

The Impact of the Israeli War on the Gaza Strip between 2006–2024 from Social and Environmental Perspectives: A Documentary Study

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Abstract

This study aims to shed light on the environmental and social damages resulting from the Israeli wars on the Gaza Strip, drawing on official documents issued by the Palestinian governmental body and United Nations reports. The study reveals the escalating environmental damages that the Palestinian people have endured throughout the occupation period. Among the most significant of these damages is the increased rate of environmental pollution caused by a rise in radiation and oxides in the air, attributed to actions by the occupying forces. This, in turn, has led to prolonged environmental deterioration experienced by the Palestinian people. The study concludes that repeated Israeli wars on the Gaza Strip have had extensive repercussions on the Palestinian people, both environmentally and socially, aiming to create a challenging environmental reality that forces residents of the Strip to emigrate, thereby enabling the occupying state to achieve its primary goal of expansion and settlement.

Keywords: Israeli wars, Gaza strip, Environmental impact, Social impact.

Introduction

The repeated Israeli wars on the Gaza Strip have led to the destruction of infrastructure, particularly sewage and water networks. This has caused wastewater to mix with potable water, resulting in the spread of epidemics and diseases, and has severely limited the availability of clean water for drinking, bathing, and personal hygiene. Consequently, health risks in Gaza have multiplied. Additionally, all facilities, streets, and pathways have become contaminated with various pollutants, and solid waste has accumulated, leading to massive piles of waste in roads, streets, and alleys. This accumulation is exacerbated by the destruction of most of the equipment and machinery essential for collecting and transporting solid waste to designated areas. The study also tracks the historical events of the Israeli wars on the Gaza Strip and the accompanying environmental and social impacts.

The Reason for Choosing this Topic:

The reason for choosing this topic is to highlight the extent of environmental damage suffered by the Palestinian people as a result of the repeated wars on the Gaza Strip from 2006 to 2024.

Study Problem:

The study problem focuses on Israel's persistent attempts to occupy the Gaza Strip, aiming to pressure its residents and push them to be displaced outside the region. The study also addresses several key questions, the most important of which are:

- How has Israel employed repeated wars to destroy infrastructure, consequently causing significant environmental damage?
- How has Israel engaged in indiscriminate environmental destruction without regard for international environmental laws?

Study Objectives

- ❖ The study aims to trace the historical sequence of Israeli wars on the Gaza Strip and to illustrate the impact of these wars on the region, relying on statistical documents issued by the central governmental body and the United Nations.
- ❖ The study seeks to reveal and counter all false and fabricated Israeli reports that attempt to cover up the war crimes it has committed.
- ❖ The study also aims to document and highlight all environmental damages that have affected the Palestinian environment.

Study Limitations

Temporal Scope: The political and military events that occurred during the period 2006 - 2024 are covered in this study. These events have demonstrated the adverse social and environmental situations that the Gaza Strip's residents faced as a result of the occupation's policies.

Spatial Scope: This study is restricted to the region that is the residence of Gaza City's population and the related situations that have resulted in the destruction of buildings and infrastructure as well as topographical area changes.

Research Methodology: The study employs a descriptive-analytical methodology alongside a historical approach to examine historical developments related to the study's subject.

Sources of the Study: The United Nations' reports and official documents from Palestinian governmental organizations are the main sources used in this study.

Previous Studies

A number of previous studies have been conducted on the impact of Israeli wars on the Palestinian people across various dimensions, employing different methodologies. This study aims primarily to shed light on the environmental, social, and humanitarian damages inflicted on the Gaza Strip.

Abdo Hassoun (2025) described the growing food crisis in the Strip and the ongoing war's impact on food security and the food-related Sustainable Development Goals (SDGs) from local, regional, and global perspectives. In addition, studies published by the Palestinian Environmental Quality Authority (2023) examined the extent of environmental damage suffered by the Palestinian people, addressing various forms of such damage.

The Palestinian Central Bureau of Statistics provided figures and data illustrating the scale of environmental harm inflicted on Gaza, which the researcher considers a primary source for this study.

Al-Tamimi and others (2023) highlighted the environmental impact of the Israeli aggression on Gaza, noting a significant increase in carbon emissions and their implications for the future of structural engineering from a strategic standpoint.

This historical study is distinguished by its reliance on data and statistics issued by the Palestinian Central Bureau of Statistics to track the temporal developments of the Israeli war and its environmental impact. This impact has contributed to the destruction of social and humanitarian conditions in the Gaza Strip, with the aim of forcing its residents to migrate and empty the area of its population, thereby facilitating Israeli settlement expansion.

Preface

History of Israeli Wars on the Gaza Strip

The Gaza Strip was under British Mandate in Palestine until 1948, the year the State of Israel was declared. Then, it came under Egyptian military rule from 1948 to 1956. After that, it was under Israeli occupation for five months following the 1956 war. In March 1957, Israel withdrew, and the Gaza Strip returned to Egyptian rule. During the 1967 war, the Israeli army occupied Gaza once more, along with the Sinai Peninsula, and the area remained under Israeli control until September 2005. This date

marks the Israeli withdrawal, which included evacuating all Israeli settlements present in the Strip (Abu Jaber, 2015:16).

Despite the evacuation of Israeli settlements from the Gaza Strip, the area continued to face repeated Israeli assaults over time. These included frequent assassinations of Palestinian resistance leaders, as well as operations aimed at recovering Israeli captives held by the resistance; most notably, the soldier Gilad Shalit, who was captured by the resistance in June 2006 (Hatit, 2009:120-130).

In 2008, "Israel" launched a series of successive wars on the Gaza Strip under various pretexts. These wars resulted in thousands of martyrs and wounded, as well as extensive destruction, leaving significant environmental impacts on the region. In December 2008, Israel began a war on the Gaza Strip, naming it "Operation Cast Lead," to which the Palestinian resistance in the Strip responded with an operation they called the "Battle of Al-Furqan" (Qasim, 2010:78).

The main Israeli objective for this war was to eliminate the rule of Hamas in the Gaza Strip and to dismantle all organizations of the Palestinian national resistance. The second objective was also to locate the place where the resistance was hiding the Israeli captive Gilad Shalit.

