to see how they view climate change, their assessment of the current legal basis, and their stance on the enforceability of agreements. These questions are aligned with our overarching topic. The first question relates to individuals' understanding of the danger of the war in Ukraine and the potential damage it can cause to the environment. The subsequent two questions assess public opinion concerning whether if a sufficient legal basis in place, would there be less damage from the war? Would the states refrain from war? Would they be more selective and concerned about the environment in which bombs would be detonated, or the weapons used? The questions assess whether if legally binding agreements would be in place, whether the warring states would be more careful about the damage as they would be held legally responsible for any damage.

In our conclusion, we formulate a hypothesis to the extent of which the war has influenced climate change. The issue of accountability to whether Russia should be held responsible for the damage caused will be raised. We will consider whether we need to intensify efforts to render international agreements legally binding as well as analyse the war's impact on economic and social aspects, drawing comparisons with other wars and how they have affected them.

The war in Ukraine has turned the world's attention to this part of Europe since the consequences of this war affect many dimensions of social life. The commencement of the war between Ukraine and Russia has triggered a range of problems for the international community.

First, the realm of public international law has been challenged in many ways, creating situations that have influenced a global crisis.

Determined to occupy new territories, Russia has become a violator of international law. Initially, in 2014, Crimea was annexed, which until that point was part of the state of Ukraine. Since the international community's response at that time had not been particularly responsive, Russia's appetite increased and subsequently, in 2022, Russian troops were sent to annex the Donbas provinces, territories of Ukraine.

War always brings consequences beyond the warring parties. Their effects extend to other parts of the world, and the war in Ukraine has done just this. The war has generated a multitude of consequences, ranging from violations of international law to causing widespread difficulties, in general, all over the world.

To give credibility to the research on this topic and the connection with climate change, in one of our surveys, we posed the question: 'Do you think that climate change is a main problem of the 21st century?' This question was raised to discern people's perceptions regarding climate change, gauging whether they view it as a defining challenge of this century. Importantly, it should be noted that the research was extended to two groups of people: marginalised environmentalist groups and the general public. Their answers first underwent analysis via the Chi-square method, performed by SPSS, to identify if there are significant differences in attitudes.

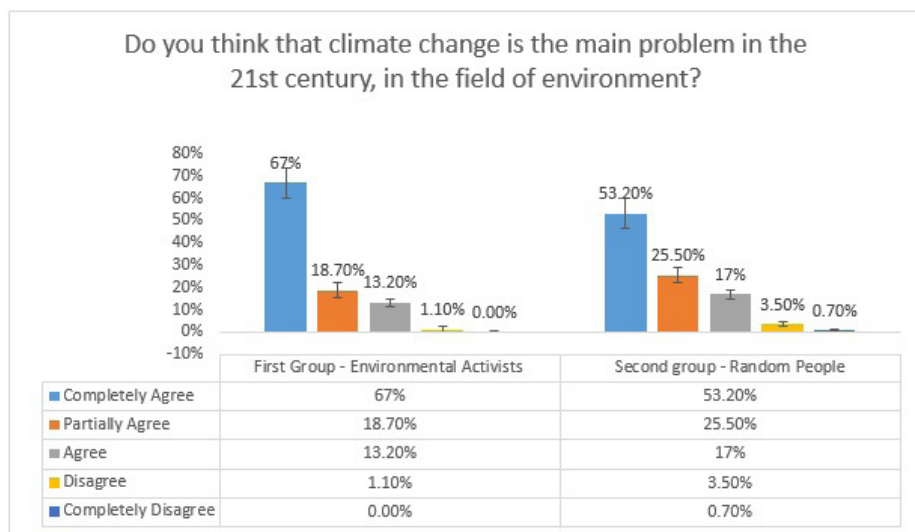


Figure 1 — Shahiqi, D. (2023) Unpublished raw data (Survey date: 10-03-2023 – 25-03-2023)

Observing the responses from both groups, it becomes evident that they have similar opinions. They collectively lean towards the viewpoint that climate change is the main problem of the 21 century. The Chi-square analysis showed a significant linear-by-linear association ($p = .039$). The computed values are within the standard limits without any significant difference.

This margin of discussion is almost the same in the two groups. The results derived from the Chi-square test shows that the P value determined by the test is 0.039, falling below the conventional threshold of 0.05, which means that a statistical relationship exists between these two variables. This link is not accidental; the overall difference between the variables is 3.9%. Based on this, it is apparent that a prevailing sentiment exists among people that regard climate change as a main concern. This situation is exacerbated by the ongoing conflict in Ukraine. Presently, the situation has grown more complicated; the longer the war lasts, the greater need for states to make an effort to improve the situation.

2 ENVIRONMENTAL DAMAGES IN UKRAINE

Apart from the social and economic aspects, its imperative to examine other critical factors such as environmental degradation, the utilisation of unconventional weapons, the energy market crisis, and their effects on climate change. There is a need to analyse countries, how they reacted towards the new situation with the war in Ukraine and how this could affect the current agendas for the reduction of greenhouse gases (GHG).

