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Heatwaves and Hostilities

Can rising temperatures lead to lasting peace?



"Ending Climate Change is Everyone's Responsibility" (Image designed by the author via Canva)

Abstract

In this paper, we are going to explore the complex relationship between climate change and global peace. Climate change and wars have a reciprocal relationship. As the war fuels climate change, the latter can catalyze the war too. Through the analysis of the ongoing conflicts across the world, recent technological advancements, and the globalized nature of the world, we will review different economic, social, and political impacts of climate change, how it acts as a "threat multiplier" by exacerbating existing conflicts, which can increase insecurity, and open the doors for the wars to emerge. On the other hand, we will navigate through an analysis of how

climate change should be a reason for nations to come together and set common goals of ending wars, accelerating environmental stewardship, and fostering sustainable peace.

Keywords: climate change, threat multiplier, global peace, Ukraine-Russia war, Israel-Hamas war, conflicts in Sahel region, conflict resolution, emerging technologies, AI, ML, IoT

1. Introduction

Climate change is one of the most wicked problems of the 21st century. It exhibits unique, far-reaching impacts that propagate beyond environmental concerns to encompass economic, social, and geopolitical dimensions. According to the Carbon Disclosure Project (CDP), since 1988, 100 companies have been responsible for 71% of global greenhouse gas emissions (Carbon Disclosure Project, 2017). Yet, we all have to pay the debt, and do we even share this burden equally? No, it affects us disproportionately, and the most impacted are the disadvantaged, marginalized, and indigenous groups (Berberian, Gonzalez, & Cushing, 2022; Yip, 2021). The climate change impacts generally include glacial melting mainly in the Arctic regions, heat waves in the Middle East, North Africa, Southern Europe, and Western North America experience, as well as a combo of rising sea levels, droughts, and floods in the Himalayan region, Alaska, Northern Europe, and South Asia that affect people, leading to infrastructure damage, loss of biodiversity and decrease in agricultural productivity (Thompson et al., 2023; World weather attribution, 2023; World Meteorological Organization, 2023). The implications of climate change on global peace and security are critical, which is why we have to shift our mindset, think big, and adopt specific strategies to protect the future of the world and the next generations.

Climate change continues to be a “threat multiplier”, exacerbating existing tensions such as resource scarcity, and forced migration, and aggravating the social and political instabilities. In this paper, we are going to explore the paradoxical implications of climate change on global peace, by considering its potential to ignite conflicts and the lesson it should teach us in fostering international cooperation.

As global citizens, climate change teaches us the role of our interdependency, it is a global issue, with increasing vulnerabilities, and it needs the attention of all folks and all stakeholders. We will further examine the progress of the current research and propose some of the possible solutions to end the climate crisis and reimagine a world free from wars.

2. Literature Review

The research on climate change and its relationship with conflict presents a complex and sometimes contradictory picture. Several studies have suggested a close link between climate change and conflict risks. An example is the historical relationship between civil conflicts and temperature in Africa. Burke et al. (2009) projected that a 1°C increase in temperature would result in a 4.5% increase in civil war incidence by 2030.

On the other hand, Buhaug (2010) argued that climate change may not necessarily be a primary driver of the wars in Africa. In his studies, he focused on the role of economic and political factors in conflict initiation and suggested improved governance and economic development as keys to mitigating climate change-related risks.

Interestingly, some researchers have found potential positive outcomes connected with climate change such as the advancement of technology and industrialization. Gartzke (2012) argued that although this advancement leads to climate change, it often accelerates economic development, and increases interstate peace.

In addition, Hegre (2000) suggested that increasing trade relationships with many poor states might encourage conflicts, and recommended the need for interaction of development and democracy in solving such conflicts. He also stressed the principal role of industrialization in the attainment of peace.

