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Impacts of war on the environment: an overview of Yemen

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Abstract

Humans, animals, and resources were widely destroyed during the world wars. Even though these wars are over, their effects on society, the economy, and the environment can still be seen today. Currently, West Asia is the most politically unstable region in the world. The area has numerous natural hydrocarbons and a living ocean all around it. More than just natural resources are to blame for regional conflicts. Sectarian differences, religious fanaticism, and strategic locations also cause them. The very recent conflict that engulfed the region's poorest country was in Yemen. Yemen has been in the midst of a civil war for decades. Armed conflict has broken up the population, ruined the economy, and caused the worst humanitarian crisis in the world. Currently, the nation is also on the verge of an environmental catastrophe. Armed conflicts, open warfare, and armed conflicts vary by region and weaponry. However, the effects are nearly identical. Conflict devastates individuals and the physical, biological, economic, and social environments. Some of the immediate effects are the deaths of people, the destruction of infrastructure and habitats, the loss of forest cover and grazing land, and the deterioration of topsoil. Long-term effects include cholera outbreaks, droughts, desertification, and oil spills, which cause biodiversity loss. A systematic evaluation of the available literature on the environmental impacts of war using Scopus and VOS viewer software was done. This paper sheds light on the general impacts of war and the difficulties and problems faced by the Yemeni people during the conflict.

Keywords: Wars, conflicts, environment, impacts, Yemen, West Asia

Introduction: The environment is essential for human health and the survival of all life on Earth. The Earth is home to a variety of living species, and we rely on it for food, air, water, and other necessities. As a result, everyone should have a fundamental attitude towards saving and protecting the environment. Every war causes a certain number of deaths and devastation. The scale of a conflict and how it is fought determine how long it lasts. Smaller collisions may cause little environmental harm. On the other end of the spectrum, large-scale wars involving existing missile and nuclear stockpiles have the potential to destroy the

biosphere. This would occur as a result of massive explosions and the subsequent catastrophic fires and pollution caused by massive amounts of particulates and gases being released into the atmosphere.¹

The Secretary-General's High-Level Panel on Threats, Challenges, and Change (2004) emphasises the fundamental relationship between the environment, security, and socioeconomic development in pursuing global peace in the twenty-first century. Growing security concerns necessitate a change in the way the international community handles conflict.² From conflict prevention and early warning to peacemaking, peacekeeping, and peacebuilding, the role of the environment and natural resources should be considered from the start.³ War is terrible, and its long-term consequences are even worse. Because of the negative environmental impact of war, the United Nations General Assembly declared November 6 the International Day for Preventing Environmental Exploitation in War and Armed Conflict on November 5, 2001.⁴ The environmental consequences of war, which can be severe and long-lasting, are frequently ignored and thus never fully recognised. As stated in the UN's Sustainable Development Goals, protecting the environment during the war is critical to ensuring that all biota have a future.⁵

The United Nations Environment Programme (UNEP) led over twenty post-conflict assessments in 1999 to determine the environmental consequences of the war. UNEP has also helped to identify gaps and weaknesses in international laws governing environmental protection during war and armed conflict.⁶ Member States demonstrated their recognition of the need to improve environmental protection during times of armed conflict through resolutions passed at UN Environment Assemblies in 2016 and 2017. Environmental damage has negative consequences for both people and ecosystems. Is this to say that protecting civilians necessitates first protecting the environment on which they rely?⁷

A deliberate war tactic may be to cause severe environmental damage in order to destroy an enemy's economy. This could be called "ecocide," or the deliberate destruction of the environment as a military tactic. Despite the fact that environmental damage caused by war can be devastating, there have been few studies on the subject. When people consider the cost of war, they typically focus on the impact on human lives, political affairs, and government bank accounts. We are unaware of the devastation that war can cause to the natural environment. Today, war is fought in a different way, with far-reaching environmental consequences that last far longer. Carl Bruch says: "The technology has changed, and modern chemical, biological, and nuclear warfare has the potential to wreak unprecedented environmental havoc that, fortunately, we have not seen yet."⁸ Despite significant advancements in modern warfare technology, Mother Nature remains primarily vulnerable.⁹

The Global 2000, Report to the President of the United States that catastrophe awaits if nations do not address the following:

1. An imminent worldwide shortage of water,
2. The loss of forest cover,

3. The rapidly expanding deserts and the deterioration of the World's topsoil, affecting the food supply,
4. The ravaging of the World's remaining fuel and minerals,
5. Destroying animal habitats and, with them, the planet's genetic reserves.

