

IMPACT OF WAR ON THE ENVIRONMENT: A CRITICAL STUDY OF AFGHANISTAN

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ABSTRACT

There is no accurate, reasonable data to record war fatalities regarding the dead and paralyzed combatants and civilians, the devastation of physical property, and the amount of environmental degradation in Afghanistan. Afghanistan fails to consider the environmental challenges as the cost of war. The country cannot disregard this issue. The country passed environmental law after seven years of the interim government. Furthermore, the law does little to deter ecoterrorism and those who endanger the ecosystem in the state. The study considers how war has fuelled catastrophic environmental degradation that has resulted in land contamination, forest destruction, resource looting, and climate change, forcing the mass migration of people within and across borders and creating threats to human health. The Fourth Geneva Convention is a set of international laws the United Nations has already adopted to lessen the environmental damage caused by armed conflict. This law has not, however, stemmed the war's environmental harm. To provide a better explanation than what is now available and, on its subtext, what the social renovation model needs to bear to stand the test of time and challenges, we would engage in the argument and contextualize it with the research related to the battle against the background in this study. This existing study is employed a doctrinal legal approach in which part of the literature will be reviewed to acquire the necessary data using

normative approaches. The current research is limited to environmental degradation caused by armed conflict post-2001.

Keywords: *Arm Conflict in Afghanistan, Climate Change, Devastation, Environmental Degradation, Green-House Gases and war.*

Context- Background

Prologue

Wars have a lengthy history on Earth and have "evolved" dramatically over time. The history of imperialism, military adventurism, and extensively fuelled civil wars. The nature of war is inextricably linked to destroying physical property, killing civilians (non-combatants), and harming the environment. On the other hand, no one is concerned about air pollution. Additionally, during the Cold War era, the bipolar strategy known as mutually assured nuclear devastation (MAD) was the foundation of the ecocide. The development and testing of all components of military equipment, armament, and weaponry, as well as the requisite training in their usage, are the first steps in determining how war activity will affect the environment, notably air pollution. The background of the war has not changed, but the weapons of war are evolving and changing continually. Ancient warriors harvested the trees and woods to construct bows and arrows from the forest. The amount of deforestation comparatively was less than in civil war and nuclear wars. Today the means of war have

been shaped into nuclear, chemical, and intelligent technology. For instance, the remarkable development of drone technology has brought about the idea and practice of pilotless drones by the USA to fight terrorists in Afghanistan. Nevertheless, it harmed the environment of Afghanistan. The vast amounts of money could, at least partly, be used to support sustainable development instead of being diverted toward producing weaponry and related research. This is due to emerging challenges, such as military operations, without considering sustainable development and environmental protection. The nature and amount of air pollution depend on the implemented controls. Industrial pollution and the inescapable demands of daily life can be effectively managed via the application of new technology, existing technology, and individual effort. To prevent a slow deterioration of the environment, especially the quality and temperature of the air, serious consideration must be given to the pollution caused by war activity, including during the development and testing of weapons, hardware, and operational procedures, as well as during war operations and subsequent reconstruction. In addition to the chemicals used in combat, the uncontrolled release of significant amounts of heat should also be taken seriously because it seems to build up and affect the distribution and streamlines of the airflow. The study would contextualize the following questions by addressing a better explanation than what already exists and, on its subtext, what renovation the military and environmental model needs to bear to stand the test of time and challenges.

1. How does the war impact the environment of Afghanistan?
2. What diseases will be most affected by arm conflicts in Afghanistan?
3. Why is Afghanistan more susceptible to climate change than other countries?

Political unrest and armed warfare are both caused and impacted by environmental stress.

States have frequently engaged in a war to seize or resist control over resources, including raw commodities, energy, and territory. The use of conventional, biological, and chemical weapons and nuclear conflict has caused environmental harm. One hears a sound as a bullet is fired and eventually sees the impact. However, it is more likely that shots will send microscopic metal particles, like lead, into the sky. Due to their extreme lightness, these particles can travel with the air they have been mixed with and permanently become a part of the air mass. They can also eventually settle on any surface. Additionally, millions of rounds are fired throughout modern warfare. As we move up the scale, hand grenades, small bombs, cluster bombs, huge bombs, and huge bombs must all contribute to airborne contaminants. The employment of bombs and shells increased during the 20th century, culminating in what is now known as "carpet bombing" or "strategic bombing," a characteristic of warfare that first appeared right before World War II. However, The Geneva Gas Protocol, signed in 1925, was disregarded as these weapons were used in minor wars and conflicts until World War II. Through the years, fire has played a significant role in conflict and appears to have been appropriately refined during World War II. In air raids that utilized carpet bombing, incendiary bombs were developed and used widely by all participants in World War I. They employed chemical weapons that resulted in numerous injuries and fatalities; the poisons used were meant to annoy and disable.

