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ՏԵՂԵԿԱԳԻՐ



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МЕДИЦИНСКОГО КОЛЛЕДЖА
ИМ. МЕГРАБЯНА

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OF THE MEDICAL COLLEGE
AFTER MEHRABYAN**

VOL. 17 TOM

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Dear Colleagues,

We welcome you from one of the oldest colleges in Georgia, Panacea, which has been collaborating in the field of pharmaceutical educational programs for two years. Articles by our faculty members have been published in your scientific journal. It should be noted that publishing a scientific journal in a college is a significant responsibility, and we are proud to acknowledge that you are successfully meeting this challenge. Your journal features news about medical achievements and scientific research not only from local scientists but also from those in other countries who are your partners. We wish you continued success in your dedicated and essential work. In this way, you make an invaluable contribution to the education of future medical professionals. Such cooperation between the two countries is very important. I want to wish you success, progress and strengthening of our countries!



Sincerely,
Director of Panacea College,
PhD in Medicine,

Vasil Kiknadze



Dear authors and editorial board members!

On behalf of Municipal state enterprise on the right of economic management «High Medical College» Public Health Department of Almaty, I express my gratitude to you for your valuable work and dedication. Medical science and education are the foundation of our future, which require high level of professionalism. Your scientific magazine is an important platform where practitioners and researchers meet, united by a common goal - improving people's health and quality of life. Its publications reflect current medical problems, offer innovative solutions and introduction of advanced technologies into practical healthcare and education. Your publications provide a good opportunity to share best practices, discuss unresolved issues and lines of research, stimulate professional growth of specialists.

We highly appreciate your willingness to share your knowledge and experience. We wish you to continue to join like-minded persons, inspire new discoveries and serve as a reliable source of information for all those who have dedicated themselves to medicine.

We wish you further creative success and prosperity of your scientific magazine.

Best regards,
Candidate of medical science, professor,
Director of Municipal state enterprise on the right of economic management
«High Medical College» Public Health Department of Almaty, Kazakhstan

Zhumakhan Moldakulov



ՀԱՅԱՍՏԱՆԻ ՀԱՆՐԱՊԵՏՈՒԹՅՈՒՆ
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РЕСПУБЛИКА АРМЕНИЯ
ВЕСТНИК
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ПОСЛЕДСТВИЯ ВОЗДЕЙСТВИЙ ВОЕННЫХ КОНФЛИКТОВ НА ЭКОЛОГИЮ

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Аннотация. В статье рассматриваются наиболее распространенные факторы воздействия на природу, происходящие во время войны. К ним относятся выброс вредных веществ в воздух, последствия взрывов, химические вещества, уничтожение опасных производственных объектов, подтопление судов и транспортные аварии, на которых я отдельно остановилась в статье.

Ключевые слова: война, химическое оружие, окружающая среда, загрязнение воздуха, вредные вещества.

CONSEQUENCES OF MILITARY CONFLICTS FOR THE ENVIRONMENT

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Abstract. The article examines the most common factors affecting nature that occur during the war. These include the release of harmful substances into the air, the consequences of explosions, chemicals, the destruction of hazardous production facilities, the flooding of ships and transport accidents, which I discussed separately in the article.

Keywords: chemical weapons, environment, air pollution, harmful substances.

ԲՆԱՊԱՀՊԱՆ ՀԱԿԱՄԱՐՏՈՒԹՅՈՒՆՆԵՐԻ ԱԶԴԵՑՈՒԹՅԱՆ
ՀԵՏԵՎԱՆՔՆԵՐԸ ԷԿՈԼՈԳԻԱՅԻ ՎՐԱ

Ժանար Սարսեմբեկի Բեյսեկենովա

*Բնապահպանական գիտությունների թեկնածու, դասախոս,
Ալմաթիի առողջապահական հաստատության «Բարձրագույն բժշկական քոլեջ»,
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Ամփոփագիր: Հոդվածում քննարկվում են պատերազմի ժամանակ բնության վրա ազդող ամենատարածված գործոնները: Դրանք ներառում են օդում վնասակար նյութերի արտանետումը, պայթյունների հետևանքները, քիմիական նյութերը, վտանգա-

