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RESEARCH ARTICLE

II.Military Erosion and its Consequences Resulting from Acts of Vandalism Committed by the Armenian Invaders on the Lands of the Karabakh Region of Azerbaijan

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ABSTRACT

In the article analyzed by the author, there are two large and, moreover, catastrophic wars committed by the aggressor in the twentieth century, which entailed the destruction of everything living on these lands. Proof of this is indicated from this point of view, the beginning of the First World War committed in 1914–1917, which lasted more than 4 years, where there were destruction in this war, tens of thousands cities, towns and villages, agricultural fields, orchards, which are based on the historical facts of the destruction of forests and pastures and the creation of large-scale disasters, and the alarming consequences of atrocities, and in this context, the main problems facing the scientific community and military experts are researched on a scientific basis. industrial complex are also involved in large-scale research towards their solution. With the participation of scientists from various fields, the academic community was mobilized under the slogan, "Say no to the wars and conflicts that destroy civilization," and the results of the large-scale application of targeted projects have minimized the undesirable environmental tension in these regions.At the same time, it will achieve state support for the implementation of social projects that will create the basis for the restoration and conservation of natural resources (land, water, air, forests, vegetation, pastures) and human health. Whereas, scientific and technological progress in general gave rise to very intimidating and destructive weapons that served wars in the first century. Similarly to the mentioned, the Second World War also covered the countries of Europe and Asia, and later, the United States was involved in this war. The war destroyed European and a number of Asian countries changed the territory and landscape of the countries. Here, the most dangerous weapons, artillery shells, bombs, and fugas of various composition and strength, chemical and bacteriological weapons greatly strengthened the destructive force of the war and greatly increased the loss of life. At the end of the Second World War, 77 years ago, the United States detonated the most terrifying weapon of the era, the atomic bomb, in Hiroshima and Nagasaki, Japan, destroying two large and modern cities and creating a strong military erosion, hundreds of thousands of people were burned and destroyed at the same time, and tens of thousands were injured. People suffered until the end of their lives. The effects of the atomic explosion are felt by the people living here today. The Second World War destroyed more than 40 million people along with the global destruction and became a huge tragic event in human history. As a result of the war, natural landscapes, agro-landscapes, forests and pastures, gardens and grounds belonging to different centuries, and buildings reflecting the history of world architecture were destroyed. Ecosystems disappeared, the animal world was destroyed, and the balance of nature was disturbed. As if all this was not enough, after the Second World War, local wars in different parts of the world continued for many years, and the spread of military erosion was further expanded. As a visual manifestation, such local wars took place in the South and North Caucasus regions as well. Nagorno-

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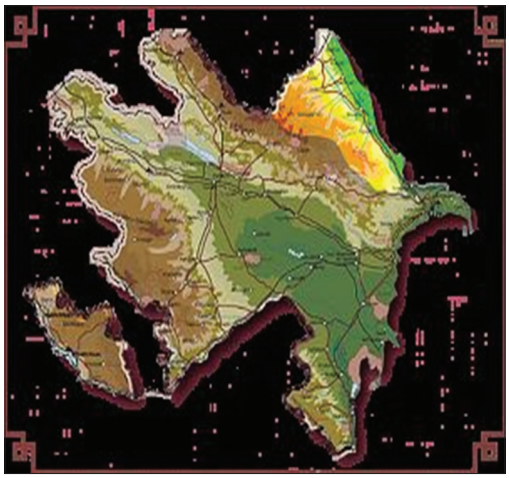
Karabakh, South Asetia province, Abkhazia, and finally, the Chechen Republic became a war zone. Cities and villages were destroyed, military erosion took place, the consequences of which, for one reason or another, still cannot be eliminated.

Key words: Conflicts, land cover, landscape, military erosion, war

INTRODUCTION



Since the beginning of human society, conflicts, battles, fights, and wars have occurred and are still occurring between different people, tribes, clans, societies, and finally countries. The initial intertribal quarrels later took the form of ethnic conflicts.

As a result of the improvement and evolution of human society, the purpose and purpose, tactics and strategy of wars have also changed. At 1 time in history, wars between powerful states that wanted to create an empire (Iran-Rum, Iran-Greece, the Ottoman Empire and the East European states, as well as Russia) caused great chaos and destruction.

