



PHOENICIA UNIVERSITY

Protecting the Environment during Wartime

International Law, Armed Conflict, and the Natural Environment

A survey of legal instruments, case studies, and unresolved gaps

1 The Silent Victim of War

“Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict...”

— Rio Declaration, Principle 24

- Environmental harm has accompanied armed conflict throughout recorded history.
- UNEP has documented significant environmental and community harm in conflicts from Kosovo to Afghanistan, Sudan, and Gaza.
- Since the mid-20th century, military technology's capacity to damage the environment has grown enormously.

12,000–15,000

tons of fuel oil released into the Mediterranean after the Jiyeh power station bombing, Lebanon, 2006

Dozens of industrial sites bombed during the 1999 Kosovo conflict caused toxic chemical contamination at multiple hotspots.

2

A History of Environmental Warfare

Rome salts the fields of Carthage to render the land infertile.

U.S. forces spray ~200 million gallons of herbicide over Vietnam and Laos.

NATO bombing of Serbian industrial sites contaminates the Danube basin.

146 BCE

1961–71

1999

1672–78

1990–91

2006

The Dutch breach their own dikes to flood the land against the French army.

Retreating Iraqi forces ignite over 1,100 Kuwaiti oil wells.

Bombing of the Jiyeh power station spills oil across the Mediterranean coast.

Environmental damage has sometimes been the target itself, sometimes a tool of war, and sometimes incidental to another military goal — but it has never been absent.



3

Early Legal Foundations

1868 — Declaration of St. Petersburg

First formal restraint principle: the only legitimate object of war is to weaken the enemy's military forces.

1899 & 1907 — Hague Conventions

“The right of belligerents to adopt means of injuring the enemy is not unlimited.”
Destruction of enemy property banned unless “imperatively demanded.” Article 23 (1907)
bans poison gas.

1925 — Geneva Gas Protocol

Bans the use of chemical and bacteriological weapons in war — but not their research, stockpiling, or possession.

Across all three instruments, environmental protection was incidental — a by-product of limits on warfare, not a goal in itself.

4

WWII and the Nuclear Turning Point

Aerial bombardment made civilian populations and industrial sites targets on an unprecedented scale. World War II ended with nuclear strikes on Hiroshima and Nagasaki — with catastrophic human and environmental consequences.

Radioactive fallout contaminated drinking water and soil, killed plants and animals, and damaged agricultural land for miles beyond the blast zones.

100,000+

killed instantly in Hiroshima; total deaths eventually reached ~140,000–240,000 across both cities

10 km

radius of noticeable impact around Hiroshima; 1 km around Nagasaki

Geneva Convention IV (1949)

Articles 147 & 53 prohibit unlawful, wanton destruction of property — including in occupied territory. The Nuremberg trials brought the first environmental war-crime charge, for “ruthless exploitation of Polish forestry.”

5 Vietnam: Environment as a Weapon

U.S. forces sprayed herbicides — Agent Orange, White, and Blue — to strip forest cover used by opposing forces. For the first time, ecological destruction became a military objective in itself, not merely a side effect: “environmental modification warfare.”

200M gal.

of herbicide sprayed over Vietnam and
Laos

~10%

of South Vietnam's land area was
sprayed

4.8M

Vietnamese people exposed to Agent
Orange

500,000

children later born with birth defects

One Harvard-led survey found just 24 bird and 5 mammal species in a sprayed forest, versus up to 170 bird and 55 mammal species in nearby unsprayed forest.

6 Additional Protocol I (1977)

The first treaty language to protect the natural environment directly, not just as a by-product of other rules.

Article 35(3)

Prohibits methods or means of warfare “intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.”

Article 55

Requires care to protect the environment against such damage, and bans attacks on the environment carried out as reprisals.

The critical weakness: the “triple cumulative standard”

Damage must be proven “widespread, long-term, AND severe” — all three, with no agreed definitions. In practice, this threshold has proven nearly impossible to meet.

