Introduction

Every 22 minutes, a person is either killed or severely injured by an unexploded explosive remnant of war left behind from a post-conflict area. When civilians accidentally activate those explosives, explosions may cause victims to die, suffer from severe injuries, or loss of limbs. Without being activated, unexploded landmines underground degrade soil, pollutes water, and kills wildlife. War remnants cause degradation on the soil, affecting the growth of crops through its toxic and erosive chemical compounds. In addition, the explosion might leave the victim with psychological damages as traumatic experiences often result in post-traumatic stress disorder, depression and anxiety. Individuals also experience difficulties in relationships and face social stigmatization, rejection and unemployment on a daily basis.

There are an estimated 82 countries and ten territories affected by explosive remnants of war. Countries like Syria are covered with leftover war remnants, which takes up over 30 years for the Syrian Government to clean up. Some states have made significant progress on war remnants cleaning, while some have not. For example, Poland alone has already cleared over 1 million war remains from the two World Wars using advanced non-manual techniques and its national implementation of the Mine Ban Treaty as the superior domestic law. On the other hand, Laos is still covered with tens of thousands of explosives left from the Indochina War; without international support and signatory on the Mine Ban Treaty, the nation is in a landmine crisis.

Recently, experts estimate that there are 110 million anti-personnel landmines that remain active in post-conflict areas, with over 100 million more landmines stockpiled across the globe. Antipersonnel Landmines continue to kill and maim innocents even when conflicts are over; moreover, civilians are the majority who suffer the terrible consequences. Most local communities have no means of dealing with the clearance of Explosive Remnants of War themselves; they often do not have the technical capacity and resources to execute the problem in a safe and consistent manner.
In order to clear post-conflict areas contained with explosive remnants of war, member states must gather and cooperate with International Organizations to reduce the suffering of mine explosion victims. International Conventions and Regulations such as the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons (CCW) have been created to protect civilians and regulate the possession of Explosive Remnants of War in the meantime.

**Definition of Key Terms**

**Anti-Personnel Landmines (APLs or APMs)**

Explosive devices designed and intended to kill or injure a combatant, oftentimes doing so to achieve the goal of stopping any movement of personnel or military operations. Anti-Personnel Landmine is one of the most popularly used ERWs during conflicts and has remained as the most frequently-encountered landmines in demining operations.

**Cluster Munitions**

Classified as weapons that come in containers that open in mid-air and scatters large numbers of explosive submunitions on a broad target area to be delivered from air or ground. Cluster munitions are known for their frequent malfunctions, highly unstable submunitions, and inability to fully explode after ejection. About 10-40% of ejected cluster munitions fail to deliver impact, leaving conflict zones infested with millions of unexploded submunitions.

**Demilitarization Zone (DMZs)**

Areas in which military installations, activities, or personnel are forbidden, usually by treaties or agreements between two or more parties.

**Demining**

The process of removing explosive mines in an area.

**Explosive Remnants of War (ERW)**

Also known as unexploded ordnance (UXO) or unexploded bombs (UXBs). ERWs are explosive weapons that have been employed in post-war grounds and have not exploded or been cleared yet, and therefore still pose a risk of detonation. These include unexploded artillery shells, landmines, explosive debris, naval mines, grenades, mortars, rockets, air-dropped bombs, cluster, and munitions.
Improvised Explosive Devices (IED)

An Improvised Explosive Device is a type of explosive weapon that is non-conventional and can be used and activated in a variety of ways. IED plays an increasingly crucial role in modern-day conflict situations as it is becoming more accessible and convenient.

International Mine Action Standards (IMAS)

Documents developed by the United Nations on behalf of the international community, aiming to improve safety and efficiency in mine action by providing guidance, establishing principles, and defining international requirements and specifications.

Mine Action

Actions that “aim to reduce the social, economic, and environmental impact of landmines.” There are five pillars included, as established by the United Nations: clearance, education, victim assistance, advocacy, and stockpile destruction.

Non-State Armed Groups (NSAGs)

Also known as Violent non-state actors (VNSA). Non-state actors are “individuals or organizations that have economic, political or social power and are able to influence at a domestic and sometimes international level but do not belong to or ally themselves to any particular country or state.” In essence, NSAGs are any armed military or organizations that are not official state institutions. Although this term is generally associated with either rebel opposing the state or terrorist groups, such groups may be allied with other sovereign states.

