

THE EFFECTS OF MILITARY CONFLICTS ON THE ENVIRONMENT

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Abstract

Military conflicts are often associated with significant environmental pollution, as during military conflicts, infrastructure such as water pipes, water treatment plants, fuel depots are destroyed.

Explosives used during conflicts can cause serious damage to the air, water, and soil.

Beyond the significant human losses and suffering caused, wars leave behind massive pollution, habitat destruction, and ecosystem damage. The effects of military conflicts on the environment are long-term, water and air pollution, and the destruction of biodiversity can affect future generations.

In this article, we will try to analyze the main consequences of military conflicts on the environment and we will also try to explore possible solutions to mitigate the negative impact on the environment.

Keywords: *military conflict, environment, pollution, biodiversity, impact.*

The qualification of a situation of armed conflict is an essential preliminary step, the process of this qualification being complicated, since neither the Geneva Conventions nor the Additional Protocols explicitly define what this expression encompasses. It is necessary to determine whether the conflict in question is international or internal, in order to be able to establish the applicable humanitarian law. As regards conventional law, the qualification of an armed conflict as international implies the applicability of the Hague Convention [1] of 1907, the four Geneva Conventions of 1949 and Additional Protocol I to the Geneva Conventions [2], while the qualification of a conflict as internal leads to the applicability of Article 3 common to the four Geneva Conventions, and possibly Additional Protocol II, if the necessary conditions are met.

Military conflict is a state of misunderstanding, disagreement or clash of antagonistic interests between opposing parties, which has degenerated, as a result of certain conditions, into violent actions or war.

The experience of military conflicts is old and vast, from which lessons have been learned, for which various UN organizations have been established, as well as international prevention and negotiation mechanisms.

Although military conflicts represent a disaster in any situation, it is more than obvious that the anti-ecological effects are of different magnitude, severity and duration (the burning of oil installations in a desert area or in a marine environment). Recent history has demonstrated that even in its legal and just forms, armed conflicts have become increasingly destructive [3] and tend to become even more destructive in the future, given the technological advancement of weapons.

Since the natural environment is not a military objective, it should not be affected by military hostilities, but during and after conflicts of this type, the environment - air, water, plains, hills, plateaus, mountain ranges, forests, settlements - acquires particular importance for the organization and conduct of combat activities.

Most often, the actions of the belligerents produce ecological effects, sometimes real disasters, as in Vietnam, the Gulf of Peaches and Yugoslavia.

Conventional weapons also pose a threat to the environment after the end of armed conflicts. Mines, unerupted, undestroyed or neutralized booby traps, unexploded ammunition, vehicle and combat equipment hulls, barbed wire, trenches, bomb craters, etc. remain on the ground. All of this, in addition to destroying the natural environment, also constitutes an impediment to the economic and tourist exploitation of the natural environment.

The widespread use of weapons has negatively influenced and will continue to influence the living environment on earth.

The 20th century was the century of the debut of new weapons (submarines, fighter jets, poison gas, chemical and weapons of mass destruction). All this technological leap left its mark and left irreversible traces on the environment. Even today, the exact number of victims in the two Japanese cities, Hiroshima and Nagasaki, resulting from the atomic bombs launched in August 1945 by the US Air Force is not known.

Also, nuclear experiments, both surface and underground, clearly affect the environment. For example, hundreds of nuclear tests were carried out in the Pacific Ocean between 1975-1996, which clearly unbalance the ecosystem.

Technology has developed so much that ecological (geophysical) warfare has become a reality. This type of warfare uses means and methods to modify the natural environment to cause great destruction, so that the opponent stops fighting.

An eloquent example is the artificial rain-making for military purposes by the US army (1963), in the Vietnam conflict, or the torrential rains with disastrous effects for the provinces of northern Laos, in 1996.

