

<b>Forum:</b>	Disarmament and International Security Committee (GA1)
<b>Issue:</b>	Mitigating the Impact of Land Mines and Weapon Contamination in Eastern Europe
<b>Student Officer:</b>	Aris Wakefield
<b>Position:</b>	Co-Chair

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## PERSONAL INTRODUCTION

Dear Delegates,

It is my honour to welcome you to the 13<sup>th</sup> annual session of the Platon School Model United Nations conference. My name is Aris Wakefield, and I am a student in the 11<sup>th</sup> grade at Doukas School and I will be serving as one of your Chairs in the Disarmament and International Security Committee (GA1).

First and foremost, I would like to congratulate you all for choosing to attend this year's conference and I am excited to see that there are other people who share the same passion as me. From my experience thus far, I have gathered that every MUN conference has a lot to offer, including great opportunities, skills, and friendships. Regardless of whether this is your first conference, I encourage you to participate without being afraid of making any mistakes. We have all been in this position and I promise it is fun and rewarding.

In this guide you will find plenty of information concerning the issue of "Mitigating the Impact of Land Mines and Weapon Contamination in Eastern Europe". It is a challenging topic that requires innovative and creative solutions, as it is difficult to eliminate.

This issue arises from the improper use of Explosive Ordnance (EO), such as landmines, during military training sessions and periods of War. Eastern Europe given its history, as well as the Russo-Ukrainian War is heavily affected by this matter today, as Unexploded Ordnance (UXO) continues to claim many lives due to a lack of effective usage and elimination. The development of EO such as landmines is a prime example of this Conference's main topic, "The Paradox of Progress", as it plays a crucial role in enhancing military training and ensuring security, however its immoral and unethical usage brings about a new set of problems.

Furthermore, it is important to state that this guide provides only a part of the information you need. It will act as a starting point and guide you in further research which you should conduct, so as to ensure a lively discussion and develop feasible and effective clauses for our Resolutions.

If you have any pending inquiries with respect to the topic at hand, your country's policy or how to prepare, feel free to contact me to express any concerns you may have. You can contact me by email, [aris.wakefield@hotmail.com](mailto:aris.wakefield@hotmail.com).

I look forward to meeting you all!

Best Regards,

Aris Wakefield

## INTRODUCTION

For approximately 150 years, we have seen tremendous progress in the development and usage of Explosive Ordnance (EO) to ensure both safety in communities and to assist in other activities. For instance, the use of anti-personnel landmines has been used defensively, to protect strategic areas such as borders, camps, or important bridges and to restrict the movement of opposing forces. A key characteristic of this weapon is that it is designed to maim rather than kill an enemy soldier.<sup>1</sup> However, the improper usage of such EO, especially in the case of landmine use in Eastern Europe, has brought about a concerning amount of issues, threatening both human lives and the environment on a daily basis, especially in Eastern Europe. This is due to the vast amount of conflict in this area ranging from World War II which took place on September 1<sup>st</sup>, 1939, until, September 2<sup>nd</sup>, 1945, to the recent Russo Ukrainian War, which continues to fuel this issue today. Specifically, such conflicts in combination with military training, lacking in proper monitoring and surveillance lead to the contamination of member states with Unexploded Ordnance (UXO).

UXO, and specifically landmines even after conflict has long been resolved, are able to lie dormant for many years until triggered. To this day UXO is still discovered in many countries in Eastern Europe, such as Bosnia and Herzegovina, with the area suspected to be contaminated with landmines amounting up to 965 square kilometers, 1,97% of the country's territory.<sup>2</sup> UXO is without a doubt a tremendous threat to individuals, the environment, and a member state's development.

According to a UN report, some of the latest estimates reveal that in 2021, more than 5,500 people were killed or injured by landmines, most of which were civilians and half of whom were children. It is the devastating truth that many children fall victim to UXO due to a lack of knowledge, specifically because they are unable to identify the landmines. In fact, a rather prevalent type of landmines, is the butterfly mine, which is covered in bright colours, thus, attracting curious children. When individuals tamper with UXOs in the slightest of ways, injuries may frequently result due to the unstable

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<sup>1</sup> International Campaign to Ban Landmines - a History of Landmines, Icbi.Org , [www.Icbi.Org/en-gb/problem/a-history-of-landmines.aspx#:~:text=They%20were%20used%20defensively%2C%20to,than%20kill%20an%20enemy%20soldier.](http://www.Icbi.Org/en-gb/problem/a-history-of-landmines.aspx#:~:text=They%20were%20used%20defensively%2C%20to,than%20kill%20an%20enemy%20soldier.)

<sup>2</sup> "Bosnia and Herzegovina." Itf.Si, <https://www.itf.si/activities/southeast-europe/bosnia-and-herzegovina>.

nature of the bomb, thereby maiming or even killing any individuals nearby and heavily affecting the environment around it.<sup>3</sup>

Not only do they cost lives, but they also prevent many communities and member states who heavily rely on agriculture from using viable land or even render existing farms inaccessible, as UXO is often found in farms. Landmines upon activation cause land degradation by denying access, presenting a loss of biodiversity, damaging the soils' stability by shattering the soil structure, and causing local compaction, thus, increasing the possibility of soil erosion. Bearing this in mind, many countries in Eastern Europe rely on agriculture and as of 2021, the output of agriculture, forestry and fishing ranged from 6.4 % of total gross value added in Azerbaijan and 12.5 % in Armenia. In other Eastern European countries, the shares were 12.4 % in Ukraine, 10.4 % in Moldova and 7.0 % in Georgia.<sup>4</sup> Thus, it is evident that UXO can have a devastating impact on countries who rely on agriculture for their economy.