The environmental consequences of war are extremely complex and cannot be generalised.

Yemen through the War: It has been a decade since people across the Arab world revolted against their governments in 2010–11, demanding political empowerment, social reform, and economic improvement. Pro-democracy protests, as they were called in common parlance, which spread rapidly through the mobilisation of social media calls, ended up overthrowing long-standing authoritarian regimes in Tunisia, Egypt, Yemen, and Libya. That gave rise to hope for a more representative future and economic reforms after decades of mismanagement and stagnation. However, such hopes were quickly dispelled as the political vacuum created by eliminating regional dictatorships deepened fractures in many of these societies along ethnic, religious, and tribal fault lines.¹⁰

Yemen's conflict began in 2011 with Arab Spring protests aimed at toppling the country's dictator, Ali Abdullah Saleh, who had ruled for more than 30 years. After the protests were unsuccessful, Saleh's deputy, Abdrabbuh Mansur Hadi, took over. The Houthi movement, a Shia militant group, exploited the instability and took control of the capital, Sanaa, in 2014. Hadi fled to Saudi Arabia, where a coalition was formed to restore him to power. With the involvement of the Saudi-led coalition and Iran, which supports the Houthis, the conflict has since escalated into a full-fledged war. Environmental Impact: The war has had serious consequences for Yemen's environment, including air, water, and soil pollution, deforestation, and biodiversity loss.¹¹

Following the Gulf Cooperation Council's efforts to mediate the conflict and power vacuum created by the Arab Spring, the interim government failed to keep its promises. People were becoming more frustrated as the sectarian divide deepened over which country was attempting to take Yemen. Finally, Yemen devolved into a civil war in which the GCC backed the legitimate government against the Houthi rebels, who were backed by Iran. Thousands of people died, millions were internally displaced, and nearly two-thirds of the population was severely afflicted as the war entered its eighth year, resulting in the world's worst humanitarian crisis. Following the Houthi takeover of Sanaa in late 2014, a Saudi-led coalition intervened militarily in Yemen in 2015 to restore President Abdrabbuh Mansour Hadi's government. ACLED estimates that over 150,000 people died as a direct result of the violence as of mid-2022, including over 15,000 civilians killed in targeted attacks.¹² War was fought on many fronts, from field battles to air strikes to the imposition of sanctions, all of which had an impact on the people and paralysed the country.

Before 2015's conflict, Yemen's development was strained. With 30 million people, Yemen was 153rd on the HDI, 138th in extreme poverty, 147th in life expectancy, 172nd in educational attainment, and the World Bank low-middle income category. Yemen will not meet any SDGs by 2030, despite the conflict. The conflict has further slowed development.

Nearly a quarter-million Yemenis have been killed by fighting and a lack of food, healthcare, and infrastructure. 60% of the dead are under-5s. The conflict's long-term effects are among the worst since the Cold War. Conflict has delayed human development by 21 years. Development would be delayed 26 years—more than a generation—if the conflict ended in 2022. If the war lasts until 2030, it will cost nearly four decades or 1.5 generations. One in five Yemeni survivors will be physically stunted.¹³

Parties to Yemen's armed conflict violated the laws of war with impunity in 2016, Human Rights Watch said today in its World Report 2017. Concerned governments should seek accountability for past and ongoing violations and immediately suspend arms sales to Saudi Arabia.¹⁴ 3rd September 2019, Geneva: A UN report on Yemen details a slew of potential war crimes committed by various parties to the conflict over the last five years, including airstrikes, indiscriminate shelling, snipers, and landmines, as well as arbitrary killings and detention, torture, sexual and gender-based violence, and the impediment of humanitarian aid access amid the world's worst humanitarian crisis. The U.N. Human Rights Council-established Group of International and Regional Eminent Experts on Yemen discovered that the governments of Yemen, the United Arab Emirates, and Saudi Arabia, as well as the Houthis and affiliated popular committees, have a "pervasive lack of accountability" for violations of international humanitarian and human rights law. The group expressed grave concern that the parties to the conflict may have used starvation as a form of warfare, as these acts contributed to the population's deprivation of necessities for survival.¹⁵