Smart Landmines

Self-destructing and self-deactivating mines meant to destroy or deactivate themselves after a certain period of time. Since these devices are mostly still in development, they fail to be consistent and reliable. In addition, unlike conventional landmines, smart mines are oftentimes dropped from the air in even larger numbers in comparison to conventional landmines.

The International Campaign to Ban Landmines (ICBL)

A global network in some 100 countries that works for a world free of anti-personnel landmines, where landmine survivors can lead fulfilling lives.”, as stated on its official webpage. It is an international coalition made up of non-government organizations aiming for an anti-personnel mine and cluster ammunition free world, preserving the rights of mine victims to lead fulfilling and dignified lives.
Background Information

An estimated 110 million active landmines are scattered in 78 Member States, meaning that there is on average one landmine for every 17 children or 52 humans. Therefore, it is no surprise that every year, landmines kill 15,000 to 20,000 people and severely maim countless more. This translates to 2,000 casualties per month or one victim every 20 minutes. Approximately 800 of them would die per month, while the rest are maimed permanently. However, these casualties are not only of soldiers but also of civilians due to the indiscriminate use of landmines. Landmines account for over 80% of civilian deaths, a notable example being post-1980s Namibia, where approximately 88% of landmine casualties were civilians. Although the vast majority of casualties are men, in some countries, women and children account for 20%~50% of all deaths. The indiscriminate use of landmines particularly affects children, as they may treat landmines as toys and are far more likely to die from landmine injuries than adults. An estimated 85% of children die before reaching the hospital. In Cambodia and Somalia, children account for 50% and 55% of casualties, respectively.

Harming of Civilians

Unexploded ordnance continues to be a leading cause of amputations of the victims in post-conflict areas. An estimated 15 thousand to 20 thousand people are killed or maimed by unexploded landmines every year. 80% of the casualties are civilians, 95% are male, and children account for one in every five landmine victims. There is also a 74% amputation rate of the victim, leading to job loss, broken family, and permanent traumatic experience. In most landmine-affected countries, humanitarian support organizations can not enter the country to provide aid due to the threat of scattered landmines under the ground. An example is from the Houthi movement in Yemen, an Islamic religious-political-armed movement that emerged in Yemen from the 1990s. A large of number of landmines were planted, leading to hundreds of civilian deaths and it blocks foreign humanitarian aid groups for communities in need. The presence of unexploded ordnances are posing threats to organizations to reach into rural areas with unpaved roads. Most importantly, the government does not have a full understanding on the scale of the landmines since they do not have access to reliable data.

Clashing between NSAGs and Refugees

Landmines also pose risks to refugees seeking refuge while traveling through mine-covered territories. "When refugees returned to Hargeisa in northern Somalia in 1991, 75% of mine victims were children, whose natural playfulness and herding and wood-gathering occupations put them at greater risk." (NewInternationalist, 1997) In 2015, the number of landmine casualties hit the highest in the decade. This is primarily due to conflicts in the Middle East in which Non-State Armed Groups (NSAGs)
utilize the landmines without restraint from the international community. These groups often purposefully target civilians in terrorist activities, posing yet another threat to innocents. The Islamic State of Iraq and the Levant (ISIL) is particularly known for its use of landmines in public executions.

Environmental Impact

The environmental impact on areas of national parks or preserved habitat for endangered species can also be affected by the contamination of unexploded ordnance in different aspects. Wildlifes may be injured, therefore, causing a collapse on the food chain. Furthermore, nutritions provided in soil may also be downgraded depending on the toxicity of the material of unexploded ordnances. Plants may not grow, leaving the post-conflict zone without life and contaminated with toxic chemical compounds. Water quality and its acidity may also change depending on the location of the unexploded ordnances, making it hard for the nature to perform natural sanitisation cycle. In most landmine-affected countries, agricultural activities are often prevalent among its citizens, therefore, landmines not only pose physical threat towards the society, but also socially and economically.

