

GAZA UNDER SIEGE: ENVIRONMENTAL DISASTER DURING ISRAEL-PALESTINE CONFLICT, SUGGESTIONS AND SOLUTIONS

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Abstract

The war in Gaza imposed by Zionist Israel has caused a substantial human loss. At the same time, this war had a disastrous environmental effect. Massive environmental destruction is reported. Vast fields, orchards, and green areas have been destroyed due to the Israeli invasion. The water management system has been devastated, forcing residents of Gaza to use contaminated water. Emissions from military hardware have added to environmental woes. Though human loss and suffering cannot be compensated, and after sympathising with Gaza civilians as a sacred duty, the next important obligation is to stop environmental destruction in the strip and to think about how to restore it. United Nations Environment Programme (UNEP) and other organisations are working, but there is room for further improvement. This paper aims to find short and long-term solutions to the restoration of Gaza's environmental infrastructure, including water management, fields, orchards, and eco-friendly reconstruction of buildings. In addition, the article explores Pakistan's role in this conflict as well as Israel's Eco crimes and probes whether Israel is guilty of Ecocide (Environmental genocide).

Keywords: Climate, Environment, War, Gaza, Genocide, Ecocide, Israel.

Introduction

The Israel-Hamas conflict has claimed over 45,000 lives. The environmental cost of war is always present, and this one is no different. Millions of tons of debris, ranging from shell casings to Israeli bomb bits, now litter the streets of Gaza, and the air is heavy with toxic ash and dust, endangering the health of people all over the Strip. According to estimates, sewage from Gaza is rising in the Mediterranean Sea and could soon enter Israel. The Israeli Defence Forces (IDF) destroyed Gaza's water and sanitary infrastructure, depriving the people of necessities. Once the glory of Gaza, the coastal enclave is now a tyrannical landscape of military facilities, craters, and ruins in place of gardens, beautiful coastlines, and strawberry fields. The environment is the Israeli army's aim, not just some collateral damage, according to Lucia Rebolino, co-author of research by the group Forensic Architecture. Commentators have even referred to the 'environmental Nakba' about the 1948 tragedy in which Jewish

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mercenaries drove out seven hundred thousand Palestinians during Israel's statehood as evidence of Israel's ecological crimes.¹

Some analysts have also nicknamed the battle that Israel is engaged in 'Ecocide' or environmental genocide. In this article, we will analyse and explore the issues related to toxic gas emissions during the Israel-Hamas conflict. The objective of this paper is to analyse the challenges posed by the reconstruction of Gaza and the issues related to it. The environmental destruction caused by this war has also been calculated. This paper has also examined strategic shifts caused by the war and covers the legal framework available in international law to protect the environment during wars. The role of international organisations and a detailed scientific analysis and case studies of similar war zones are also included. This article has an extensive portion on solutions of various ranges to the conflict and potential barriers to implementation. An elaborate conclusion is made at the end to make it easier to understand.

According to environmental conflict theory, political disputes frequently cause or worsen resource scarcity and environmental deterioration. This perspective might help examine how the continuous Israel-Palestine conflict and warfare contribute to the environmental destruction in Gaza. By examining this, the article has highlighted how the depletion of natural resources—such as water, agricultural land, and air quality—affects the ecosystem, human survival, and health. It has also examined how intentional environmental damage might be used for resistance, repression, or control, placing environmental destruction within a more significant sociopolitical conflict.

Toxic Gas Emissions During Israel-Hamas War

According to a new study, the first two months of the Gaza War created more greenhouse gas emissions than the annual carbon footprint of nearly 20 of the world's most climate-vulnerable nations.² Another research suggests that the majority (more than 99%) of the 281,000 metric tonnes of carbon dioxide (CO₂ equivalent) estimated to have been generated in the first sixty days after the 7th of October 2023 (the retaliation of Hamas due to Israel's ground invasion and aerial bombardment of Gaza).³ The disparity of each side's military hardware was highlighted by the 713 tonnes of CO₂ (Carbon Dioxide) produced by Hamas rockets fired into Israel during the same period.⁴ This is comparable to around 300 tonnes of coal. The information, which was only made available to the Guardian (a news channel), offers the first approximation of the carbon cost of the ongoing conflict in Gaza, resulting in unheard-of levels of environmental devastation, infrastructure damage, and human suffering.⁵

It coincides with increasing demands for transparency about military greenhouse gas emissions, which contribute significantly to climate catastrophe but are mostly concealed and not considered during the yearly UN (United Nations) climate action conferences.

Reconstruction of Gaza and Environmental Challenges

Rebuilding Gaza will also significantly contribute to emissions in the future. The carbon costs are enormous, and rebuilding Gaza will require annual emissions surpassing those of over 130 countries. Lennard de Klerk, a specialist in carbon accounting, said emissions will be the primary factor in Gaza's rehabilitation.