If we go back in retrospect and analyse the situation in Ukraine before the war started, based on official data from the 'EPI Environmental Performance Index', Ukraine was considered one of the countries with poor environmental performance across indicators such as air quality, production quality and general ecosystem health². Since the commencement of the war,

2 'Ukraine and the Others: The Environmental Impacts of War' (European Union, 22 February 2023) <https://youth.europa.eu/year-of-youth/young-journalists/ukraine-and-others-environmental-impacts-of-war_en> accessed 19 June 2023.

the current situation must have worsened. In the past, Ukraine was considered ‘the Green Heart of Europe’ precisely because of its biodiversity. According to the records, 70,000 types of species are found in this region. The territory of Ukraine accounts for 35% of Europe’s biodiversity and is home to many endangered species.³

But it is crucial to delve into the extent of environmental damage caused by the war. How much ecological degradation has been monitored by international organisations? How many incidents have occurred? Based on the data from Ecodozor, since the onset of the war up until now, 1220 incidents have been reported, spanning different sectors and involving 629 locations across the region.⁴

In the past, Ukraine faced a dangerous environmental situation, the Chernobyl disaster. A devastating event which had stark repercussions on the people in this region who are still suffering today. The lingering effects and the risk of a repeated situation are extremely high. At the beginning of the conflict, field data indicated that gamma radiation in the Chernobyl region was 28 times higher than the annual emitted radiation.⁵

The concern for new nuclear catastrophes remains high, given the presence of fifteen nuclear plants in Ukraine. According to Ecodozor’s notes, approximately 126 incidents have been recorded across nine nuclear plants, potentially leading to extraordinary consequences for Ukraine and neighbouring countries. Notably, Ukraine has a developed heavy industry, encompassing metallurgy and metal processing. So far, there have been 97 accidents in the facilities of these industries, potentially posing an ecological challenge that the Ukrainian people will deal with in years to come.⁶

The situation has been exacerbated by the Russian army’s attack on Zaporizhzhia Nuclear Plant. Experts suggest that this attack could be equivalent to six times the power of the Chernobyl disaster. It is important to highlight that the energy supply of this nuclear plant has been disrupted six times by rocket attacks since the beginning of the war.⁷ The International Atomic Energy Agency (IAEA) is making constant calls to restrain combat in this area, as a reactor meltdown or explosion could be fatal for many people. Such an incident would constitute another environmental catastrophe, inflicting irreparable damage on the area and its people.⁸

Likewise, fires and burning of buildings from the Russian invasion have contributed to increased GHG emissions. Beyond the loss of civilian lives, critical infrastructure has been destroyed. Ukraine thinks that in future, based on international law, it will seek compensa-

3 Bohdan Vykhor and Andreas Beckmann, ‘Assessing the Environmental Impacts of the war in Ukraine’ (World Wildlife Fund (WWF), 13 June 2022) <<https://wwfcee.org/our-offices/ukraine/assessing-the-environmental-impacts-of-the-war-in-ukraine>> accessed 19 June 2023.

4 Ecodozor: Environmental Consequences and Risks of the Fighting in Ukraine <<https://ecodozor.org>> accessed 19 June 2023.

5 Marthe de Ferrer, ‘Radiation levels at Chernobyl are rising: The environmental impact of Russia’s war in Ukraine’ (Euronews.Grenn, 25 February 2022) <<https://www.euronews.com/green/2022/02/25/radiation-levels-at-chernobyl-are-rising-the-environmental-impact-of-russia-s-war-in-ukrai>> accessed 19 June 2023.

6 Ecodozor (n 4).

7 Marita Moloney and Emily McGarvey, ‘Ukraine war: Russian air strikes cut power at Zaporizhzhia nuclear plant’ (BBC News, 9 March 2023) <<https://www.bbc.com/news/world-europe-64897888>> accessed 19 June 2023.

8 ‘Nuclear Safety and Security in Ukraine’ (International Atomic Energy Agency (IAEA), 2023) <<https://www.iaea.org/nuclear-safety-and-security-in-ukraine>> accessed 21 July 2023.

tion for losses and damages caused to the environment.⁹ All damages caused will be able to be calculated correctly at the end of the war by international organisations, such as UNEP, who will apply the same methodologies to those utilised in previous cases of war conflicts. Their evaluation will look for the potential for environmental contamination and verify the viability of habitation in bombarded areas. In terms of destruction, they will assess the extent of destruction, estimating the need for interventions and the associated costs.

3 CAN THE WAR IN UKRAINE THREATEN CLIMATE CHANGE TARGETS?

Undoubtedly, the concerns are widespread among countries that have persistently made efforts to improve the situation with GHG emissions. The signatories of the international agreements from the United Nations Framework Convention for Climate Change, Kyoto Protocol, Paris Agreement and Glasgow Climate Pact now find themselves in a state of vulnerability.¹⁰ The collaborative efforts aimed at curbing the rise in temperature in accordance with the Paris Agreement's stipulations encounter potential obstacles. From a legal point of view, parties who have signed Paris Agreement are obliged to uphold its principles, given it is considered a legally binding agreement. This signifies that the signatory parties have a legal obligation to comply. Based on the facts so far monitored by legitimate organisations, the attainment of targeted goals has been seriously jeopardised as a result of the ongoing war in Ukraine.