Even though both sides of the fight had sufficient chemical weapons stocks, gas weapons were not deployed in World War II. It was eventually established that the production and delivery of these weapons during World War II was barely necessary because, paradoxically, the same effect could have been achieved by using carpet bombings, which caused firestorms and, regrettably, generally targeted civilian populations. Pollution will be extremely minimal and dissipate quickly,

making it unlikely that anyone will notice it. At the same time, a minimal amount of heat will be added to the air, which will be scattered and unnoticeable. But it must be emphasized that this tiny amount of heat cannot be disregarded because it enters the atmosphere immediately. It vanishes and is forgotten very quickly. But it is challenging to ignore and forget what a shell adds to the environment.

Such explosions generate a considerable amount of heat. What if the explosion is not a singular occurrence but one of many, similar to the numerous explosions that occurred over the course of many days or months on the Western Front during the First World War? This kind of occurrence cannot be overlooked or disregarded. What if the circumstance is similar to the one that led to the firestorm in Guernica, Spain, as firestorms that ensued in World War II in Hamburg, Dresden, Warsaw, Tokyo, and many other European and Japanese towns. Most of the heat generated by this armed conflict remained on the earth. It eventually spread out and mixed with the air in the atmosphere, affecting the temperature of the air.

Impact of war

- Manipulating Ozone levels
- Alteration of the ionosphere
- Trigger of earthquake
- Deforestation
- Provoking flood or drought
- Use of herbicides
- Setting fires (for instance, use of napalm and other agents)
- Seeding clouds
- Introduction of invasive species
- Eradication of species
- Creation of storms
- Manipulation of El Nino/ La Nina
- Destruction of Crops
- Ecology
- Ecosystem

Role of the United Nations

The United Nations emphasizes that environmental action is integrated into conflict prevention, peacekeeping, and peacebuilding initiatives because there cannot be lasting peace if the natural resources that support ecosystems and livelihoods are depleted. Even though people are dying from war, the environment has frequently gone unnoticed. To obtain a military edge, people poisoned soils, burned crops, chopped down forests, poisoned water wells, and murdered animals. In addition, the United Nations Environment Programme (UNEP) discovered that over the past 60 years, at least 40% of all internal conflicts had been linked to the exploitation of natural resources, whether they be scarce resources like water and fertile land or high-value resources like timber, diamonds, gold, and oil.¹⁵¹ It has also been discovered that conflicts affecting natural resources are twice as likely to recur. This study examines how conflicts and wars waged for peace lead to eliminating sustainable development, climate crisis, and other social and environmental injustices. Since the 9/11 war, half of Afghanistan's forests have been destroyed, and the country's forests have shrunk by 50%. Additionally, increased air pollution, the contamination of farmland and natural areas, the destruction of forests, the exploitation of natural resources, the breakdown of the management system, and other devastating environmental effects of war are common.

International Treaties Protecting Environment

Over the years, several conferences have been held on environmental pollution, notably air pollution, focusing on the requirement for formal regulation, for instance, at the UN Conference on the Human Environment, where air pollution was a significant theme. The

¹⁵¹ Victor W Sidel, Barry S Levy and Jonathan E Slutzman, 'Prevention of War and Its Environmental Consequences' in Tarek A Kassim and Damià Barceló (eds), *Environmental Consequences of War and Aftermath*, vol 3U (Springer Berlin Heidelberg 2009) 12 <http://link.springer.com/10.1007/978-3-540-87963-3_2> accessed 27 November 2022.

Stockholm declaration of 1972 is the first significant initiative to draw attention to environmental concerns, particularly ecological deterioration and "transboundary contamination,"

Although Principle 6 of the Stockholm Conference in 1972 prohibits "the release of heat to such amounts or concentrations to surpass the capacity of the environment," nevertheless, the impact of war on environmental pollution has not been stated by the said declaration. At the same time, Principle 26 of said declaration prohibits using all weapons of mass destruction.