This battle continued until 2009, during which the Israeli occupation used internationally banned weapons such as enriched uranium and white phosphorus. It also dropped thousands of tons of cluster munitions and other weapons that harmed both the environment and the Palestinian people (Palestinian Ministry of Health, Palestinian Authority, Report on the Effects of the Siege and the Zionist Massacre on Health Status, issued in May 2009).

Two years later, specifically in November 2012, "Israel" launched a war, which was named "Operation Pillar of Defense" and lasted approximately eight days. The Palestinian resistance responded with an operation they called "Hijarat Al-Sijjeel" or "Operation Pillars of Baked Clay" to symbolize a form of divine retribution." The objective of this operation was to destroy all military sites where resistance movements stored their missiles. The conflict began with the assassination of Ahmad Jabari, the commander of the Izz ad-Din al-Qassam Brigades, the military wing of Hamas.

On July 7, 2014, "Israel" launched a military operation to invade the Gaza Strip, to which the Palestinian resistance in the area responded. The confrontation lasted approximately 51 days, during which the Israeli occupation army carried out more than 50,000 continuous airstrikes on the Strip (Prepared by the Archive and Information Department - Information File 22, The Israeli Aggression on the Gaza Strip, Beirut: Al-Zeitouna Center for Studies and Consultations, 2015).

The cause of this war was Israel's assassination of six members of Hamas, whom they claimed were responsible for the kidnapping of three settlers in the occupied West Bank. Additionally, Israeli settlers kidnapped a Palestinian child named Muhammad Abu Khdeir, who was tortured and killed by burning (Nofal, 2014:50-53).

The Israeli pretext, according to then-Prime Minister Benjamin Netanyahu, was that the primary objective of the Israeli operation was to destroy the tunnel network built by the Palestinian resistance underground in the Gaza Strip. As a result of this war, 2,322 Palestinians were martyred, and 11,000 were injured, while 68 Israeli soldiers and 4 civilians were killed, and 2,522 Israelis were wounded, including 740 military personnel (Al Jazeera, report issued on 28/7/2024). Additionally, the Al-Qassam Brigades announced on July 20, 2014, that they had captured Israeli soldier Shaul Aron during their defense against a ground incursion by the occupation army in the Shuja'iyya neighborhood east of Gaza City.

"Israel" also attacked the Gaza Strip in 2019 by sending a drone to carry out a number of targeted assassinations, the most significant of which was the targeting of Baha Abu al-Ata, the commander of the northern region of the Al-Quds Brigades, at his apartment in the Shuja'iyya neighborhood east of Gaza City, which led to his martyrdom (Okasha, 2024:30-35).

Through the aforementioned documentation, we can see that "Israel" has consistently been the initiator of various wars against the Gaza Strip. In 2021, we also witnessed Israel allowing settlers to

seize homes belonging to Palestinians in the Sheikh Jarrah neighborhood. Additionally, Israeli forces stormed the Al-Aqsa Mosque. In response to this aggression, the Islamic Jihad Movement carried out an operation that lasted several days, during which it launched hundreds of rockets at Israeli sites and towns.

Due to the repeated Israeli assaults on the Gaza Strip, the Palestinian resistance movement in the region launched an unprecedented attack on October 7, 2023, targeting Israeli settlements known as the Gaza Envelope. This operation was named “Operation Al-Aqsa Flood.” The attack began with the launch of a large number of rockets at Israeli territory, and around a thousand fighters from the Islamic Resistance Movement (Hamas) entered the settlements, seizing numerous military positions and capturing hundreds of Israelis, including officers and soldiers. The number of Israeli fatalities in the operation exceeded 1,200, with more than 3,000 Israeli soldiers injured. Through this operation, the Palestinian resistance was able, in a short period, to control a significant number of settlements in the Gaza Envelope area. On the first day of the assault, more than 300 Palestinians were martyred, and over 2,000 were injured (Saleh, 2024:135-140).

As a result, “Israel” closed all crossings and outlets leading to the Gaza Strip, announced the cutting off of water and electricity to the area, and threatened to strike any relief truck attempting to enter the Strip from Egypt via the Rafah crossing. This led to the retreat of the relief convoys coming from Egypt, causing the majority of hospitals in the region to become non-operational and resulting in widespread famine across various areas in northern Gaza, which led to hundreds of deaths. Additionally, Israeli ground forces invaded the Strip from both its northern and southern extremities, besieging hospitals and refugee centers, and destroyed most buildings through airstrikes using Israeli drones.

The Repercussions of Israeli Wars on the Gaza Strip and Their Environmental Impact on the Palestinian People

Israel has continued to perpetrate numerous ongoing wars against the Palestinian people, particularly in the Gaza Strip, from 2006 to the present moment. Among these conflicts, the most severe was the recent war on the Strip known as the October 7, 2023 war, which had a significant impact on the destruction of the Palestinian environment in all its components. The occupation has shown no responsibility for the extensive damages that will have profound effects on the Palestinian people for an extended period of time.

While global efforts intensify to preserve the environment and halt ecological decline, Israeli occupation forces continue to target Palestine's environmental systems, with particular focus on the Gaza Strip. This has led to the creation of an environmental reality that threatens public life in Palestine (Al-Mezan Center for Human Rights, *The Impact of Israeli Aggression on Environmental Components in the Gaza Strip*, Gaza, 2021: p. 2) through their military attacks and direct and indirect policies. This is clearly reflected in the environmental conditions in the Gaza Strip. The repeated wars on the area have caused massive destruction to all material and physical assets, resulting in large quantities of rubble and dangerous military waste released by the occupation forces, in addition to the damage inflicted on the infrastructure of sewage networks, rainwater drainage systems, drinking water networks, and various agricultural lands (Central Bureau of Statistics, Palestinian Authority, *Direct Losses in Infrastructure 19/1/2009*).