According to Human Rights Watch today, negotiations between Saudi and Houthi authorities in Yemen for a new truce present an opportunity to include accountability and monitoring mechanisms critical to protecting Yemenis' fundamental rights. According to news reports, negotiations appear to be progressing. To effectively address Yemenis' human rights, any new truce would need to include provisions for the genuine participation of Yemeni civil society in discussions about issues affecting their rights, the release of all arbitrarily detained individuals, a plan to survey and clear all landmines and explosive remnants of war, and a commitment to accountability and redress for wartime abuses. Since the conflict began in 2014, the parties to the conflict, as well as the U.N. and powerful states, have consistently failed to hold rights violators accountable. Their ongoing abuses have emphasised the need for an independent, international investigative mechanism to end impunity.¹⁶

The Joint Incident Assessment Team, established by the coalition in 2016, has fallen short of international standards regarding transparency, impartiality, and independence, underscoring the need for an international investigative body to document human rights violations and unlawful attacks by parties to the conflict in Yemen.¹⁷

Conflicting parties obstruct or restrict critical relief supplies from reaching civilians, exacerbating the country's crisis. The coalition has imposed an air and naval blockade on Yemen, limiting vital goods imports, and Houthi and allied forces have confiscated food

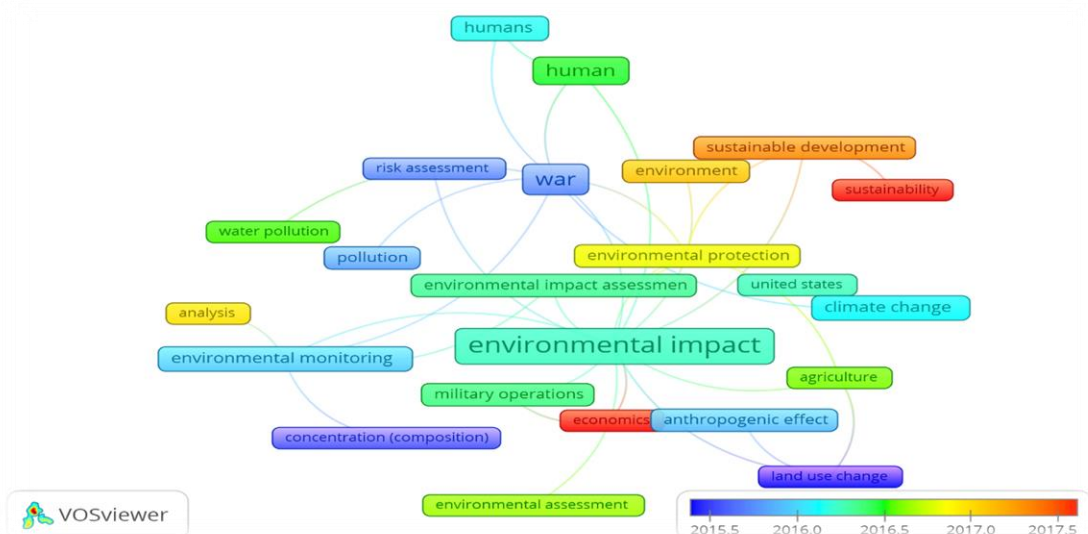
and medical supplies from civilians entering Taiz and blocked aid from reaching the city, contributing to the city's near-collapsed health system.¹⁸

The conflict has affected every aspect of the country, including the environment. This paper aims to investigate the impact of the war on the Yemeni environment, its causes, and its consequences.

Objectives: The study aims to observe the nature of the relationship between environment and war and shed light on the war's impacts on the Yemeni environment.

1. To highlight the impacts of war on the environment in Yemen.
2. To put forward the challenges and problems environmental in Yemen.