The Brundtland Report 1987 is commonly known as "Sustainable development is Our Common Future," It mainly deals with "Peace, Security, Development and the Environment." It states that a comprehensive strategy to ensure national and international security must move beyond the traditional focus on armed conflict and military might. It also emphasizes that Armed conflict and rivalry pose significant barriers to sustainable development. They foster a mindset that is hostile to international collaboration.

UNCED, the 1992 Rio Conference on Environment and Development ("Earth Summit"), has incorporated two military-related principles from the Rio Declaration and Brundtland Report's recommendations: Principle 24: Fighting is fundamentally harmful to long-term progress. Nations must abide by international environmental norms during armed conflict, and states must work together to protect the environment. And Principle 25: The pursuit of peace and sustainable development are interconnected and indivisible.

The Commission on Sustainable Development (CSD) was established by the UN Economic and Social Council (ECOSOC) in 1997, during a special session of the UN General Assembly dubbed "Earth Summit +5", a five-year review of the Earth Summit. However, the said summit

fails to consider the impact of war on the environment. On the other hand, The World Summit on Sustainable Development (WSSD),"RIO + 10" World Summit on Sustainable Development which took place in Johannesburg, South Africa, from August 26 to September 4, 2002, presented a significant opportunity to address the military component of environmental challenges.

Rio Declaration Principle 24 that states that "violence is intrinsically harmful to sustainable development." A debatable statement is highlighted and placed in brackets in the relevant reference, which is as follows: "Peace, security, and stability [as well as respect for human rights and cultural diversity] are essential for achieving development and ensuring that sustainable development benefits all."

The text in question deals with issues like the transportation of radioactive waste, the adoption of the Precautionary Principle (expressed in the Rio Declaration), the gradual elimination of fossil fuel subsidies (to promote renewable energy sources), sustainability impact assessments, and human rights.

Impact of War on the Environment of Afghanistan

During decades of conflict and turmoil, a sizable chunk of Afghanistan's infrastructure was destroyed. While this was happening, little was done to expand or preserve the nation's physical capital due to the fighting and low levels of foreign investment, especially under the Taliban government. Natural resources form the foundation for building and managing a nation's infrastructure. For the construction of roads, electrical power systems, bridges, communication systems, canals, and housing for all kinds of activities like schools, hospitals, public buildings, and markets, as well as other structures, it is necessary to have access to water, trees, soil, rock, minerals, and land. Huge environmental repercussions of the conflict in

Afghanistan go unmentioned despite the human toll and financial expenses. Since 1979, unexploded ordnance such as landmines, shells, bombs, and explosive remnants of war (ERW) have been left behind. Chemical pollution during and after the conflict is a severe concern. However, there is virtually little evidence addressing Afghanistan. It is commonly recognized that chemical pollution is an issue based on the similar growth of war-torn countries. Chemicals that are dispersed during conflict and battle have a significant impact since they don't stay where they were placed; instead, they move with the soil and water to damage new places. Accelerated rural out-migration results from numerous disasters by landmines and unexploded ordinances (UXO), which still cover large portions of the country.

The American military and its allies produced garbage at the sites as part of routine operations, including materials that raise the risk of cancer and other ailments. These substances, which seep into the earth, linger in open landfills, and—when some substances are incinerated—drift into the air as smoke particles, which can result in long-lasting environmental risks in and near such sites.¹⁵²

Henceforth, there is no research and post-war environmental impact assessment to show the degree of environmental degradation in Afghanistan.

Environmental Policies are failed in Afghanistan.

Afghanistan is a country around 80% of the population directly depends on agriculture.¹⁵³ However, this resource base has been severely harmed and deteriorated, and it can no longer sufficiently support the needs of many people as their basic need for existence. A new Afghanistan Interim Administration was

formed at the Bonn negotiations in late 2001.¹⁵⁴ The international world declared its willingness to assist the Afghan government under Chairman Hamid Karzai.¹⁵⁵ The new government's priorities were restoring security and the rule of law, ensuring the refugees' repatriation, and helping internally displaced people. The questions of environmental degradation have not been given into consideration. Since 2002, UNEP and GEF have consistently provided technical and financial support to Afghanistan's environmental sector for institutional development and capacity building.¹⁵⁶ However, the country has been involved in armed conflict for many decades and still failed to enact an adequate legal framework to deal with environmental protection in post-conflict stages. In January 2007, the Government of Afghanistan passed the Environmental Law Act 2007. It is a considerable gap and ignorance toward Environmental protection in Afghanistan. For instance, the country did not have a regulatory framework to curb environmental pollution, and the government has adopted no mechanism to assess the impact of war on the environment.