Based on this, the residents of the Gaza Strip have suffered a difficult environmental reality from 2006 to 2024 due to these wars and the Israeli-imposed blockade. This has, in turn, exacerbated the suffering of the Palestinians, particularly regarding their right to a clean and safe environment that enables them to live. Below, I will discuss the Israeli actions that have led to the manifestation of environmental damage in the Gaza Strip:

First: Targeting Infrastructure Deliberately:

The Israeli occupation has deliberately targeted Palestinian infrastructure, including buildings, homes, schools, hospitals, mosques, as well as water and sewage networks. This highlights the

brutality of the Israeli assaults on the Gaza Strip. In addition to this, the occupation has cut off water, electricity, and fuel supplies to the region amid the deteriorating humanitarian situation and the urgent need for energy in hospitals and health clinics (United Nations Report - Office of the High Commissioner for Human Rights, June 29, 2024).

Studies indicate that there has been a significant increase in the level of damage resulting from the demolition of residential units and public facilities, as shown in Table 1. The demolition operations lead to emissions that affect the environmental reality. During the aggression, approximately 70,000 buildings were destroyed, at a minimum, during the year 2024, each with an average size of 500 square meters. Consequently, the environmental impact is significantly elevated. The size of these large buildings indicates a proportional increase in both rubble waste and carbon dioxide emissions compared to smaller buildings. This means that each building with an area of 500 square meters generates about five times the demolition waste and carbon dioxide emissions of a building with an area of 100 square meters. The cumulative and increasing impact of carbon dioxide emissions resulting from the demolition of these buildings is substantial, reflecting the significant environmental cost of such widespread destruction in the Gaza Strip. Up until the present time, the total emissions from the demolition and destruction of buildings in the region amount to 27.5 million tons of carbon dioxide equivalent (Al-Tamimi et al., www.yu.edu.jo/index.php/newarcat).

Table 1: The Size of the Damage Caused by Repeated Israeli Attacks on the Gaza Strip.

Aggression Year	2008-2009	2012	2014	2021	2024
Damage Size	Total or Partial Damage	Total or Partial Damage	Total or Partial Damage	Total or Partial Damage	Total or Partial Damage
Damaged Residential Units	11166	3217	60023	7680	70.000
Damaged Public Facilities	612	825	660	871	15000

It is observed from Table 1 that the extent of environmental damage resulting from the demolition of buildings has increased due to the ongoing Israeli occupation's practice of demolishing residential units. We note that the rate of increase from 2008 to 2024 has risen by six times compared to previous levels. Additionally, the percentage increase in the demolition of damaged public facilities has risen by approximately 30 times compared to what it was in 2008.

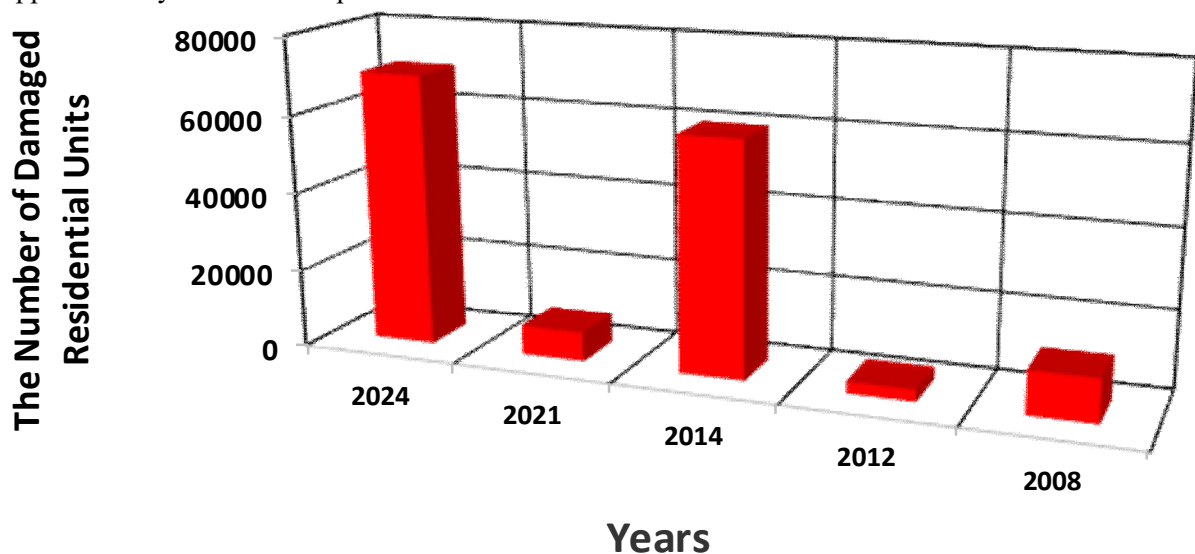


Figure (1): The percentage increase in the number of damaged residential units (in thousands) from 2006 to 2024.

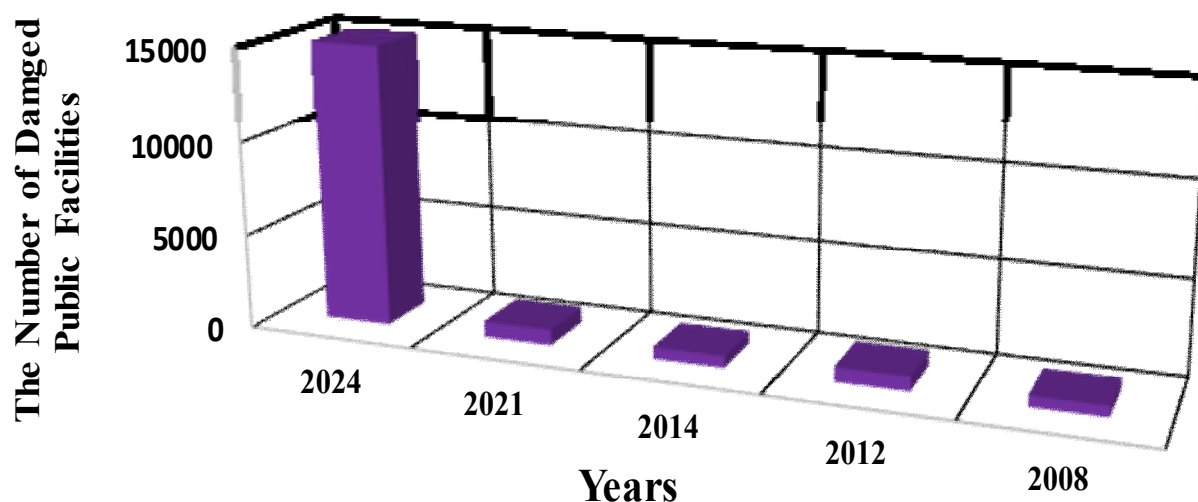


Figure (2): The percentage increase in the number of damaged public facilities.

