

Environmental Devastation in Gaza: Analysing Israeli Attacks through the View of International Environmental Law

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Abstract. The Israeli-Palestinian conflict has severely impacted Gaza's environment, worsening its humanitarian crisis. This study examines the environmental consequences of Israeli military actions through International Environmental Law, using normative legal research methods. It identifies extensive damage, including soil degradation, air pollution, water contamination, biodiversity loss, and significant health impacts. Expert testimonies highlight the long-term devastation. Despite international frameworks like Protocol I of the Geneva Conventions and the ENMOD Convention, enforcement challenges hinder effective environmental protection. The International Law Commission's draft principles on Protecting the Environment in Armed Conflicts offer potential solutions, but implementation remains difficult. The global community must provide technical assistance and financial support for Gaza's recovery and hold Israel accountable under International Environmental Law to ensure justice and prevent further harm. Sustainable reconstruction, combined with adherence to legal standards, is crucial for Gaza's future resilience. This paper urgently calls for robust legal and policy frameworks that integrate environmental and humanitarian concerns. Strengthening these frameworks can help safeguard the environment in conflict zones, promoting a sustainable and just future for affected populations.

1 Introduction

Armed conflict, commonly known as war, represents one of the most extreme forms of political violence. Beyond its use to organize, acquire, maintain, and expand power through military means, war often exacts profound humanitarian and environmental costs. In reality, the destructive impacts of armed conflict extend beyond loss of life to encompass significant damage to natural ecosystems.[1]

Recent decades have seen increased attention to the environmental consequences of war, recognizing that the resulting damage can be long-lasting and affect future generations. One such conflict highlighting both humanitarian crisis and environmental

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impact is the conflict between Israel and Hamas in the Gaza Strip, which erupted on October 7, 2023, and has endured over 100 days of relentless military attacks.[2]

According to Al Jazeera, the conflict has wrought deep devastation in Gaza, claiming at least 23,700 lives, including 9,600 children and 6,750 women. The conflict was sparked by a surprise attack from Hamas militants on the Israeli border, prompting Israel to declare war and launch continuous air and ground assaults on Gaza. The humanitarian crisis in Gaza is severe, with the United Nations High Commissioner for Human Rights (OHCHR) reporting approximately 1.9 million displaced persons facing critical shortages of essential supplies such as food, clean water, medicine, and shelter. Hospitals and places of worship have also suffered extensive damage, exacerbating the plight of civilians.[3]

Moreover, this conflict has brought military issues to the forefront of environmental politics. The environmental impacts of war are significant and multifaceted, affecting both the immediate and long-term health of ecosystems and human populations.[4] The ongoing conflict in Gaza underscores the urgent need to address the intersection of environmental degradation and armed conflict within international legal and political frameworks.[5] In this context, this article aims to investigate the environmental impacts of the Israel-Hamas conflict in Gaza, focusing on the ecological damage incurred and international responses to this issue. Armed conflicts not only endanger human lives but also contribute significantly to carbon emissions and climate change. According to the Conflict and Environment Observatory (CEOS), the military sector accounts for approximately 5.5% of global carbon emissions, highlighting the substantial environmental footprint of military activities globally.[1]

In the case of Gaza, the environmental damage serves as a stark example of the ecological toll of war, with significant emissions and contamination of land and water resources. Within this framework, the international legal community has established frameworks to protect the environment during armed conflicts, such as the Protocol Additional to the Geneva Conventions of 12 August 1949 (Protocol I). However, the high evidentiary standards required to prove environmental damage make it challenging to hold responsible parties accountable. Despite the significant damage in Gaza, the high threshold for accountability under Protocol I and similar legal frameworks complicates efforts to establish cumulative environmental harm.

This article aims to analyze the environmental impacts of the Israel-Hamas conflict in Gaza using a multidisciplinary approach that combines international law, environmental politics, and environmental sociology. The methodology will include documentary analysis of related reports and case studies, as well as evaluation of international responses to the environmental damage caused by the conflict.