Joining the drought catalysts related to climate and the mismanagement of natural resources, including decades of poor management of water resources. Indeed, the years of armed conflict led to drought and the collapse of agricultural productivity. Consecutive war in Afghanistan has ignited climate change and environmental issues, which can fan the flame and undermine the stability and resilience of the country. Climate change and rising temperatures should be seen as regional warnings.¹⁵⁷ Rising temperatures will cause

¹⁵² Kelsey D Atherton, 'U.S. Forces Are Leaving a Toxic Environmental Legacy in Afghanistan' (*Scientific American*) <<https://www.scientificamerican.com/article/u-s-forces-are-leaving-a-toxic-environmental-legacy-in-afghanistan/>> accessed 16 December 2022.

¹⁵³ Anthony H Cordesman, 'Afghanistan: Conflict Metrics' (2022) 12.

¹⁵⁴ Brig Bashir Ahmed, Abul Barakat Ahmed and Dr Shaheen Akhtar, 'REGIONAL STUDIES' (2012) 3 INSTITUTE OF REGIONAL STUDIES ISLAMABAD 1, 63.

¹⁵⁵ 'Agreement on Provisional Arrangements in Afghanistan Pending the Re-Establishment of Permanent Government Institutions (Bonn Agreement) | UN Peacemaker' <<https://peacemaker.un.org/afghanistan-bonnagreement2001>> accessed 20 November 2022.

¹⁵⁶ UN Environment, 'Afghanistan' (UNEP - UN Environment Programme, 4 August 2017) <<http://www.unep.org/explore-topics/disasters-conflicts/where-we-work/afghanistan>> accessed 28 November 2022.

¹⁵⁷ Sébastien Duyck, Sébastien Jodoin and Alyssa Johl (eds), *Routledge Handbook of Human Rights and Climate Governance* (1st edn, Routledge 2018) 14

droughts while rising sea levels will increase salinization and affect irrigation water quality.

For many people, the term “environment” refers only to flora and fauna, such as trees, animals, birds, and insects. But It is a much broader concept than this. The environment refers to almost everything around us and the interactions and processes that link these different elements. It includes tangible environmental resources (such as water, land, minerals, forests, rangeland, crops, wildlife, and air), as well as the problems and issues resulting from the inadequate management of these resources (such as disease from polluted water, respiratory problems from air pollution, displaced populations as a result of drought, and loss of livelihoods and income as a result of degradation of land and the resources on it).

It is becoming increasingly apparent that the destruction of the environment is not restricted by a somewhat hypothetical division between peace and war; it also occurs in the grey areas that shade from peacetime through to situations when generalized violence is on the threshold of spilling over into armed conflict. However, international law prohibits such destruction even when it takes place during a period of so-called peace. In any case, we should note that there is a gap in accountability because the destruction of cultural objects and places of worship in wartime incurs the charge of individual criminal responsibility.

It is a state party to “ensure the identification, protection [and] conservation” of the world environment on its territory is not limited to its administrative apparatus and citizens but extends to any allies or adversaries present on its soil during an international conflict or occupation.

Waste Management

Poor solid waste management has become one of the country's most prominent environmental issues. The sources of waste in Afghanistan include hazardous chemicals, medical waste, brick kiln waste, domestic garbage (soil, gravel, stone, and dust), and military waste. Despite of these challenges, Afghanistan has not made any progress in waste management, choosing a dumpsite, managing medical waste, recycling, composting, or handling wastewater. Additionally, no one has examined the air pollution caused by companies and industries such as the Herat Asphalt Factory, Zhora Plastic Recycling/Shoe Factory, Shiburgan Brick Factory, Mawlawy Oil Storage Facility, And Sar-E-Pol Crude Oil Terminal and many more.