Lennard de Klerk, who is also looking into how the war in Ukraine is affecting the climate, informed that the war in Gaza has severely damaged buildings, including public, commercial, and residential ones that will all need to be rebuilt. He was talking about the emissions resulting from the troubled enclave being rebuilt.⁶

War Infrastructure and Environmental Hazards

Military infrastructure used during wars is also environmentally hazardous. The Iron Wall, Israel's defensive barrier, and the Hamas tunnel system are two examples of the military infrastructure built by both Israel and Hamas. The IDF and Hamas are purchasing more equipment to safeguard and defend their nations. Carbon emissions from this equipment are high. Consequently, the functioning of the equipment generates additional emissions and has a significant carbon footprint—450,000 mtCO_{2e} (metric tonnes of carbon dioxide equivalent).⁷ Military emissions include greenhouse gases produced regularly from headquarters, during training or exercises, and maritime movement between locations. De Klerk stated that military emissions account for about 5.5%.⁸

Destruction of Lands and Fields

Environmental activist and Ministry of Environment employee Samar Safiya from Gaza adds that 2/3rd of the land in Gaza was agricultural, but nothing remains. It is a dismal account of the reality on the ground. Fields, olive trees, and lemon trees have all been destroyed by more than 80,000 tonnes of Israeli bombs. The killings and genocide go hand in hand with this environmental devastation, she claimed.

The environmental disaster we are currently experiencing will lead to other disasters in the future. The fertility of our soil is also destroyed when the tanks roll upon it, claims Samar, who is currently residing in a tent in Rafah, in the southern Gaza Strip. The devastation of Gaza's ecosystem and food production capacity is a pressing worry, as over half of the population is in danger of starving. Furthermore, the long-term repercussions could be disastrous.⁹

Israeli excavators have levelled fields and orchards to create a buffer zone that is more profound than 300 meters along Israel's northern border with the Gaza Strip. The army constructs earthen mounds and dikes to shield its tanks and provide visibility.

Effects of War on Water Management

About 90% of Gaza's water comes from groundwater wells in the Coastal Aquifer Basin, which stretches along the eastern Mediterranean coast from Egypt to Gaza and into Israel. However, a significant amount of this supply appears contaminated due to seawater intrusion, and the Israeli attack has seriously harmed the system.

According to UNEP estimates, without wastewater treatment technology, Gaza's authority releases at least 100,000 cubic meters of sewage and sewer water into the Mediterranean Sea or onto land daily. Israeli violence has resulted in the waste of international funding allocated to Gaza for water management. Satellite images reveal thousands of pollutants seeping into the soil and groundwater and how toxic vapours make the air unfit for human habitation.¹⁰

Large-scale bombing and demolition have destroyed the trees, and continuous bombing threatens the remaining area. According to UNEP, prolonged heavy bombing of populated areas can pollute soil and groundwater due to the explosives and the hazardous materials released into the air, soil, and groundwater when buildings containing industrial chemicals, fuel, and asbestos-containing materials collapse.¹¹

Rise in Temperatures

According to the Israeli Meteorological Service, average temperatures in Israel and the surrounding regions rose by 1.5°C (2.7°F) between 1950 and 2017. By the end of the century, the temperature is predicted to increase by four °C (7.2°F). Since pre-industrial times, temperatures have increased by an average of 1.1°C worldwide. In the densely crowded Gaza Strip, where 2.1 million Palestinians reside in 365 square kilometres (141 square miles), sea level rise threatens the depletion of valuable real estate and might result in the intrusion of seawater into an already overburdened aquifer.¹²

War and Climate are Interrelated

People who live on the front lines of conflict are also often at the forefront of the climate crisis. War has put many countries, including Yemen, Afghanistan, and Sudan, at risk from climate change, making it challenging for them to adapt to the issues it presents. International development expert Yvonne Su, an assistant professor at York University, claims that one exacerbates the other. People may fight over resources if a place is vulnerable to climate change. Unrest in the Sahel and Lake Chad regions has forced many farmers and cattle herders to go to Unrest in the Sahel and Lake Chad regions has forced many farmers and cattle herders to go to the Central African Republic in search of more lush pastures for their animals. However, in a country where food insecurity has been a problem for over 60 years and food hunger is

widespread, this causes even more stress. Somalia, one of the most climate-vulnerable countries in the world, has been afflicted by decades of conflict. Years of violence have been made worse by a series of severe droughts, which have put additional pressure on the country's efforts to establish a state and forced a growing number of people to leave their homes.

During the Gulf War and subsequent wars, oil burns, water contamination, and infrastructure devastation caused significant harm to Iraq's ecosystems. This condition is like Gaza's problems with soil deterioration, agricultural land loss, and water contamination by military operations.

Similar to worries about water and marine contamination in Gaza, Israeli airstrikes during the 2006 conflict targeted oil storage facilities close to Lebanon's shore, causing extensive oil leaks and marine pollution that impacted the Mediterranean.