These wars are characterized by the invasion, fragmentation, and colonialization of many countries. The wars fought for the sake of the Islamic religion ended with the formation of the great Islamic caliphate. In the Middle ages, including religious confessions, crusades ended with the loss of millions of people who destroyed thousands of cities and villages (Aliyev and Shakuri, 2006).

After the Second World War, local wars continued for many years in different parts of the world, and the spread of military erosion was further expanded. Such local wars also took place in the regions of the South and North Caucasus.

Cities and villages were destroyed, military erosion took place. The Crusades, which lasted for nearly 5 centuries, also created real disasters.

Wars conducted until the 19th century was a destructive force has become more advanced due to its technical power and has turned the achievements of scientific and technical progress into means of death. The war that started in the Balkan Peninsula in 1914 and went down in history as the First World War covered most of the countries of Europe and destroyed large areas, settlements, agricultural facilities, and industrial centers and ended the lives of up to 20 million people.

Even before the end of the First World War, revolution and civil war broke out in Russia. In the first half of the 20th century, scientific and technical progress made a big change in the production of weapons.

New weapons, weapon complexes with great destructive power, modern aviation, and the navy have created favorable conditions for the new war to be even more terrible.

It is enough to show that the Second World War ended the lives of more than 40 million people and turned many countries of Europe and Asia into ruins. This war was unprecedentedly terrible and destructive in history.

The United States, which applied the achievements of science and technology to the production of weapons, was the first in history to create an atomic bomb and dropped this terrible weapon on Hiroshima and Nagasaki, Japan, for the 1st time 61 years ago.

As a result of the explosion of the dropped atomic bomb, 220,000 people were killed and thousands of people were injured.

Today, despite the fact that 61 years have passed since that tragedy, its pathological impact is still evident in the III and IV generations after the struggle.

According to the available information, thousands of people are born with disabilities in Japan and curse those who caused this tragedy.

There is no sign of the city in the areas where atomic bombs exploded. A lunar landscape has formed in the area. Military erosion has manifested itself at the highest level.

Military erosion has manifested itself at the highest level. Military erosion has been widespread in Vietnam, Cambodia, Iran (in the Iran-Iraq war), Arab countries (in the Arab-Israeli wars), Iraq, Afghanistan, and many African countries that have experienced local wars.

In the 80s and 90s of the last century, the horrors of our successor, the Armenian aggression, created a great disaster in our country. The cities and regions of the Karabakh region, which were attacked, were destroyed and came under enemy occupation.

As a result of the aggression, more than 900 villages and settlements of the Karabakh region, seven regional centers were occupied and destroyed.

More than 1 million of our compatriots are displaced from their homes and are still living as refugees.

Settlements and villages, which were created by the sweat of the people for many years, were destroyed, agricultural fields, gardens, and vineyards were destroyed.

Rare mountain forests, including the beautiful Topkhana forest, protected by the people's hard work and joy, fell under the enemy's ax.

The enemy created not only Khojaly genocide but also ecological genocide (ecocide). Exploding bombs and fugues, rockets and artillery shells, dynamite and toxic ammunition destroyed agro-landscapes as well as natural landscapes.

Disrupting the ecological balance of the area, it changed its face, large-scale military erosion was created. In the occupied regions of the republic, the enemy robbed our underground resources, and today, these resources are being robbed by the Armenian Dashnaks.

Cultivated agro-landscapes include trenches, trenches, ravines, bomb, and dynamite craters in vineyards on yellow wheat fields. Radioactive shells and toxic explosives have poisoned the soil and the toxicological situation has been greatly aggravated.

In the war-affected areas of the republic, the green world has been destroyed, wild animals have disappeared, and zoocide has occurred.

A large area occupied by the enemy was turned into a wasteland. Military erosion occurred, as a result of the explosion of cannons, rockets, and bombs, landscapes were torn apart, agro-landscapes were destroyed, the soil structure was destroyed, and the fertility potential was lost.

The widespread use of large-caliber weapons, shells, and mines in the war polluted and poisoned the soil, worsening toxicological conditions. The war destroyed ecosystems, destroyed the animal world, and disturbed the balance of nature.

The extent of the damage caused by military erosion to nature, vegetation, and land cover has been so great that in the territory of the Fuzuli region, which was freed from occupation 13 years ago, the mines have not been completely cleared, explosions occur frequently and result in bloody deaths, in a word, military erosion it also causes man-made pollution.