Recent estimates for the year 2024 indicate that the latest aggression against the Gaza Strip has resulted in approximately 39 million tons of rubble. Currently, there is more than 107 kilograms of rubble per square meter in Gaza, which in turn poses risks to human health and the environment due to dust, pollution from unexploded ordnance, asbestos, industrial and medical waste, and other hazardous materials (United Nations, UN News Report, Environmental Damage in Gaza Due to War is Significant, 2024)

According to official data released by the Government Media Office in Gaza (Government Media Office, Gaza, Statement issued on Damage Assessment for the Year 2024), the damages are estimated as follows:

- **50% of the housing units in the Gaza Strip were damaged** due to shelling, with reports from the United Nations indicating that **70,000 buildings were demolished in the Gaza Strip** (United Nations, OCHA - Office for the Coordination of Humanitarian Affairs in the Occupied Palestinian Territories and the World Food Program, The Human Impact of Israeli Restrictions on Access to Land and Sea in the Gaza Strip – OCHA - August 2010).
- **40,000 residential units were completely destroyed during the October 2024 war** due to the dropping of **32,000 tons of explosives and more than 13,000 bombs on the area**.
- **95 government facilities in the Gaza Strip were destroyed, and 255 schools were also damaged, with 63 schools completely out of service**.
- **76 mosques were completely destroyed, and 165 mosques were partially damaged. Additionally, three churches were destroyed due to direct targeting**.
- **25 hospitals were rendered out of service, along with 52 health centers. Moreover, 55 ambulances were targeted**.

This destruction resulted from the use of internationally banned explosives on various facilities, leading to the combustion of the explosives and materials within the buildings. This, in turn, releases different pollutants into the air, such as nitrogen oxides (NOx), which are produced due to high levels of pressure and temperature. These oxides contribute to significant damage to the ozone layer and are also considered harmful pollutants that are prevalent in the air, irritating the respiratory system and causing other health problems for humans (Bashara, 2024: 86-80).

The destruction of infrastructure in the Gaza Strip and all essential resources will have significant repercussions in the future, as it will negatively impact waste management in its various forms within the sector. Consequently, the continuous accumulation of waste will pose a major threat to the health of the residents of the area (Report by the Applied Research Institute - Jerusalem (ARIJ), “The Environmental Reality in Occupied Gaza in Light of the Israeli War”) According to statistics compiled in 2022, approximately 2.2 million Palestinians in the Gaza Strip generate about 1,800 tons of solid

waste daily, 58% of which is organic matter, 15% is plastic waste, and 14% is paper and cardboard waste, along with other construction, agricultural, medical, electronic, and other types of waste (Report by the Joint Services Council for Solid Waste Management in the Gaza and North Gaza Governorates, Palestinian Authority, Vol 3, 2022).

We observe from Table 2 that the total emissions from waste in the Gaza Strip have significantly increased due to the repeated wars in Palestine in general and the Gaza Strip in particular since 2006. This is attributed to Israel's refusal to allow the establishment of waste disposal sites in various Palestinian areas, leading to rise in the levels of oxides in the air, which negatively impacts the Palestinian environment as a whole. It is noted that the emission of carbon dioxide (CO₂) increased by 38% in 2022 compared to 2006. Additionally, the emission of methane gas rose by 40%, while the emission of nitrous oxide increased by 15%. Overall, the quantities of CO₂ emissions have risen compared to the same year.

Table 2: Total National Emissions from the Waste Sector in Palestine (in thousand tons equivalent to CO₂) by Year 2006-2021 (Palestinian Central Bureau of Statistics, <http://www.pcbs.gov.ps/Portals>)

Year	Emissions of Carbon Dioxide (CO ₂)	Emissions of Methan Gas	Emissions of Nitrous Oxide Gas
2006	3.11	22.94	0.48
2007	3.43	23.69	0.49
2008	3.79	24.51	0.51
2009	4.11	25.41	0.52
2010	4.38	26.37	0.54
2011	4.74	27.4	0.55
2012	4.69	28.46	0.57
2013	4.51	29.09	0.61
2014	4.32	29.45	0.61
2015	4.2	31.81	0.61
2016	4.4	33.6	0.61
2017	4.61	34.23	0.61
2018	4.22	35.4	0.61
2019	4.01	36.59	0.61
2020	4.04	39.71	0.61
2021	4.3	32.22	0.55

We can see from Table 3 that the Palestinian state has sought to dispose of solid waste through traditional methods due to the ongoing harassment by Israeli occupation forces. This was done through incineration and open burning of waste, which in turn led to an unprecedented increase in the percentage of harmful gases in the air. Furthermore, we note that the Israeli occupation forces deliberately target the destruction of sewage networks and wastewater treatment plants in various Palestinian areas. The focus of Israeli forces has been on destroying all wastewater treatment plants in the Gaza Strip over the past years, ultimately leading to a significant health catastrophe, as this wastewater flows into the Mediterranean Sea, harming marine life in general.

Table 3: Greenhouse Gas Emissions from the Waste Sector in Palestine (in thousand tons of CO₂ equivalent) by Sub-Sector and Type of Emission, 2021.