According to estimates presented by the Ukrainian delegation, during COP27, damages equivalent to 11.4 billion dollars have been attributed solely to the contamination of fertile soils. This holds substantial implications for the future since Ukraine stands as a leading producer of raw materials for sunflower oil and flour.¹¹

President Zelensky's declaration that 'There can be no effective climate policy without the peace' best explains the premise that the war in Ukraine will impede the achievement of intended targets and setbacks in the battle against climate change.¹²

According to Ruslan Strilets, Ukraine's environmental protection minister, during his COP27 address, approximately 33 million tons of greenhouse gases have already been emitted during the war. Concerns were raised over Russia's utilisation of Ukraine's natural reserves military

9 Alejandro de la Garza, 'Ukraine Wants Russia to Pay for the War's Environmental Impact' (Time, 19 October 2022) <<https://time.com/6222865/ukraine-environmental-damage-russia>> accessed 19 June 2023.

10 United Nations Framework Convention for Climate Change (New York, 9 May 1992) <https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&clang=en> accessed 19 June 2023; Kyoto Protocol to the United Nations Framework Convention on Climate Change (Kyoto, 11 December 1997) <https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-7-a&chapter=27&clang=en> accessed 19 June 2023; Paris Agreement [under the United Nations Framework Convention on Climate Change] (Paris, 12 December 2015) <https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=en> accessed 19 June 2023; Glasgow Climate Pact Decision 1/ CMA.3 of 13 November 2021 <<https://unfccc.int/documents/310475>> accessed 19 June 2023.

11 Oliver Milman, 'Ukraine uses Cop27 to highlight environmental cost of Russia's war' (The Guardian, 13 November 2022) <<https://www.theguardian.com/world/2022/nov/13/ukraine-cop27-highlight-environmental-cost-russia-war>> accessed 19 June 2023.

12 Gloria Dickie and William James, 'COP27: Ukraine's Zelenskiy Says Climate Policy Impossible Without Peace' (Reuters, 8 November 2022) <<https://www.reuters.com/business/environment/cop-27-ukraines-zelenskiy-says-climate-policy-impossible-without-peace-2022-11-08>> accessed 19 June 2023.

bases. Strilets further noted that the reconstruction efforts of Ukraine would emit about 49 million tons of GHG, thereby further damaging the set targets.¹³

Importantly, it must be emphasised that the environment constitutes a general good, transcending individual state boundaries. In the context of various wars, the loss of human lives, destruction of homes, and damage to different habitats stand as predominant issues.

The last three years have witnessed the world grappling with the global Covid-19 pandemic, underscoring its fragility and how quickly attention can be shifted from one problem to another. Likewise, the crisis with the pandemic has badly positioned the situation with the fight against climate change.

As we mentioned, the dimensions affected by war, which directly or indirectly affect the loss of targets, are numerous. Some of the key elements related to the socio-economic situation are that after the war in Ukraine, the global market has been deregulated in many spheres, and this has directly affected the loss of focus and intervention in the sectors related to the well-being of the people.

The war in Ukraine will worsen the situation for many reasons:

1. Increased emissions from bombing and ongoing fighting
2. The real possibility of nuclear reactors melting from bombarding
3. Shifting attention away from the fight against climate change and increased awareness to the war in Ukraine
4. Deterioration of the economic situation in the global trend, increase in inflation, increase in prices and the orientation of the economy in socio-economic policies, economic focus on improving well-being
5. Energy market disruption
6. Transportation of goods and services disruption

All these factors in one form affect climate change; some affect it directly, and others indirectly. Each distraction undermines progress towards meeting international agreement targets, signifying a step back in the fight against climate change.

4 LEGAL ASPECTS – ARMED CONFLICTS

Armed conflicts always pose a risk on many fronts. Beyond the death of human lives, it also brings the destruction of the environment. Bombing campaigns usually contaminate air, land, and water, risking the future of individuals who struggle to survive the aftermath of war. While scientists all agree that climate change itself is not a direct cause of conflict, it

13 Georgina Rannard, 'COP27: War causing huge release of climate warming gas, claims Ukraine' (BBC News, 14 November 2022) <<https://www.bbc.com/news/science-environment-63625693>> accessed 19 June 2023.

can be an indirect cause, increasing the risk of other factors that could lead to conflict¹⁴. A similar situation with Ukraine also occurred during the bombing campaign in the Republic of Kosovo in 1999. For three months in a row, NATO forces bombed the country of Serbia, raising suspicion about potential environmental contamination. Leading the effort, UNEP established a task force to investigate the extent of the contamination.