The war created a military erosion unknown in the republic until then. Trenches dug in the war zone, shelters, trenches formed by explosions, depressions, and land areas that have lost their color and appearance, and generally disturbed landscapes attract attention and arouse great pity and hatred of the enemy.

Occupied territories and ecosystems have been destroyed and created ecocide, a full-fledged ecocide. The area is contaminated with remnants of ammunition, mines hidden underground and unexploded rockets, etc., which have become a constant source of danger.

We did not find any animals while conducting monitoring in the villages of Fuzuli region, which was freed from occupation in 2005, in the territory of the village of Aşagi Abdürrahman from Ojumla.

There were many foxes, hares, and various birds in these places before the war, but now we did not even come across an ant.

The extent of the damage caused by military erosion to nature, vegetation, and soil cover has been huge.

Thus, in some areas of Fuzuli region, which was freed from enemy occupation, the mines buried by the enemies have not been completely cleared, explosions often occur here and endanger people's lives. It should also be noted that the total area of the territory of Fuzuli district is 138,610.1 hectares and is divided into various natural farms. Fifty-four out of 77 settlements of the region were occupied by Armenia.

3403.5 thousand m^2 of landmines and unexploded ordnance are covered with mines and unexploded ordnance in the nine settlements of the region (Horadiz, Shukurbeyli, Alkhanli, Ashagi Abdulrahman, Ashagi Kurdmahmudli, Gazakhlar, Beyuk Bahmanli, Yategozluyataömenli, and

Yategozlu) and are a source of great danger for people and animals.

Our research conducted in these areas, which have become a war zone, showed that the normal morphogenetic structure was destroyed in the 0–50 cm layer of the soil, the structure was completely destroyed, and rocks were exposed.

Approximate calculations show that 20–25 tons of humus, 3–4 tons of total nitrogen, 14–18 kg of assimilated phosphorus, and 400–450 kg of variable potassium were lost from 1 hectare of chestnut (gray-brown) soil. In such areas, the amount of microelements has decreased significantly, the agrophysical and agrochemical composition of the soil has deteriorated, and its fertility has decreased significantly and degraded. In the areas where bombs and shells fell, the soil was completely burned and the humus, which is the basis of its fertility, was also completely burned. The soil is brick-like.

In such areas, from 1 hectare to 40 tons of humus was burned.

As is known, the microbiological factor is of great importance in the formation of humus in the soil and in the biochemical processes taking place in it.

Many years of researches show that chestnut soils, which are the dominant soil in the region, contain 2–8 thousand microorganisms, bacteria, fungi, and ray fungi per 1 kg of soil (Aliyev *et al*., 2004–2006). Microorganisms have disappeared in the lands burned as a result of explosions, and favorable soil conditions are necessary for their recovery. As you can see, it will take time to restore the lands that were subjected to military operations and lost their fertility.

In recent years (2006–2007 and subsequent years), Armenian vandals have caused and continue to cause large fires in the occupied territories, forests, forest lanes, buildings remaining in villages, cemeteries, and other sociocultural objects are hostilely burned, historical monuments are destroyed.

The enemy has declared war on the nature of Azerbaijan and is creating a new type of military erosion.

In areas affected by fires, ecosystems are completely destroyed, wild animals, and hundreds of different creatures are burned.

Earthworms (worms), microorganisms, enzymes, humus, and other biological factors, which are called the fertility factory of the soil, are burned and destroyed. From each hectare, 30–40 tons of humus are burned and go to waste, on average 4–5 million microorganisms are burned per kg of soil, destroying plant residues and roots.

As it is known, plants, all living things, and micro-organisms accumulate a large amount of their vast energy and turn it into biological energy, and the energy is used in the process of humus formation and biochemical processes.

Let's consider the following figures to imagine the damage caused to the energy of the land and nature as a result of fires.

The research conducted by Aliyev Shakuri in previous years showed that the amount of total biomass in 1 hectare was 256 centers in unwashed soils (under bushes) in the zone of chestnut (gray-brown) soils, of which 102 centers is annual incoming biomass.

Those biomasses collect 218.2 and 151.6 kcal of energy per hectare, respectively.

In the foothill zone, the amount of total biomass in 1 hectare in the gray mountain brown soils was 150 centers, and the amount of annual input was 103 centers.

Those biomasses accumulate 67.5 and 46.4 kcal of energy, respectively. As can be seen, the damage to nature in the burned areas is large-scale and catastrophic.