Climate-Related Natural Hazards and

Heat Wave

In Afghanistan, high temperatures are common. The maximum temperature in the country is typically around 20°C per month, with a maximum average of 33°C in July. These national averages conceal significant regional variances and some exceptionally hot regions, such as the city of Kandahar (population: 550,000) and Herat (population: 440,000), where July maximum temperatures typically range between 40°C and 37°C.¹⁵⁸

Drought

Afghanistan is primarily affected by two forms of drought: meteorological (often linked with a shortfall in precipitation) and hydrological (typically connected with a deficit in surface and subsurface water flow, possibly originating in the more significant river basins of the region). Drought in agriculture may also be caused by these problems in combination with methods for managing the land and crops. Afghanistan is currently dealing with severe

<<https://www.taylorfrancis.com/books/9781315312569>> accessed 27 November 2022.

¹⁵⁸ Ghislain Dubois and others, ‘Reliability and Usability of Tourism Climate Indices’ (2016) 3 Earth Perspectives 2.

drought problems, which have an immediate effect on livelihoods and the economy.¹⁵⁹

In this context, it was discovered that drought significantly reduced the number of jobs available to unskilled employees, affecting their level of life and financial status. Conflict over water resources, a rise in migration, and adverse effects on mental and physical health, as well as educational outcomes, were some of the social repercussions of the drought. In times of extreme drought, it was discovered that the adaption techniques currently being used in Herat Province were ineffective.¹⁶⁰

Flood

Despite its typically desert, low-precipitation environment, Afghanistan has a high risk of flooding. Despite the severely restricted data, there is enough proof to conclude that Afghanistan is a major disaster hotspot in the region and that flooding causes at least 100 deaths annually (probably a considerable underestimate).¹⁶¹ Flooding has been linked to high rates of anaemia among Afghan women of reproductive age and has been shown to increase the risk of waterborne infections.¹⁶² Attempts have been made to map Afghanistan's flood risks remotely. Particularly concerning are mudslides, landslides, and flash flooding.¹⁶³ In addition to floods brought on by heavy precipitation, the mountainous areas of Afghanistan are also at risk from glacier lake outburst floods (GLOFs), which happen when the natural "moraine" dam holds back glacier

meltwater collapses.¹⁶⁴ Estimated population affected by extreme river flooding in Afghanistan from the historical era of 1971–2004 and to the predicted period of 2035–2044 (extreme flooding is defined as being in the 90th percentile in terms of the population affected).¹⁶⁵

Water

There are complex issues with Afghanistan's water resources.¹⁶⁶ The country has frequent droughts, is arid, and has limited water supplies, but it also has access to large water resources, most of which (80%) come from runoff from mountains higher than 2,000 metres.¹⁶⁷ The Amu Darya, which runs along the nation's northern border, the Helmand river (and its larger drainage basin) in the south, and the Kabul/Kunar river network in the east are the most significant rivers by discharge volume.¹⁶⁸ According to analysis, Afghanistan has many rivers already notable in the region in terms of their susceptibility to environmental changes, governance, economy, and social factors.¹⁶⁹ There are worries about the Hari Rud and Amu Darya, and the Helmand River Basin is particularly at risk. Siltation of reservoirs and a lack of water quality are two common difficulties in water management.

Land, Soil, and Biodiversity

In recent decades, Afghanistan's forest and shrub cover have been destroyed.¹⁷⁰ These

¹⁵⁹ Md. Shahriar Pervez, Michael Budde & James Rowland, *mapping irrigated areas in Afghanistan over the past decade using MODIS NDVI*, 149 REMOTE SENS. ENVIRON. 155 (2014), <https://linkinghub.elsevier.com/retrieve/pii/S0034425714001461> (last visited Dec 8, 2022).

¹⁶⁰ MOSTAPHA ZAHER, *Afghanistan Initial National Communication*, 138 (2008), https://unfccc.int/sites/default/files/resource/afgnc1_0.pdf.

¹⁶¹ Shada Elalem and Indrani Pal, 'Mapping the Vulnerability Hotspots over Hindu-Kush Himalaya Region to Flooding Disasters' (2015) 8 Weather and Climate Extremes 46.

¹⁶² 'At Least 20 People Killed, 30 Wounded in Logar Flooding' (21 August 2022) <<https://tolonews.com/afghanistan-179489>>.