The structure of this article will be divided into several main sections. First, the article will introduce the theoretical background on the environmental impacts of armed conflict, with a focus on the Israel-Hamas conflict in Gaza as a case study. The next section will analyze the environmental damage incurred during the conflict, including carbon emissions, soil and water contamination, and damage to vital infrastructure such as hospitals and places of worship. Subsequent sections will explore relevant international legal frameworks designed to protect the environment during armed conflicts, while highlighting the challenges and opportunities in enforcing legal accountability for environmental damage.[6]

This article is expected to make a significant contribution to expanding understanding of the relationship between armed conflict and environmental impacts, as well as advocating for improvements in legal frameworks and policies to protect the environment during conflicts. By considering the Gaza case as a study, the article also aims to raise international awareness and coordinated action in supporting environmental rehabilitation and sustainable reconstruction efforts.[7]

In conclusion, the article will offer recommendations for future steps in addressing the environmental impacts of armed conflict, promoting closer international cooperation, and strengthening legal accountability to protect the global environment from unnecessary destruction due to ongoing military actions. Therefore, the article summarizes the background, objectives, and methodology that will be adopted in this article to investigate the environmental impacts of the Israel-Hamas conflict in Gaza and underscores its significant implications for international policy and global environment protection efforts.

2 Methodology

This research uses a qualitative approach focusing on normative and juridical analysis to understand the impact of Israeli attacks on Gaza's environment through the lens of International Environmental Law. The study examines relevant concepts, legal standards, and regulations. Data sources include international legal documents such as conventions and treaties, relevant literature (books, academic journals, newspaper articles), and reports from NGOs and international bodies highlighting Gaza's environmental issues. Case studies of specific Israeli attacks causing environmental damage are also analyzed. Data collection involves document studies, literature reviews, and news analysis. Data is analyzed descriptively and qualitatively through classification, content analysis, and comparative methods. Triangulation of data sources ensures validity and accuracy. Findings will be presented descriptively, linking the environmental impact of Israeli attacks in Gaza with relevant legal standards and identifying potential legal solutions. This methodology aims to provide a comprehensive overview of Gaza's environmental devastation and the application of International Environmental Law.

3 Equations and mathematics

3.1 Israeli Attacks "Kill" Neighborhoods In Gaza

The war between Israel and Hamas, which has been ongoing for more than 100 days since October 7, 2023, has caused significant casualties in Gaza. According to Al Jazeera, at least 23,700 lives have been lost, including 9,600 children and 6,750 women.[8] This conflict was triggered by a surprise attack by Hamas militants on the Israeli border, to which Israel responded with a declaration of war and relentless air and ground assaults on the Gaza Strip.[9]

Due to continuous bombardment by the Israel Defense Forces (IDF), vital infrastructure such as hospitals and places of worship have been severely damaged. The Office of the United Nations High Commissioner for Human Rights (OHCHR) reported that around 1.9 million people have been displaced, facing severe shortages of food, clean water, medicine, tents, and other necessities.[10] In recent years, the increasing number of wars and conflicts worldwide has brought military issues to the forefront of environmental politics. Discussions about the environmental impact of war are not new. Various literature has explored how war and conflict are interconnected with the environment.[11]

Research titled "Ecopolitical Discourse: 'environmental security: and political geography" explains that wars can be triggered by environmental crises, such as the scarcity of natural resources. Conversely, conflicts or wars can also cause environmental damage. War and conflict contribute to carbon emissions, which drive climate change. The Conflict and Environment Observatory (CEOBS) reports that the military sector accounts for 5.5% of global carbon emissions. If the global military sector were considered a country, it would be the fourth-largest emitter of carbon emissions.