In 2004–2021, research works and monitoring observations were carried out in the liberated territories of Fuzuli region, which is part of the Karabakh region. The total area of the region is 138,610.1 hectares and is divided into various natural farms. Fifty-four out of 77 settlements of the region fell under the light of Armenia.

Agricultural fields, pastures, gardens, and residences were destroyed and subjected to military erosion in the territory of the villages freed from occupation, which is reflected in the presented photo album.

Nine residential areas of the region freed from occupation are armed with mines and unexploded ordnance contaminated with ammunition.

It was determined that 3403.5 thousand m^2 of land in nine settlements freed from occupation (Horadiz, Shukurbeyli, Alkhanli, Ashagi Abdurrahman, Ashagi Kurdmahmudli, Yukhari Kurdmahmudli, Gazakhlar, Beyuk Bahmanli, and Yechtagozlu field) were contaminated with mines and unexploded ordnance, people and animals are a source of great danger.

As you can see from the pictures, as a result of the explosions, the landscape of the areas was disturbed, trenches and small hills were formed.

When inspecting the 0–50 cm layer of the soil, it was determined that their morphological structure was broken, the structure was destroyed, and the soil was burnt in some areas. In such areas, the humus has been burned, the microbiological process has been destroyed, and the organic remains have turned to ashes.

Therefore, those lands have lost their biological productivity and are completely degraded.

Observations show that 13 years after the ceasefire, grass still does not grow in the areas where the explosion took place, which indicates that the soil is subject to pathological processes.

One of the main problems is to make effective use of occupied land resources, maintain fertility, prepare a set of necessary measures for the return of unusable lands to the agricultural cycle, and especially determine ways to eliminate the factors that cause soil erosion.

Surface and linear erosion in occupied lands in the Karabakh region covers a large area.

It can be seen in the pictures showing the disintegration of the land and the fragmentation of the landscape as a result of surface and soil erosion. The area's natural vegetation and perennial plantings were completely destroyed, grape plantations, mulberry gardens, crops, pastures, etc., plots of land have become unusable (photo album).

It should be noted that the modern state of the military erosion process in the occupied land cover in the Karabakh region has been studied.

Taking into account the indicators, a large-scale soil erosion study was conducted in the area of lower Abdurrahman village, which was selected as a benchmark farm area in Fuzuli, for the purpose of a comparative study of the structure of eroded soils. The total area of the research object is 1257.0 hectares.

During field-soil research, soil sections were placed in specific areas and laboratory analyses (humus, carbonation, absorbed bases (Ca, Mg, and Na), mechanical composition, nitrogen, phosphorus, potassium, etc.) were carried out on the soil samples taken from them, based on modern methods.

It was determined that mainly chestnut (gray-brown) soil types are distributed here.

Chestnut (gray-brown) soils are widespread in the foothills of the Greater and Lesser Caucasus.

These soils formed in a dry climate occupy the main part of the low mountainous zone. In these soils, dry steppe plants cannot form a complete cover. They are mostly ephemeral, sparse, and short.

That is why it gives the soil little organic residue, some of which is rapidly mineralized in the current climate.

Dark chestnut and light chestnut semi-types of the chestnut (gray-brown) soil type are common in the region of the Lesser Caucasus.

Those soils formed on delluvial sediments in the Fuzuli region have a relatively thick soil layer and a high layer on the slopes. The relief in this land zone is mostly flat, but it varies, and in some areas, the relief is also fragmented.

Genetic layers are clearly distinguished in the profile of chestnut (gray-brown) soils.

The upper rotten-accumulative layer is in some cases up to 60 cm, chestnut colored.

Mechanics is mainly heavy granular, and in the lower layers, it is clay. The amount of physical clay in the profile varies between 45 and 46%.

Depending on the subtype of those soils, humus is between 1.5 and 3.0% and has a granular structure. These soils are carbonated and appear in the form of carbonate compounds, white crystals, and micelles along the profile.

Carbonate compounds are mostly found in the "B" layer. These soils are saturated with absorbed bases. The soils we studied are easily exposed to the erosion process due to their water resistance.

In eroded areas, the productivity of agricultural crops decreases significantly.

In the research area, there are chestnut soils that have been irrigated since ancient times (Ibrahimov). As a result of long-term irrigation, the morphological structure of these soils has changed.