Quantity of Emissions (Thousand Tons of CO ₂ Equivalent)		
Sub-Sector		
Solid Waste Disposal	254.89	29.90%
Incineration and Open Burning of Waste	20.79	2.50%
Disposal Treatment of Wastewater	576.48	67.60%
Total Waste Emissions	852.16	100%
Type of Emission		

Quantity of Emissions (Thousand Tons of CO2 Equivalent)		
Carbon Dioxide (CO2)	4.3	0.50%
Methane (CH4)	676.65	79.40%
Nitrous Oxide (N2O)	171.21	20.10%
Total Waste Emissions	852.16	100%

As illustrated in Figure (3), the percentage of CO2 emissions in the components of the Palestinian environment resulting from wastewater disposal reached a high level in 2021, exceeding 67.6%. This was followed by solid waste disposal, which accounted for 29.9%. In both cases, the percentages are considered high.

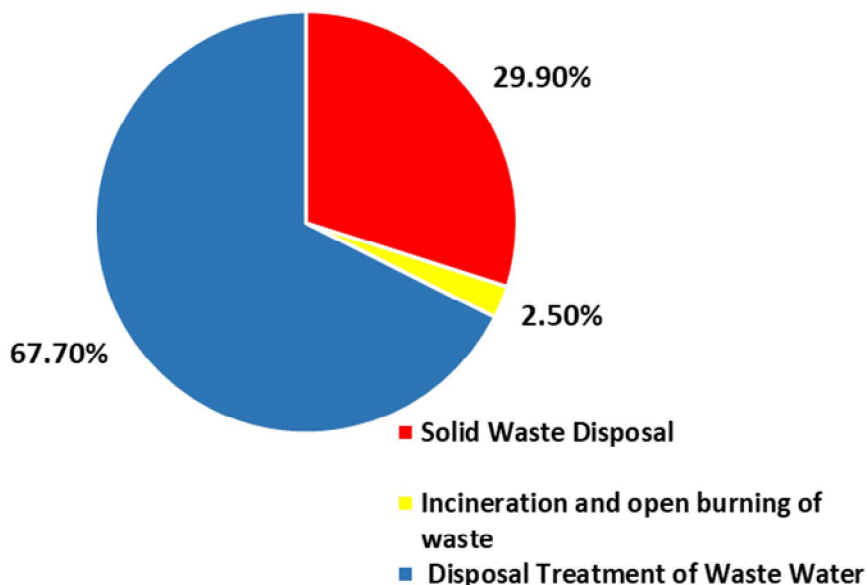


Figure (3): The percentage of CO2 emissions from the subsector.

We also observe from Figure 4 that the percentage increase in methane gas reached record levels in 2024, rising to 79% compared to 2006. Additionally, there was another increase in the percentage of nitrous oxide, which reached 20.10%.

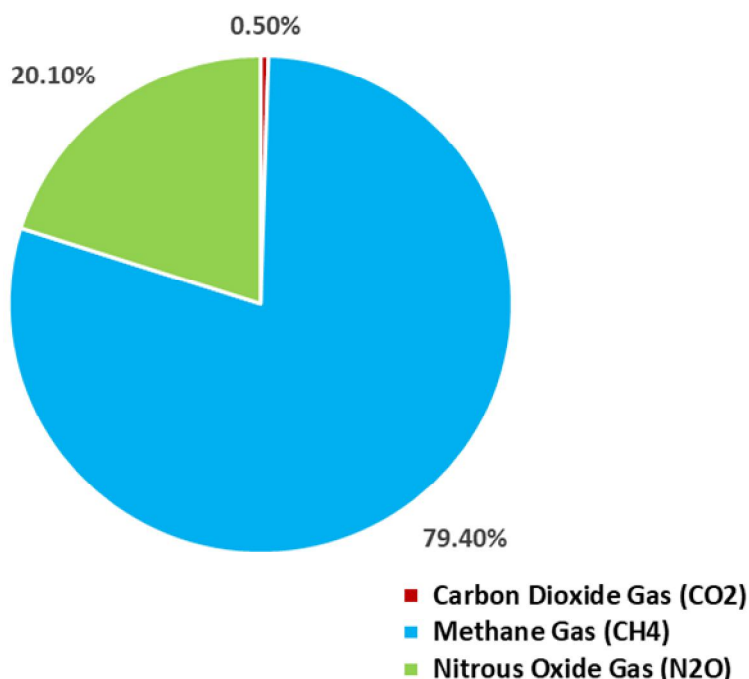


Figure (4): The percentage of CO2 emissions from the type of emission.

Second: Water Source Pollution

Due to the repeated Israeli assaults on the Gaza Strip, there has been direct pollution of various water sources, whether groundwater or surface water. This has resulted from the direct destruction and random Israeli bombardment of water networks and sewage systems (Palestinian Authority for Quality and Environment, Palestinian Authority, 2023). This has affected the availability of fresh water for Palestinians in the sector negatively.

It is noteworthy that 45% of the water available to Palestinians is unsuitable for human use, especially in the occupied Gaza Strip before 2023, due to Israel's restrictions on water access to the besieged territory. Following the most recent assault in 2024, the percentage of polluted water in Gaza has increased to 97% (Palestinian Water Authority Reports, the Central Bureau of Statistics, Palestinian Authority, 2024).

We see that the recent Israeli aggression has destroyed most of the water infrastructure in the Gaza Strip, including wells, tanks, and sewage networks, exacerbating an already critical water crisis and polluting the scarce water resources. This has rendered them largely unsuitable for human consumption. The continuation of this war has led to the depletion of groundwater resources, which have been over-extracted for many years in Gaza. Additionally, the destruction of groundwater wells has reduced access to clean water, leaving significant impacts on both human consumption and agriculture (Palestine Today Report, Issue 1187, 2008).

Additionally, the destruction or closure of treatment facilities has exacerbated the public health crisis, leading to a significant increase in the number of cases of respiratory infections and waterborne diseases caused by contaminated water (United Nations, Office for the Coordination of Humanitarian Affairs - OCHA - Occupied Palestinian Territories and World Food Programme, 2010).

Currently, following the recent aggression, over 100 million liters of sewage are flowing into the Mediterranean Sea daily due to the destruction of treatment plants. This pollution is caused by leaks from sewage networks and chemical contaminants, which have further deteriorated water quality. Untreated wastewater in the occupied Gaza Strip is a major source of pollution for both the sea and groundwater reservoirs, with Gaza producing more than 50 million cubic meters of sewage annually. Notably, approximately 10% of the sewage generated in the occupied Gaza Strip seeps into groundwater reservoirs (Water Authority and Quality Environment, Report on Sanitation, State of Palestine, 2023).