Violence has returned to the Gaza Strip, making its residents more vulnerable than ever; according to experts, it looks like the Gaza Strip may soon be caught up in a complicated web where climate change and armed conflict meet. Additionally, a June 2022 Institute for National Security Studies on climate change predicts that the strip will experience a rise in temperatures, a decrease in precipitation, an increase in sea levels, and an increase in the frequency of extreme weather events. The primary reason for Gaza's powerlessness is conflict. Additionally, the ICRC's (International Committee of Red Cross) head of strategy, Catherine-Lune Grayson, says that people are becoming more vulnerable due to growing climate challenges.¹³

Priorities Change Due to Conflict

Officials put security over other concerns during confrontations. Climate finance rarely reaches these countries because of conflict. Institutions are not always strong enough to allocate resources or request assistance. When a nation is in conflict, focusing primarily on re-establishing internal security is reasonable. The long-term impacts of climate-related dangers may not be considered.¹⁴ In a war-torn country, a prominent social, economic, and cultural revolution may be required to adapt to climate change.

Role of International Organisations

As the war rages in Gaza, the UN is working slowly to complete a thorough evaluation of the conflict's environmental effects. According to the UN Security Council, climate change is making the political and humanitarian issues in the region worse. They issued a warning, arguing that the West Bank and Gaza would continue to suffer greatly from the devastating effects of climate change on food and water security.

Comparably, in yet another briefing to the Security Council, the International Committee of the Red Cross (ICRC) reminded its members of the growing risks and inequality in conflict zones. It also highlighted the compounding effects of climate change and environmental degradation due to armed conflict on vulnerable populations and the humanitarian crises it creates. The ICRC emphasised that while the natural environment is safeguarded by international humanitarian law (IHL), it is nevertheless a silent casualty of war.¹⁵

The Gaza War has fatally increased land, soil, and water pollution. The UNEP is examining the impact of this conflict on the environment. The UNEP officials are working to gain a preliminary understanding of the extent of environmental damage due to war. The methods used are reports of previous conflicts in Gaza and other related locations, information from different UN agencies in the field, and analysis of satellite images.¹⁶

Legal Aspects & Legislation Regarding Environment during War

When there is an armed conflict, the environment needs to be preserved. Article 35(3) of the 1977 Additional Protocol I (API) to the 1949 Geneva Conventions and Rule 45 of the ICRC (International Committee of Red Cross Customary IHL Study) both expressly forbid warfare tactics and methods that result in extensive, persistent, and severe harm to the environment. They stipulate that appropriate consideration must be given to environmental preservation and protection. Article 55 of AP I (Additional Protocol (I) to the Geneva Conventions 1977) forbids retaliatory attacks on the environment, and Rule 45 forbids using the natural environment as a weapon of war.¹⁷

Additionally, the natural environment is protected by general principles of IHL that apply to civilian objects that are not deemed military objectives (Article 52(2) of AP I and Rule 9 of the ICRC's Customary IHL Study). These principles include precaution, proportionality, and distinction. Furthermore, all duties under international human rights law, international environmental law, and other aspects of international law continue to apply during armed conflicts.¹⁸ To purposely, under the Rome Statute, which governs the international criminal court, initiate an excessive attack with the knowledge that it will cause widespread, persistent, and significant harm to the environment constitutes a war crime.

The Geneva Conventions were expanded in 1977 by adopting a protocol that established guidelines for warfare that guarantee environmental preservation. International law forbids attacks on objectives essential to civilian survival, such as agricultural lands and drinking water infrastructure.¹⁹

Article 35(3) of Additional Protocol I to the 1949 Geneva Conventions (AP I) codifies the pertinent LOAC (the Law of armed conflict) provision on the preservation of the natural environment during armed conflict. It limits the mode of attack that warring parties may choose to employ.

Using military strategies or weaponry that could reasonably be expected to cause significant environmental damage on a big scale over a prolonged period is prohibited. Hence, Israel must protect the environment during armed conflicts even if it is not a party to AP I. AP I Article 55(1) states, "When engaging in combat, caution must be taken to prevent extensive, irreversible environmental harm. As part of this protection, it is prohibited to employ any warfare strategies or weapons that could reasonably be expected to harm the environment and jeopardise public health or survival."²⁰

Environmental Protection during Armed Conflict under the International Criminal Law: A Case Study

Protection of the Environment in Armed Conflicts under International Criminal Law (ICL) governs international criminal liability for foreign offences. The first international criminal court was composed of justices from Alsace, Germany, and Switzerland and met in 1474. It oversaw the prosecution and subsequent criminal responsibility of Peter von Hagenbach, the administrator of a German region, for crimes committed during the occupation. The notion of International Criminal Liability (a legal concept that holds individuals responsible for their actions or omissions if they are found to have committed a criminal act) is already incorporated into both The Hague Law and The Geneva Law, providing the basis for such liability in the field of international law. The Hague Law expressly establishes responsibility for damages if the Hague Convention's requirements are seriously broken. States are deemed internationally liable for the activities of their armed forces in this context, as they are held responsible for any abuses committed by their fighters. Laws and Customs of War on Land (Hague IV); October 18, 1907, The Avalon Project Laws of War, n.d. Similarly, Additional Protocol I of the Geneva Convention stipulate responsibility and total culpability (responsibility for a fault or wrong) for damages resulting from breaches of the Protocol's specified requirements. In this case, any violations of Geneva Law by the state's armed forces are subject to vicarious liability (the superior's accountability for their subordinate's acts).