One of the disadvantages of chestnut (gray-brown) soils is that due to long-term use of heavy agricultural machinery, there is hardening of the subsoil layer, which slows down the development of agricultural plants and significantly reduces their productivity. The formation of such a layer disrupts the air and water regime. To prevent this, it is necessary to deepen the subsoil layer.

Chestnut (gray-brown) soils are saturated with bases. The total amount of cations absorbed in the profile is 24.8–39.9 m.equiv in 100 g of soil.

Among the cations, the Ca cation is dominant. Thus, the calcium cation from the sum of the bases 73.9–86.6%, magnesium cation 10.13–23.81%, and sodium 2.2–3.2%. These farms are moderately supplied with nutrients.

Light chestnut (light gray-brown) half-type of chestnut (gray-brown) soil type was also studied in the region.

It was determined that the mechanical composition of these soils [Table 2] is medium and heavy loamy. Thus, the amount of physical clay in the profile ranges from 34.7 to 54.4%, and the amount of silt fraction varies from 6.9 to 22.2%.

Light chestnut (light gray-brown) in the profile of a crumbly structure, hygroscopic humidity ranges from 3.1 to 5.5%, total humus from 1.33 to 1.89%, total nitrogen from 0.04 to 0, 07%.

These soils are carbonated, so the content of calcium carbonate ($CaCO_3$) is 11.4–14.0% in the profile [Table 3]. The soils we studied are saturated with the basics.

The total number of bases in the profile is 9 $Ca^{+}Mg^{+}Na$ 100 g and 24.8–24.9 m in soil constitutes eq.

Here, the amount of calcium cation is a big advantage. Hence, calcium cation is 94–99%, magnesium is 0.26–2.54%, and sodium cation is 0.53–2.82% of the total base.

As it can be seen, the chestnuts and those soils that we studied were not exposed to the soil.

The complexity of the natural conditions in the region, the constant increase of anthropogenic pressure, and exogenous processes cause the process of erosion and reduce the fertility of the soil at a rapid rate.

Surface, linear erosion has developed widely in the research object. Irrigation erosion is observed as a result of unscientific irrigation in the irrigated lands in the area.

In the past 15 years, as a result of Armenian aggression, extensive military operations were conducted in the area. Conducted military operations create conditions for the formation of military erosion in the region.

Cannons, mortars, and bombs dropped from the air, trenches and ditches dug for defense destroyed and polluted the lands and disturbed their morphological structure.

The explosions created an ecological anomaly that disrupted the natural balance by disrupting the landscape, causing animals to die and leave the area. Due to the danger of mines in these areas, the land cannot be used for agricultural work.

Long-term restoration work should be done to restore the areas and return them to a condition suitable for agriculture [Tables 1-6].

As a result of soil erosion in the area, the soil vegetation cover and the fertility parameters of the degraded soils have deteriorated rapidly.

As a result of the complex field soil erosion and camera laboratory studies conducted in the standard farm area of Fuzuli region (in the area of Ashagi Abdurrahman village), soil erosion maps of that object were prepared, and the degrees of soil erosion were determined.

The soil erosion map prepared in the researched areas reflects soil erosion, its development, intensity, and distribution area.

The relief of the area mainly consists of mountainous hilly, undulating indented protruding heights, partly undulating plains with a slight slope.

As a result of the conducted studies, it was determined that the intensity of the erosion process increases as the inclination of the slopes increases. Slopes with an inclination of 2 are not dangerous in terms of erosion.

It was determined that 899.2 hectares or 71.5% of the total area of Aşaghi Abdurrahman village has an inclination of more than 2.

Thus, the area with an inclination of up to 5–8 is 196.3 hectares or 15.6% of its territory, the area with an inclination of 8–12 is 248.2 hectares or 19.2%, and the slopes with an inclination of more than 12 are 166.0 hectares or the total makes up 13.2% of its territory [Table 7].

It should be noted that before the occupation, viticulture, grain growing, cocoon growing, and animal husbandry occupied an important place in the economy of Ashagi Abdurrahman village of Fuzuli district.

The area of agricultural lands was 1067.6 hectares, which is 84.9% of the total area. Out of this, 412.2 hectares of arable land, 344.8 hectares of perennial crops (313.8 hectares of vineyards and 31.0 hectares of mulberry orchards) and 310.6 hectares of pastures. After the occupation of Ashaghi Abdürrahman village of Fuzuli district, these natural farm areas were completely changed.