վոր արդյունաբերական օբյեկտների ոչնչացումը, նավերի մասամբ խորտակումը և տրանսպորտային պատահարները, որին ես հատուկ անդրադարձել եմ հոդվածում:

Հիմնաբաներ՝ պատերազմ, քիմիական զենք, շրջակա միջավայր, օդի աղտոտվածություն, վնասակար նյութեր:

Due to the secrecy of data, assessing the impact of armed forces and military operations on climate and ecology is very challenging. However, according to the Paris Agreement, countries are not obligated to disclose information about defense sector emissions or to include them in their plans for achieving carbon neutrality. Reports from the Intergovernmental Panel on Climate Change (IPCC) typically only include fuel emissions from armed forces. Let's consider the most common factors affecting nature during wartime.

Emission of Harmful Substances into the Air. During large-scale conflicts, various types of weapons containing chemical compounds are used. The composition of shells, bombs, and even hand grenades has a significant impact on the environment. The explosion leads to a sudden release of harmful substances in a particular area. When these substances come into contact with plants and soil, their composition changes, leading to reduced growth and even destruction of flora.

Consequences of Explosions. The detonation of bombs and mines alters the landscape and disrupts the chemical composition of the soil at the explosion site. As a result, it often becomes impossible for certain species of plants and living organisms to thrive in areas adjacent to the explosion site. The direct destructive impact of explosives on animals is profound. They are often killed by shrapnel and shockwaves. This is particularly damaging in aquatic environments, where the detonation of munitions can have catastrophic effects. Underwater life within several dozen kilometers can be decimated due to the unique propagation characteristics of sound waves in water.

Additional Impacts on Ecosystems. Beyond immediate destruction, warfare can lead to long-term ecological degradation. Habitat fragmentation occurs as landscapes are altered, making it difficult for species to migrate or find food. This fragmentation can result in isolated populations that struggle to survive. Additionally, the introduction of foreign chemicals and metals from munitions can lead to soil and water contamination, further harming ecosystems [1: 221].

Climate Change and Military Activities. Military operations contribute to climate change in various ways. The fossil fuels consumed by armed forces not only add to greenhouse gas emissions but also foster reliance on non-renewable energy sources. While some military organizations are beginning to explore renewable energy options, the overall contribution of defense activities to climate change remains significant.

Psychological and Social Implications. The environmental impacts of war extend beyond the physical. Communities affected by conflict often face psychological repercussions as they witness the destruction of their natural surroundings. The loss of biodiversity can erode cultural practices tied to local ecosystems, further compounding the social effects of war.

The military's impact on the environment during conflicts is a complex issue involving immediate destruction, long-term ecological consequences, and contributions to climate change. The need for transparency and accountability regarding military emissions is crucial, especially as the world grapples with the pressing challenges of climate change. As nations strive for carbon neutrality, it is essential to consider the hidden costs of military operations on our planet's health.

Working with Dangerous Chemicals. A number of weapons, particularly heavy strategic missiles, utilize chemically aggressive fuels that contain toxic components harmful to all living organisms. The dispersal of these chemicals occurs not only during actual conflicts but also during numerous military exercises conducted by armed forces around the world. Furthermore, the adverse effects extend to the ground and surrounding ecosystems.

Destruction of Hazardous Industrial Facilities. During conflicts, it is common for destructive strikes to target elements of the industrial infrastructure belonging to the conflicting parties. This includes factories and installations that work with chemical or biologically active substances. Among the most hazardous are radioactive production sites and waste storage facilities. Their destruction can lead to severe consequences for all living beings and may result in the spread of infections.

Sinking Ships and Transportation Accidents. Military vessels that sink during war pose significant threats to aquatic ecosystems. Typically, these ships carry chemical weapons (such as missile fuels) as well as their own fuel supplies. When a ship is destroyed, all these substances can spill into the water.

Similar incidents occur on land during the collapse of railway compositions or the destruction of large columns of automotive technology. Substantial amounts of engine oil, gasoline, diesel fuel, and various chemical raw materials may contaminate the soil and local water bodies. Leftover unexploded ordnance (such as shells) in wrecked vehicles can pose risks for many years thereafter.