To date, researchers have discovered/created advanced techniques in geophysical warfare: climate change, the production of large tidal waves, the triggering of earthquakes, the diversion of terrestrial and underground water courses, all of which contribute negatively, in the medium and long term, to the environment, but also to life on earth.

In order to draw attention to the negative effects of armed conflicts [4] on ecosystems and natural resources, but also to the negative effects that persist for a long time after the cessation of armed conflicts, the UN General Assembly decided that November 6 would become the International Day for the Prevention of the Exploitation of the Environment and Armed Conflict (Resolution 56/4).

Over time, there have been many efforts to outlaw war. In 3,400 years of recorded history, the world has known only 250 years of peace. Since 1945 alone, there have been more than 400 armed conflicts worldwide. (New Zealand Red Cross Society Publication).

Effects of military conflicts on the environment

Human interventions on the natural environment are not only negative in that they make maximum use of biological resources, but also through activities, such as military conflicts, that do not directly target these categories. The ways of degrading habitats and ecosystems can be direct – by reducing the occupied area (deforestation) and natural ecosystems, but also indirect – through the effects of pollution on the living conditions of the species.

As technical means of combat have evolved, the natural environment has suffered harmful influences. The arsenal of chemical, bacteriological and thermonuclear weapons can have direct and indirect catastrophic effects on the environment. Military objectives are located in the environment, including in the stratosphere. All military-purpose facilities seriously affect the environment.

The negative ecological consequences extend their scope, in the sense that they manifest themselves from the training, exercises and military maneuvers phase,

continuing with that of the actual confrontation and ending with the benign activities of destroying obsolete or obsolete weapons or aiming at eliminating the consequences and rehabilitating the affected areas. [5]

Military conflicts are complex operations that involve not only active combat, but also situations of prevention, preparation and recovery. Several factors are necessary to maintain an armed conflict (domestic training bases and external bases). The installation of these bases requires deforestation in the area where they are to be installed or to create lines of sight, build fortifications and facilitate military movements. Also, forest fires started by bombers destroy the habitat of animals and plants, releasing significant amounts of carbon dioxide into the atmosphere.

During the Vietnam War (1962-1971), American troops destroyed a fifth of Vietnam's rainforests and a third of its wetland ecosystems, as they dumped about 70 million liters of herbicides on them.

The Gulf War (1990-1991) also produced an ecological calamity. Kuwait's oil fields burned for almost a year, producing a huge amount of pollution. NATO's military strikes against Yugoslavia also generated ecological disasters with serious consequences for human health and environmental quality.

Since wetlands (swamps, lakes) are often used as strategic points, their waters have been polluted, which has led to the destruction of habitats for a variety of aquatic species. Oil spills, explosive munitions and toxic chemicals cause irreversible damage to aquatic ecosystems.

The chemical footprint of war contaminates groundwater and surface water. Many reservoirs in Ukraine have suffered biodiversity losses due to hostilities. They are losing their ability to self-clean and regenerate naturally, with fish dying and bird life cycles and migrations being severely disrupted. Many of the reservoirs in the Dnieper basin are now destroyed by war.

Bombing, destruction of vegetation and the movement of military vehicles contribute to soil erosion. Soil fertility is reduced, increasing the risk of flooding. Soil degradation affects agriculture, biodiversity and the inability of ecosystems to regenerate.

International jurisprudence on environmental protection during military conflicts

International Humanitarian Law (IHL) establishes rules for the conduct of war, including obligations to protect the environment. It prohibits deliberate attacks on the environment and requires that the impact on the environment during military operations be minimized.

The Geneva Convention and its Additional Protocols contain rules for the protection of the civilian population and the environment during military conflicts. They emphasize the importance of protecting water resources, infrastructure and ecosystems. For example, Protocol I of 1977 prohibits the use of means and methods of warfare which may cause “widespread, long-term and serious damage to the natural environment”.

Convention on the Prohibition of the Use of Environmental Modification Techniques (ENMOD, 1977) prohibits the use of technologies that may cause long-term or serious changes in the environment.