In recent times, there has been a severe need to tackle this issue due to the recent Russo-Ukraine conflict, which is increasing the prevalence of landmines in Ukraine. Potentially hundreds of thousands of them scattered across the country buried in roads and fields in devastated cities. What is unique about these landmines is that they are manufactured with new advanced technologies, with capabilities to cause much greater impact upon detonation. In actual fact, Ukraine's mine contamination is unprecedented in the 21<sup>st</sup> century. Landmines pose a large obstacle for Ukraine's military as they continue to take the lives of many brave soldiers and disable armored vehicles. Due to ongoing conflict, the disposal and elimination of UXO and EO has proven incredibly difficult.<sup>5</sup>

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<sup>3</sup> "The deadly legacy of landmines." Un.Org, <https://news.un.org/en/story/2023/04/1135252#:~:text=More%20than%20two%20decades%20after,landmines%20on%20a%20daily%20basis>

<sup>4</sup> "European Neighbourhood Policy- East- agriculture statistics." Ec.Europa.Eu, [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=European\\_Neighbourhood\\_Policy\\_-\\_East\\_-\\_agriculture\\_statistics#:~:text=In%202021%2C%20the%20output%20of,Moldova%20and%207.0%20%25%20in%20Georgia](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=European_Neighbourhood_Policy_-_East_-_agriculture_statistics#:~:text=In%202021%2C%20the%20output%20of,Moldova%20and%207.0%20%25%20in%20Georgia)

<sup>5</sup> "Russian Land Mines Pose a Persistent and Deadly Threat in Ukraine." *Reuters*, 28 July 2023. <https://www.reuters.com/graphics/UKRAINE-CRISIS/LANDMINES/myvmgngbavr/>

## DEFINITION OF KEY TERMS

### Eastern Europe

Eastern Europe is defined as “a geographic region of the European continent west of Asia and east of Germany and the Adriatic Sea, traditionally consisting of countries that were formerly part of the Soviet Union”<sup>6</sup>.

### Land Mines

A landmine is an explosive device that is placed hidden on the ground, often times buried beneath it, triggered most commonly by pressure through direct contact and wire, otherwise remote controlled. “The 1997 Mine Ban Treaty prohibits antipersonnel mines, but not antivehicle mines or command-detonated (remote-controlled) mines.”<sup>7</sup>

### Anti-Personnel Mine

“Anti-personnel mine means a mine designed to be exploded by the presence, proximity or contact of a person and that will incapacitate, injure or kill one or more persons.”<sup>8</sup>

### Anti-Tank Mines

“These types of mines have been used in many contemporary conflicts, including currently by Russian and Ukrainian forces and are designed to damage or destroy vehicles including tanks and armored fighting vehicles”<sup>9</sup>.

### Explosive Ordnance (EO)

Explosive Ordnance is ordinary ammunition carrying explosives with the exception of mines. Examples of such are: Artillery, Tank and Mortar rounds, fuses, grenades, small and large bombs, cluster munitions and submunitions, rockets, and missiles.<sup>10</sup>

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<sup>6</sup> “Eastern Europe – General Multilingual Environmental Thesaurus.” Eionet.Europa.Eu, <https://www.eionet.europa.eu/gemet/en/concept/2413>

<sup>7</sup> “Landmines and Explosive Remnants of War.” *Sri.Icrc.Org*, <https://sri.icrc.org/understanding-support/protecting-civilians-and-others-not-fighting/landmines-and-explosive-remnants>

<sup>8</sup> “Anti-Personnel Mine - Mine Action Review.” *Mineactionreview.Org*, <https://www.mineactionreview.org/definitions/anti-personnel-mine/>

<sup>9</sup> “Backgrounder on Antivehicle Landmines.” *Hrw.Org*, <https://www.hrw.org/news/2022/04/08/backgrounder-antivehicle-landmines>

<sup>10</sup> “Explosive Ordnance - GICHD” *Gichd.Org*, <https://www.gichd.org/explosive-ordnance/>

### Unexploded Ordnance (UXO)

Unexploded Ordnance is explosive ordnance that despite being prepared, fused and ready for use and has been deployed in an armed confrontation, has yet to detonate. It could have been thrown, launched, or fired, however, it has failed to explode.<sup>11</sup>

### Explosive Remanence of War (ERW)

Explosive remnants of war are unexploded ordnance and abandoned explosive ordnance that are left by any parties participating in an armed conflict, after warfare has resolved.<sup>12</sup>

### Cluster Munitions

“Cluster munitions are weapons consisting of a container that opens in the air and scatters large numbers of explosive submunitions or " bomblets " over a wide area. Depending on the model, the number of submunitions can vary from several dozen to more than 600. Cluster munitions can be delivered by aircraft, artillery and missiles.”<sup>13</sup>

### Internally Displaced Persons (IDPs)

These are “persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular, as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized border.”<sup>14</sup>

## BACKGROUND INFORMATION

### A brief history

In 1629, the US army was the first to develop EO, but, however, gain official recognition in 1812. Other states followed suit, especially more powerful countries such as The Russian Federation and Germany who possessed the resources to own and create EO, with EO today being easily accessible. EO has been used in many wars such as WWI and WWII, but also in the Yugoslav Wars.

Prior to WWII there were no official EO disposal organizations but were found when the British Navy detected a German EO in 1939, which later destroyed. In 1941, The U.S. Naval Mine School and Bomb disposal school were both created and many other international organizations to solve the issue of UXO followed, the reason being, the countless incidents because of UXO from previous conflicts.<sup>15</sup>

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<sup>11</sup> “What is Unexploded Ordnance (UXO)?”, Wwww.Canada.ca, 10 Nov. 2017,

[www.canada.ca/en/department-national-defence/services/uxo/what-is-uxo.html#](http://www.canada.ca/en/department-national-defence/services/uxo/what-is-uxo.html#).