Major Countries and Organizations Involved

Cambodia

As a result of three decades of the Cambodian Civil War, the nation is covered with landmines mainly laid by the Khmer Rouge, also known as the Communist Party of Kampuchea (CPK) that ruled Cambodia. More horribly, soldiers who planted the landmines did not even record the locations themselves, making it impossible to detect landmines without proper equipment. As of now, Cambodia has the highest rate of physical disabilities, which are mostly casualties from accidental activations of landmines. More than 40 thousand Cambodians were victims of accidental landmine explosion and had to amputate as a result of the accident since 1979. While it is suggested that there are no ongoing military activities or deploying of landmines in Cambodia, civilians are still using landmines as a protection of personal property, to settle disputes, and to hunt wild animals such as tigers. An incident in 1988, the Cambodian police force surrounded a forest with mines just to capture a murder suspect who was reported to be seen in the forest. With incidents like this, the cumulative number of landmines in Cambodia is increasing and the Government estimated as many as 100 years to clear all the mines. The Cambodian government is currently striving for rehabilitation through clearance of Explosive Remnants of War (ERWs) in the nation. Although civilian uses are still ongoing, police forces also uses landmine as a tool against criminals, many Non-Government Organizations (NGOs) in Cambodia such as the HALO trust are gathering global attention and effort to combat the issue.
People's Republic of China

Viewing landmines as necessary defensive weapons, the Chinese government is considered to be the firmest opposition to landmine bans. Although it is a State Party to the Convention on Certain Conventional Weapons (CCW), it has not signed the Ottawa Treaty and even refused to participate in the meetings and negotiations prior to the signing of the treaty, abstaining on the many resolutions that seek to deal with the issue. Chinese officials have expressed that China refuses to sign the ban treaty for two reasons. First, the government views Anti-Personnel Mines (APMs) as effective and necessary defensive weapons to protect China’s borders. Second, as a developing country, China lacks the resources and technology to replace landmines with more advanced defensive weapons. The Chinese government maintains that consideration should also be given to the “legitimate defense requirements of sovereign states”; therefore, with the absence of an alternative defensive weapon, China renders itself unable to ratify the Ottawa Treaty. They also believe that the problem with landmines is not inherent but rather in the indiscriminate use of it. It is then of no surprise that China has the largest stockpile of landmines in the world of 110 million and is one of the world’s largest producers and exporters of landmines.

However, China still values the humanitarian aspect of landmines and has worked towards reducing the threat of landmines to civilians. In addition to donating $789,000 to mine action, in the 1990s, the People’s Liberation Army (PLA) has also actively undertaken two major campaigns to remove the landmines in Yunnan and Guangxi as well as those along its borders with India, Russia, and Vietnam. In addition, China’s stance is unclear at times. For example, it has announced that it supports “the ultimate goal of a total ban on anti-personnel mines” before, and has also, in 2007, voted “for” on a General Assembly (GA) resolution promoting the universalization of the Ottawa Treaty.

Syria

Due to the constant bombing caused by the high intensity of ongoing conflicts in Syria, experts estimate that it will take over 30 years for Syria to clear out areas that are highly concentrated with explosive remnants of war. While the Syrian Civil War is still an ongoing war, it is essential for Syria to clear out its areas packed with remnants of war in order to meet both the nation’s repair and development goals. Civilians, displaced families, and refugees living in neighboring States are also affected by Explosive Remnants of War. Areas filled with deadly explosive remnants of war create another life-threatening border for the Syrian Refugees in addition to the constant armed conflicts happening inside the country, making it impossible for them to return to their homeland. If the Syrian Civil War doesn’t come to an end in the near future, Syria’s ruin is unlikely to be rebuilt due to its high density of explosive remnants of war.

United States of America
Although the US is widely criticized for not ratifying the Ottawa Treaty, it has not manufactured or used its stockpile of more than 9 million (now 3 million) landmines since 1991 and is the largest donor to efforts to mine action, providing more than $2.3 billion in aid since 1993. Its national policy prohibits itself from using landmines that metal detectors cannot detect. Under previous administrations, the US maintained that its smart mines are moral and necessary to protect US ground troops, insisting that cluster munitions are legitimate weapons with clear military utility in combat. Actions have been taken in previous administrations to resolve the issue, but the most radical changes occurred under the Obama administration. At the Third Review Conference of the Ottawa Convention in Maputo, Mozambique on June 2014, the US delegation announced that the United States will cease to manufacture or acquire any landmines as well as replace any Anti-Personnel Mines (APMs) not compliant with the Ottawa Treaty. In addition, they expressed interest to eventually sign the treaty but was criticized for not setting an exact date of commitment.

The International Committee of the Red Cross (ICRC)

The International Committee of the Red Cross (ICRC) has development protocols for nations to follow to stimulate international cooperation on ERWs clearance. The ICRC supports affected communities through humanitarian aid as well as technical support toward the ERW investigation and searching team. The ICRC is also strongly dedicated to the promotion of The Protocol on Explosive Remnants of War adopted in 2003. The Protocol requires State Parties obliged to the Protocol to be in charge of clearing up ERWs once the conflicts are over. In addition, the Protocol also requires State Parties to investigate and provide material, technical, and financial support to clear ERWs under territories not under its control, those that are filled with ERWs because of its military operation. The Protocol requires local governments to educate the general public on safety preventions, location awareness, and set up fence and markings to prevent any activities near areas of ERWs. On top of that, Government also needs any and all necessary rehabilitation or care assistance for victims of ERW explosions.