Thus, 344.8 hectares of perennial plantings, including 313.8 hectares of vineyards and 31.0 hectares

Table 1: Mechanical composition of chestnut (gray-brown) soils (in % on absolute dry soil)

Cut N-si	Depth in sm	Fractions in mm						Physical clay<0.01
		1–0.25	0.25–0.05	0.05–0.01	0.01–0.005	0.005–0.001	<0.001	
4	0–24	0.26	22.30	20.44	20.34	20.48	15.68	57.00
	24–57	0.30	18.22	20.56	21.76	20.04	19.12	60.92
	57–93	0.32	20.72	21.60	20.88	20.00	16.48	57.36
	93–139	0.27	18.61	20.00	21.80	20.08	19.24	61.12

Table 2: Main constituents of chestnut (gray-brown) soils (in % of absolute dry soil)

Cut N-si	Depth in sm	Hygroscopic moisture	Hummus	General		CaCO3 according to CO_2
				Nitrogen	Phosphorus (P_2O_5)	
4	0–24	5.5	2.45	0.15	0.16	2.16
	24–57	6.2	2.41	0.14	0.13	1.32
	57–93	5.9	1.81	Not analyzed	Not analyzed	7.43
	93–139	6.2	Not analyzed	Not analyzed	Not analyzed	6.55

Table 3: Amount of absorbed bases in chestnut (gray-brown) soils

Cut N-	Depth in sm	Absorbed bases m.eq. in 100 g of soil			The sum of the bases in m.eq. 100 g of land	In % of the sum of bases		
		Ca	Mg	Na		Ca	Mg	Na
4	0–24	20.00	4.00	0.80	24.80	86.68	10.13	3.22
	24–57	29.50	9.50	0.90	39.90	73.93	23.80	2.26

Table 4: Mechanical composition of light chestnut (light gray-brown) soils (in % on absolute dry soil)

Cut N-	Depth in sm	Fractions in mm						Physical clay
		1–0.25	0.25–0.05	0.05–0.01	0.01–0.005	0.005–0.001	<0.001	<0.01
92	0–29	1.90	14.34	33.20	16.24	12.08	22.24	50.56
	29–57	5.28	20.00	20.24	32.24	11.28	10.96	54.48
	57–98	5.36	43.60	10.32	12.96	14.80	6.96	34.72
	98–125	3.60	31.86	17.32	29.00	21.12	11.20	47.32

Table 5: Light chestnut (light gray-brown) is the main component of soils parts (in % on absolute dry soil)

Cut N-	Depth in sm	Hygroscopic moisture	Common HU mmus	Ümumi		CO_2	$CaCO_3$ according to CO_2
				Nitrogen	Phosphorus (P_2O_5)		
92	0–29	3.3	1.89	0.07	0.18	5.16	14.00
	29–57	4.1	1.46	0.04	0.12	5.04	11.40
	57–98	5.5	1.33	Not analyzed	Not analyzed	5.41	12.30
	98–125	3.1	Not analyzed	Not analyzed	Not analyzed	5.23	11.90

Table 6: Amount of absorbed bases in light chestnut (light gray-brown) soils

Cut N	Depth in sm	Absorbed bases m.eq. in 100 g of soil			The sum of the bases in m.eq. 100 g of land	In % of the sum of bases		
		Ca	Mg	Na		Ca	Mg	Na
92	0–29	23.50	0.63	0.7	24.63	94.64	2.54	2.82
	29–57	24.18	0.25	0.5	24.93	99.21	0.26	0.53

Table 7: Slope of the surface of the territory of the village of Alkhadzhi Abdurrahman, Fuzuli region

Total area ha/%	Inclination rate in %				
	>2	2–5	5–8	8–12	>12
1257.0	357.8	288.7	196.3	248.2	166
100.0	28.5	23.0	15.6	19.2	13.2

of mulberry orchards, were completely (100%) destroyed, and 254.0 hectares of 412.2 hectares of arable land are unfit for cultivation to this or other extent.

503.0 hectares of the total area or more than 40% of the arable land has been converted into pasture land.

From the results of the conducted research, it is clear that the area of eroded land in the village of Aşağı Abdurrahman increased by 189.2 hectares or 15.0% during 15–20 years. Of this, 3.1% is weakly eroded, 5.7% is moderately eroded, and 6.2% is severely eroded [Tables 8 and 9].