Carbon emissions from the military sector primarily come from military vehicles and infrastructure, which require significant energy, often derived from oil. The CEOBS report also notes that emissions from military training can disrupt landscapes, terrestrial and marine habitats, and create chemical pollution and noise pollution from weapons, aircraft, and vehicles. The climate damage caused by the Israel-Hamas war should be a concern for the international community. According to The Guardian, the Israel-Hamas war has produced 281,000 metric tons of CO₂, equivalent to burning 150,000 tons of coal, primarily from aerial bombings and ground invasions by the IDF during the first 60 days. In contrast, Hamas missiles fired at Israel have generated only 713 tons of CO₂, equivalent to burning 300 tons of coal. This highlights the disparity in the war capabilities between the two sides. Since Israel's occupation of Gaza, the local population has relied heavily on Israel for access to electricity. In recent years, international communities have assisted Gaza residents with electricity, ending Israel's politicization of energy. Research by the Center for Strategic and International Studies (CSIS) indicates that Gaza residents have transitioned to renewable energy by installing rooftop solar power plants.[12]

However, due to the war, many rooftops solar power plants have been damaged, including those on public facilities. Israeli attacks in the region have hindered Gaza residents' efforts towards energy transition and climate change adaptation. Gaza also faces climate threats such as rising sea levels, droughts, and extreme weather. The Institute for National Security Studies reports that Gaza is highly vulnerable to climate change. Located between the Mediterranean Basin, Gaza is predicted to experience a 20% decrease in rainfall by 2050. The region's temperature is also expected to rise by 2.5°C by 2055, accompanied by increased drought and heatwave intensity. In recent decades, debates about climate and security have mainly focused on how the climate crisis can threaten national security. World leaders and other actors often overlook that their security policies can exacerbate the climate crisis.

Through the United Nations Framework Convention on Climate Change (UNFCCC), countries are required to report their greenhouse gas emissions inventories, including those from the military sector. However, CEOBS reports that major military powers often ignore these regulations. The lack of transparency in calculating greenhouse gas emissions in the military sector poses a challenge to climate crisis mitigation efforts. Transparency is crucial in monitoring and researching the intersection of conflict, the military, and the environment. Discussions about decarbonizing the military sector are often absent from international forums. Even the United Nations Climate Change Conference (COP 28), held in November 2023, did not fully address solutions to limit fossil fuel use and promote demilitarization.

The current global climate crisis should serve as an opportunity for countries to reach an understanding. World leaders must recognize how the climate crisis can become a threat to collective human security. Demilitarization as a step in mitigating the climate crisis remains a long journey to save humanity from catastrophic disasters. Therefore, the issue of war and climate change must be considered comprehensively and interactively in global political discourse to achieve sustainable and equitable solutions for all parties.

3.2 State Responsibility for Violation of the Law of War

It is now instructive to investigate the way this branch of law responds to any violations committed by states, following the identification of all relevant obligations in protecting the environment in the law of war. International responsibility is a well-established general principle of international law that any unlawful act or violation of an international law obligation results in international liability. In general, the law of war primarily assigns violations to nations. Nevertheless, it also assigns violations to individuals as a distinctive

characteristic. The four Geneva Conventions determined in their shared provisions, "Responsibilities of the Contracting Parties," that:[13]

"No High Contracting Party shall be allowed to absolve itself or any other high contracting party of any liability incurred by itself or by another high contracting party in respect of breaches referred to in the preceding article".

The principal and analogous mechanisms for treaty violation are provided by Article 3 of the 1907 Hague IV Convention and Article 91 of the 1977 Additional Protocol 128 as legal consequences of violating the rules. They establish that a belligerent state is responsible for all acts committed by its armed forces and is obligated to pay recompense in the event of a rule violation. It is evident from these provisions that international humanitarian law establishes its own regulations for the resolution of violations.[14] One author refers to this regime as a "self-contained system" for this reason. Nevertheless, the implementation of these fundamental provisions will elicit some apprehensions. Initially, it is conceivable that in the event of an armed conflict, states may also be held accountable for actions beyond the scope of their armed forces. Secondly, the articles merely obligate States to provide financial compensation as a legal consequence, without specifying any additional obligations that may be necessary to rectify the violation. Arguably, the application of rules on State Responsibility in general remains significant within this legal framework in addressing these concerns. Additionally, this application was evident in the decisions of certain international tribunals. The following will provide a self-explanatory explanation of the critical role that general principles of state responsibility play in determining the liability of a state for a violation of the law of war.[15]