Scientific Analysis of Greenhouse Gas Emissions from the Israel-Gaza Conflict across Multiple Periods: How Rebuilding and Demolished Structures Will Contribute to Climate Change?

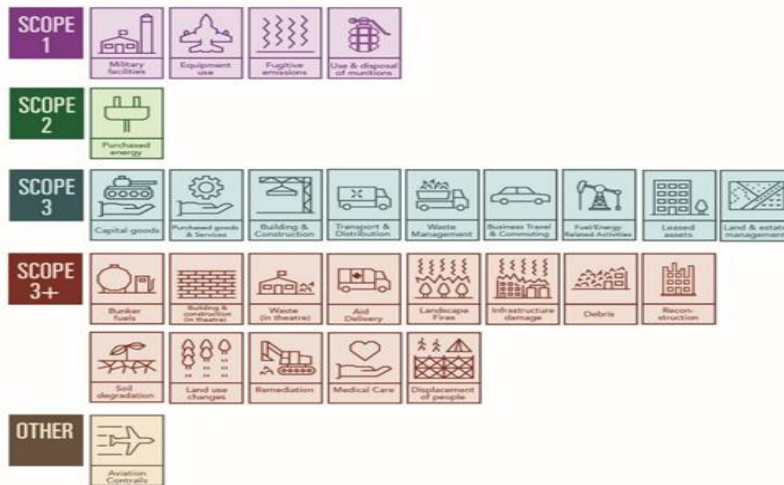
There are risks of fires, pollutants emitted from facilities carrying hazardous products, and pulverised building materials that may include dangerous compounds like asbestos.²¹

A recent study has highlighted the urgent need to account for significant institutional and operational emissions from militaries and conflicts, extending the Scope 3+ wartime emissions (a method of measuring an organisation's greenhouse gas emissions). Large gaps still exist in the data. While significant military technology

businesses and supply chains are included in the global estimate of 5.5% for military emissions, emissions from conflicts and warfighting operations are not included.

There is currently no standardised technique or scope for reporting on conflict emissions, and the UNFCCC (United Nations Framework Convention on Climate Change) reporting obligations do not specify standards in this regard. Cottrell addressed this gap by proposing a framework (Figure 1) that outlines the Scope 3+ categories to be covered in addition to the typical Scope 1, Scope 2 (a method of measuring greenhouse gas emissions of an organisation), and Scope 3 emissions, as specified by the GHG Protocol (The GHG Protocol Corporate Standard is an initiative for the global standardisation of emission of Greenhouse Gases so that corporate organisations should measure, quantify, and provide reports of their emission levels so that global emissions are made manageable).

Figure 1: Proposed Scopes of Military Greenhouse Gas Emissions



Schematic showing proposed scopes of greenhouse gas emissions from military and defense industry.

Destruction of Gaza Environment should be treated as Ecocide (Environmental Genocide)

According to scientists and environmental groups, the damage will significantly impact Gaza's biodiversity and ecosystems. Owing to the extent and potentially long-term effects of the devastation, there have been requests that it may be considered ecocide and investigated as a potential war crime.²²

The Israeli Defence Forces (IDF) Claims

According to the Israeli Defense Forces (IDF), it tries to minimise harm to the environment and agricultural areas while abiding by international law. However, this

claim is false. It is already established through ground surveys, GIS monitoring (a software application that influences geographic information systems technology to monitor and manage projects), and international media that the assaults of IDFs have caused significant losses to the Environment. The damage is caused by Israeli air strikes, military equipment used for the ground offensive, and the poisonous gases created by military equipment.²³

The Scale of Environmental Destruction in Gaza

Experts assessed the degree of environmental degradation and thought that even with limitless finance and motivation, large areas of Gaza would not be recovered to a safe situation within a generation.

Post-war Environmental and human rehabilitation will be the most difficult task in the future. Rehabilitation and reviving the Environment is challenging as it will take decades to bring back the Gaza Strip to life. Reconstruction of buildings and other infrastructure will further degrade the Environment. Secondly, developing green lands will be a monumental task. The world should develop a roadmap for the Environmental rehabilitation of Gaza.²⁴

The conflict in Gaza has resulted in a disastrous increase in land, soil, and water pollution, prompting the UNEP to investigate the conflict's environmental effects. UNEP progress is quite depressive in this regard. Not many efforts are noticed on the ground.²⁵

A UNEP spokeswoman told Euro News Green that a preliminary assessment of the degree of environmental harm was done after collaboration with partners. The assessment methods are Knowledge of the effects of previous battles (in Gaza and elsewhere), data from UN personnel on the ground, and satellite image analysis.