Literature appraisal and data: The research was based on secondary data from previous related research findings, journals, articles, reports, and news outlets. Scopus and VOS viewer software were used to systematically review nearly 430 combined research papers and book chapters on environmental issues and war. We can see how issues have been raised in previous years. One of the major challenges in the study area is that researchers have not been successful in highlighting the environmental problems caused by war, particularly in this West Asian region. There are wars everywhere; it is difficult to keep track of everything. Plenty of work has been done on other aspects of the war, but war and conflict and their environmental consequences must be addressed. The study is founded on the descriptive-analytical approach, which is defined as the accurate description of radical reality, events, and phenomena and their application to the Yemeni situation and the effects of civil war. We obtained the keyword form results from the literature analysis, which are shown below.



Stages of Environmental Damage

Environmental damage before conflicts: Even before it begins, war has an impact on the environment. Building and maintaining military forces consume massive amounts of resources. This could include common metals, rare earth elements, and water or hydrocarbons. Keeping the military ready necessitates training and drill, which consume resources. Energy is required by military vehicles, vessels, aircraft, and infrastructure. Furthermore, that energy source is oil, which has low energy efficiency.

The CO₂ emissions of the world's most powerful militaries exceed those of many countries combined. Militaries require large amounts of land and water, whether for bases and facilities or testing and training. Military land is expected to cover 1 to 6% of the land surface. These are often ecologically significant areas. Keeping public development away from these areas can help biodiversity. Military training causes hydrocarbon emissions, landscape disruption, and the destruction of terrestrial and marine habitats. Chemical and noise pollution are also produced due to the use of weapons, aircraft, and vehicles.¹⁹

Environmental damage during conflicts: Conflicts have a wide range of environmental consequences. Some global armed conflicts are brief but devastating. Typically, civil wars last many years and are fought at a low intensity. Several recent conflicts have blurred the lines, lasting years and involving sustained periods of high-intensity warfare. The environmental impact of conflict is heavily influenced by who is fighting, where they are fighting, why they are fighting, and how they are fighting.

Other methods include destroying agricultural infrastructure such as canals, wells, and pumps and crop scorching. These strategies jeopardise food security and livelihoods, making rural societies more vulnerable. Incidents, whether unintentional or intentional, can have transboundary effects on air quality or pollution of rivers, aquifers, or the sea. In some cases, these events can potentially have a global impact on the weather and climate. Weapons and military equipment used in conflicts leave environmental traces. Land mines, cluster munitions, and other explosive remnants can contaminate agricultural land and water sources with metals and toxic substances. During major conflicts, large amounts of military scrap contain various polluting materials, contaminating soils and groundwater and exposing workers to chronic health risks. This is possible. Shipwrecks, submarines, and offshore oil infrastructure can all contribute to marine pollution.²⁰

High-intensity conflicts necessitate and consume large amounts of fuel, resulting in massive CO₂ emissions and climate change. Vehicle traffic also causes extensive physical damage to landscapes and biodiversity. Using explosive weapons generates massive amounts of pollutants, polluting the air and soil. Pollution can harm the lighting industry and environmentally sensitive infrastructure like water treatment plants. The loss of energy supplies can have serious environmental consequences, such as shutting down treatment plants or pumping systems and forcing the use of more polluting fuels or domestic generators. Severe damage can result when energy facilities are deliberately attacked, accidentally damaged, or disrupted.

Environmental damage after conflicts: It is unclear whether countries will agree to a peace treaty and cease-fire. Small disagreements and feelings of insecurity can linger for a long time. Many types of harm that occur during conflicts are only applicable during this phase, which is usually in its early stages. Weak state control represents peace shifts, implying that environmental governance and the capacity to provide it are frequently absent. Many post-conflict environmental issues are dependent on these circumstances. Numerous competing social and economic primaries typically limit attention to environmental issues. Agreements on peace and power-sharing have sometimes hampered governance by fragmenting political systems. In 2018, the war left at least 8 million metric tonnes of debris and rubble in Mosul. If post-conflict rubble and waste are not properly managed and disposed of, they can cause new environmental problems.²¹

The presence of military forces in the post-conflict phase and the eventual closure or handover of bases are associated with pollution issues, particularly where the host nation does not enforce environmental standards.²² When areas are returned to communities after being cleared of landmines and explosive remnants of war, they can cause soil degradation, localised pollution, and negative deviations in land use patterns. Conflicts caused by environmental governance can have long-term consequences for environmental protection. It can impede pollution control, resource and land management, adaptation to climate change, and biodiversity enhancement. Finally, the environmental costs of retrieval could be significant. Massive urban renewal projects can necessitate massive amounts of resources.²³