3.2.1 Attribution

A few pertinent parameters are used to determine whether an action is attributable to the state, as per the principles on State Responsibility as recognized within the framework of international humanitarian law. They include the conduct of armed forces members, de facto agents, levée en masse, insurrectional movements, and a lack of due diligence.[16]

Initially, it is established that a State is accountable for "all acts committed by persons forming part of its armed forces." In the interim, Draft Article 7 establishes that "the conduct of an organ of a State shall be regarded as an act of the State under international law if the organ acts in that capacity." This demonstrates that the attribution of illicit acts of individuals to a State under *ius in bello* is more extensive than that in the Draft Articles, which encompasses conducts that are either entirely unofficial or private individual. Nevertheless, Draft Articles contribute by stating that "the conduct of a person or entity which is not an organ of the State" but exercising the "elements of the governmental authority shall be considered an act of the State under international law." This provision implies that a non-state actor who is involved in an armed conflict may be held accountable for the actions of the state, provided that the actor is fulfilling a governmental obligation. Consequently, the conduct of a state in wartime can be attributed to both the regular armed forces and non-state actors who are exercising state authority. This conclusion is pertinent and significant considering the recent hostilities.

Secondly, the State may also be held accountable if an armed group is purportedly acting as the de facto agents of a foreign State while engaging in an internal armed conflict against government armed forces. It is conceivable that illicit acts of warfare in an intense internal armed conflict could lead to catastrophic cross-border environmental damage. If the actions of armed groups can be attributed to a foreign state, the country in question will be held accountable and the regulations of international armed conflicts will be observed. The International Court of Justice (ICJ) and the International Criminal Tribunal for the Former Yugoslavia (ICTY) have investigated the application of this attribution. Thirdly, there is a potential for civilians to engage in hostilities spontaneously by employing

weapons in situations where their survival is at risk due to the enemy's attack and the absence of regular forces with active combat status.

In international humanitarian law, this situation is referred to as "levée en masse." This civilian conduct can be attributed to a State if the civilian committed illicit acts under the law of armed conflict because of their actual performance of the duties of regular forces, which are an organ of a State. The II. acknowledges this norm in Draft Article 9.3. It is not likely that spontaneous and unorganized civilian conduct that may be illicit will cause significant environmental damage, as they may not have the capacity to cause such devastating destruction. Nevertheless, it is conceivable that these civilian actions could result in substantial environmental harm if they are accompanied by high-tech weapons or weapons of mass destruction.[17]

Finally, the State is responsible for the conduct of insurrectional or other movements if the movement becomes the new government of the State, or to a new State if the group succeeds in establishing a new State. One It is important to observe that the legitimacy or illegitimacy of this movement is not a critical issue for international humanitarian law or the norms of State responsibility.

"Rather, the focus must be on the particular conduct in question, and on its lawfulness or otherwise under the applicable rules of international law".

This provision is important because these movements usually occur in an internal armed conflict in which their conduct of warfare is against their governmental armed forces and may have significant destructive effects to the environment not only within their own territory but also other States' territories.[18]

3.2.2. Legal Consequences

Article 3 of the 1907 Hague IV Convention and Article 91 of the 1977 Additional Protocol I, as previously mentioned, specifically refer to pecuniary compensation. Consequently, a State is only accountable for damage that can be assessed financially. As a matter of fact, and tradition, the injured States are obligated to pay compensation for violations. This refers to the State that experiences environmental damage as a result of the illicit actions of the violating State. In the interim, a State that violates State Responsibility regulations is obligated to not only compensate the injured State but also to cease the illicit act and prevent its recurrence. Financial compensation is of paramount importance in the context of environmental damage, as the restoration of the damaged environment may necessitate substantial sums of money to fund the human resources and technology required to restore or at least maintain the environment in a reasonable state for its survival. Nevertheless, the payment of compensation alone is insufficient if the violating State has not abstained from committing the same action that caused the environmental damage. Consequently, it is equally crucial to ensure that the environment is protected during international armed conflict by ceasing and preventing repetition.[19]