OIC Role in Israel-Hamas Conflict

The Organization of Islamic Cooperation (OIC) has conveyed its profound sorrow for the Security Council's inability to approve the draft resolution intended to put a stop to Israel's heinous aggression in the Gaza Strip. The International Court of Justice (ICJ) has received a lawsuit brought by the State of South Africa alleging that Israel, the occupying force, committed genocide against the Palestinian people. The OIC has applauded the action. Ismail Haniyeh, the senior leader of Hamas, was slain in Iran, and the OIC has blamed Israel for the attack.²⁶

Though OIC is actively condemning Israel for its actions still, there is a need to take some more practical measures to play a more effective role. That requires unity and unanimous opinion amongst Muslim countries. The OIC must adopt a more practical approach to address the Palestinian cause. First, it should work towards uniting all Muslim countries under a shared vision and strategy. Second, the OIC should persuade member states to exert political pressure on Israel and its allies

collectively. Finally, these nations should implement measures such as boycotting Israeli products and severing diplomatic ties with Israel. Such actions are likely to support the just cause of Palestine significantly. OIC Secretary-General has also pleaded the case at the International Court of Justice against the inhumane atrocities of the Israelis against the Palestinians.²⁷

Solutions for Environmental Recovery: Developing Strategies for the Protection of the Environment

A proper framework for protecting the Environment in Gaza should be developed, comprising short, medium, and long-term Environmental Frameworks. The following are specific solutions and strategies for sound environmental recovery.

Creation of an International Task Force

Dedicated teams should be created to assess environmental damage and coordinate recovery efforts. These teams should develop partnerships with UN agencies, NGOs (non-governmental organisations), and local organisations. Experts should be deployed to assess air, water, and soil quality comprehensively. A shared database should be created to track environmental conditions and monitor recovery progress.

Need for Effective Capitulation

Conflicts do not end in the same manner. Some reach a compromise, while others yield. Those who refuse to be subjugated must force surrender against an opponent whose zeal for conquest knows no bounds. Napoleon's adversaries discovered this in the nineteenth century, and Hitler's opponents confirmed it in the twentieth century. In those instances, capitulation involved regime change and military occupation.²⁸

So, there is a dire need to capitulate to stop Israel from committing further atrocities against humanity and the Environment.

Environmental Diplomacy

Future Middle East climate projects are at risk due to the current violence in Gaza. Recent climate diplomacy between Israel and numerous vital Arab nations, including water conservation and renewable energy partnerships, is probably at a standstill. The climate problem offers a chance for cooperation based on shared natural resources, specifically regional, Israeli, and Palestinian cooperation. Groundwater scarcity brought on by climate change in Gaza may eventually affect Israelis living beyond the barrier as well, despite accounting for differences in water supplies that Israel currently controls.²⁹

Water Diplomacy

Gaza's air, land, and water have all been severely damaged. Furthermore, reconstruction will increase carbon emissions. According to Doug Weir, director of the Conflict and Environment Observatory, an independent research group with UK headquarters, flooding during the winter months is more likely in Gaza because of the war's damage to the region's infrastructure related to water sanitation and hygiene. Organisations such as Human Rights Watch have also charged Israel with the use of white phosphorus weapons in Gaza, contributing to the air pollution. As Gaza moves into the rainy season, it is anticipated that the rain will be acid rain tainted with white phosphorus.

Research and Development Initiatives

Research grants must be managed for universities and institutions focused on environmental science in conflict zones. Collaborative research projects between Palestinian and Israeli scientists should also be encouraged to develop practical recovery strategies. Technology like remote sensing should also be introduced in Gaza to monitor environmental conditions and impacts.

Waste Management & Treatment

Waste is discovered near or even inside crowded camps for internally displaced people, exacerbating the health concerns already present to them. In some places, trash heaps by the shore progressively contaminate the marine ecosystem or damage water sources and agricultural land. Even though Gaza's waste management system was already inadequate before the war, it has now entirely collapsed because of collection truck destruction and Israeli military restrictions on access to authorised landfills.

Addressing Necessities for Clean Water

Gazans struggled to get the required clean water even before the current crisis. Roughly ninety per cent of Gaza's water comes from the Coastal Aquifer Basin, which spans along the eastern Mediterranean coast from Egypt through Gaza and into Israel. CSIS is examining the water in Gaza under siege.

The eagerly awaited health crisis is getting worse right now. Inadequate and poor water quality can reduce water consumption and lead to unsafe hygiene habits (e.g., contaminated hands, food, and utensils). Approximately 50% of the cases of diarrhoea recorded between mid-October and November 29 were reported to the World Health Organization (WHO). However, in 2021 and 2022, Gaza experienced 2,000 episodes of diarrheal illness in young children each month on average.