The task force concluded that four cities — Kragujevac, Bor, Novi Sad and Pancevo — posed a permanent risk to the health of citizens¹⁵. The cost of the project was 17 million euros, encompassing assessments across five distinct categories: the consequences of air strikes on industrial sites, the impact of the conflict on the Danube River, the consequences on biodiversity in protected areas, the repercussions for human settlements and the environment in Kosovo, and the possible use of depleted uranium weapons in Kosovo¹⁶. The findings concluded that there were no discernible consequences or environmental disasters attributable to the Kosovo War.

Comparatively, the situation in Ukraine may be more complicated than Kosovo due to many factors that warrant consideration:

1. Ukraine has several nuclear reactors, some of which have faced bombings in proximity
2. The ongoing duration of the war is lasting more in Ukraine than in Kosovo
3. Weapons used in the war in Ukraine are non-conventional and in-contrary to international treaties, particularly as they are used against civilians
4. Bombing of national parks and nature reserves
5. Largest number of destroyed industrial cities
6. Damaging of fertile soils
7. CO2 Emission Records.

By comparing these two events, we can understand that UNEP's work in Ukraine will be much more challenging and complex than those in Kosovo. The imminent risk of contamination is very substantial. Compared to previous wars, Ukraine's vulnerability is more endangered by Russia's disregard for international treaties. Moreover, the weapons used by Russia differ from those used by NATO forces in Kosovo.

Of particular concern are some of the weapons that may have been used against civilians in the war in Ukraine could potentially hold Russia responsible for future damages. These instances may provide a strong basis for taking legal action for damage caused. While these weapons may not be prohibited within military contexts, their use against civilians is pro-

14 International Committee of the Red Cross, 'Seven Things you Need to Know about Climate Change and Conflict' (International Committee of the Red Cross (ICRC), 9 July 2020) <<https://www.icrc.org/en/document/climate-change-and-conflict>> accessed 19 June 2023.

15 'UNEP-led Balkans Task Force to Continue its Work in Yugoslavia' (OCHA ReliefWeb, 8 February 2000) <<https://reliefweb.int/report/serbia/unep-led-balkans-task-force-continue-its-work-yugoslavia>> accessed 19 June 2023.

16 'UNEP-led Balkans Task Force to Continue Work in Yugoslavia: Press Release HAB/161 UNEP/58' (United Nations Meetings Coverage and Press Releases, 8 February 2000) <<https://press.un.org/en/2000/20000208.unep58.doc.html>> accessed 19 June 2023.

hibited. Preliminary findings from the research conducted by the warring parties suggest the possibility of such weaponry being used:

- Cluster munitions, which many organisations are working to curtail their use, wield a destructive impact; their potential to damage the environment encompasses the contamination of water, air, and land, rendering them highly destructive.¹⁷
- Thermobaric weapons, known for their harmful effects on the environment, can release toxic gases during detonation, leading to oxygen depletion. They contribute to air pollution, water contamination, and habitat destruction.¹⁸
- White phosphorus prohibited when used in civilian areas due to its potential for widespread environmental consequences. Its distribution can lead to substantial contamination¹⁹.

The first problem could be the use of cluster munitions. Their use is prohibited under the Convention on Cluster Munitions, stipulated explicitly in its first article, which disallows their use, production or any kind of assistance or support from countries²⁰. Although Ukraine and Russia have not signed the agreement, the use of these weapons against civilians is prohibited, and according to research by Human Rights Watch, they have been deployed against civilians.²¹

In every armed conflict, it is crucial to preserve the violation of human rights. The use of weaponry against the civilian population is unequivocally prohibited, and protected by international law. However, this situation in Ukraine raises concerns. The Ukrainian Ambassador to the USA has reported deploying thermobaric weapons against civilian populations²². Also, in the Bakhmut region, drones have observed the use of phosphorus bombs. While such bombs may not be prohibited for use in war, their use against civilians is prohibited²³. In the future, these occurrences provide a compelling basis for any eventual lawsuit against the Russian state for the environmental damages of their actions.

17 Jawad Faresa and Youssef Fares, 'Cluster Munitions: Military Use and Civilian Health Hazards' (2018) 96 (8) *Bulletin of the World Health Organization* 584, doi: 10.2471/blt.17.202481.

18 Arthur van Coller, 'Detonating the Air: The Legality of the Use of Thermobaric Weapons under International Humanitarian Law' (2023) 105 (923) *International Review of the Red Cross* 11125, doi: 10.1017/S1816383123000115.

19 Seyed Mohammad Mojabi and others, 'Environmental impact of white phosphorus weapons on urban areas' (2010 International Conference on Environmental Engineering and Applications, Singapore, 10-12 September 2010) 112, doi: 10.1109/ICEEA.2010.5596102.

20 Convention on Cluster Munitions (Dublin, 30 May 2008) <<https://www.clusterconvention.org>> accessed 19 June 2023.

21 'Ukraine: Civilian Deaths from Cluster Munitions' (Human Rights Watch, 6 July 2023) <<https://www.hrw.org/news/2023/07/06/ukraine-civilian-deaths-cluster-munitions>> accessed 21 July 2023.