Social, Political, Economic, and Ecological Significance of Military Conflicts. The impacts of military conflicts carry significant social, political, economic, and ecological implications for humanity. The ecological consequences often remain unforgettable, affecting generations.

Environmental Legacy of War. The environmental legacy of war can manifest in several forms, including habitat destruction, pollution, and long-term changes in land use. Areas previ-

ously rich in biodiversity may become barren or dominated by invasive species, severely disrupting local ecosystems [4: 98].

Groundwater Contamination. One of the hidden dangers of military operations is groundwater contamination. Chemical agents, heavy metals, and petroleum products can leach into the ground, polluting aquifers that serve as sources of drinking water for nearby communities. Such contamination can have long-lasting health impacts on local populations and wildlife.

Climate Change and Resource Depletion. Military actions contribute to climate change not only through direct emissions but also by leading to resource depletion. The destruction of forests for military purposes, extraction of minerals, and use of heavy machinery exacerbate environmental degradation. The military's carbon footprint is significant, and efforts to mitigate it are often overlooked in broader climate discussions.

Biodiversity Loss. Warfare can lead to significant losses in biodiversity. The destruction of habitats and ecosystems results in the extinction of species that are unable to adapt to rapidly changing environments. The loss of biodiversity impacts not just the local ecosystem but can have far-reaching consequences for global ecological balance.

Human Displacement and Environmental Refugees. Military conflicts frequently lead to the displacement of populations, creating environmental refugees. As communities flee their homes due to violence or environmental degradation, they often move to areas that are already stressed, leading to further ecological strain. This cycle of displacement can result in the overexploitation of resources in new locations, exacerbating existing environmental issues.

Mitigation Strategies and International Responsibility. Given the extensive environmental damage caused by military operations, there is an urgent need for nations to adopt mitigation strategies. International cooperation is essential to address the ecological impacts of warfare. This includes developing protocols for environmental protection during military exercises and conflicts [2: 56].

Integrating Environmental Concerns into Military Planning. Countries should integrate environmental assessments into military planning processes. By evaluating potential ecological impacts before engaging in military operations, it is possible to minimize damage and prioritize sustainable practices. This approach can also foster greater accountability and transparency regarding military activities and their environmental footprints.

Restoration and Rehabilitation Efforts. In the aftermath of conflicts, restoration and rehabilitation of affected environments should be a priority. This may involve reforestation efforts, soil remediation, and the safe disposal of hazardous materials. Engaging local communities in these efforts not only helps restore ecosystems but also aids in rebuilding social cohesion.

The complex interplay between military operations and environmental health underscores the need for a paradigm shift in how armed conflicts are approached. Recognizing the long-lasting ecological consequences of war is crucial for fostering sustainable practices that protect both people and the planet. As we move forward, it is imperative that nations prioritize environmental considerations alongside national security, ensuring that future generations inherit a world capable of sustaining life in all its diversity.

Working with Dangerous Chemicals. A number of weapons, particularly heavy strategic missiles, utilize chemically aggressive fuels that contain toxic components harmful to all living organisms. The dispersal of these chemicals occurs not only during actual conflicts but also during numerous military exercises conducted by armed forces of various countries. Additionally, the negative effects also impact the ground and surrounding ecosystems.

Destruction of Hazardous Industrial Facilities. During conflicts, it is common for destructive strikes to target elements of the industrial infrastructure belonging to the parties involved. This can include factories and installations that work with chemical or biologically active substances. Among the most dangerous are radioactive production facilities and waste storage sites. Their destruction can lead to severe consequences for all living beings and may result in the spread of infections [3: 301].

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The Social, Political, Economic, and Ecological Significance of Military Conflicts. Military conflicts carry significant social, political, economic, and ecological implications for humanity. The ecological consequences often remain unforgettable.

The impact on nature is considered in two main directions:

Protecting the environment from the negative effects of military operations.

Utilizing negative environmental impacts as one of the methods of conducting military actions.

In peacetime, the ecological activities of the military are defined by the «Environmental Protection» law and other state acts related to nature conservation. These activities are also sup-

plemented and regulated by orders and directives from the Minister of Defense and his deputies, which clarify the responsibilities of commanders, chiefs, and the soldiers and sergeants under their command regarding the protection of the natural environment.

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