Without clean water, medical professionals use chemical disinfectants to sanitize their equipment. In addition to hospitals' inability to obtain iodine for wound

cleaning, there are other challenges in providing adequate care. Medical professionals also worry that the failure of wastewater and water treatment systems and the congestion in hospitals, temporary camps, and shelters could trigger spreading infections resistant to antimicrobial treatment.

Role and Responsibility of Regional Powers

States in the Middle East have not yet responded diplomatically commensurate with the gravity of the situation or the threats it presents to the area. The diplomatic strategies employed by regional actors have differed. The primary negotiator for the agreements on captive releases and accompanying ceasefires has emerged as Qatar. Egypt has made some unsuccessful attempts to take on a comparable role. The OIC and the Arab League met jointly in Saudi Arabia when a resolution tasked seven foreign ministers with advocating for a ceasefire in important cities was approved.

Both organizations also backed South Africa's genocide lawsuit against Israel at the ICJ. They urged the prosecutor of the International Criminal Court to investigate Israeli decision-makers for crimes against humanity.

In return for Israel retreating to its internationally recognised 1967 boundaries and agreeing to a two-state solution, Saudi Arabia offered full normalisation. The far-right Israeli government, however, seems uninterested in this notion. Regarding Palestinian statehood, Prime Minister Benjamin Netanyahu is adamant in his opposition and his support for additional illegal settlement growth in the West Bank.

Hakan Fidan, Turkey's foreign minister, has proposed a multi-nation guarantor system to resolve the dispute. However, the Arab governments do not seem interested in this suggestion, and Ankara does not wish to lead the Arab states in this regard. Non-Western nations such as Russia and China have not done much more than denounce Israel and criticize the West's hypocrisy thus far. Pakistan has also condemned the Israeli actions so far.³⁰

Investigation of Environmental Crimes

Global North (Northern America, Europe, Israel, Japan, South Korea, Australia, and New Zealand) should put their weight behind the demand for a transparent investigation to probe the war crimes committed by Israel against the population of Gaza as well as the Environment. Israel may be punished for crimes against the environment and humanity.

Aid for Plantation

The international community should help the Gaza authorities purchase plants so that the devastated orchards can be grown again among native olive, palm, almond, and other trees. This will also support the local community's ability to make a

living. Wildlife will also return to Gaza when the fields turn green once more. International NGOs operating in Gaza, such as the Middle East Children's Alliance and Launch Good, might redouble their efforts to raise funds to assist the strip in regaining its natural vitality.

Lobbying for Safeguarding Environment and Sustainable Infrastructure Development

Gaza authority should be supported on all fronts to make a solid lobby to safeguard their interests, including environmental protection against Israeli onslaught. Secondly, Palestinian statehood is the only solution for the current crisis, even if it is looked upon in an environmental context. International funding should be secured for green technologies in the Gaza Strip. Engineering and architectural firms experienced in sustainable design should be invited to Gaza to create eco-friendly buildings and public spaces. As infrastructure was destroyed in Gaza, there is a need to implement waste management and recycling programmes to reduce pollution.

Environmental Education and Awareness

In the Author's opinion, recognition, support, and development of the Palestinian state are direly needed to protect Gaza's unique Natural Resources. In addition, educational programmes for environmental awareness should be developed and taught at the school level. Moreover, NGOs may be invited to conduct workshops and seminars. In modern times, the power of social media cannot be undermined, so campaigns can be created on social media to create awareness. Arwa Institute's director, Tareq Abu Hamed, says that environmental destruction will ultimately affect Israel's environment significantly when water gets polluted in the Mediterranean Sea. The UNEP published a report in 2003 outlining the main environmental impacts of the occupation. It included over 100 recommendations unrelated to the occupation and lacked a deadline or priority within the report.³¹

Israel should be tried for Ecocide

In the Author's opinion, Israel is guilty of Ecocide and should be punished for that at the relevant forums. The world's most prominent climate conference is shadowed by Israel's attendance at COP28 amid its war on Gaza. Israel's environmental policy, according to writer and commentator Zena Agha, is 'Janus-faced' encouraging both technological advancement and 'environmental reform' while simultaneously denying Palestinians their land, water, and other natural resources—possible obstacles to implementing the recommended environmental recovery and mitigation strategies in Gaza.

Restrictions on Resources and Movement

Gaza faces severe restrictions on the import of materials and technology necessary for environmental restoration, like water purification systems, building materials, and advanced waste management technologies. These limitations hinder or postpone critical waste management, water treatment, reforestation, and infrastructure repairs. Recovery strategies are essentially theoretical in the absence of access to necessary resources.

Limited Funding and Financial Constraints

Significant financial resources are needed to implement comprehensive environmental recovery plans, but Gaza does not have the financial means to support these initiatives. International help is frequently scarce, sporadic, or contingent on political circumstances. Gaza cannot afford the extensive environmental monitoring, restoration, and infrastructure repair required to address the extent of environmental harm covered in the article without long-term financial sources.