22 'Fact Sheet: Russia's use of thermobaric weapons in Ukraine' (Center for Arms Control and Non-Proliferation, 1 March 2022) <<https://armscontrolcenter.org/fact-sheet-russias-use-of-thermobaric-weapons-in-ukraine>> accessed 19 June 2023.

23 Matt Murphy, 'Ukraine war: Russia accused of using phosphorus bombs in Bakhmut' (BBC News, 6 May 2023) <<https://www.bbc.com/news/world-europe-65506993>> accessed 19 June 2023.

From a legal standpoint, as part of the codified protection in wartime, important agreements are made:

- The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD Convention)²⁴
- 1977 Additional Protocols to the Geneva Conventions of 1949²⁵

These two agreements stand as cornerstones that determine the bans on the use of weapons in cases of conflict. Consequently, in the future, Ukraine and the international community can pursue legal actions against Russia based on the violations of the articles within these international treaties.

In the first article of the ENMOD Convention, there is a distinct declaration: ‘Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.’²⁶

Article 2 of this agreement addresses the prohibitions for states and organisations, emphasising their restrictions from instigating other states to violate Article 1 of the convention. This article outlines environmental modification techniques. The paradox becomes evident when examining Article V, in which states are obliged to provide their expertise in times of conflict. This amplifies Russia’s accountability, as its actions deviate from this obligation. Rather than providing expertise, Russia stands as a violator of the convention, further heightening its culpability.

Article 54 of the ‘1977 Additional Protocols to the Geneva Conventions of 1949’ states:

‘It is forbidden to attack or destroy objects indispensable to the survival of the civilian population, namely, foodstuffs and food-producing areas, crops, livestock, drinking water supplies and irrigation works, whether it is to starve out civilians, to cause them to move away or for any other reason. These objects shall not be made the object of reprisals.’²⁷

From this, we can conclude that what was happening in Ukraine are in violation of these provisions. The permanent risk of environmental degradation in the region could have fatal consequences for the future of civilians there. Although comparisons between conflicts may differ, each instance warrants distinct treatment by international courts after the war is over. It should be noted that in terms of international law, Russia has violated the territory of a sovereign state, necessitating future compensation for the incurred damages in Ukraine.

Undoubtedly, the repercussions of the war will reverberate in the sphere of climate change. The unprecedented CO₂ emissions registered in these affected areas will leave lasting conse-

24 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) (New York, 10 December 1976) <<https://disarmament.unoda.org/enmod>> accessed 19 June 2023.

25 Protocol Additional to the Geneva Conventions of 12 August 1949, And Relating to the Protection of Victims of International Armed Conflicts (Protocol I) (Geneva, 8 June 1977) <<https://ihl-databases.icrc.org/en/ihl-treaties/api-1977>> accessed 19 June 2023; Protocol Additional to the Geneva Conventions of 12 August 1949, And Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II) (Geneva, 8 June 1977) <<https://ihl-databases.icrc.org/en/ihl-treaties/apii-1977>> accessed 19 June 2023.

26 ENMOD (n 24) art 1.

27 Protocol I Additional to the Geneva Conventions (n 25) art 54.

quences. It would be wise for future climate change agreements to encompass provisions that prohibit the utilisation of weapons capable of rendering the situation irreversible.

To enhance the research, we incorporated public opinions to understand how individuals perceive the field of climate change from a legal point of view. In our survey, we posed two questions:

1. Do you think there is a proper legal framework to address all climate change issues?
2. Do you think that agreements in the field of climate change should be 'legally binding'?

We compared the two groups' answers to identify disparities in their opinion. By measuring public opinion, we can gain a more explicit idea of public sentiment regarding the adequacy of the appropriate legal framework for combating climate change and the desirability of legally binding agreements.

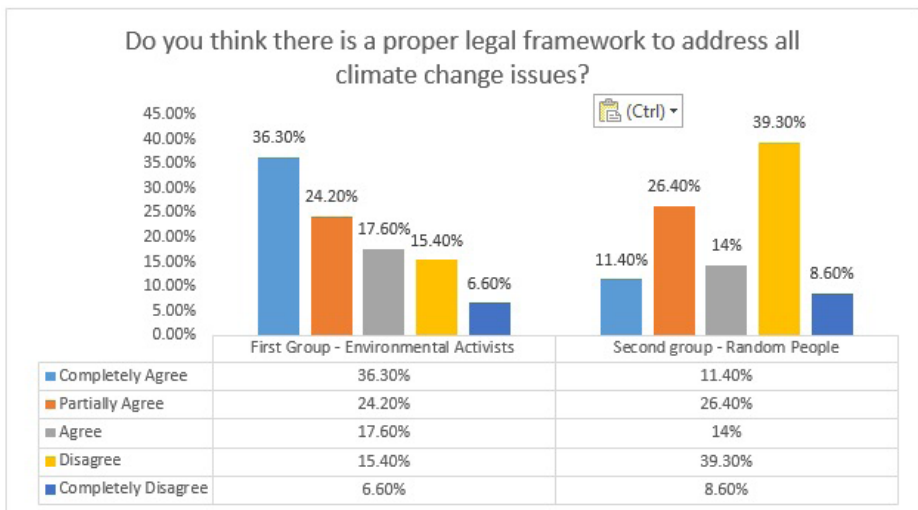


Figure 2 Shahiqi, D. (2023) Unpublished raw data (Survey date: 10-03-2023 – 25-03-2023)