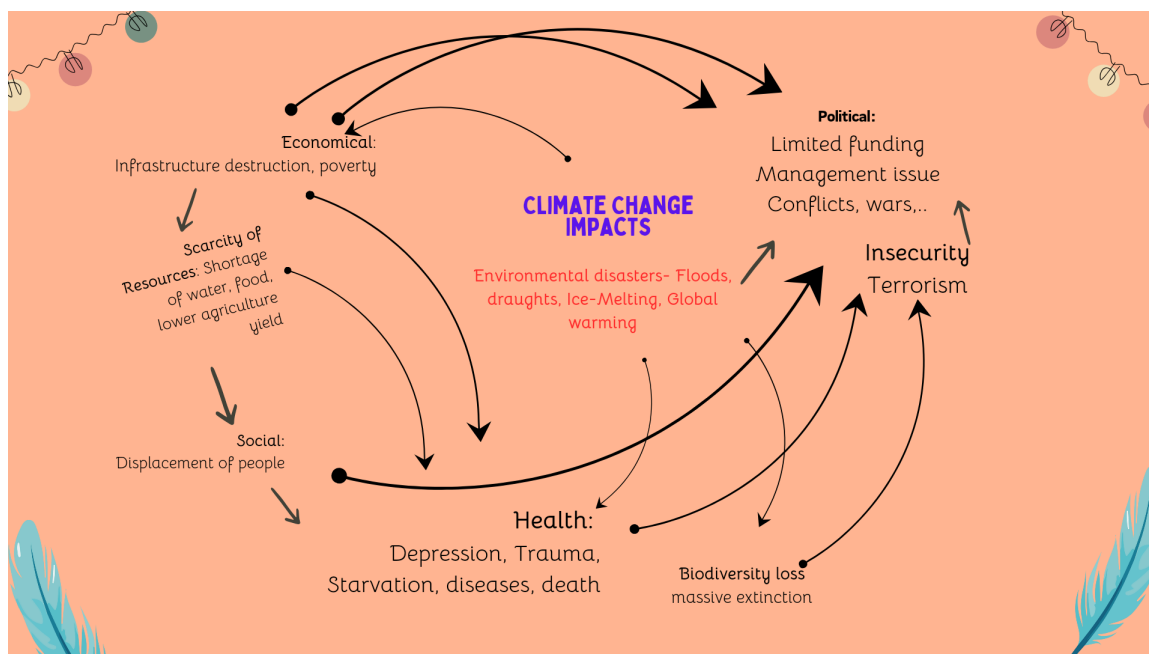
The scholars also highlight the need to consider the indirect impacts of climate change on peace and security. Barnett and Adger (2007) argued that climate change can provoke human security by leading to resource scarcity and limiting people to access or afford basic needs. They

mentioned how climate change hampers the capacity of states to fund the needs and opportunities of citizens and fails to sustain their livelihoods, which in turn can affect peace and stability.

All these findings emphasize the link between climate and conflicts, how climate change is a global burden that beats the most disadvantaged and vulnerable, and strengthen the need for collaborative efforts in mitigating its impacts as global citizens.

3. The Duality of Climate Change

3.1 How does Climate Change Affect Global Peace?



“The flowchart showing the relationship between climate change and conflicts, hindering peace” (Designed by the author via Canva)

Climate change can negatively impact peace through various mechanisms:

- ★ **Infrastructure destruction:** Climate change and weather shift events such as flooding, glacial melting, windstorms, and thunderstorms can cause catastrophic destruction of

schools, hospitals, banks, and homes leading to great economic losses, an example is the recent Mendenhall Glacier flooding in Alaska in August, 2024 that destroyed hundreds of homes, businesses and other properties (Climate Science 2030, 2024).

- ★ **Economic instability:** Climate change can decrease the economic development of nations, requiring enough funds to spend on relieving and mitigating the impacts of climate change, which can lead to an increase in hunger and poverty. The World Bank estimated that more than 100 people could be pushed into poverty by 2030 if no action is taken to combat it (Roome, 2015). This is so critical and heart-breaking to the 2030 Agenda that the UN expected the world to advance the journey toward sustainable development.

- ★ **Displacement of people and scarcity of resources:** According to The Global Report on Internal Displacement 2023 (pg.18) by International Displacement Monitoring Centre (IDMC), drought triggered around 2.1 million displacements in Somalia, Ethiopia, and Kenya in 2022, and this was associated with increasing competition and violence over land, water, and other scarce natural resources (IDMC, 2023). Weather-related hazards like flooding and droughts may reduce agricultural crop yields. Venkatappa et al.(2021) estimated that climate change effects such as droughts and floods may have caused a loss of 20.64 million tons of crop production between 2015 and 2019 in Southeast Asia.

- ★ **Exacerbation of existing tensions:** As it was described as a ‘threat multiplier’, climate change aggravates the existing tensions leading to more violence and conflicts as a result of competition over scarce resources. For example, countries like Somalia, Ethiopia, and Madagascar with other economic and political pressures such as interstate conflicts, poverty, and hunger; climate change impacts such as droughts exacerbated the situation by increasing the number of refugees, and insecurities (IDMC, 2023).

- ★ **Increasing mental health problems:** Climate change as a life-threatening problem, has abruptly increased mental health-related issues including anxiety, trauma, suicide, etc. Some studies predict that the rising temperatures could raise suicide cases, especially

among farmers to more than 40 000 in US and Mexico by 2050 (Burke et al., 2018). Other studies found that the survivors of environmental disasters such as floods, firestorms, and hurricanes are more prone to Post-Traumatic Stress Disorder (PTSD) (Novotney, 2023).