Localized impacts of war: Today, warfare rarely occurs between independent nations; more often, armed conflict occurs between rival groups within a nation. According to Bruch, these civil wars are usually beyond the reach of international treaties and bodies of law. As a result, environmental destruction, human rights violations, and other incidents go unchecked by outside organizations. Governments may fail to meet their international environmental commitments if projects and programs supported by the international community are shortened. In this way, a local conflict can have a national impact on the environment by affecting governance and national projects. Conflict can also create serious technological hazards in industrial infrastructure and impede the international cooperation required to address them.²⁴ We focus on the effects of direct conflict, nuclear weapons, military training, and military produced contaminants. Overall, the activities above were found to have overwhelmingly negative effects on ecosystem structure and function. Dramatic habitat alteration, environmental pollution, and disturbance contributed to population declines and biodiversity losses arising from acute and chronic effects in terrestrial and aquatic systems.²⁵

Impacts on Yemeni environment: When people criticise the cost of war, they usually focus on how it affects people's lives, political relationships, and government bank accounts. Many people are unaware of the devastation war can cause to the environment. Mother Nature remains largely vulnerable, despite significant advances in modern warfare technology. So, how does war impact the environment? Some of the most serious risks are

as follows: Infrastructure breakdown, scorched earth tactics, hunting, and poaching Greenhouse gas emissions and air pollution Deforestation, soil contamination, water pollution, habitat destruction, and refugees are all issues that must be addressed. Human displacement and the disposal of biological, chemical, and nuclear weapons.²⁶

“As Yemen’s government, Saudi Arabia and the UAE compete with the Houthi rebels for influence over the Middle East’s poorest country, environmental issues have become a secondary concern.” (Austin Bodetti)

Before the escalation of conflict in 2015, development in Yemen was strained. A country of 30 million people, Yemen ranked: (a) 153rd on the Human Development Index (HDI); (b) 138th in extreme poverty; (c) 147th in life expectancy; (d) 172nd in educational attainment; and (e) was in the World Bank low-middle income category. Projections suggest that Yemen would not have achieved any of the Sustainable Development Goals (SDGs) by 2030, even without conflict.²⁷

The spread of water scarcity across the country and climate change will ensure that droughts and other environmental issues grow more unremitting in the coming years. “Climate change has affected nearly every aspect of life in Yemen,” observed Abdulhakim Aulaiah²⁸. “Sea level rise is triggering environmental issues in port such as Aden and al-Hodeidah. Consequently, the unusual roaring of temperature and thereby spreading of malaria. Variations in rainfall have affected crop production across Yemen. The presence of fish in the seas around Yemen is declining, and even several species have extinct. Thus, climate change due to war is one of the biggest threats to biodiversity.”²⁹

In addition to water shortage, global warming has intensified severe but gradual environmental issues such as biodiversity loss, desertification, and sea-level rise in Yemen. Climate change already had deadly consequences on Yemenis in a handful of cases. Several cyclones have knocked Yemen in the last few years. Successive hurricanes hit the country in 2015, killing 26. The headline-grabbing battles of the war are disguising the extent of environmental degradation’s lethality. “Yemen certainly is one of the countries badly affected by climate change,” Tawfeeq al-Sharjabi³⁰. “There has been seasonal variation, and the quantities of rainfall, frequent occurrence of hurricanes hitting the Yemeni coast, increase in temperature, and other environmental issues” Amid one of the Middle East’s most tenacious conflicts, Yemeni officials have failed to respond to the risks of climate change³¹. An ongoing financial crisis has further inhibited the Yemeni government. Meanwhile, Saudi Arabia, the Yemeni’s wealthiest supporter, has sent the international community mixed signals on its commitment to slowing global warming.