As can be seen in the above diagrams, opinions are split. Specifically, 36.3% of the environmental activist group completely agree that there exists a proper legal framework. Conversely, there is a marked difference in opinion among the group of random individuals regarding those who disagree with the finding. A substantial 39.3% of individuals from this group disagree with the assertion that a proper legal framework is in place. Importantly, the average opinion within the group of random individuals is considered to be equal to the environmental activist group's average.

In other words, the sample difference between the averages of the two groups is not big enough to be statistically significant. Furthermore, even in the context of this question, Chi-square analysis reveals that the observed difference between the two variables is not random. The derived value obtained from the analysis indicates a very small P value of 0.0011. At the same time, the two variables don't exhibit a condition wherein these two variables do not

exhibit any significant divergence. Notably, a lack of statistical significance does not prove that H0 is correct, only that the null assumption cannot be rejected.

If there was a robust legal framework, it could potentially foster a mindset of environmental preservation, even in times of conflict. Such a framework might have deferred attacks around nuclear reactors. It should be noted that many agreements exist, but the problem lies in respecting them. Notably, most agreements in the environmental realm are signed by both Russia and Ukraine. Still, the ultimate test awaits in the aftermath of war — it remains to be seen whether violations of these agreements will entail any consequences.

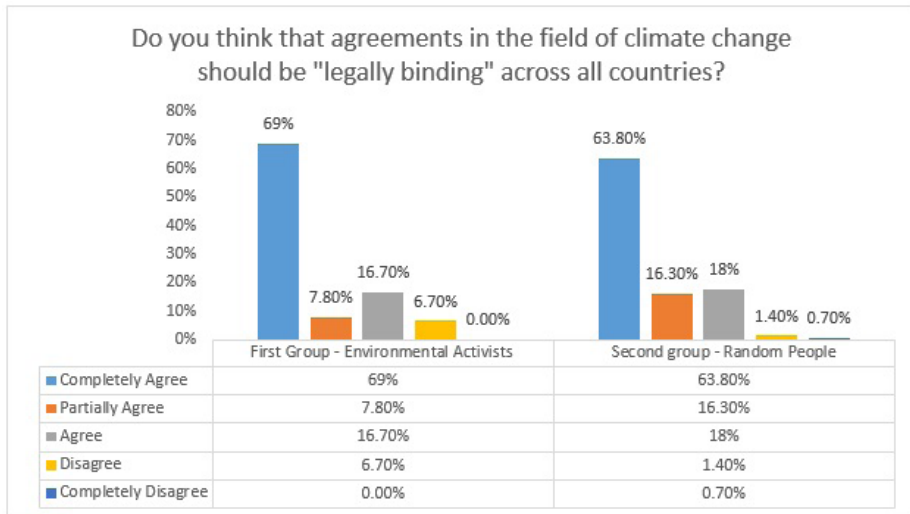


Figure 3 Shahiqi, D. (2023) Unpublished raw data (Survey date: 10-03-2023 – 25-03-2023)

In the above question concerning the legally binding nature of agreements in the field of climate change, most responses were positive, highlighting the desire for people to protect the environment. We also carried out the Chi-square analysis to clearly understand both groups. As expected, the two groups had no significant difference of opinion.

Building on the discussion, it is evident that countries must respect and adhere to international agreements. Such commitments can easily prevent environmental degradation. Moreover, a culture of respect would cultivate a heightened sense of caution among states when undertaking military actions since they would be held responsible for any violations to these agreements.

5 EFFECTS ON THE GLOBAL MARKET

The main challenge is the emission of GHG from fighting, burning and destruction occurring on the frontlines. However, another important element exists responsible for endangering the targets set forth in the Paris Agreement. One of the main challenges resulted from the war is the supply of electricity, compounded by the global market's dependence on Russian gas. The situation has further been exacerbated due to the imposition of sanctions on Russia by a majority of countries, avoiding supply from them. According to the data from the Russian

state, there is a notable reduction in the export of natural gas by 25.1%, attributed directly to these sanctions.²⁸ This prompts other countries that Russia previously supplied to restore alternative forms of obtaining electricity. It is worth noting that Russia traditionally held the position of the number 1 exporter of natural gas and oil in Europe. Remarkably it held a share of 50% in total oil exports and 60% of natural gas exports, with Europe as its primary buyer.²⁹

The data from the statistical agencies portrays the trajectory of energy price increases that occurred across all European countries throughout 2022, and this trend continuing into 2023, following an upward trend, continues to impact consumers negatively.