The damage inflicted on water desalination plants has exacerbated the water crisis, leaving millions without access to clean drinking water. Before the aggression, Gaza's water resources were already heavily contaminated, with 97% of groundwater unfit for human consumption due to high salinity levels and various nitrate pollution. This has led to the spread of many diseases, including cholera and hepatitis (United Nations, UN News Report, Environmental Damage in Gaza Due to War is Significant, June 18, 2024).

United Nations Human Rights reports indicate that during the recent Israeli aggression on the Gaza Strip in 2024, water and sewage systems were nearly completely disabled. The six sewage treatment plants in Gaza were shut down, resulting in the pollution of seawater, soil, and freshwater with a range of materials such as micro-plastics and hazardous chemicals. This, in turn, poses immediate and long-term threats to the health of Gaza's residents, marine life, and arable land (United Nations, Food and Agriculture Organization of the United Nations, Impact of Disasters on Agriculture and Food Security, 2023).

Third: The Impact on Agriculture

The consecutive Israeli wars targeting the occupied Gaza Strip over the past years have led to an increase in pollution levels due to the use of various types of rockets, explosives, and weapons by the Israeli occupation forces. This has rendered vast areas of the occupied Gaza Strip unsuitable for agriculture (Ministry of Agriculture, Report on Losses and Damages, State of Palestine, cited from the Ministry of Agriculture, 2023). Studies indicate that more than 60% of agricultural land in Gaza has

become either non-arable or inaccessible due to Israeli military activities, significantly affecting the food security levels of the region's inhabitants (Palestinian Center for Human Rights, Report on the Impact of Closure Policies on Agricultural Exports in Gaza, June 9, 2011).

Some Examples of the Devastating Effects of Aggression on Agricultural Lands in Gaza

1. **Heavy Metal Pollution:** The destruction of infrastructure, including buildings, roads, and other public facilities, has led to the spread of heavy metals in the environment, such as lead and mercury. This contamination poses a significant risk to agricultural soil, with long-term effects on its quality and suitability for cultivation. The presence of such pollutants presents health risks to both the environment and human health (United Nations, Food and Agriculture Organization of the United Nations, Overview of Agricultural Commodity Markets, 2022).
2. **Soil Erosion:** The damage caused by wars, including aerial and ground bombardments, has resulted in soil erosion and destruction, stripping away the topsoil that is rich in minerals and organic matter. This exposure has revealed less fertile subsoil, leading to a loss of soil productivity (United Nations, UN Human Rights Report – United Nations Environment Programme, Report dated August 15, 2024).
3. **Loss of Organic Matter:** Israeli destruction and the policy of burning agricultural crops have resulted in the devastation of vegetation (Environmental Quality Authority, State of Palestine, State of the Environment Report in Palestine, issued in 2023).
4. **Chemical Pollutants:** The destruction of buildings and infrastructure has released a wide range of chemical pollutants, including hydrocarbons, heavy metals, and hazardous materials. These substances can seep into agricultural soil, leading to a significant decline in its fertility.

These indicators demonstrate that agricultural production in Gaza has drastically reduced, resulting in severe food shortages and failing to meet the basic living needs of the population.

The current and previous Israeli wars on Gaza have had significant impacts on air pollution. Here are some examples (Ahmad, 2006: 25):

1. **Combustion of Explosives and Buildings:** During the Israeli military operations in Gaza, the use of explosives of all kinds led to the destruction and burning of buildings. This resulted in the release of various pollutants into the air, such as nitrogen oxides (NO_x), which are produced due to high pressure and temperature levels.
2. **Particulate Matter:** The destruction of infrastructure releases large amounts of fine particles, such as dust and ash. Inhaling these fine components can lead to respiratory health issues. These particles are generated by the burning of synthetic and plastic materials, producing toxic chemicals that spread in the air.
3. **Sulfur Dioxide (SO₂):** The combustion of concrete buildings releases sulfur dioxide, which can cause respiratory problems and various diseases. This substance can contribute to the formation of acid rain, which is harmful to the ecosystem.
4. **Carbon Monoxide (CO):** This is produced due to the incomplete combustion of various materials. It is a colorless and odorless gas that weakens the body's ability to transport oxygen in the blood, leading to dizziness, severe headaches, and potentially death.

Social Impacts of the Israeli Wars on Gaza Related to Environmental Effects

Due to the ongoing Israeli occupation and wars on Gaza, the residents of the region have suffered from severe living conditions since 2006-2024. This situation has led to an environmental crisis that has exacerbated social conditions, with significant issues as outlined in the Palestinian Central Bureau of Statistics report published on October 6, 2024:

The displacement of approximately 2,000,000 people from the northern part of the Gaza Strip to the southern region has created both a social and environmental crisis. This is due to the limited availability of resources, which has led to a worrying increase in poverty and unemployment rates, even before the current aggression. These mass displacements have also triggered a growing and

severe food crisis, resulting in widespread famine caused by a critical shortage of basic food items such as flour, sugar, and rice. Additionally, there has been an acute shortage of energy sources like diesel and gas across various parts of the Strip (Hassoun et al., 2025).

It is worth noting that some countries, including Jordan and Egypt, attempted to deliver humanitarian aid to the Strip through the main border crossings. However, the occupying forces prevented even the minimal level of assistance from entering, as a means of exerting pressure on the population through excessive starvation, aiming to force them to leave the Strip (United Nations, *The Potential Social and Economic Repercussions of the War on Gaza for Neighboring Arab Countries*, 2023).

It is evident that the severe shortage of these essential goods led to the hoarding of products and a significant rise in prices, particularly in the year 2025. Despite this, local organizations distributed clay to bakeries to help alleviate the burden on people. However, these bakeries were subjected to theft, which forced them to cease operations intermittently. As a result, the prices of bread and flour increased, and they began to be sold on the black market. A bundle of bread was sold for approximately 75 shekels, while a 25 kg sack of flour was sold for prices ranging between 1,500 and 3,000 shekels, depending on the area and the level of demand.

