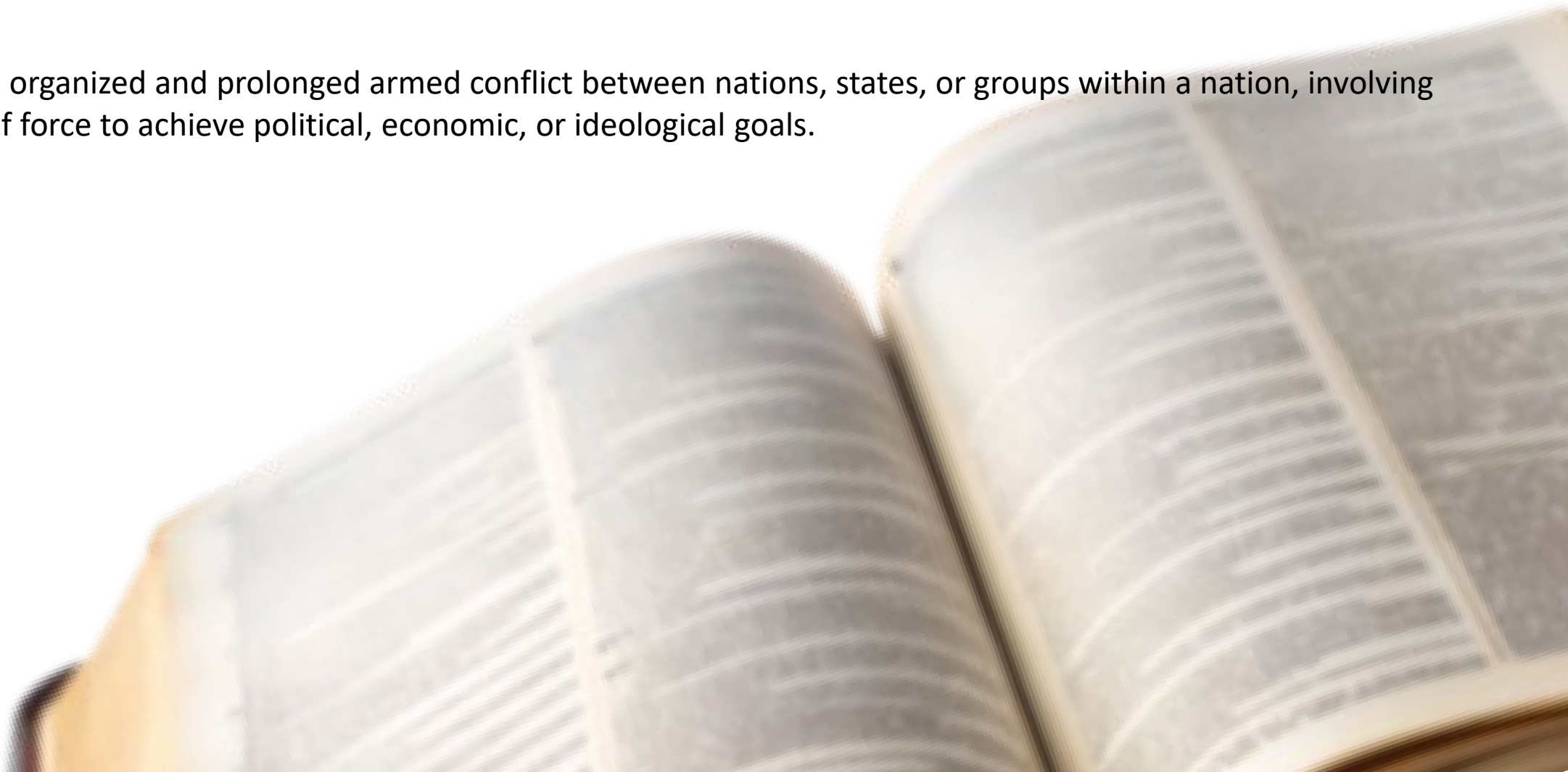


The Environmental Repercussions of War

Sebastian Klopff, Alexander Illes, Laurenz Stepke, Iwen Nasrallah

Definition of War

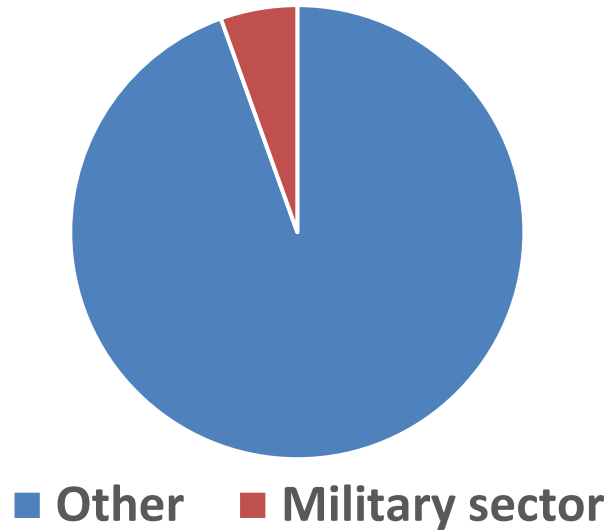
- War is an organized and prolonged armed conflict between nations, states, or groups within a nation, involving the use of force to achieve political, economic, or ideological goals.