This price increase in the global energy market has several connections with the environmental situation.³⁰ Due to high and unaffordable pricing, many countries dependent on Russian gas have been compelled to explore alternative forms of energy production. As a consequence, the activation of coal-fired thermos plants has been adopted, certainly endangering the targeted and proclaimed limits due to considerably higher GHG emissions.

Of course, every situation brings new changes and challenges and prompts states to take action based on the prevailing situation. States have now begun the possibility of concluding agreements with other countries for the import of natural gas. Notably, the U.S. has emerged as a global leader in natural gas production for 2022.³¹ Moreover, there is a very large increase in production and supply by Norway, catering to Western European countries. Simultaneously, states have started distancing themselves from their direct reliance on Russia, opting to explore generating energy in alternative forms.

In Kosovo, as a government measure to cope better with these fluctuations in the global market, government decisions have been taken to subsidise electricity. In this context, consumers who have saved electricity and had better performance compared to the previous year are eligible to receive a subsidy from the government of up to 50 euros from the invoice value.³² Furthermore, in Kosovo, citizens who transition from conventional heating methods involving wood and coal to more environmentally friendly alternatives like air conditioning and heat pumps are provided with an 80% subsidy on the equipment value.³³

From an economic standpoint, the increase in energy prices has effects that extend to other fields such as oil refinery, gas production, the car industry, metal production, and the chemical industry. This interconnectedness subsequently ripples through other areas, such as the trans-

28 'Russian Gas Exports Sink by 25% Despite Rise in Oil Sales' *The Moscow Times* (Amsterdam, 14 February 2023) <<https://www.themoscowtimes.com/2023/02/13/russian-gas-exports-sink-by-25-despite-rise-in-oil-sales-a80215>> accessed 19 June 2023.

29 Fatih Birol, 'Where things stand in the global energy crisis one year on' (International Energy Agency (IEA), 23 February 2023) <<https://www.iea.org/commentaries/where-things-stand-in-the-global-energy-crisis-one-year-on>> accessed 19 June 2023.

30 'Russia's War on Ukraine: Analysing the impacts of Russia's invasion of Ukraine on global energy markets and international energy security' (International Energy Agency (IEA), 2023) <<https://www.iea.org/topics/russias-war-on-ukraine>> accessed 19 June 2023.

31 Bruno Venditti, 'Which Countries Produce the Most Natural Gas?' (Visual Capitalist, 25 October 2022) <<https://www.visualcapitalist.com/which-countries-produce-the-most-natural-gas/>> accessed 19 June 2023.

32 Decision of the Government of the Republic of Kosovo no 01/135 of 20 March 2023 <<https://kryeministri.rks-gov.net/wp-content/uploads/2023/03/Vendim-i-mbledhjes-se-135-te-i-Qeverise.pdf>> accessed 19 June 2023.

33 Ministry of Economy of the Republic of Kosovo, 'Public Call for Energy Efficiency Subsidies for Citizens' no 02/2022 of 6 Oktober 2022 <<https://me.rks-gov.net/blog/thirrje-publike-per-subvencionim-te-efiencies-se-energji-se-per-qytetaret>> accessed 19 June 2023.

portation industry, resulting in the price of transport around Europe increasing, as well as the construction industry.³⁴ All these changes in the economy have affected the entire production chain, subsequently reflected in the increase in inflation and destabilisation of the economy in general. Many countries are facing the biggest increases in inflation in recent years, directly impacting the well-being of their citizens. Businesses are also bearing the brunt as fluctuations in transportation costs push up prices in sectors ranging from food production to textiles.

An analysis of food supply statistics from January 2023 reveals a marked increase from 14.1% in EU Region compared to the previous year.³⁵ Inflation norms have soared by approximately 9.2%, with most affected areas observed in electricity, water, gas, transport and food supply³⁶.

Ukraine, grappling with the ramifications of war has experienced a staggering inflation rate of 22.6% in comparison to the previous year. This extraordinary increase has affected different aspects of socio-economic life.³⁷ The disruption of the economy is intrinsically linked climate change as it generates problems that can interfere with and influence each other.

The biggest risk in terms of impact lies in the potential diversion of attention and focus toward the reduction of inflation rates and market regulation, potentially pushing the focus away from the urgent fight against climate change.

According to the OECD report, prior to the commencement of the war in Ukraine, the post-COVID 19 economic recovery was expected to have an increase of 5% in economic growth. However, the outbreak of war has led to a downward adjustment in economic growth in the states, diminishing it from 2.2% to 3.1%, exemplifying the negative impacts of this situation.³⁸

Looking at these aspects, it becomes evident that the outlook may be less bright because of the constant distractions from other problems that are diverting attention away from the pressing issue of climate change.