<sup>12</sup> “Explosive Remnants of War.” Undrr.Org, <https://www.undrr.org/understanding-disaster-risk/terminology/hips/so0004>

<sup>13</sup> “Cluster munitions: what are they and what is the problem?” Icrc.Org, <https://www.icrc.org/en/doc/resources/documents/legal-fact-sheet/cluster-munitions-factsheet-230710.htm>

## The Yugoslav wars

The Yugoslav Wars are one of the main reasons aside from the two previous World Wars, that Eastern Europe is so severely affected by UXO. In the early 1990s, the Socialist Federal Republic of Yugoslavia was one of the largest, most developed, and diverse country in Eastern Europe. It was a non-aligned federation comprised of six republics: Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia, as well as the two separate regions of Kosovo and Vojvodina and also held power over autonomous provinces within the Republic of Serbia, at the time.

In the late 1980s and early 1990s Eastern Europe was facing the collapse of communism and resurgent nationalism, which resulted in a period of intense political feuds and an economic crisis in Yugoslavia. Political Leaders exploited nationalistic ideals and rhetoric to undermine a common Yugoslav identity and wreak havoc, fear, and mistrust to the many ethnic groups within the region. In 1991, the country was divided and resulted in Slovenia and Croatia blaming Serbia of having too much power and unrightly dominating the Yugoslav government, military, and finance. <sup>16</sup>

### The Ten-Day war (Slovenia and Croatia)

Slovenia was the first major country to leave Yugoslavia, declaring it independent on June 25<sup>th</sup>, 1991. In turn, this gained the attention of the Yugoslav People's Army (JNA), resulting in the Ten-Day War, a small and brief military conflict leading to Slovenia's victory and the JNA's withdrawal of forces and equipment.

On the same day, Croatia also declared its independence. However, due to the vast amount of Serbs within the country rejecting this authority and expressing their desire to stay within Yugoslavia, they managed to claim approximately one third of Croatia's territory and control it as an independent Serb state. After long disputes and UN-monitored ceasefire, Croatian authorities were determined to regain control over their territory. In the summer of 1995, Croatia instigated two major offences, leading in an evacuation of my Serbs to Bosnia and Herzegovina. The Croatian War finally concluded on November 12<sup>th</sup>, 1995. <sup>17</sup>

### Bosnia and Herzegovina Conflict

Bosnia and Herzegovina due to its beneficial geographic location, being in the center of Yugoslavia as well as having a diverse population of both Serbs and Croats, was severely affected by the conflict. This led to both Serbia and Croatia constantly disputing for power over the region. On March 1st, 1992, a referendum was held which resulted in the majority of Bosnian citizens wanting

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<sup>14</sup> "About internally displaced persons", Ohchr.Org, <https://www.ohchr.org/en/special-procedures/sr-internally-displaced-persons/about-internally-displaced-persons#:~:text=According%20to%20the%20Guiding%20Principles,avoid%20the%20effects%20of%20armed>

<sup>15-17</sup> "The Conflicts", Icty.Org, <https://www.icty.org/en/about/what-former-yugoslavia/conflicts>

their independence. Bosnian Serbs in the region rebelled with the support of Serbia and the JNA, wanting for large amounts of territory to be under their control and be recognized as a Serb Republic, and quickly ensured to gain control over more than 60% of the country. Likewise, the Bosnian Croats with the help of Croatia decided to do the same and declare their own Croat Republic. The conflict was quickly escalated and resulted in many losses from all three sides, with an estimate of over 100,000 people being killed and approximately 2 million people, more than half of the country's population, being forced to flee their homes. The War ended on December 14<sup>th</sup>, 1995. <sup>18</sup>

### Kosovo War

In 1998 in Kosovo, an ethnic Albanian community sought their independence from Serbia. This resulted in much conflict arising within the country, as Serb forces targeted civilians, demolished villages, and forced Kosovo Albanians to flee. In early 1999, an attempt to broker an international deal to end the crisis was made but failed, resulting in NATO carrying out a 78-day long campaign of air strikes in Kosovo and Serbia. As a response, Serb forces intensified their offences and persecution of the Kosovo Albanian citizens. On June 10<sup>th</sup>, 1999, Serbia agreed to the international administration of Kosovo, however, the final status of the province remains unresolved. <sup>19</sup>

### North Macedonia

North Macedonia, formerly known as The Former Yugoslav Republic of Macedonia, declared its independence on September 8<sup>th</sup>, 1991, and was separated without much conflict. However, in early January 2001, the ethnic Albanian National Liberation Army (NLA) disputed with the republic's security forces so as to obtain autonomy and independence over the Albanian populated areas. Armed conflict lasted for a few months and ended on August 13<sup>th</sup>, 2001, with a peace treaty, involving a political agreement on power-sharing and a NATO monitoring force. <sup>20</sup>

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<sup>18-20</sup> "The Conflicts", Icty.Org, <https://www.icty.org/en/about/what-former-yugoslavia/conflicts>

### The Aftermath of the Yugoslav Wars in relation to UXO

As a result of all of these Wars, where EO was heavily used, the issue of UXO in Eastern Europe has been exacerbated, the following table provides some statistics that are crucial to understanding the effect of UXO:<sup>21</sup>

Mine Contamination Indicators	Mine-Contaminated Countries					
	ALBANIA	BiH	CROATIA	MACEDONIA	SERBIA AND MONTENEGRO	
					SERBIA	KOSOVO
MINE CONTAMINATED AREA	15.2 sq km	2130.6 sq km	1,700 sq km	21 sq km	39 sq km	45 sq km
INITIAL MINE CONTAMINATION ESTIMATE	170 sq km	4,000 sq km	13,000 sq km	80 sq km	100 sq km	80 sq km
PERCENTAGE OF THE COUNTRY CONTAMINATED WITH MINES	0.02%	4.17%	3%	0.08%	0.05%	0.4%
NUMBER OF MINES AND UXO	Unknown	670,000 mines 650,000 UXO	500,000 mines 400,000 UXO	2,000 mines 70,000 UXO	71,000 mines 63 missiles	25,000 mines 22,000 UXO
NUMBER OF MINE VICTIMS	232	4,535	1,838	18	350	461
NUMBER OF MINES PER SQ KM	Unknown/ high density minefields	19.5	8.8	0.07	0.69	2.2
PERIOD OF MINE DEPLOYMENT	1999	1992–1995	1991-1995	2001	1999	1999
RATIFICATION OF THE OTTAWA TREATY	2000	1998	1998	2001	2003	
NUMBER OF STOCKPILED MINES TO BE DESTROYED	1.68 million APLs destroyed on 4/4/02	532,556 APLs destroyed	230,000 APLs destroyed	No existing data	No existing data	No existing data