The Convention on the Conservation of Migratory Species of Wild Animals protects migratory species of wild animals, which are often vulnerable to the impacts of military conflict.

The Convention on Biological Diversity promotes the conservation of biodiversity and emphasizes the importance of protecting ecosystems during military conflict.

Kuwait v. Iraq (following the Gulf War) – The International Court of Justice (ICJ) emphasized the importance of protecting the environment in the context of war, including the concept of a “duty of care” to prevent environmental damage. Iraq was ordered to pay compensation for the destruction of oil resources and the environment.

Cases against former Liberian President Charles Taylor. In the context of the conflict in Sierra Leone, Taylor was convicted of supporting the destruction of the environment and natural resources (illegal diamond mining) to finance armed conflicts.

Environmental mitigation and reconstruction measures

Armed conflicts result in devastating environmental effects, such as excessive pollution, which destroys ecosystems, leads to loss of biodiversity and the deterioration of natural resources. Therefore, a series of mitigation and reconstruction measures have been developed to reduce the negative impact on the environment after armed conflicts.

All these environmental mitigation and reconstruction measures are supported by international laws and relevant court decisions, which define responsibility for environmental damage and provide a framework for its reparation.

The main environmental mitigation and reconstruction measures that can be taken following military conflicts can be:

- Impact assessment is essential after an armed conflict. This assessment includes the analysis of areas contaminated with hazardous substances (e.g. heavy metals, chemicals, munitions remnants, landmines). An assessment of the damage to local ecosystems is also necessary.
- Remediation of contaminated land is achieved by cleaning and decontaminating soil and water, which involves carrying out soil and water decontamination operations to reduce the risk to human and ecological health. The operations carried out may include neutralizing toxic substances, removing mines and unexploded ordnance, and decontaminating areas.
- Ecosystem rehabilitation consists of measures that can be taken to ecologically reconstruct affected areas. This involves planting trees, restoring natural habitats, protecting endangered species, and repopulating with local species to restore biodiversity.
- Monitoring and sustainable management of resources. After initial reconstruction, continuous monitoring of environmental quality and implementation of sustainable management policies for natural resources, such as water and soil, are necessary to prevent further environmental degradation.
- Protecting wetlands and restoring damaged aquatic ecosystems is crucial to safeguard biodiversity and ensure the provision of ecosystem services, such as water purification.

The Stockholm Convention (1972) and the Rio Convention (1992) are two important international instruments [6] that emphasize the principle of avoiding and remedying environmental damage. Although these two conventions do not directly address armed conflict, they have influenced norms and standards regarding environmental protection [7], including in post-conflict situations.

The Rome Statute of the International Criminal Court (ICC, 1998) includes environmental destruction as a war crime. According to art. 8(2)(b)(iv), it is prohibited to “cause widespread, long-term and serious damage to the natural environment which is clearly disproportionate to the concrete and directly anticipated military advantage”. In addition to international instruments, there are also national legislation and regional practices designed to support environmental rehabilitation after conflicts.

The European Union has environmental policies and international cooperation that support post-conflict reconstruction, including funds for environmental restoration in conflict-affected regions.

The UN and various international organizations (such as UNEP) have established reconstruction and environmental impact assessment programs in war-affected areas, such as programs in Afghanistan, Iraq and other post-conflict areas.

The implementation of mitigation and reconstruction measures is essential to repair the destruction caused by war and ensure a sustainable future for affected communities.

Conclusions

As we have seen, military conflicts have a devastating impact on the environment. It is essential to take measures to prevent conflicts and protect the environment, by promoting dialogue, international cooperation and the peaceful resolution of disputes. It is important to invest in programs to mitigate the environmental impact of conflicts and in the reconstruction of damaged systems.

Strictly regulating weapons, promoting disarmament, implementing effective toxic waste management systems and promoting peace education are necessary to ensure a sustainable future and protect the planet from the devastating effects of wars.

References:

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