¹⁶³ AP, 'Flash Floods Kill 20 in Eastern Afghan Province' *The Hindu* (21 August 2022) <<https://www.thehindu.com/news/international/many-killed-in-eastern-afghanistan-floods/article65793935.ece>> accessed 8 December 2022.

¹⁶⁴ 'Adaptation Required to Preserve Future High-End River Flood Risk at Present Levels' | Science Advances' <<https://www.science.org/doi/10.1126/sciadv.aao1914>> accessed 8 December 2022.

¹⁶⁵ Samjwal Ratna Bajracharya and others, 'The Glaciers of the Hindu Kush Himalayas: Current Status and Observed Changes from the 1980s to 2010' (2015) 31 International Journal of Water Resources Development 161.

¹⁶⁶ 'Transboundary Water Resources in Afghanistan - 1st Edition' <<https://www.elsevier.com/books/transboundary-water-resources-in-afghanistan/shroder/978-0-12-801886-6>> accessed 8 December 2022.

¹⁶⁷ Olli Varis and Matti Kummu, 'The Major Central Asian River Basins: An Assessment of Vulnerability' (2012) 28 International Journal of Water Resources Development 433.

¹⁶⁸ G.L. Macpherson, W.C. Johnson and Huan Liu, 'Viability of Karezes (Ancient Water Supply Systems in Afghanistan) in a Changing World' (2017) 7 Applied Water Science 1689.

¹⁶⁹ Tobias Siegfried and others, 'Will Climate Change Exacerbate Water Stress in Central Asia?' (2012) 112 Climatic Change 881.

¹⁷⁰ S Lovari, M Ventimiglia and I Minder, 'Food Habits of Two Leopard Species, Competition, Climate Change and Upper Treeline: A Way to the

changes to the plant have hastened biodiversity loss, soil erosion, and severe overgrazing.¹⁷¹ It is anticipated that many of Afghanistan's ecosystems will undergo an ecological transition due to forecasted temperature increases and drought.¹⁷² Others, like the date palm tree, may find a new home in other, more northern parts of the nation, replacing habitats lost in traditional habitats. Shifts are typically predicted to go either northward (away from the equator) or upslope (to higher elevations).¹⁷³ Therefore, the outlook for species that are currently found in very high-altitude regions is uncertain.

Agriculture

In Afghanistan, approximately half of the working population is employed in agriculture, which is a significant source of income and food security. Natural disasters pose a recurring threat to regional agricultural productivity and communities.¹⁷⁴ The population also primarily relies on wheat, which provides up to two-thirds of the average person's daily caloric intake.¹⁷⁵

Protection of the Environment under International Treaties

Four accords explicitly address how the environment should be protected under the law of armed conflict: the 1980 Incendiary Weapons Protocol (Protocol III to the 1980 Convention on Certain Conventional Weapons), the 1977 Additional Protocol I, the 1976 ENMOD

Convention, and the 1998 Rome Statute of the International Criminal Court (ICC Statute).¹⁷⁶

Only the 1977 Additional Protocol I is directly relevant to the current topic out of these four treaties. Because ENMOD forbids deploying environmental modification techniques as such, regardless of the deployment of nuclear weapons, it is not directly relevant.

Article 35 (3) and 55, 1977 additional Protocol I

In order to reinforce and expand international humanitarian law, Additional Protocol I to the four 1949 Geneva Conventions was drafted in Geneva between 1974 and 1977. (IHL). The Protocol combines Geneva's humanitarian law with the Hague's traditional conduct of hostilities rules to better protect those injured in armed conflict. Article 35(3) and Article 55 are two of the 102 articles of the Protocol that expressly address environmental protection in times of international armed conflict.¹⁷⁷

Article 35(3) provides that:

It is prohibited to employ methods or means of warfare that are intended or may be expected to cause widespread, long-term, and severe damage to the natural environment.

Article 55 Provides that:

1. *Care shall be taken in warfare to protect that natural environment against widespread, long-term and severe damage that is protection includes a prohibition of the use of methods or means of warfare that are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.*

Decrease of an Endangered Species?' (2013) 25 Ethology Ecology & Evolution 305.

¹⁷¹ John F. Shroder Jr., 'Afghanistan: Rich Resource Base and Existing Environmental Despoliation' (2012) 67 Environmental earth sciences 1971.