Figure 1 Statistics on the extent of mine contamination in Eastern Europe

<sup>21</sup> "Mine Problem in the Region of Southeastern Europe", Commons.Lib.Jmu.Edu, <https://commons.lib.jmu.edu/cgi/viewcontent.cgi?article=2381&context=cisr-journal>



### The Russo-Ukrainian war

The conflict between Russia and Ukraine has been ongoing for decades now. However, it has been exacerbated with the invasion of the then Ukrainian Crimea by Russian troops in February of 2014. At this time Russia illegally annexed Crimea, something that was condemned by many members of the international community and severely impacted the relations between the two nations. The annexation of Crimea led to the development of more conflict in regions such as Donetsk and Luhansk, where independence was sought after pro-Russian separatists. Conflict was later escalated on February 24<sup>th</sup>, 2022,<sup>22</sup> when Russia invaded Ukraine.

Evidently this War has had a tremendous impact on the increase of UXO in Eastern Europe, hence, threatening the lives of many civilians, hindering recovery efforts for after the conflict has been resolved or ameliorated, inter alia. A conflict of such a large impact has left vast areas contaminated with ERW. The ubiquitous use of EO increases the level of difficulty as well as the amount of obstacles they now need to overcome the War's aftermath, since it widely affects sectors along the lines of agriculture, infrastructure, and the resettlement of displaced persons as well as their reintegration into their respective communities.

The ongoing conflict between Russia and Ukraine extends far beyond the immediate humanitarian crisis, in fact, it impedes the affected nation's long term-prospects, as it impacts its economic development and potential as well as, creates less opportunities for foreign investments. The increased presence of UXO in Eastern Europe will create a cycle of instability that will last for future generations.<sup>23</sup>

### Impact

UXO has had a tremendous impact in Eastern Europe due to all previous and even ongoing conflict, such as the aforementioned War between Russia and Ukraine, which takes place in the area.

#### Humanitarian Impact

All types of UXO pose a huge threat to humans and their overall safety, including bodily harm, death and even long-term health problems arising from chemical agent exposure. On a yearly average, it is estimated that 15,000 to 20,000 people are killed or injured by explosives, 5,000 of whom are within Eastern Europe, with children making up almost 40% of these casualties.<sup>24</sup>

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<sup>22</sup> "Russia-Ukraine War" Britannica.Com, <https://www.britannica.com/event/2022-Russian-invasion-of-Ukraine>

<sup>23</sup> "The World After the Ukraine War.", Aljazeera.Com  
<https://www.aljazeera.com/opinions/2023/2/20/the-world-after-the-ukraine-war>

<sup>24</sup> "The Impact of Mines, Unexploded Ordnance and Other Explosive Objects on Civilians in the Conflict-Affected Regions of Eastern Ukraine", Osce.Org, <https://www.osce.org/special-monitoring-mission-to-ukraine/487882>.

It is undeniable that UXO jeopardizes the security and welfare of individuals especially young children. In fact, only 15% of injured children are able to arrive to a hospital alive. The reason why children are more likely to fall victims to UXO is due to a lack of information they possess with respect to the risks associated with playing or travelling through dangerous regions. Children who are affected by UXO, may potentially lose their sight and or hearing, any number of limbs and will experience psychological distress due to the trauma they have gone through. It is important to state that the distribution of humanitarian aid suffers due to the unpredictable nature of UXO presence in physical space, which, in turn, impedes developmental activities.<sup>25</sup>

The humanitarian crisis as a result of UXO is clearly illustrated in Ukraine, where the increased presence of landmines has displaced over 1.36 million people. For this reason, the United Nations High Commissioner for Refugees (UNHCR) strongly favors towards broadening the UN's Policy on Mine Victim Assistance to apply for individuals who have been affected by UXO regardless of their age, seeing that currently it solemnly protects those under the age of 18. The respective policy entails the following: "data collection, medical care, physical and other rehabilitation, including psycho-social care". It is crucial to extend aid to IDPs by enforcing the Guiding Principles on Internal Displacement, which highlights the needs of IDPs as well as, by ensuring National Governments work towards upholding these principles.<sup>26</sup>

### Impact on Development

UXO presence in Eastern Europe has had a negative impact on development, including infrastructure, economy, and key services. Undiscovered and unmarked UXO restrict the establishment of houses, roadways, educational centers, medical institutions, and other vital services for a member-state. A prime example of this issue can be seen in Ukraine where many schools and hospitals have been deeply affected by Russian Cluster Munitions and other EO. Moreover, UXO poses a severe threat to agriculture and farming, as the agricultural economic progress of countries in Eastern Europe has been impeded by UXO, with 22% of all UXO explosions occurring during farming operations.<sup>27</sup>

UXO deeply affects a variety of industries ranging from mining, forestry, the establishment of hydropower projects, the construction of roads, schools, and clinics, as government funding and any external financial resources go towards medical care and demining operations, which, in turn, leads to the conclusion for a distinct connection between the incidence of poverty and the existence

<sup>25</sup> "Explosive Ordnance - GICHD" Gichd.Org, <https://www.gichd.org/explosive-ordnance/>

<sup>26</sup> "UNHCR says Ukraine landmine risk needs urgent action", Unhcr.Org, <https://www.unhcr.org/news/briefing-notes/unhcr-says-ukraine-landmine-risk-needs-urgent-action>

<sup>27</sup> "Hazardous Ground", Undp.Org, [https://www.undp.org/sites/g/files/zskgke326/files/migration/la/UNDP\\_LA\\_Hazardous-Ground.pdf](https://www.undp.org/sites/g/files/zskgke326/files/migration/la/UNDP_LA_Hazardous-Ground.pdf)

of unexploded ordnance, to be in place. Before infrastructure being rebuilt hospitals, schools, and other essential facilities are required to first be cleansed of UXO. This has immediate negative effects on local populations' livelihoods and health, which are especially severe in countries like Ukraine and Bosnia and Herzegovina, where landmines and other forms of UXO are especially prevalent.