The following chart in the figure (5) illustrates the unjustified spike in commodity prices (State of Palestine, Palestinian Central Bureau of Statistics, *Palestinian in Gaza Consumer Price Index Table – May 2025*):

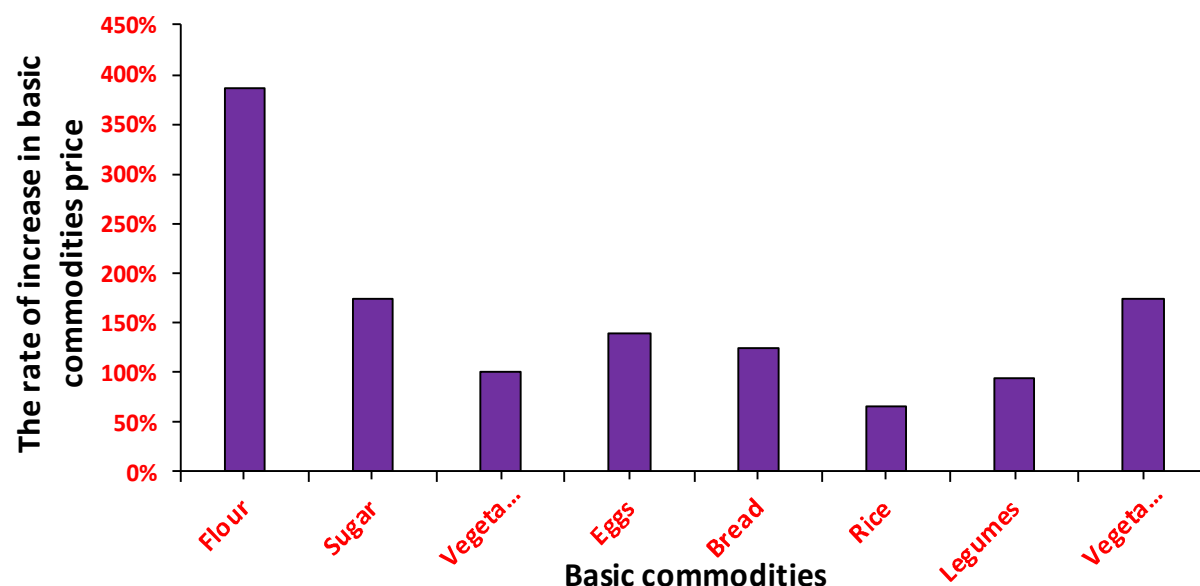


Figure (5): Palestinian in Gaza Consumer Price Index Table – May 2025, Palestinian Central Bureau of Statistics

This severe shortage of essential food supplies has led to a crisis of food insecurity and malnutrition, reaching the level of a food catastrophe. It is observed that approximately 95% of the population in the Gaza Strip are suffering from this crisis. Particularly affected are around 22% of the population who are children and require basic nutritional needs, such as milk and fruit, to maintain their health (State of Palestine, Palestinian Central Bureau of Statistics, *Palestinian Consumer Price Index Table – May 2025*).

Among the other social impacts is the growing loss of human life caused by the indiscriminate Israeli bombardment, which has resulted in the deaths of approximately 58,000 people and injuries to around 120,000. More than 25,000 children have been orphaned, and no fewer than 20,000 women have lost their lives by the year 2025.

Since the outbreak of the war on October 7, 2023, the healthcare system in the Gaza Strip has faced the greatest humanitarian catastrophe in its history. Amid ongoing bombardment and blockade, the health system collapsed under the weight of direct targeting and a severe shortage of essential medical supplies. The sector was already suffering from a fragile healthcare situation due to the blockade imposed since 2007. According to the Palestinian Central Bureau of Statistics, the Strip had only 2,612 hospital beds available, which equates to 1.2 beds per 1,000 people.

Due to the disruption of medical supply chains and the destruction of all hospitals, a variety of diseases—both infectious and communicable—have spread. This is largely due to the absence of even minimal hygiene standards, resulting from a lack of potable water, the destruction of sewage infrastructure, and the collapse of hospitals and healthcare centers (State of Palestine, Environmental Quality Authority, *State of the Environment Report in Palestine*, 2023).

Accordingly, the occupying forces resorted to isolating all areas of the Gaza Strip by destroying the road networks that connect cities, villages, and rural areas. This created an environmental crisis due to the inability to transport waste to designated disposal sites. In addition, this isolation fragmented the social fabric among residents of the Strip. Statistics indicate that 65% of the road networks in Gaza have been destroyed.

As a result of these wars, unemployment rates have surged due to the contraction of the Palestinian economy. This led to a shrinkage of more than 85% in Gaza's Gross Domestic Product (GDP), and around 22% in the West Bank, causing the overall Palestinian economy to decline by approximately one-third compared to pre-October 7 levels. Unemployment rates rose to 90% in Gaza and 35% in the West Bank, bringing the total unemployment rate across Palestine to 51% (Palestinian Central Bureau of Statistics, *Statistical Report*, published on 06/10/2024).

One of the most critical social impacts has also been the destruction of the education sector and the denial of education to approximately 658,000 children. This was due to Israel's use of indiscriminate bombing tactics targeting educational institutions, including schools and universities. Experts have stated that "the ongoing brutal attacks on Gaza's educational infrastructure have a devastating long-term impact on the basic rights of the population to education and freedom of expression, depriving yet another generation of Palestinians of their future" (United Nations News, *UN Experts Warn of 'Educational Genocide' in Gaza*, April 8, 2024, retrieved from: <https://news.un.org/ar/story/2024/04/1130171>).