¹⁷² Ram Devi Tachamo Shah, Deep Narayan Shah and Sami Domisch, 'Range Shifts of a Relict Himalayan Dragonfly in the Hindu Kush Himalayan Region under Climate Change Scenarios' (2012) 15 International Journal of Odonatology 209.

¹⁷³ Farzin Shabani, Lalit Kumar and Subhashni Taylor, 'Climate Change Impacts on the Future Distribution of Date Palms: A Modeling Exercise Using CLIMEX' (2012) 7 PLOS ONE e48021.

¹⁷⁴ Vera N Pavlova and others, 'Modelling the Effects of Climate Variability on Spring Wheat Productivity in the Steppe Zone of Russia and Kazakhstan' (2014) 277 Ecological Modelling 57.

¹⁷⁵ 'Where Does Afghanistan Import Wheat Flours from? (2017) | OEC' (OEC - The Observatory of Economic Complexity) <https://oec.world/en/visualize/tree_map/hs92/import/afg/show/21101/2017/> accessed 8 December 2022.

¹⁷⁶ Marie-Catherine Petersmann, 'When Environmental Protection and Human Rights Collide: Four Heuristics of Conflict Resolution' in Christina Voigt (ed), *International Judicial Practice on the Environment* (1st edn, Cambridge University Press 2019) 666

<https://www.cambridge.org/core/product/identifier/9781108684385%23CN-bp-10/type/book_part> accessed 27 November 2022.

¹⁷⁷ ibid 667.

Conclusion

In addition to the economy, the US war in Afghanistan has adversely impacted humans and the environment. The natural habitat of Afghanistan has all suffered significantly as a result of the war in the country. Military vehicles burn petroleum-based fuels at a very rapid rate, and in addition to carbon dioxide (CO₂), the vehicles employed in combat zones have produced many hundreds of thousands of tonnes of nitrogen oxides, sulphur dioxide, hydrocarbons, and carbon monoxide. Air pollution from military equipment and vehicles has a negative impact on the health of US service members and civilians in conflict areas. Particularly in Afghanistan, military vehicles have generated more dust than usual, and service members' exposure to the airborne toxins from that dust has been linked to respiratory conditions that frequently prevent them from serving and engaging in regular activities like exercise. Depleted uranium from bullets and oil from military vehicles have contaminated the water supply in the conflict zones. The animal and bird populations in these nations have also suffered from the deterioration of their natural resources and the drastic destruction of their forest cover. In nutshell, the US service member has violated Geneva Convention and its protocols. Despite the fact Art. 12 of Rome statutes applies to the USA war liability but the US has gone unpunished. The active release of poisons from burning waste, as opposed to the exposed burn pit remnants, for instance, causes less immediate harm. But before being securely transferred to civilian usage, such a site still needs to undergo some environmental cleaning.

Reference

- 1) 'Adaptation Required to Preserve Future High-End River Flood Risk at Present Levels | Science Advances' <<https://www.science.org/doi/10.1126/sciadv.aao1914>> accessed 8 December 2022

- 2) 'Agreement on Provisional Arrangements in Afghanistan Pending the Re-Establishment of Permanent Government Institutions (Bonn Agreement) | UN Peacemaker' <<https://peacemaker.un.org/afghanistan-bonnagreement2001>> accessed 20 November 2022
- 3) Ahmed BB, Ahmed AB and Akhtar DS, 'REGIONAL STUDIES' (2012) 3 INSTITUTE OF REGIONAL STUDIES ISLAMABAD 1
- 4) AP, 'Flash Floods Kill 20 in Eastern Afghan Province' *The Hindu* (21 August 2022) <<https://www.thehindu.com/news/international/many-killed-in-eastern-afghanistan-floods/article65793935.ece>> accessed 8 December 2022
- 5) Atherton KD, 'U.S. Forces Are Leaving a Toxic Environmental Legacy in Afghanistan' (*Scientific American*) <<https://www.scientificamerican.com/article/u-s-forces-are-leaving-a-toxic-environmental-legacy-in-afghanistan/>> accessed 16 December 2022
- 6) Bajracharya SR and others, 'The Glaciers of the Hindu Kush Himalayas: Current Status and Observed Changes from the 1980s to 2010' (2015) 31 *International Journal of Water Resources Development* 161
- 7) Cordesman AH, 'Afghanistan: Conflict Metrics' (2022)
- 8) Dubois G and others, 'Reliability and Usability of Tourism Climate Indices' (2016) 3 *Earth Perspectives* 2
- 9) Duyck S, Jodoin S and Johl A (eds), *Routledge Handbook of Human Rights and Climate Governance* (1st edn, Routledge 2018) <<https://www.taylorfrancis.com/books/9781315312569>> accessed 27 November 2022
- 10) Elalem S and Pal I, 'Mapping the Vulnerability Hotspots over Hindu-Kush Himalaya Region to Flooding Disasters' (2015) 8 *Weather and Climate Extremes* 46
- 11) Environment UN, 'Afghanistan' (*UNEP - UN Environment Programme*, 4 August 2017) <<http://www.unep.org/explore->