Unexploded Ordnance (UXO) violates a child's right to life, to a secure environment in which to play, to health, to clean water, to hygienic circumstances, and to an appropriate education and negatively impacts the economic situation and development of contaminated countries.

Furthermore, a connection between hunger, conflict and UXO can be established, when taking into consideration the following. “A 2018 UN Global Report on Food Security suggests that the number of malnourished people is now more than 820 million”, in combination with the fact that over 50 countries, namely Bosnia, Azerbaijan, and Ukraine in Eastern Europe, are contaminated with UXO that have made the soil toxic, thus deterring them from achieving rural re-development.<sup>28</sup>

#### Environmental impact

Finally, the existence of UXO heavily threatens the environment. Landmines, and other UXO render land and many other natural resources inaccessible, forcing the overexploitation of those available and resulting in soil degradation. Additionally, they heavily impact biodiversity through unplanned detonations or leaks of dangerous chemicals into soil and water, two essential components for agriculture.

It is important to state, that while UXO in affected town or small villages may be de-mined to the extent possible, forests with Explosive Remnants of War (ERW), are often disregarded. Forests during periods of conflict are utilized to transport heavy military equipment, establish military stations, and even conduct military training operations, which result in scattered UXO contamination. This issue can be seen in today's events, as 9 regions in Ukraine, approximately 600 thousand hectares of forest land are deeply affected by the ongoing hostilities. However, this issue can be seen throughout Eastern Europe, in countries such as Azerbaijan, Armenia, Bosnia and Herzegovina, North Macedonia, Georgia and many more.<sup>29</sup>

<sup>28</sup> “How landmines hinder development”, Undp.Org <https://www.undp.org/blog/how-landmines-hinder-development>

<sup>29</sup> Soil degradation in the European Mediterranean region: Processes, status and consequences”. [https://www.sciencedirect.com/science/article/pii/S0048969721051810#:~:text=In%20the%20EU%2C%20the%20main,salinisation%20\(EC%2C%202006\).](https://www.sciencedirect.com/science/article/pii/S0048969721051810#:~:text=In%20the%20EU%2C%20the%20main,salinisation%20(EC%2C%202006).)

The issue of UXO can, also, have detrimental effects on the quality of water, due to the hazardous substances required to construct EO. When an EO is set off near water bodies or when EO is disposed in Water, it poses the issue of Water Pollution and threatens marine biodiversity. For this reason, it is of utmost importance that the disposing of UXO in water bodies, is done in an environmentally-friendly way. It is recommended that modernized methods are utilized such as the use of electronic seal scanners and pingers, which are acoustic devices for chasing seals and other marine mammals away from detonation areas. Moreover, the installation of air bubbles or commonly referred as bubble curtains can significantly help reduce the impact of UXO.

### Challenges towards disarmament in Eastern Europe

The most important and only solution that will help eradicate the issue of EO in Eastern Europe is indisputably their disarmament and disposal. Be that as it may, such a process is extremely dangerous and poses a severe threat to surrounding civilians, infrastructure, environment and most importantly the individuals who are performing the removal of EO. It is of vital importance that the challenges with respect to the disarmament of EO in Eastern Europe are identified and evaluated in order to progress to the development of safer and environmentally-friendly methods of disposal. Despite the fact that landmines, a type of EO, have been “partially” banned, they continue to pose a severe threat, owing to the fact that they are still in the market.

### The Mine Ban Treaty

The Mine Ban Treaty also known as the Ottawa Convention, but officially declared as “The 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction” is an international agreement for the purpose of placing a ban on antipersonnel landmines. The convention concluded on 18 September 1997 and was signed by many states on 3 December 1997.<sup>30</sup>

The Mine Ban Treaty focuses on prohibiting the use of anti-personnel landmine by any and all parties, especially in armed conflicts but also during times of peace. It also further enforces the prohibition of the development, production, acquisition, stockpiling, and transferring of anti-personnel landmines. A key portion of this Treaty is that despite the fact it clearly states the destruction of stockpiles of anti-personnel landmines, many member states do not abide by this and are in possession of large stockpiles of these landmines. For this reason, it is crucial to come up with ways to encourage more member states to

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<sup>30</sup> “Convention on the prohibition of the use, stockpiling, production and transfer of anti-personnel mines and on their destruction”, Unoda.Org, <https://geneva-s3.unoda.org/static-unoda-site/pages/templates/anti-personnel-landmines-convention/APLC%2BEnglish.pdf>

ratify and sign the Ottawa Convention and to develop ways to ensure that it is not violated.

### Justifying the continuous use of landmines

As previously mentioned, landmines are banned from both being produced stored and sold. Despite this, landmines are still in the market due to the fact that they are cheap to make, which makes them the preferred weapon to use in combat operations, specifically, the average cost of a landmine would be around 3\$ - 75\$. However, the cost of their removal substantially rises and ranges from 300\$ -1000\$, for each one of them.<sup>31</sup>

### Challenges with the safe disposal and removal of UXO

When it comes to safely disarming and disposing UXO, it is important to take into consideration the following points. First of all, it is of vital essence to take account for the vast amount of time required for the actual “de-bombing process”. Even before that, the identification process of EOs in minefield is incredibly time-consuming and even more when the respective minefield is unmarked and needs to be defined. Which is why technologies needs to be developed for the purpose of safely detecting EOs and minefields, such as the Mine-Detecting Air Drones that survey the ground of a minefield and directly communicate this information with an army base station.