Weak Institutional and Administrative Capacity

The governmental agencies in Gaza are frequently underfunded and incapable of efficiently overseeing intricate environmental initiatives. War-torn infrastructure and a fragmented workforce further undermine institutional support for environmental projects. The implementation of recovery plans, environmental health monitoring, and efficient policymaking regarding sustainable practices are all hampered by this institutional capability deficit.

Insufficient Global Coordination and Implementation

There is frequently no coordinated international response to environmental conservation initiatives in conflict areas. Owing to conflicting international interests and geopolitical sensitivities, environmental rules and international humanitarian regulations are still not strictly enforced in Gaza. Without solid international intervention and enforcement mechanisms, laws against ecocide or targeting environmental resources remain ineffective, leaving Gaza vulnerable to ongoing environmental degradation.

Geopolitical Unrest and Differing Reactions around the World

The international community's geopolitical divides can result in polarised reactions, with some nations unwilling to back policies that might be interpreted as siding with one side in the Israel-Palestine conflict. These divisions complicate the mobilisation of unified global action or funding for Gaza's environmental restoration and can result in inconsistent support for recovery initiatives.

Conclusion

Zionist Israel's actions have sparked the Gaza conflict, which has caused extreme human misery as well as an unparalleled environmental disaster. The ecology and public health in Gaza have been badly harmed by the widespread destruction of agricultural areas, orchards, and green spaces, as well as the destruction of the infrastructure responsible for managing water. The hazardous state of the environment is made worse by the poisoning of water sources and pollutants from military activities.

Addressing these environmental issues is morally required and practically essential for Gaza's sustainability and economic revival. Stopping additional environmental harm and restoring vital infrastructure must be the top priorities of immediate action. This entails maintaining and improving water management systems, restoring agricultural land, and rebuilding damaged structures using environmentally friendly methods.

Even while UNEP and other organisations try to participate in the recovery process, much more could be done. Increasing financial and technical international assistance is essential to addressing the environmental damage and promoting Gaza's long-term recovery.

One should not undervalue the part that nations like Pakistan have played in supporting and assisting with these initiatives. It is also critical to investigate the possibility of ecocide during the conflict and hold people accountable for severe environmental damage. Acknowledging and resolving these problems would help to provide a more thorough response to the crisis and promote the recovery of the region and its inhabitants.

In conclusion, the environmental price of the Gaza war is an important issue that should be addressed right now. Alongside humanitarian measures, environmental restoration should be given top priority by the international community to lessen the damage, aid Gaza's rehabilitation, and contribute to a more equitable and sustainable future for the area.