3.3. Legal Frameworks: Bridging Environmental and Humanitarian Law

3.3.1. Additional Protocol I to the Geneva Conventions and Environmental Protection

Protocol Additional to the Geneva Convention of 12 August 1949 and relating to the Protection of Victims of International Armed Conflicts (Protocol I) was adopted on 8 June 1977. This Protocol contains two important prohibitions regarding environmental damage during international armed conflicts, namely: first, methods of warfare that are expected to or could cause widespread, long-term, serious damage to the natural environment; and second, attacks on the natural environment carried out as an act of reprisal. Although

Protocol I regulates environmental protection, its main focus remains on protecting humans as the main victims of conflict.[20]

In the context of the conflict in Gaza, the implementation of Protocol I faces various challenges. Article 55 of Protocol I requires the impact of environmental damage to be "widespread, long-term, and severe" in order to demand accountability. These standards are so high and difficult to meet, that responsible countries or parties can escape responsibility even though their actions clearly caused significant environmental damage. For example, during Israel's military operations in Gaza, various airstrikes and bombings have caused severe land and water pollution. This contamination not only causes a scarcity of safe drinking water but also increases the risk of water-borne diseases. However, because of the high standards set by Protocol I, proving cumulative environmental damage is extremely difficult, making it difficult to claim accountability.[21]

The Committee Established to Review the NATO Bombing Campaign against the Federal Republic of Yugoslavia in 2000 stated that the criteria limits in Protocol I were too high making it difficult to detect violations. The same thing was conveyed by the assessment team for the Gulf War in 1990. These two cases showed that even though there was significant environmental damage, the high standard of proof made it difficult to hold the countries or parties responsible accountable.

Air strikes carried out by Israel in Gaza have caused extensive environmental damage, including water pollution due to bombing resulting in a scarcity of safe drinking water and an increase in waterborne diseases. Additionally, the destruction of water and sanitation infrastructure worsens the situation, making access to clean water increasingly difficult and increasing public health risks. The destruction of land and vegetation in Gaza also shows how serious the environmental impact of the war is. Intensive bombing damaged the soil layer, reduced soil fertility, and inhibited vegetation growth. This not only reduces the soil's ability to support agriculture, but also destroys the natural habitat for local flora and fauna.[22]

As a solution to standards that are too high in Protocol I, there are several remedies with a burden of proof that is easier to fulfill (lower evidentiary threshold), such as insurance assurance, state responsibility, collective sanction, specific performances, remediation, mandated detoxification, restitution, and injunction. These remedies can be applied to cases such as in Gaza, where severe environmental damage occurred due to armed conflict. Apart from that, customary international humanitarian law also shows awareness of equal treatment of the natural environment. The general principle of conduct of hostilities limits attacks to military objectives, and the principle of proportionality prohibits the use of means and methods of warfare that cause excessive damage. However, liability for excess damage through compensation is currently only given to victims of human collateral damage and does not yet cover environmental collateral damage. Legal standing in this case is usually the country where the affected human community is located.[23]

From the ethical perspective of deep ecology, environmental damage resulting from armed conflict, such as that which occurred in Gaza, must be seen as an issue that requires serious attention. Countries that experience environmental collateral damage must receive adequate compensation and recovery efforts. This approach emphasizes that environmental damage is not just a secondary problem but is an integral part of the impact of conflict that needs to be addressed seriously.[24]

The armed conflict in Gaza has demonstrated that the environmental impacts of war can be devastating and long-lasting. Although Protocol I to the Geneva Conventions provides a legal framework for environmental protection, its implementation faces major challenges due to high evidentiary standards. Alternative solutions and ethical approaches such as deep ecology can help strengthen environmental protection efforts during and after armed conflict. Thus, the international community needs to continue to strengthen existing legal

and policy frameworks and raise global awareness about the importance of protecting the environment even in war situations.