★ **Political instability and Terrorism:** Climate change may further pave the way to political instabilities and terrorism, especially when the country lacks the framework and strategies to cover the cost of climate change, which may weaken the government, and give an advantage to armed groups or terrorism, threatening peace and security (UN News, 2021).

3.2. The Positive Lesson to Learn from Climate Change

Despite these challenges, climate change has also spurred some positive developments that can serve as lessons for the world, inspiring us on how we can even create a better world by adopting measures to step into a safer, greener world.

- **Technological advancements:** As climate change continues to be embraced as a global challenge, people increasingly become aware of its adverse challenges, which has led to the adoption of cleaner and safer energy and technologies to combat this issue. According to the 2023 World Economic Forum “Fostering Effective Energy Transition” report, 95% of countries have improved their total Energy Transition Index score (ETI) over the past decade, despite the past 3 years lagging World Economic Forum (2023). This progress shows that climate change can be ended with collaborative efforts and commitments of states and investment in clean energy technologies.
- **Global cooperation:** As the 14th Dalai Lama emphasized, we are a global family. Climate change affects us all, and even though everyone faces its consequences contextually, we all know how terrible it is, how it threatens our lives, and how it impacts our loved ones, and our beautiful nature (Lama, 2021). It is in this regard that the world has been reunited to set measures and protocols such as The Paris Agreement, and Kigali Protocol to end climate change. Climate change being a debatable concept, it has fostered

mutual understanding between the countries, and empowered the state cooperations and summits for instance the G20 Summit, contributing to global stability.

- **Economic transformation:** In another lens, the journey to combat climate change has led to the establishment of new industries and start-ups promoting energy-efficient technologies and initiatives. The International Renewable Energy Agency (IRENA) in its “Renewable Energy and Jobs Annual Review 2022”, reported an increase in worldwide renewable energy jobs to 12.7 million in 2021, which has increased up to 13.7 million jobs, and it is projected to reach to 139 million jobs in 2030 with jobs in Photovoltaic solar energy, electric vehicles, and power systems (Fernández, 2023, IRENA, 2024).
- **Improved resource management:** Referring to the 2020 report published by the International Resource Panel, “Greenhouse gas emissions from the material cycle of residential buildings in G7 and China could be reduced by at least 80% in 2050 the use of economized design material, and recycling of construction materials and other strategies” (Hertwich et al., 2020). Effective management and efficient use of resources can be effective strategies to end climate change and create a more peaceful and sustainable world free from competition and conflicts.
- **Enhanced disaster preparedness:** A study by UNEP recommended that “spending 1 day learning the impacts of environmental hazards could reduce damage by 30%, and estimated that an investment of 800 million US dollars in multi-hazard early warning systems in developing countries would prevent losses of 3 to 16 billion US dollars annually” (Environment, 2023). Prevention is better than cure. We already know the gravity of the consequences of climate change. Therefore, it is up to us to decide the future we want.
- **Increased environmental awareness:** Climate change has awakened the spirit of environmental stewardship, especially the young activists who have risen to fight for positive transformation. Several young leaders’ initiatives have been established, thanks to the sponsors and governments that are supporting these movements. One prominent

example is the “Friday For Future” movement founded by Greta Thunberg in August 2018. Their mission is to raise environmental awareness and fight against climate change by raising the voices of youth and calling for change (Komatsu & Hsieh, 2024).

4. Case Studies from Ongoing Conflicts and implications on Climate Change

The world has been living in terror for a very long period. It is so horrible, and challenging to imagine if these moments of killing and being killed will ever last in favor of a utopian future. As we have discussed the dual sides of climate change, we are now going to examine the influence of the alarming conflicts that are ongoing across the world, and how they impact climate change, as well as their implications on global peace.

1. **Russia-Ukraine War:** While not directly triggered by climate change, the war between Russia and Ukraine climate change is intertwined with the issue of climate change. Recent research has shown that the first two years of this war have generated greenhouse gas emissions exceeding the annual emissions of 175 countries, demonstrating the gravity of how conflicts can exacerbate climate change (Guardian, 2024). This war continues to worry the whole world by provoking the global energy market and at the same time encouraging countries in Europe, Asia, and other parts of the world to adopt green energy and reduce fossil fuel consumption (Gelles, 2023).
2. **Israel-Hamas War:** Similarly, the war between Israel and Hamas has not been silent, but has created terror and tension in the region, accompanied by the shortage of food, water, electricity, and other environmental pressures. The Guardian (2024) reported that “the recent research reveals that two first months of this war generated gas emissions greater than the annual carbon footprint of more than 20 of the world’s most climate-vulnerable nations.” As per the same report, this war has caused the death of 1200 Israelis, and around 23000 Palestinians, especially women and children, including thousands more who were buried. Even though the world nations have tried to reconcile the opponents, it

remains a challenge if this chronic war is ready to end or not, with its far-reaching global-warming impacts.