Table 10 shows the areas contaminated by mines and unexploded ordnance in some of the liberated settlements.

As it can be seen from the figures of Table 8, the area of 3403.5 thousand m^2 in nine settlements freed from occupation was contaminated with mines and explosive military ammunition and became a source of great danger for human and animal organisms. As you can see from the pictures, the landscape of the areas was disturbed as a result of the explosions, trenches and small hills were formed.

Table 8: The natural farm area of the village lands of lower Abdürrahman, Fuzuli region

Natural farm areas	Before the invasion		After the invasion	
	Hectares	%	Hectares	%
Sow	412.2	32.8	254	46.5
Vineyard	313.8	25.0	Destroyed	Destroyed
Mulberry garden	31.0	2.5	Destroyed	Destroyed
Knitting	310.6	24.7	691.0	55.0
Other areas and waste	189.4	15.0	312	24.8
Total	1257	100.0	1257.0	100

When the 0–50 cm layer of the soil was examined, it was determined that their morphological structure was broken, the structure was destroyed, and the soil in some areas was unusable. In such areas, humus has been burned, the microbiological process has been destroyed, and organic remains have turned to ashes.

Therefore, those lands have lost their biological productivity and are completely degraded.

Despite the fact that more than 13 years have passed since the ceasefire, grass still does not grow in the areas where the explosion took place, which indicates that the soil is subject to pathological processes.

The following conclusions can be drawn from the conducted research.

1) As a result of the occupation, 313.8 hectares of vineyards, 31.0 hectares of mulberry orchards were completely destroyed, and 158.2 hectares of farmland became unfit for cultivation. On average, soil fertility and productivity have decreased.
2) As a result of the occupation, the erosion process increased in 189.2 hectares or 15% of the territory. Out of this, 3.1% have been subjected to weak erosion, 5.7% to moderate, and 6.25% to severe erosion.

Combating soil erosion and preventing it in areas

Table 9: Erosion rate of the lands of Ashagi Abdurrahman village, Fuzuli region

Total area ha %	Before the invasion				After the invasion			Fierce
	Suffered	Weak	Medium	Fierce	Suffered	Weak	Medium	
1257.0	774.5	158.7	182.3	141.5	585.3	196.8	254.2	220.7
100.0	61.6	12.6	14.5	11.3	46.6	15.7	20.2	17.5

Table 10: Contaminated settlements

N-	Residential area	Contaminated area min. m^2	Population in residential areas		The number of displaced persons
			Atəşə qədər	Cari	
1	Horadiz settlement	9.6	6697	4996	250
2	Thanks	321.6	1200	900	112
3	Alkhanli	2098.2	3150	1647	224
4	Aşağı Əbdürrəhmanlı	318.5	1200	20	10
5	Lower Abdurrahman	27.5	1006	1363	45
6	Kazakhs	218.1	750	780	27
7	Great Bahmanli	127.5	4534	5070	59
8	Upper Kurd Mahmud	154.5	1065	1149	56
9	Bed of the night eye	128	15	225	18
Total		3403.5	19617	16150	801

with a risk of erosion is one of the main tasks of efficient use of natural resources as a problem of national importance.

The fight against erosion consists of agrotechnical, phytomelioration works, and hydromelioration measures. One of the best and most important forest reclamation measures is the creation of terraces on eroded mountain slopes and the planting of vineyards and orchards there.

On sloping slopes where the soil cover has been eroded, soil protecting crop rotation should be applied. Here, the crops grown in rotation should occupy 20% of the crop rotation. Perennial grass and winter grain crops should each have 40%.

Under cereals, 90 kg of each of nitrogen, phosphorus, and potassium fertilizers should be given per hectare.

Grazing norms and rules should be followed in non-eroded or poorly washed grazing areas.

In moderately eroded grazing areas, the grazing rate should be reduced by 2 times, surface improvement should be carried out by sowing the seeds of perennial grass plants.

In severely eroded fields, it is necessary to improve the surface to increase its productivity.

Therefore, the fields should be cleared of stones, grass seeds should be sown, and 45–60 kg of nitrogen, phosphorus, and potassium should be given per hectare as an active substance.

Cattle grazing should be stopped for 3 years in severely eroded areas.