Yet, another aspect that needs to be tackled is the actual cost of UXO disarmament. As previously stated, the individual cost UXO removal and disposal amounts to 300\$-1000\$.<sup>32</sup> This itself can have a significant impact on countries whose economy is less developed and are heavily contaminated with UXO, since the cost of safely disarming will be extremely detrimental and cause many, potentially irreparable financial setbacks.

Finally, the most significant challenge presented by the disarmament of UXO is the tremendous risk that follows. Specifically, unmarked minefields such as agricultural fields, forests or even villages, are a huge threat because they lack any visible indicators. This increases the risk of their potential detonation by military forces, farmers, and civilians, as well as makes their clearance increasingly difficult.

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<sup>31</sup> “About Landmines”, Apopo.Org, <https://apopo.org/what-we-do/detecting-landmines-and-explosives/about-landmines/#:~:text=It%20is%20difficult%2C%20dangerous%2C%20time,economies%20already%20damaged%20by%20conflict>.

<sup>32</sup> “How one Indian teen inventor is addressing the landmine crisis”, Borgenproject.Org, <https://borgenproject.org/how-one-indian-teen-inventor-is-addressing-the-landmine-crisis/>

## MAJOR COUNTRIES AND ORGANISATIONS INVOLVED

### Ukraine

Ukraine given recent events has been recognized by the UN as the most mine-contaminated member state in the world, a truly devastating fact. Ever since the Annexation of Crimea in 2014, hostilities in the area are rising and continue to pose a threat to human security. Ukraine's landmine contamination isn't limited to recent events such as the Russo-Ukrainian War, but it also stems from both World Wars. Ukraine's contamination has risen to an unimaginable amount, resulting in UXO and ERW to continue to threaten the lives of civilians for many years to come.<sup>33</sup> The Ukrainian government is making small efforts towards demining the nation, in cooperation with the Halo Trust, however, this process is severely under-funded and due to ongoing conflict, it is rendered even more difficult.<sup>34</sup>

### Bosnia and Herzegovina (BIH)

Bosnia and Herzegovina are heavily contaminated with UXO and is the second most mine-contaminated country following Ukraine. As of 2020, the country is suspected to be infested with mines for 1,97% of its territory and according to the Bosnia and Herzegovina Mine Action Center (BHMIC), it is estimated that around 79,000 mines remain in the region. Since 1996, its population has been heavily affected by this issue, with 1,766 local residents having lost their lives or have been heavily maimed to UXO.<sup>35</sup> Almost 15% of victims are children due to the fact they are either unaware or physically can't read the danger signs, or they often mistake them as toys. The Bosnia and Herzegovina Mine Action Centre estimates that the total of UXO left over from the war amounts up to 180.000, 130,000 have been removed, and 617 lives have been lost so far.<sup>36</sup>

### Kosovo

Kosovo due to its fairly recent conflict, The Kosovo War which lasted from February 28<sup>th</sup>, 1998, until June 11<sup>th</sup>, 1999, and to NATO's intervention by deploying airstrikes in Yugoslavia and the War, remains contaminated by ERW. An estimate of 45 million square meters of land is contaminated and many more are being discovered today, with Kosovo not being an official UN member due to conflict surrounding its sovereignty<sup>37</sup>.

<sup>33</sup> "Cluster Munition Use in Russia-Ukraine War." Hrw.Org, <https://www.hrw.org/news/2023/05/29/cluster-munition-use-russia-ukraine-war>.

<sup>34</sup> "Demining Ukraine: An Urgent but Under-Resourced Priority", Csis.Org, <https://www.csis.org/analysis/demining-ukraine-urgent-under-resourced-priority>

<sup>35</sup> "Bosnia and Herzegovina." Itf.Si, <https://www.itf.si/activities/southeast-europe/bosnia-and-herzegovina>

<sup>36</sup> "Land mines: EU efforts needed across Eastern Partnership", Euractiv.Com, <https://www.euractiv.com/section/europe-s-east/opinion/land-mines-eu-efforts-needed-across-eastern-partnership/>

<sup>37</sup> "Kosovo & Beyond: Where The UN Disagrees On Recognition", Forbes.Com, <https://www.forbes.com/sites/katharinabuchholz/2023/02/17/kosovo--beyond-where-the-un-disagrees-on-recognition-infographic/?sh=6ba7d5bc448c>

It is important that action be taken to assist the nation in its demining operations. This responsibility has been so far carried out by The HALO Trust<sup>38</sup>, which protested the UN’s decision to declare it “mine free”, however one organization is not enough to help resolve an issue threatening an entire country.<sup>39</sup>



Figure 2 An Eastern-Europe centred map

### North Macedonia

North Macedonia has been facing the issue of UXO and ERW ever since the 2001 conflict but has also been affected by the two World Wars. Specifically in 2001, an armed conflict began in the region due to an Albanian National Army attacking

<sup>38</sup> “Cleaning Landmines and Explosives”, Halotrust.Org, <https://www.halotrust.org>

<sup>39</sup> “Kosovo”, Itf.Si, <https://www.itf.si/activities/southeast-europe/kosovo>

Macedonian security forces in early February and ended by signing the “Ohrid” Agreement on August 13<sup>th</sup>, 2001. In September 2006, North Macedonia was officially declared <sup>40</sup> mine-free by fulfilling the requirements of Article 5 of Ottawa convention, however, the country is still facing issues with eliminating the presence of UXO underwater. North Macedonia in cooperation with the ITF conducted three underwater UXO removal phases of Lake Ohrid, where 56,900 square meters of lake bottom were cleared. As a result of this, over 6,600 UXO that weighed 19.6 tons were safely removed and destroyed.<sup>41</sup>