7 The ENMOD Convention (1977)

The first treaty written specifically to protect the environment — a reaction to Vietnam-era tactics and to fears of “geophysical warfare”: deliberately triggering earthquakes, tsunamis, or shifts in weather.

Article 1: States undertake not to engage in hostile use of environmental modification techniques having “widespread, long-lasting or severe effects” as a means of destruction, damage, or injury.

A lower bar than Protocol I

ENMOD's standard is disjunctive — widespread, long-lasting, OR severe — rather than requiring all three at once.

Different definitions

Under ENMOD, “long-lasting” means roughly a season; under Protocol I, “long-term” is read as decades.

8

Weapon-Specific Treaties

Limiting particularly destructive weapons indirectly protects the environment during war.

Biological Weapons Convention (1972)

Bans development, production, stockpiling and possession of biological agents and toxins for hostile use.

Chemical Weapons Convention (1993)

Bans use, development and production of chemical weapons; requires destruction of existing stockpiles.

Nuclear Treaties (1963 / 1968 / 1996)

Partial Test-Ban, Non-Proliferation, and Comprehensive Test-Ban treaties limit testing and spread of nuclear weapons.

Ottawa & Cluster Munitions Conventions

1997 and 2008 treaties ban anti-personnel landmines and cluster munitions and require clearance of remnants.

9 Case Study: The 1990–91 Gulf War

Driven from Kuwait by a U.S.-led coalition, retreating Iraqi forces deliberately ignited hundreds of oil wells and diverted pipelines into the Persian Gulf. Smoke plumes were reported as far as the Himalayas and were visible from space.

Five long-term consequences identified:

- Soil compaction
- Vegetation degradation
- Surface sediment disruption
- Soil contamination
- Groundwater pollution

1,164

oil wells destroyed or ignited — 91.8% of Kuwait's producing wells

UNSC Resolution 687 (1991)

Held Iraq liable for all resulting damage, including environmental harm, and established the UN Compensation Commission to adjudicate claims.

10 The Rome Statute and the ICC

The Gulf War's environmental toll renewed interest in holding individuals accountable. The Rome Statute (2002) established the permanent International Criminal Court — and, for the first time, wrote environmental harm into the definition of a war crime.

Article 8 (2)

It is a war crime to intentionally launch an attack in the knowledge that it will cause “widespread, long-term, and severe damage to the natural environment” that is clearly excessive relative to the concrete military advantage anticipated.

11 Environmental Treaties During Conflict

Beyond humanitarian law, international environmental law (IEL) increasingly applies during armed conflict too — but treaties disagree on whether they keep operating once fighting starts.

Continue to apply

- OILPOL (1954) — parties may choose to suspend it
- African Convention on Nature (2003) — requires active protection during conflict
- UN Watercourses Convention (1997)

Suspended or exempted

- Nuclear liability conventions (1960, 1963)
- Oil Pollution Damage Convention (1971)
- Dangerous Activities Liability Convention (1993)

Roughly 80% of multilateral environmental agreements remain ambiguous or silent on their status during armed conflict.

12

Persistent Gaps and the Path Forward

Enforcement is rare

Sanctions against states or individuals for wartime environmental damage remain nearly nonexistent outside the Gulf War precedent.

A “fifth Geneva Convention”?

Environmental groups and the UN's Sixth (Legal) Committee have discussed a dedicated treaty; momentum has stalled.

1992 UNGA Resolution 47/37

Urged states to fold existing environmental-protection law into military manuals and training.

1994 ICRC Guidelines

Summarized applicable rules for protecting the environment in war — but adoption has been uneven.

Key Takeaways

- Protection for the environment in wartime evolved from incidental (Hague, Geneva) to explicit (Protocol I, ENMOD, Rome Statute) — but no single instrument is sufficient on its own.
- Legal thresholds like the “triple cumulative standard” remain so demanding that violations are almost never proven.
- Multilateral environmental agreements apply unevenly during conflict, and enforcement of any of these rules remains rare.
- Stronger, clearer, and more consistently enforced protection — potentially through a dedicated instrument — remains an open call.