References

- ¹ Philippe Pernot, "Ecocide in Gaza: The Environmental Impact of Israel's War," *The New Arab*, May 9, 2024, <https://www.newarab.com/analysis/ecocide-gaza-environmental-impact-israels-war>.
- ² Nina Lakhani and Nina Lakhani Climate justice reporter, "Emissions from Israel's War in Gaza Have 'Immense' Effect on Climate Catastrophe," *The Guardian*, January 9, 2024, sec. World news, <https://www.theguardian.com/world/2024/jan/09/emissions-gaza-israel-hamas-war-climate-change>.
- ³ Lakhani and reporter.
- ⁴ Lakhani and reporter.
- ⁵ Nina Lakhani and Nina Lakhani Climate justice reporter, "Emissions from Israel's War in Gaza Have 'Immense' Effect on Climate Catastrophe," *The Guardian*, January 9, 2024, sec. World news, <https://www.theguardian.com/world/2024/jan/09/emissions-gaza-israel-hamas-war-climate-change>.
- ⁶ Ali, "Carbon Emissions and Climate Costs of Israel's War on Gaza," *Anadolu Ajansı*, January 27, 2024, <https://www.aa.com.tr/en/environment/carbon-emissions-and-climate-costs-of-israel-s-war-on-gaza/3115615>.
- ⁷ Eklavya Gupte, "New Study Reports Large Climate Impact from Israel-Hamas War | S&P Global Commodity Insights," S&P Global, January 9, 2024, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/010924-new-study-reports-large-climate-impact-from-israel-hamas-war>.
- ⁸ Kiley Price, "As Conflict Rages On, Israel and Gaza's Environmental Fates May Be Intertwined," *Inside Climate News* (blog), March 15, 2024, <https://insideclimatenews.org/news/15032024/todays-climate-gaza-israel-sewage-environment-debris-pollution/>.
- ⁹ Philippe Pernot, "Ecocide in Gaza: The Environmental Impact of Israel's War," *The New Arab*, accessed November 6, 2024, <https://www.newarab.com/analysis/ecocide-gaza-environmental-impact-israels-war>.
- ¹⁰ Pernot.
- ¹¹ Kaamil Ahmed, Damien Gayle, and Aseel Mousa, "'Ecocide in Gaza': Does Scale of Environmental Destruction Amount to a War Crime?," *The Guardian*, March 29, 2024, sec. Environment, <https://www.theguardian.com/environment/2024/mar/29/gaza-israel-palestinian-war-ecocide-environmental-destruction-pollution-rome-statute-war-crimes-aoe>.
- ¹² Aryn Baker, "The Israeli-Palestinian Conflict Is a Looming Climate Crisis," *TIME*, January 11, 2023, <https://time.com/6242238/climate-change-israeli-palestinian-politics/>.
- ¹³ Lara Bullens, "When Conflict Meets Climate Change, in Gaza and Beyond," *France 24*, October 24, 2023, <https://www.france24.com/en/middle-east/20231024-when-conflict-meets-climate-change-in-gaza-and-beyond>.
- ¹⁴ Bullens.
- ¹⁵ Amali Tower, "The Not-So-Hidden Climate Risks for Gaza's Displaced," *Climate Refugees*, January 11, 2024, <https://www.climate-refugees.org/spotlight/2023/11/11/gaza>.
- ¹⁶ Lottie Limb, "The UN Is Investigating the Environmental Impact of the War in Gaza. Here's What It Says so Far | Euronews," *Euro News*, March 6, 2024, <https://www.euronews.com/green/2024/03/06/the-un-is-investigating-the-environmental-impact-of-the-war-in-gaza-heres-what-it-says-so>.
- ¹⁷ International Committee of the Red Cross, *Protocols Additional to the Geneva Conventions of 12 August 1949* (Geneva, Switzerland: International Committee of the Red Cross, 2010), 40, https://www.icrc.org/sites/default/files/external/doc/en/assets/files/other/icrc_002_0321.pdf.
- ¹⁸ Kaamil Ahmed, Damien Gayle, and Aseel Mousa, "'Ecocide in Gaza': Does Scale of Environmental Destruction Amount to a War Crime?," *The Guardian*, March 29, 2024, sec. Environment, <https://www.theguardian.com/environment/2024/mar/29/gaza-israel-palestinian-war-ecocide-environmental-destruction-pollution-rome-statute-war-crimes-aoe>.
- ¹⁹ Amali Tower, "The Not-So-Hidden Climate Risks for Gaza's Displaced — Climate Refugees," *Climate Refugees*, accessed November 6, 2024, <https://www.climate-refugees.org/spotlight/2023/11/11/gaza>.
- ²⁰ Cross, *ICRC*.
- ²¹ Indlieb Farazi Saber, "Is Israel's Gaza Bombing Also a War on the Climate? | Israel-Palestine Conflict News | Al Jazeera," *Al Jazeera*, December 5, 2024, <https://www.aljazeera.com/news/2023/12/5/israels-war-on-gaza-also-hurting-the-climate>.
- ²² Ahmed, Gayle, and Mousa, "'Ecocide in Gaza,'" March 29, 2024.

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- ²³ Ahmed, Gayle, and Mousa, “Ecocide in Gaza,” March 29, 2024.
- ²⁴ Gloria Dickie and Alison Withers, “Gaza Conflict Has Caused Major Environmental Damage, UN Says | Reuters,” Reuters, June 18, 2024, <https://www.reuters.com/world/middle-east/gaza-conflict-has-caused-major-environmental-damage-un-says-2024-06-18/>.
- ²⁵ Limb, “The UN Is Investigating the Environmental Impact of the War in Gaza. Here’s What It Says so Far | Euronews.”
- ²⁶ “OIC Says Israel ‘Fully Responsible’ for Hamas Chief Haniyeh’s Killing,” Al Jazeera, accessed August 23, 2024, <https://www.aljazeera.com/news/2024/8/7/oic-says-israel-fully-responsible-for-ismail-haniyehs-killing>.
- ²⁷ Organization of Islamic Cooperation, “OIC Secretary-General Pleads at the International Court of Justice, The Hague, on the Cause of Palestine,” OIC Secretary-General Pleads at the International Court of Justice, The Hague, on the Cause of Palestine, February 26, 2024, https://www.oic-oci.org/topic/ampg.asp?t_id=40438&t_ref=26942&lan=en.
- ²⁸ Raymond F. Smith, “Ending Wars: When Does Diplomacy Have a Role? | American Diplomacy Est 1996,” American Diplomacy, November 2023, <https://americandiplomacy.web.unc.edu/2023/11/ending-wars-when-does-diplomacy-have-a-role/>.
- ²⁹ Saber, “Is Israel’s Gaza Bombing Also a War on the Climate? | Israel-Palestine Conflict News | Al Jazeera.”
- ³⁰ “Pakistan’s Concerns at the Unfolding Situation in the Middle East,” Press Release (Islamabad: MINISTRY OF FOREIGN AFFAIRS, July 10, 2023), <https://mofa.gov.pk/pakistans-concerns-at-the-unfolding-situation-in-the-middle-east>.
- ³¹ Mazin Qumsiyeh, “Environmental Justice in Palestine: Rights of Natives to Their Environment Versus Colonial Onslaught,” Security Context, October 30, 2023, <https://www.securityincontext.com/posts/environmental-justice-in-palestine-rights-of-natives-to-their-environment-versus-colonial-onslaught>.