6 CONCLUSIONS

As mentioned, the situation in Ukraine before the war, based on official data from the 'EPI Environmental Performance Index', was characterised by poor performance indicators such as air quality, production quality and ecosystem health in general. With the Russian invasion, the situation in this country has become even more alarming and critical. The statement

34 'One Year on: Impact of the Ukraine war on Global Energy Prices' (Open Access Government, 20 February 2023) <<https://www.openaccessgovernment.org/one-year-impact-of-ukraine-war-global-energy-prices-input-output-analysis/152599>> accessed 19 June 2023; Michiyuki Yagi and Shunsuke Managi, 'The Spillover Effects of Rising Energy prices Following 2022 Russian Invasion of Ukraine' (2023) 77 *Economic Analysis and Policy* 680, doi: 10.1016/j.eap.2022.12.025.

35 Óscar Arce, Gerrit Koester and Christiane Nickel, 'One Year Since Russia's Invasion of Ukraine – the Effects on Euro area Inflation' (European Central Bank, 24 February 2023) <<https://www.ecb.europa.eu/press/blog/date/2023/html/ecb.blog20230224~3b75362af3.en.html>> accessed 19 June 2023.

36 'Measuring Inflation – the Harmonised Index of Consumer Prices (HICP)' (European Central Bank, 6 January 2023) <https://www.ecb.europa.eu/stats/macroeconomic_and_sectoral/hicp/html/index.en.html> accessed 19 June 2023.

37 'Ukraine Inflation (CPI, ann var %, aop)' (FocusEconomics, 2023) <<https://www.focus-economics.com/country-indicator/ukraine/inflation>> accessed 19 June 2023.

38 Brian Michael Jenkins, 'Consequences of the War in Ukraine: The Economic Fallout' (RAND Blog, 7 March 2023) <<https://www.rand.org/blog/2023/02/consequences-of-the-war-in-ukraine.html>> accessed 19 June 2023.

'There can be no effective climate policy without peace' best explains the core issue that the war in Ukraine could undermine the achievement of the intended targets and is a step back in the nations's fight against climate change. Even though the legal part is quite straightforward, international conventions have been violated since the well-being of civilians and the environment has been threatened. Attacks near nuclear reactors give the real possibility of environmental disaster. If these attacks continue to persist, the risk of reaching an irreversible situation becomes a genuine concern.

The damages inflicted on nine nuclear plants, coupled with over 97 accidents in industries like heavy metallurgy and metal processing, indicate an ecological problem that the Ukrainian people will have to deal with in years to come.

The ENMOD Convention of 1977 and the Additional Protocols to the Geneva Conventions of 1949 are among the agreements whose articles have been violated. Post-war, these instances should be strongly condemned so that these aggressive behaviours are not repeated in the future.

Based on abovementioned fact, we can conclude that what is happening in Ukraine is prohibited. The permanent risk of environmental degradation could have fatal consequences for the future of civilians.

The economic realm has not remained untouched, with the increase in energy prices affecting various industries such as oil, gas refinery, the metal industry, the mineral industry, the car industry, the chemical industry product, transport, and construction. These changes are actually extensive and affect the global world, particularly Europe. Nowadays, inflation rates are high, and a new economic crisis seems to be knocking at our doors. These consequences have only one cause, the war in Ukraine.

But every created situation also requires finding ways to get out. That being said, no one should wait for the war to stop to return to normality. To address this crisis, a series of actions and recommendations are essential:

1. It is essential in these difficult times to stop the war,
2. Try to reconstruct Ukraine in an ecological way with low emissions
3. Halt bombings near nuclear plants as they can be fatal for the environment
4. Stabilise the market in general, particularly in the energy and oil remarket
5. Reduce Europe's dependence on Russian Gas
6. Formation of UNEP task forces for war-related environmental damage as in previous cases in countries where there were conflicts
7. Initiation of a lawsuit against Russia under the EU law for the damage caused by the war, the damage to the environment due to the use of non-conventional weapons
8. Continuation of economic measures against Russia
9. Stabilisation of the market, reduction of inflation rates, improving fiscal policies,

10. Transition towards solar energy and wind energy, as opposed to Russian gas,
11. Determination of new agendas in terms of climate change, dynamism and frequency of state meetings, with the aim of improving the situation,
12. Continuation of funding according to the Paris climate agreement,
13. Lowering the target from 2 degrees Celsius to 1.5 degrees and making it legally binding
14. Establishment of an International Environmental Court of Justice to deal with the implementation of the agreements and to deal with cases of environmental damage.

Within the realm of international law, this is an open debate, with most legal scholars thinking that the creation of such court might bolster the authority of international environmental law, and then it would serve as an oversight for violations of agreements by states. Such a court would not only oversee and address violations of agreements by states but emerge as a body body that would be able to assess the environmental damage. If this court were to be established, the way would be opened for international environmental law to become a separate discipline.

To conclude, the war in Ukraine has set back the fight against climate change, necessitating urgent and comprehensive measures to reverse this situation. The world needs sustainable peace, where the priority is the fight against climate change.

Any deviation from the targets provided by the Paris Agreement seriously endangers people's well-being and the planet's future. It is imperative to stop the war, rebuild the country, and refocus efforts on conservating and protecting the environment collectively.

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