Global Environmental Impact

- The global military sector accounts for around 5.5% of global greenhouse gas emissions.

CO₂ Emissions



- Large-scale conflicts release millions of tons of CO₂ due to fuel combustion, fires, and infrastructure destruction.

- Environmental effects persist for decades through pollution and ecosystem disruption.

Thats about..



Thats about..

11 MILLION



Year

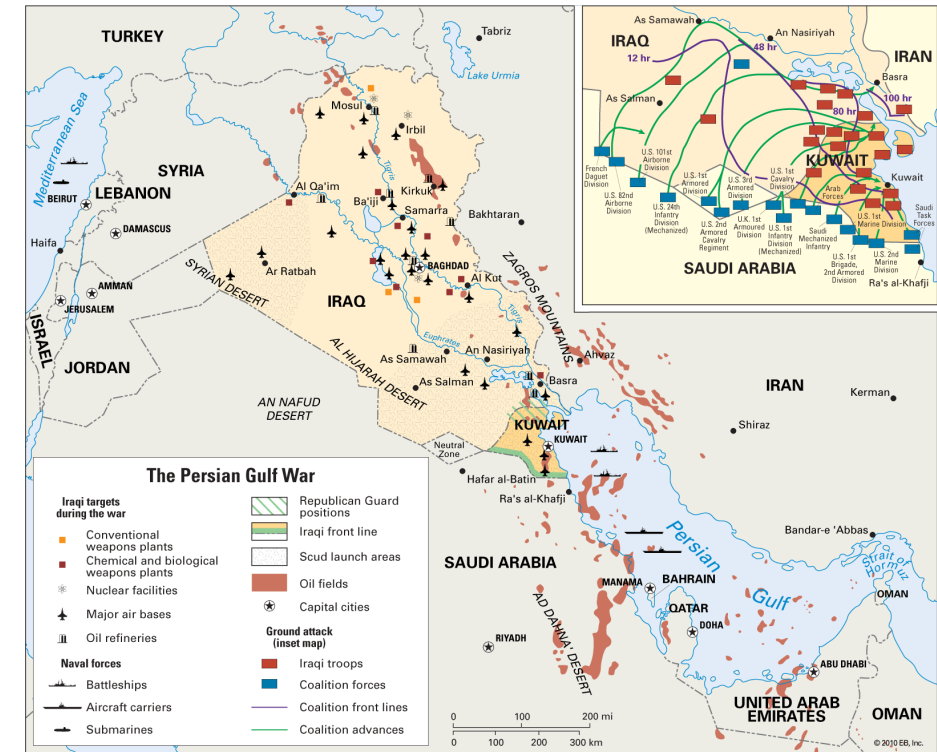
Case Study: Ukraine (2022–2025)

- **Approximately 230–237 million tons of CO₂ equivalent released.**
- **Causes: fuel use, fires, and destruction of industrial and energy sites.**
- **Forests, soils, and water bodies heavily affected.**

Source: Initiative on GHG Accounting of War, 2025.

Case Study: Gulf War (1991)

- Kuwaiti oil well fires emitted 130–140 million tons of CO₂.
- Created oil lakes and 'tarcrete' covering about 5% of Kuwait's land.
- Massive local air pollution and soil contamination.



Source: Linden, 1993.

Case Study: Vietnam War (1961–1971)

- Around 91 million liters of Agent Orange sprayed over 3.1 million hectares.
- Long-term soil, water, and biodiversity damage.
- Severe human health effects due to dioxins.



Other Environmental Effects

- Water pollution from bombed industrial sites and oil leaks.
- Heavy metal and chemical contamination from munitions.
- Deforestation and habitat loss due to troop movement and bombing.
- Long-term risks from unexploded ordnance.



Post-Conflict Environmental Recovery

- UNEP reports highlight the need for long-term cleanup and restoration.
- Remediation can take decades and cost billions.
- Reconstruction efforts must balance human and environmental needs.



Mitigation and Prevention

- Include environmental protection in military and peacebuilding planning.
- Improve reporting of military emissions.
- Invest in remediation and monitoring of affected areas.
- Promote international cooperation for sustainable post-war recovery.

Sources

- UNEP Post-Conflict Assessments (Kosovo, Iraq)
- Initiative on GHG Accounting of War (2025)
- Scientists for Global Responsibility (2022)
- Linden, 1993 — Gulf War environmental impact
- Truong et al., 2020 — Agent Orange study

Image-Sources

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