“The war in Yemen has only faster the spread of water scarceness across the country, and climate change will ensure that scarcities and other environmental issues grow more relentless in the years to come.” (The New Arab)

Destruction of Water Infrastructure and Cholera Epidemic: Despite the momentary de-escalation of the current crisis in Hodeidah city, Yemen’s civilian population's plight throughout the country remains terrible. Following five years of aerial bombing campaigns

and ground fighting, the demolition of Yemen's water and sanitation set-up has created one of the worst health epidemics in history. Fuel scarcities experienced by local water businesses have caused commercial water trucking costs, the primary water source for Yemenis³². Skyrocket price leaving approximately 19.3 million Yemenis without access to clean water and sanitation. Fuel shortages also burdened wastewater treatment plants' ability to adequately treat public water supplies, leading to one of the direst health calamities the country has ever seen.

Between 2015 and 2017, cholera spread rapidly in Yemen due to the destruction of water infrastructure, which forced many people to rely on unsafe drinking water sources. Cases, on the other hand, fell dramatically in 2018. According to Yemen's Ministry of Public Health, the total number of suspected cholera cases from April 2017 to September 2018 was 1,207,596, with 2,510 deaths. A lack of access to health care services and sanitation exacerbates the Yemeni epidemic. In 2017, it is estimated that 17 million Yemenis lacked even the most basic health services. Despite the glamorous efforts of international organisations such as the UNDP, WHO, and other relief organisations, this reality has left many Yemenis unaffected, making them more vulnerable to other water-borne diseases and public health crises.³³

The war's toxic remnants: The practise of aiming airstrikes at urban areas causes both direct and indirect pollution. The destruction of buildings and infrastructure in Yemen's cities has resulted in massive amounts of building rubble and pulverised building materials. Chemical hazards can be posed by building material constituents such as heavy metals or asbestos. The dust particle size can also harm respiratory health and may be contaminated with explosive residues and combustion products. Debris impedes humanitarian access, civilian movement, and UXO clearance. Power generation facilities were also targeted, resulting in widespread and long-lasting blackouts nationwide. Power outages also had an impact on water supplies in some way.³⁴

Airstrikes have targeted SCUD missile storage facilities in the Faj Attan base in the Hadda district of capital Sanna. SCUD missile sites contain several potentially harmful substances and explosive warheads. SCUD missile propellant is a combination of kerosene or carcinogenic unsymmetrical dimethylhydrazine (UDMH)³⁵ and an oxidizing agent inhibiting fuming nitric acid (IFNA) – highly corrosive and harmful to humans³⁶.

Water Mismanagement and Drought: The current conflict has exacerbated Yemen's water scarcity. Even before the war, it was regarded as one of the most water-stressed countries. Only half of urban dwellers have access to water, while 40% live in rural areas³⁷. Groundwater supplies have declined rapidly across the country, with no difference between rural and urban areas. According to the World Bank, groundwater levels "fall by six metres per year in crowded, steep regions outside Sana'a, Dhamar, Amran, Taiz, and Sa'ada."³⁸

Because of bad government policies that weakened the existing water supply, such as subsidizing cheap oil pricing and funding surface or spate irrigation for water-heavy cash crops like qat, the price of groundwater and irrigation fell, further straining the existing

supply. Furthermore, a lack of central planning and general neglect of infrastructure—from porous pipes to poorly constructed and maintained dams—contributed to water loss and contaminated groundwater in many areas. With the onset of the conflict, even regions once known for their lush green landscapes and arable soil have become unrecognizable.³⁹

The conflict's impact, particularly on trade routes and water infrastructure, has hampered the transport and export of prized fruits. This recent blow to Yemen's agriculture sector is just one example of the toll the country's already fragile economy has taken due to the water crisis, which has been exacerbated by the conflict.⁴⁰

Destruction of the Marine ecosystem: Yemen's Houthi rebels are fighting for control of the country alongside the Saudi-backed government. The oil tanker FSO SAFER has been idle off the coast for the past five years, and the facility has rusted. More than 1.1 million barrels of oil are on board. According to the United Nations, it is a ticking time bomb that will eventually cause an ecological and humanitarian disaster if nothing is done, but doing something is proving difficult. The Houthis, who control the area where the facility is permanently moored, have only recently granted the UN access. They have previously made promises that they have since broken. According to the UN's top relief official, Mark Lowe Cox, the Houthis have engaged in a protracted bureaucratic minaret of permissions to visit being sought, apparently granted, and not granted. The Red Sea provides food and trade for 1.6 million Yemenis, most of whom rely on humanitarian aid. In terms of ecology, a spill would endanger 1,200 fish species, 10% of which do not exist anywhere else. Around 115 islands may lose their biodiversity and their ability to use their ports.⁴¹