International Organizations' Contribution to the Humanitarian and Social Crisis in the Gaza Strip

The humanitarian and social crisis that the people of the Gaza Strip are facing has been lessened in large part due to international and regional organizations. International humanitarian groups such as Médecins Sans Frontières (Doctors without Borders) and United Nations agencies like UNICEF and UNRWA have been the main organizations that have performed this job. Additionally, Arab nations—most especially Jordan, the Kingdom of Saudi Arabia, and the United Arab Emirates—have supported the region by delivering humanitarian aid to the Gaza Strip's people. The following roles have been taken on by these organizations and states:

UNICEF has played a critical role in alleviating the suffering of Gaza's residents by supplying drinking water through the operation of emergency water wells, constructing water desalination plants, and transporting water via tanker trucks in heavily populated areas. UNRWA has warned that disruptions in electricity and fuel supplies will drastically restrict its ability to pump water and operate wells. Furthermore, certain international humanitarian organizations, such as Médecins Sans Frontières (Doctors without Borders), have increased their monitoring of the distribution of safe drinking water in shelters. These organizations have also helped desalination facilities by providing fuel, spare parts, and maintenance services (UNRWA Report No. 182, on the humanitarian crisis in the Gaza Strip, 2025).

Furthermore, the regional and international roles in supplying medical equipment and food shouldn't be disregarded. Jordan, for example, is one of the most notable nations that have contributed to alleviating these issues in the Gaza Strip.

Jordan has played an important humanitarian role in supporting the residents of the Gaza Strip by constructing military field hospitals in Gaza, which have provided continuous medical care to citizens, treated the wounded, and performed emergency surgical operations. Jordan has also supported humanitarian assistance operations by sending land and air convoys, containing food supplies, drinking water, and medical equipment, to alleviate the population's suffering and solve the social crisis. Furthermore, Jordanian diplomacy has played an essential role in raising the Gaza Strip situation at the international level, calling on the United Nations to declare an end to Israeli aggression and open all border crossings to allow assistance to be transported to Gaza (Jordan Armed Forces-Arab Army, <https://www.jaf.mil.jo/NewsView.aspx?NewsId=49111>).

The Israeli Objective behind the Continuation of the War on Gaza

Israel continues to reject calls for a ceasefire in the Gaza Strip and insists on prolonging the war until it achieves its political goals. These include eliminating the governing authority in Gaza, recovering Israeli hostages, and forcibly displacing Palestinians by making Gaza a uninhabitable region; through killing, starvation, destruction, and blockade. Therefore, the Israeli government has halted the entry of humanitarian aid into Gaza, closed the crossings between Gaza and both Egypt and Israel, and imposed a complete blockade until further notice.

On March 23, 2025, Israel's political-security establishment formally approved the creation of a governmental institution dedicated to the displacement of Palestinians from Gaza. The new entity was named the **“Directorate for the Voluntary Relocation of Gaza’s Population to Other Countries.”** The public adoption of such a decision marks an unprecedented move in the history of Israeli government plans regarding Palestinian displacement—plans that were traditionally kept secret. This indicates the Israeli government’s serious intent to carry out the displacement of Gaza’s population.

The Israeli Security Cabinet assigned the Directorate a core mission: to prepare for the logistical and operational requirements necessary to provide safe corridors for relocating Gaza’s residents to other countries (*Haaretz*, April 8, 2025, retrieved from: <https://www.haaretz.co.il/news/politics/2025-03-23/ty-article>).

Results of the Study

This historical and statistical study reached some conclusions about the negative consequences of the arbitrary practices of the Israeli occupation against the Palestinian people. It becomes clear that the occupation has devoted all its military resources to the destruction of the Strip in various environmental, economic, and social aspects. This study focused on the effects of repeated Israeli wars on the Gaza Strip from 2006 to 2024, particularly their social and environmental impact. The following are the main conclusions of this study:

- The Israeli goal in these wars against the Gaza Strip was to create a difficult environmental reality for the residents, rendering the area uninhabitable. This was aimed at achieving the primary objective of displacing the population of the Gaza Strip to the Sinai Desert to control it and maintain it as a purely Israeli area.
- The study revealed the environmental damage suffered by the residents of the Gaza Strip, including the spread of oxides in the air and the accumulation of medical and solid waste in various areas of the Strip due to the inability to access designated dumping sites. This, in turn, has significantly exacerbated the social crisis in the Gaza Strip.
- The Israeli wars on the Gaza Strip have resulted in significant destruction, particularly of infrastructure such as homes, government institutions, hospitals, shelters, water networks, and sewage treatment plants. This has created an unprecedented environmental reality in the Strip, leading to the displacement of a large number of residents from northern and central areas to the

south. This concentration of displaced individuals has, in turn, contributed to the spread of diseases, famine, and a lack of hygiene, creating a long-term negative environmental reality.

- The extensive destruction inflicted on the Gaza Strip, and also the resulting severe environmental and humanitarian conditions, can be understood as part of a larger strategy aimed at undermining Hamas' governing authority while simultaneously exerting pressure on the population through forced displacement, for the occupying power to gain greater territorial control and establish a new political and security order.

أثر الحرب الإسرائيلية على قطاع غزة 2006-2024 من الناحية الإجتماعية والبيئية: دراسة وثائقية

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الملخص

جاءت هذه الدراسة لتسلط الضوء على الأضرار البيئية والإجتماعية الناتجة عن الحروب الإسرائيلية على قطاع غزة استناداً على الوثائق الرسمية الصادرة عن الجهاز الحكومي الفلسطيني وتقارير منظمة الأمم المتحدة، بينت الدراسة مدى تزايد الأضرار البيئية التي عانى منها الشعب الفلسطيني طوال فترة الإحتلال، وكان من أهم تلك الأضرار ارتفاع معدل التلوث البيئي الناتج عن تزايد الإشعاعات والأكاسيد في الهواء الذي افتعلته قوات الإحتلال، وهذا بدوره أدى إلى تدهور بيئي عانى منه الشعب الفلسطيني لسنوات طوال، وخلصت الدراسة إلى أن الحروب الإسرائيلية المتكررة على قطاع غزة كان لها انعكاسات كثيرة على الشعب الفلسطيني على الجانب البيئي والإجتماعي من أجل خلق واقع بيئي صعب يجبر أهالي القطاع للهجرة إلى الخارج ومن ثم تنفيذ دولة الكيان هدفها الأساسي في التوسع والإستييطان.

الكلمات المفتاحية : الحروب الإسرائيلية، قطاع غزة، الأثر البيئي، الأثر الإجتماعي.

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