3.3.2. Draft Convention on Protection of the Environment in Relation to Armed Conflicts

In general, the ENMOD Convention and Protocol I have not been able to provide optimal protection for the environment during armed conflict. This has been proven in various cases of conflict, including in Gaza, where significant environmental damage occurred due to military activities. Bombing and air strikes carried out by Israel in Gaza have caused land and water pollution, infrastructure damage, and severe environmental degradation. This damage not only harms the natural environment but also the health and well-being of humans living in the area.

1. In 2016, there was a discussion on Protection of the Environment in Relation to Armed Conflicts (PERAC) by the International Law Commission (ILC), which then added eight protection principles in 2019. These principles include:
2. Human Displacement: Environmental protection must consider the impact of human displacement due to conflict. In Gaza, military attacks have forced many people to flee their homes, often leading to increased environmental damage in temporary refugee areas.
3. State Responsibility: States involved in a conflict must be responsible for environmental damage caused by their military activities. Israel, as the country that carried out the attack on Gaza, must be responsible for the environmental damage that occurred, including water and land pollution as well as infrastructure damage.
4. Corporate Due Diligence and Liability: Companies operating in conflict zones must ensure that their activities do not cause environmental damage. For example, companies that provide explosives or weapons to parties to a conflict must ensure that their products are not used in ways that damage the environment.
5. Martens Clause with Respect to the Protection of the Environment in Relation to Armed Conflict: This principle emphasizes that in situations where international law does not provide clear guidance, action must be taken based on humanitarian principles and the demands of public conscience. In the context of Gaza, although there may be no clear guidelines, environmental protection measures must still be taken based on humanitarian principles.
6. Environmental Modification Techniques: The use of environmental modification techniques for military or hostile purposes shall be prohibited. For example, the use of explosives that cause soil and water pollution should be avoided.
7. Relief and Assistance: Assistance and support must be provided to restore environments damaged by conflict. In Gaza, this could mean international efforts to clean up water pollution, repair damaged land, and rebuild destroyed infrastructure.

The Draft Convention on Protection of the Environment in Relation to Armed Conflicts (PERAC) is an important step towards better protection of the environment during armed conflict. In the case of Gaza, application of PERAC principles could help address significant environmental damage and provide a more effective accountability mechanism for those responsible.

3.3.3. The Role of International Community

The international community has a pivotal role in addressing the environmental devastation in Gaza. This includes providing technical and financial assistance for environmental assessments, rehabilitation projects, and sustainable reconstruction efforts. International organizations, such as the United Nations Environment Programme (UNEP), have been

called upon to conduct comprehensive environmental impact assessments in Gaza. Such assessments are essential for developing effective strategies to mitigate the environmental damage and promote sustainable development.[25]

Additionally, the international community must hold Israel accountable for violations of International Environmental Law. This involves leveraging international legal mechanisms, such as the International Criminal Court (ICC) and other relevant bodies, to investigate and prosecute environmental crimes committed during the conflict. Ensuring accountability is crucial for deterring future violations and promoting adherence to international legal standards.[26]

The environmental devastation in Gaza as a result of Israeli military actions is a stark reminder of the broader consequences of armed conflict. Analyzing these actions through the lens of International Environmental Law highlights significant violations and underscores the urgent need for comprehensive rehabilitation and accountability measures. The international community must play a crucial role in supporting Gaza's recovery, ensuring that reconstruction efforts are sustainable, and holding perpetrators accountable for environmental crimes. By addressing the environmental impact of the conflict, we can work towards a more sustainable and just future for Gaza and its people.