Waste management: Waste management is a basic requirement for displacement groups and conflict-affected urban areas. Systems frequently fail during a conflict, resulting in increased waste dumping and burning, poor waste management, and less waste segregation. One aspect of environmental governance that may fail during a conflict is waste management systems. In conflict zones, local environmental laws and regulations may be ignored, and administrations may lose their ability to monitor, assess, and respond to environmental problems. On the streets, the failure of Yemen's waste management system as a result of the current conflict is visible.

Challenges of Environmental data and issues in the conflicted zone: Working in conflict zones is the most dangerous job anyone could have, especially in a country like Yemen, where the risk of death is greater than anywhere else. Reporting on environmental issues is not a topic of discussion in Yemen. Whatever remains of the war on the ground will significantly affect the environmental impacts.

Yemen's conflict has most likely resulted in a wide range of toxic remnants of war (TRW) that endanger civilians. Data on environmental risks, like data on other conflicts, has been mostly missing or fabricated by the media. In a conflict zone, data collection is notoriously difficult, and the data available for recent years in Yemen is of incredibly low quality and frequency. Much of the data collected in Yemen during the conflict is context-

specific, collected at the district or governorate level, or collected to support a specific project.⁴²

With the persistent demand to raise awareness of environmental damage and TRW incidents during the conflict, it remains unclear whether similar research approaches were used to document conflict pollution. Furthermore, there are numerous factors; generating political interest could aid in informing post-conflict responses. Monitoring social media is becoming a more valuable tool; it is most effective when incidents are highly visible, such as attacks on military or industrial facilities. All too often, however, the film is of poor quality or is emotionally or politically charged. There is enormous potential for civilians and activists to gather data that can be combined into environmental assessment and response with some guidance on what to look for, how to record it safely, and how to report it neutrally. Using the recent use of cluster munitions as an example, such documentation could still be critical for expanding accountability for harm.⁴³

Low-cost particulate matter samplers could still collect and analyses hazardous to health contaminants in the air. These approaches, however, would not be as comprehensive as those expected from a comprehensive post-conflict assessment. Data disclosure could help to highlight areas of concern and document changes in environmental quality. Open access to environmental data and information would also assist in empowering and engaging affected communities and potentially reducing exposures. Serious consideration would necessitate considering how these various data sets are managed, utilized, and communicated.⁴⁴

Conclusion: The Yemeni war has had devastating environmental consequences that will take years to reverse. The conflict has wreaked havoc on Yemen's economy, infrastructure, and society. Yemenis are suffering as a result of the conflict's consequences, including the devastation of the environment. To avoid further devastation, the international community must provide assistance for Yemen's reconstruction and address the root causes of the conflict. Yemenis deserve the opportunity to rebuild their country and a future free of violence and environmental destruction.

Progress on environmental protection during and after the conflict requires not only a legal framework, but also data collection and visibility. Improved data collection also allows for community empowerment and engagement, which aids in the protection of civilians from toxic relics of war (TRW). Excellent results are obtained using social media and low-cost evaluation technologies. Through collaboration with domestic and international organisations, as well as local campaigners, we hope to thoroughly investigate the opportunities they may present. There is much that can be done to mitigate and prevent the environmental impact of war. Public health approaches must follow. a) Monitoring and documenting the negative environmental effects of war; b) education and awareness-raising; c) developing, promoting, and implementing environmental policies and programmes; and d) controlling weapons that can harm the environment and aid in the prevention of war. Yemen's war is a preventable humanitarian disaster that will kill nearly a quarter-million

people if it continues. It has already been named one of the world's worst conflicts since the end of the Cold War. Yemen's overall development will have deteriorated significantly if the conflict continues. Unfortunately, all global environmental assessment models here failed due to a lack of data, making it difficult to address the issue. We can only speculate on how war affects people's lives and economies, but such data and projections for Yemen are sadly lacking. The worst consequence of the war is that it has a global impact.

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