- topics/disasters-conflicts/where-we-work/afghanistan> accessed 28 November 2022
- 12) John F. Shroder Jr., 'Afghanistan: Rich Resource Base and Existing Environmental Despoliation' (2012) 67 *Environmental earth sciences* 1971
- 13) Lovari S, Ventimiglia M and Minder I, 'Food Habits of Two Leopard Species, Competition, Climate Change and Upper Treeline: A Way to the Decrease of an Endangered Species?' (2013) 25 *Ethology Ecology & Evolution* 305
- 14) Macpherson GL, Johnson WC and Liu H, 'Viability of Karezes (Ancient Water Supply Systems in Afghanistan) in a Changing World' (2017) 7 *Applied Water Science* 1689
- 15) Mostapha Zaher, 'Afghanistan Initial National Communication' (NATIONAL ENVIRONMENTAL PROTECTION AGENCY 2008) <https://unfccc.int/sites/default/files/resource/afgnc1_0.pdf>
- 16) Pavlova VN and others, 'Modelling the Effects of Climate Variability on Spring Wheat Productivity in the Steppe Zone of Russia and Kazakhstan' (2014) 277 *Ecological Modelling* 57
- 17) Petersmann M-C, 'When Environmental Protection and Human Rights Collide: Four Heuristics of Conflict Resolution' in Christina Voigt (ed), *International Judicial Practice on the Environment* (1st edn, Cambridge University Press 2019) <https://www.cambridge.org/core/product/identifier/9781108684385%23CN-bp-10/type/book_part> accessed 27 November 2022
- 18) Shabani F, Kumar L and Taylor S, 'Climate Change Impacts on the Future Distribution of Date Palms: A Modeling Exercise Using CLIMEX' (2012) 7 *PLOS ONE* e48021
- 19) Shah RDT, Narayan Shah D and Domisch S, 'Range Shifts of a Relict Himalayan Dragonfly in the Hindu Kush Himalayan Region under Climate Change Scenarios' (2012) 15 *International Journal of Odonatology* 209
- 20) Shahriar Pervez Md, Budde M and Rowland J, 'Mapping Irrigated Areas in Afghanistan over the Past Decade Using MODIS NDVI' (2014) 149 *Remote Sensing of Environment* 155
- 21) Sidel VW, Levy BS and Slutzman JE, 'Prevention of War and Its Environmental Consequences' in Tarek A Kassim and Damià Barceló (eds), *Environmental Consequences of War and Aftermath*, vol 3U (Springer Berlin Heidelberg 2009) <http://link.springer.com/10.1007/978-3-540-87963-3_2> accessed 27 November 2022
- 22) Siegfried T and others, 'Will Climate Change Exacerbate Water Stress in Central Asia?' (2012) 112 *Climatic Change* 881
- 23) 'Transboundary Water Resources in Afghanistan - 1st Edition' <<https://www.elsevier.com/books/transboundary-water-resources-in-afghanistan/shroder/978-0-12-801886-6>> accessed 8 December 2022
- 24) Varis O and Kummu M, 'The Major Central Asian River Basins: An Assessment of Vulnerability' (2012) 28 *International Journal of Water Resources Development* 433
- 25) 'Where Does Afghanistan Import Wheat Flours from? (2017) | OEC' (*OEC - The Observatory of Economic Complexity*) <https://oec.world/en/visualize/tree_map/hs92/import/afg/show/21101/2017/> accessed 8 December 2022
- 26) 'At Least 20 People Killed, 30 Wounded in Logar Flooding' (21 August 2022) <<https://tolonews.com/afghanistan-179489>>