3.4. Legal Protection Against Environmental Damage in Perspective International Environmental Law.

International Environmental Law (IEL) has evolved significantly alongside the broader development of international law, drawing upon various sources outlined in Article 38 of the Statute of the International Court of Justice (ICJ). This body of law addresses global environmental challenges that are exacerbated during periods of armed conflict. The depletion of natural resources due to global development and population growth intensifies environmental challenges worldwide. Armed conflicts exacerbate these issues by causing widespread environmental degradation through activities such as deforestation, pollution from weapons and explosives, and disruption of ecosystems. The environmental impact of conflicts poses not only immediate risks to human health and biodiversity but also long-term consequences for sustainable development.[27]

In response to mounting environmental concerns, the United Nations (UN) has played a pivotal role in convening international conferences. One of the landmark events was the United Nations Conference on the Human Environment held in Stockholm, Sweden, from June 5-16, 1972. The Stockholm Declaration laid foundational principles for IEL, emphasizing the principle of environmental responsibility. It affirmed that states must ensure activities within their jurisdiction do not cause harm to the environment of other states or areas beyond their control. The Stockholm Declaration set the stage for subsequent international agreements, including the Rio Declaration on Environment and Development adopted in 1992. Principle 24 of the Rio Declaration acknowledges the inherently destructive nature of warfare on sustainable development. It calls upon states to respect and enhance international law for environmental protection during armed conflicts, emphasizing the need for cooperation and compliance with established norms.

Implementing IEL in conflict zones presents significant challenges. Political instability, lack of infrastructure for environmental assessments, and competing priorities for humanitarian aid often complicate efforts to enforce environmental regulations effectively. Moreover, armed conflicts create urgency for immediate relief, sometimes overshadowing long-term environmental considerations. Balancing humanitarian imperatives with environmental sustainability remains a persistent challenge for international organizations and affected states alike.[28]

International institutions such as the UN Environment Programme (UNEP) play a crucial role in facilitating global cooperation and implementing IEL. These institutions provide frameworks for dialogue, capacity-building, and technical assistance to support states in addressing environmental challenges during conflicts. Additionally, international courts and tribunals uphold IEL through adjudication and monitoring, ensuring accountability and compliance with international legal standards.[29]

In conclusion, the principles and frameworks established by IEL, as exemplified by the Stockholm and Rio Declarations, provide essential guidance for mitigating environmental damage during armed conflicts. Upholding these principles not only safeguards ecosystems and biodiversity but also promotes sustainable development for future generations. Addressing environmental concerns in conflict zones requires enhanced global cooperation, strengthened enforcement mechanisms, and sustained commitment to international legal frameworks.[30]

By prioritizing environmental protection amidst armed conflicts, states demonstrate their commitment to ensuring the well-being of both present and future generations. The evolving landscape of IEL continues to adapt to emerging environmental challenges and geopolitical realities, emphasizing the interconnectedness of environmental sustainability and global peace.[31]

4. Conclusion

The Israel-Hamas conflict in Gaza has starkly illustrated the profound environmental and humanitarian costs of armed conflict. This article has examined the extensive ecological damage caused by the conflict, including carbon emissions, soil and water contamination, and destruction of critical infrastructure. Despite international legal frameworks such as Protocol I of the Geneva Conventions aimed at protecting the environment during warfare, the stringent evidentiary requirements pose significant challenges to holding accountable parties responsible for environmental harm. Moving forward, addressing the environmental impacts of armed conflict requires concerted international efforts. International law to strengthen legal frameworks, enhance accountability mechanisms, and foster international cooperation to mitigate and rehabilitate environmental damage. Furthermore, proactive steps should be taken to integrate environmental considerations into military planning and operations, promoting sustainable practices amidst conflict. This study underscores the urgent need for global awareness and coordinated action to safeguard the environment from the devastating consequences of armed conflict. By advocating for improved policies and practices, this article aims to contribute to international efforts in protecting ecosystems and supporting sustainable development, even in times of conflict.

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