Soil erosion can be prevented if the above set of measures are implemented in accordance with each other.

Forty-four minefields (3361.1 thousand m^2) and 54 battlefields (42.4 thousand m^2) were discovered as a result of the First Level Mine Survey conducted by the International Eurasian Press Foundation in 2000–2001 in the liberated areas.

Due to all this, agriculture suffered the most damage. Thus, 2883.1 thousand m^2 of land remained unused. It should be noted that it would take a long time to create a balance in nature in a region subjected to military erosion.

After the completion of the demining works in the region that we have studied, long-term reclamation works should be carried out in those areas, leveling, cultural organization works, and phytomelioration measures should be carried out in the area, manure should be applied to the areas and monitoring observations should be carried out for 2–3 years, and toxicological studies should be carried out on the soils.

To create balance in nature, ecosystems should be restored, forest reclamation works should be carried out.

In the language of the Honorable IlhamAliyev, the President of Azerbaijan, the occupied lands will be freed and the beautiful Karabakh will be returned to the bosom of the motherland, long-term treatment of the freed sick lands will be carried out.

Taking into account all this, appropriate laboratories and groups should be created within the scientific research institute of erosion and irrigation of the Ministry of Agriculture of Azerbaijan without wasting time, complex reclamation measures should be developed for the territories to be freed from occupation.

Today, the Republic is making great strides and the future of the country is bright.

As the President of the Republic said, it will liberate the occupied lands of Azerbaijan in any way possible and restore the destroyed regions and villages. The following system of measures should be developed for the restoration of the territories to be freed from occupation:

1. State policy on the restoration of territories freed from occupation should be determined.
2. The state program for the restoration of the liberated territory should be developed now.
3. Erosion v. of the CT Ministry A specialized institution should be established under the Irrigation ET Institute for the preparation of complex measures for the purpose of restoring the territories.
4. First of all, the areas must be cleared of mines.
5. To monitor the toxicological situation, the toxicological laboratory within the agrochemical institution of the Ministry of Agriculture should be put into operation.
6. Forestry institutions of the Republic, ET Forestry Institute should be equipped to carry out forest melioration works in the areas to be liberated.
7. A recultivation agency should be created for the restoration of destroyed, polluted, and degraded lands.

Fuzuli region, Ashagi Abdürrahman village, in the area called out of the sphere, reflecting the

Designation of the plot of land	Area (ha)	Eroded area (%)	Eroded area (ha)	Uneroded area (%)	Uneroded area (ha)	Volume of eroded soil m^2 (1.5 m)	Volume of lost humus m^3 (0.25 m)
Sow	30	9.13	2.74	90.87	27.26	411,000	6850
Perennial planting	45	12.44	5.6	87.56	39.4	8340	14,000
Knitting	25	10.4	2.6	89.6	22.4	3900	6500
	100	10.94	10.94	89.06	89.06	53,340	27,350

Designation of the plot of land	Area (ha)	Eroded area (%)	Eroded area (ha)	Uneroded area (%)	Uneroded area (ha)	Volume of eroded soil m^2 (1.5 m)	Volume of lost humus m^3 (0.25 m)
Perennial planting	41.03	6.12	2.53	93.83	38.5	8340	6325
Knitting	58.97	6.5	3.87	93.44	55.1	3900	9675
Total	100	6.4	6.4	93.6	93.6	12,240	16,000

Land designation	Area (h)	Eroded area (%)			Eroded area (ha)			Uneroded area (%)	Uneroded area (ha)	Eroded soil volume m^2 (1.5 m)	Volume of lost humus m^3 (0.25 m)
		Defense trenches etc.	Assault trenches and avenues of movement	Grad and projectile wells	Defense trenches, etc.	Assault trenches and roads	Grad and projectile wells				
Sow	100	1.7	0.18	4.8	1.7	0.18	4.8	95.2	95.2	17,136,000	238,000
Total	100	1.7	0.18	4.8	1.7	0.18	4.8	95.2	95.2	17,136,000	238,000

indicators of the damage caused to the soil as a result of military erosion.

Aghdam region, Çemanli village, in the vicinity of the cemetery, showing the indicators of the damage caused to the soil as a result of the battle in the trenches dug in the fields of pasture and perennial crops.

Reflection of indicators of soil damage as a result of digging trenches to a depth of more than 3 meters by the aggressor in the village of Shikhrakh, Terter region.

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