- 3. The Sahel Regional Conflicts:** According to the Britannica Encyclopedia, The Sahel region, is a semi-arid region of western and north-central Africa region comprising states from Sudan to Senegal, and covers northern Senegal, southern Mauritania, Mali, Burkina Faso, southern Niger, northeastern Nigeria, south-central Chad, and Sudan (The Editors of Encyclopedia Britannica, 2018). This region normally experiences extreme temperatures, but because of human activities such as burning fossil fuels, and deforestation, as well as the political violence, intensified by terrorist groups such as the Al-Shabaab and Al-Qaeda, as well as intrastate conflicts like coup-d'état, climate change took another level, causing intolerable droughts, and heatwave, deaths and displacements of people in Mali and Burkina Faso where the temperature soared above 45 °C (113°F) between April 1-5 this year (ACLEED, n.d.); Al Jazeera, 2024).

5. Conclusion

The link between climate change and global peace is clear; ending climate change is a solution to creating an equitable, safer, and sustainable future. We have seen a cyclical relationship between climate change and conflicts and or wars, and to stop that cycle, we need collaborative efforts and a strong sense of belonging_ we need responsible global citizens who understand how we belong to our planet Earth, and it belongs to us too. If we are to be saved, we have to save our planet too. As a global family, it is also imperative to understand the impacts of our actions on other people, and nature, no matter who pollutes the environment, consequences gradually impact us all, and sadly is that it affects the most vulnerable and oppressed individuals among us. It is the right of everyone to stand up and call for immediate action, and again it is the duty of all to defend nature, responsibly and accountably.

6. Recommendations

To address the challenges posed by climate change and promote global peace, we recommend:

a) Accountability and responsibility of:

- **The governments, local, regional, and international organizations:** The laws, regulations, and policies have been already set. All the UN member countries have laws regarding climate action, which is the same on the international level; The Paris Agreement, Kigali Protocol, and other related initiatives within and beyond the borders. However, having the rules and well-written policies is not enough, implementation and ensuring that every stakeholder walks within the scope of those rules is what matters the most. Local, regional, and international agencies should also tirelessly watch over the progress of the set measures.
- **Private, public sectors, and multinational corporations:** The local companies, private and public sectors as well as multinational corporations should follow the protocols, ensure that all their operations adhere to the green world, and set goals of how they can best give back to the nature, by ending the use of fossil fuels, and ban greenhouse gas emissions.
- **Citizens- young and adults:** All folks, regardless of age should be aware of climate change, and how their actions contribute to this challenge of climate change, and in turn change our planet. They should also be aware of ways to mitigate climate change, not just in theory, but also take measures to practice sustainable lifestyles.
- **Education- formal and informal institutions:** All formal educational institutions, such as schools, colleges, and universities, should have age-specific curricula that give everybody, from young children to adults a chance to know how best they can contribute to a better and safer green planet. In the same way, non-formal institutions such as religions (churches, mosques, temples) or NGOs can also help to spread awareness of climate actions by organizing collective

initiatives or programmes that may educate people about climate change mitigation strategies.

- b) **Investing in climate change adaptation and mitigation initiatives:** Some governments, NGOs, and businesses have taken great steps in raising environmental awareness among young leaders, and some of them are already sponsoring young initiatives that promote activism. This should continue, and such investments should be increased especially in the areas that are most vulnerable to climate change impacts.

- c) **Investing in clean energy systems and Emerging Technologies:** Investing in renewable energy systems such as HEP, biogas, wind, and solar energy, and taking small incremental steps in declining the use of fossil fuels, and plastics and adopting emerging technologies such as Artificial Intelligence (AI), Machine Learning (ML), and Internet of Things (IoT) in automation of irrigation, building adapting and resilient arable land, as well as sensing and controlling weather conditions can be effective strategies to help farmers to adapt to the climate change, and reduce resources competition.

- d) **Fostering mutual dialogues and cooperation between nations, regardless of existing political tensions:** Considering the situation of the world, it is critical to think about what unites us rather than what differentiates us. The nations should set aside misunderstandings, judgments, and greed, and find common ground. It just requires political commitment to create a peaceful environment where every voice matters, and all problems between nations can be solved through mutual understanding.

- e) **Collaborative efforts:** Finally, it is important to remember that this is a journey and a struggle for all stakeholders. Joint efforts between individuals, states, researchers, and all the relevant partners are imperative in tackling climate change issues and creating a free, peaceful, and sustainable world.

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