### Croatia

Croatia is a member state in Eastern Europe which plays a crucial role in leading nations towards combatting the issue of landmines. Ever since the Ten-Day War Croatia, in 1991, 2009 people have been maimed by UXO and there have been 523 deaths recorded.<sup>42</sup> Croatia significantly impacted the designing of the 2017 Council Decision in implementing the Maputo Action Plan, which aligns with the Ottawa Convention in 1997. Croatia strongly believes in mine action extending far beyond the removal of UXO but also ensuring on UXO education to civilians and create societies who are self-sufficient with respect to tackling the issue of landmines. Croatia continues to fund many demining operations by other nations such as its recent partnership with the United Nations Development Programme (UNDP), which allocated 240.000\$ to the Halo Trust for mine clearance in Ukraine.<sup>43</sup>

### Azerbaijan

Azerbaijan is a member state that is deeply affected by the issue of UXO. After the conflict between Nagorno-Karabakh that lasted from 1988-1994, which heavily relied on the use of landmines and other EO, a significant number of UXO has been left behind in various parts of the nation, particularly in regions bordering the respective areas of conflict. For the purpose of disposing and eliminating them, Azerbaijan has cooperated with the UNDP through the Azerbaijan National Agency for Mine Action (ANAMA) to resolve this issue. Ever since the ceasefire agreement on November 2020, 20,753 anti-personnel mines, 18,531 anti-tank mines and 60,268 UXO have been cleared<sup>44</sup>. Despite these efforts, Azerbaijan needs to continue its demining work seeing that the total clearance of UXO is estimated to take decades.

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<sup>40-41</sup> “North Macedonia”, Itf.Si, <https://www.itf.si/activities/southeast-europe/north-macedonia>

<sup>42</sup> “Land mines: EU efforts needed across Eastern Partnership”, Euractiv.Com, <https://www.euractiv.com/section/europe-s-east/opinion/land-mines-eu-efforts-needed-across-eastern-partnership/>

<sup>43</sup> “UNDP and Croatia allocate \$240,000 to HALO Trust Ukraine for mine clearance”, Undp.Org, <https://www.undp.org/ukraine/press-releases/undp-and-croatia-allocate-240000-halo-trust-ukraine-mine-clearance>

<sup>44</sup> “Azerbaijan, tackling the problem of landmines and unexploded ordnance”, Balcanicaucaso.Org, <https://www.balcanicaucaso.org/eng/Areas/Azerbaijan/Azerbaijan-tackling-the-problem-of-landmines-and-unexploded-ordnance-229005>



### European Union (EU)

The European Union (EU) is an economic and political union between 27 European member states. The EU has shown its support in resolving the issue of UXO, especially in Eastern Europe, by having all its members signed and ratified the Ottawa Convention. Moreover, it has funded many internal and external activities with respect to demining operations. Specifically, the EU has closely cooperated with The Halo Trust a key demining organization as well as the UNDP to eliminate the issue of UXO. It is important to highlight its role and partnership with the UNDP that led to three-year demining project in Türkiye, to which the EU contributed \$21.3 million out of \$23.8 million total. This project successfully managed to clear 94 minefields, approximately 50.000 landmines from the respective country's eastern frontier, once again showcasing its involvement in the demining of Eastern Europe. <sup>45</sup>

### Enhancing Human Security (ITF)

The ITF, previously known as the International Trust Fund for Demining and Mine Victims Assistance is a humanitarian non-profit organization, established by the government of the Republic of Slovenia and initially set out to aid Bosnia and Herzegovina in implementing a peace agreement and to provide support and aid, post-conflict. Ever since, the ITF has done tremendous work in providing humanitarian aid to countries not only in Eastern Europe but all over the world and successfully performing demining operations minimizing the contamination of UXO from member states. <sup>46</sup>

## TIMELINE OF EVENTS

DATE	DESCRIPTION OF EVENT
14 May 1812	The US army recognizes the development of EO.
28 July 1914 – 11 November 1918	World War I takes place.
1 September 1939 – 2 September 1945	World War II takes place.
June 1941	The US Naval Mine School and Bomb Disposal School is founded.
28 November 2003	Protocol V to the CCW Convention is adopted.
2 December 1983	The Convention on Certain Conventional Weapons (CCW) is rendered effective.

<sup>45</sup> "UNDP and EU conclude three-year demining project to improve security along Türkiye's eastern frontier", Undp.Org, <https://www.undp.org/turkiye/press-releases/undp-and-eu-conclude-three-year-demining-project-improve-security-along-turkiyes-eastern-frontier>

<sup>46</sup> "ITF in a Nutshell", Itf.Si, <https://www.itf.si/about-us/itf-in-a-nutshell>

25 June 1991	Slovenia declares independence.
8 September 1991	North Macedonia declares Independence.
25 June 1991 – 12 November 1995	Croatia declares Independence, marking the start of the Croatian War.
1 March 1992	Bosnia and Herzegovina declare Independence
6 April 1992 – 14 December 1995	The Bosnia and Herzegovina War takes place.
3 December 1997	The Mine Ban Treaty (Ottawa Convention) is signed.
28 February 1998 – 11 June 1999	The Kosovo War takes place.
10 June 1999	Serbia agrees to the international administration of Kosovo.
January 2001 – 13 August 2001	The North Macedonia Insurgency occurs.
1 August 2010	The Convention on Cluster Munitions (CCM) is rendered effective.
20 February 2014	Crimea is annexed.
24 February 2022	The Russo-Ukrainian War starts.

## PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

### Convention of Certain Conventional Weapons (CCW)

The Convention of Certain Conventional Weapons (CCW), initially proposed by the UN, aims to prohibit and or limit the use of particular weapons that are thought to bring about needless suffering and indiscriminately harm combatants and civilians. Protocols II and V of this convention are especially relevant to eliminating the issue of UXO. Specifically, Protocol II states that EO use is strictly prohibited, and Protocol V mentions that explosive remnants of war (ERW) cause serious post-conflict humanitarian problems and addresses post-conflict remedial measures, with both protocols providing specific articles in UXO. This convention was drafted on October 10, 1980, signed on April 10, 1981, and was made effective on December 2, 1983, and as of November 2022, 126 states have ratified it.<sup>47</sup>

<sup>47</sup> "The Convention on Certain Conventional Weapons." Unoda.Org, <https://disarmament.unoda.org/the-convention-on-certain-conventional-weapons/#:~:text=CCW%20Protocols&text=Prohibits%20the%20use%20of%20any,human%20body%20by%20X%2Drays>

### Protocol V to the 1980 CCW Convention (November 28<sup>th</sup>, 2003)

Protocol V aims to address the humanitarian crisis as a result of Explosive Remnants of War (ERW). The respective protocol places priority on risk factoring and education, as well as international cooperation to minimize the long-term consequences of armed conflict posed by UXO. One of the main challenges this protocol faces is its international adherence and ratification, in parallel with the securing the appropriate resources to continue to maximize the protocol's effectiveness. One of the ways to deal with this issue is to come up with incentives for member states to be more inclined in signing and ratifying the aforementioned convention.<sup>48</sup>

### Convention on Cluster Munitions (CCM)

The Convention on Cluster Munitions (CCM) prohibits the usage, development, manufacturing, possession, transfer, and stockpiling of cluster bombs, as well as, aiding or encouraging individuals to engage in illegal and forbidden acts. The Convention was signed in Oslo on December 3<sup>rd</sup>, 2008, and was effective on August 1<sup>st</sup>, 2010, and has been ratified by 110 member states. It was proposed as a measure to decrease the number of UXO and the threat they pose, as it offers a comprehensive international response to the negative impact, the use of cluster bombs has brought on, whilst also aiming towards prohibiting and minimizing their spread and further use.<sup>49</sup> The Cluster Munition Monitor 2022 report, since its adoption has destroyed 1.5 million cluster munitions and 178 million submunitions. While this treaty might be effective, it is heavily relied on the commitment of member states to it.<sup>50</sup>

## POSSIBLE SOLUTIONS

### Establishing a Regulatory Framework for Explosive Ordnance (EO)

The improper use of EO is the root of the problem which is why if the issue is to be resolved in the future, measures need be to be taken to ensure the elimination of UXO, as well as, ensuring that the responsible parties are held accountable. All member states who actively use should be required to implement enhanced monitoring and tracking measures for their EO, so as to be able to better locate them after conflict has resolved. Moreover, shipment and handling of EO should not be allowed to continue inter-state, whereas a third impartial party should be responsible for overlooking transportation of EO with companies involved in such shipments. Member states need

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<sup>48</sup> "Protocol V on Explosive Remnants of War", Disarmament.Unoda.Org, <https://disarmament.unoda.org/ccw-protocol-v-on-explosive-remnants-of-war/>.

<sup>49</sup> "Convention on Cluster Munitions." ClusterConvention.Org, <https://www.clusterconvention.org>.

<sup>50</sup> Cluster Munitions and the Impact of International Law / Human Rights Watch.", Hrw.Org., <https://www.hrw.org/news/2023/06/29/cluster-munitions-and-impact-international-law#:~:text=Along%20with%20its%20prohibitions%2C%20the,destroyed%2C%20saving%20countless%20civilian%20lives>

to be encouraged or incentivized to sign the already existing frameworks regulating EO.

### Establishing effective UXO disposal mechanisms and limiting humanitarian and environmental impact

UXO Disposal poses a different problem, as the unstable nature of the bombs, severely raises the danger of this procedure, not only this but it is important to utilize environmentally-friendly methods of disposal, with the purpose of ensuring the environmental protection of Eastern Europe. A generalized approach to the issue would allow for a much more efficient and effective disposal of UXO, in cooperation with the utilization of more modernized approaches such as the usage of electronic seal scanners and pingers which would chase seals and other marine mammals away from the disposal site, thus, ensuring the safety of marine life, especially for coastal nations in Eastern Europe such as Bosnia and Herzegovina, Croatia and Greece. It is also vital to continue to invest in technological research to all out eliminate the impact UXO has on the environment. Such technologies could potentially be:<sup>51</sup>

- i. The use of a magnetometer which “detects explosive objects by analyzing magnetic anomalies created by unexploded ordnance and mines encased in metal, located both underground and on the surface”. This device is placed under a drone which mines over a minefield and during flight it records parameters of the magnetic field which are later matched to precise coordinates and then illuminated on a map of magnetic anomalies.
- ii. The development of a system that through the utilization of Artificial Intelligence (AI), analyzes images captured by Unmanned Aerial Vehicles (UAVs), pinpointing, and identifying EOs.

### Promoting Public Awareness

As mentioned before, UXO is extremely dangerous especially for young children, injuring and claiming the lives of many individuals on a daily basis. It is for this reason why information on the matter must become more accessible throughout Eastern Europe. This can be done through improving the delivery of education, by cooperating with international organizations such as United Nations Educational Social and Cultural Organization (UNESCO), the United Nation Development Programme (UNDP) and the Geneva International Centre for Humanitarian Demining (GICHD). It is important to increase the material on UXO and ensure that it includes explicit instructions upon discovering UXO, UXO warning signals, and the extent of their threat.

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<sup>51</sup> “Innovative Technologies Could Rid Ukraine of Landmines in 10 Years.”, UNDP. Retrieved from: <https://www.mybib.com/tools/mla-citation-generator>.

## Enhancing International Cooperation and Transparency

Yet, another way to tackle the issue of EO in Eastern Europe would be to initiate the establishment of briefings and discussions through the cooperation of the United Nations Office for Disarmament Affairs (UNODA) with the purpose of addressing said issue collectively, responding to current and future challenges and promoting international cooperation. This measure in tandem with the establishment of a formal agenda will significantly aid towards bringing the affected nations together to discuss and share views on possible solutions. For the issue of bolstering transparency, an online platform can be developed with the purpose of sharing data collected (location, quantity, type of UXO), by the affected nations, so as to increase bilateral and international cooperation for the disposal of said UXO.

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