Timeline of Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of event</th>
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<tr>
<td>10 April 1981</td>
<td>The Convention on Certain Conventional Weapons (CCW) was signed by 50 states. This</td>
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<tr>
<td></td>
<td>convention plays a crucial role in early actions to prohibit and restrict the use of</td>
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<td></td>
<td>conventional weapons which includes land mines.</td>
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<tr>
<td>2 December 1983</td>
<td>The Convention on Certain Conventional Weapons came into force, banning landmine</td>
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<td>explosives categorized as convention weapons under 125 signatories.</td>
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The International Campaign to Ban Landmines (ICBL) is formed with international cooperation to ban landmines that later on came up with the Mine Ban Treaty in 1997 and won the organization the Nobel Peace Prize Co-Laureate on the same year.

18 September 1997

The Anti-Personnel Mine Ban Treaty (Ottawa Treaty) is adopted and has been signed by 164 States Parties today. This legally-binding document has been the most crucial and widely accepted treaties.

1 March 1999

The Mine Ban Treaty becomes a legally binding treaty and acts as a catalyst to international effort of demining.

21 December 2001

The Convention on Prohibition or Restrictions on the Use of Certain Conventional Weapons (CCW) is amended due to its indiscriminate contents.

2003

The international community adopted The Protocol on Explosive Remnants of War to reduce the suffering caused by Explosive Remnants of War and the suffered communities.

2008

The Convention on Cluster Munitions (CCM) is concluded.

2015

Landmines are still used in armed clashes and law enforcement in different parts of the world. Research worldwide gathered by the ICBL suggests that landmine alone caused 18 casualties a day on average globally.

**Relevant UN Treaties and Events**

- The Ottawa Convention, 1 March 1999
- Convention on Cluster Munitions (CCM), 3 December 2008
Previous Attempts to solve the Issue

The Protocol on Explosive Remnants of War (Protocol V)

Adopted in November of 2003 by the state parties of CCW, the Protocol addresses the importance of supporting affected communities and local government effort in the operation of clearing ERWs. The Protocol on the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons (CCW) was negotiated by CCW governmental experts to improve the existing restrictions on certain conventional weapons in armed conflict, especially ERWs that cause unnecessary suffering to combatants or civilians. The International Committee of the Red Cross has put tremendous amounts of effort into supporting communities suffering from landmine explosions, as well as taking a leading role in international cooperation between nations, advocating for The Protocol on Explosive Remnants of War adopted in 2003. The ICRC strives to meet the United Nations Sustainable Development Goals. Therefore, the organization put emphasis on sustainable development issues dealing with weapon contamination from explosive war remnants to cater support for victims of ERW explosions. The Red Cross Committee receives funds and donations through its website, which contains educational articles and interviews on victims of ERWs explosions. This raises global awareness on the topic, and more governments and organizations around the world are looking into countries afflicted with ERWs.

International Cooperation between NGOs, IGOs, and UN Agencies

The UN Member States, the fourteen United Nations Departments and Offices of the Secretariat, specialized agencies, funds and programmes, and relevant Non-Governmental Organizations (NGOs) have all been actively engaged in the process of demining. In 1993, the UN approximates that 80,000 mines were cleared, but both NSAGs and government forces alike have used mines on a large scale due to its effectiveness and low manufacturing cost, planting 2.5 million new mines in recent conflicts. The rate at which land mines are being planted is alarmingly high: 25 times the rate that landmines are being cleared, meaning that for every hour spent in planting landmines, over 100 hours are spent demining. Therefore, if no cease-fires are achieved, the issue of landmines would still remain unresolved. However, even if landmines were completely banned, the issue would still remain unresolved because of a lack of resources devoted to the effort. Even if landmines were no longer being planted, if demining efforts continued at the current rate, the world would only be mine-free in 3100. One major factor is the cost: the UN estimates that the cost of demining all the landmines in the world would be $33 billion, and considering that only $471.3 million was contributed to the effort in 2014—with the amount decreasing rapidly by 23% in subsequent years—demining the world currently seems impossible.
without adequate funding.

**Possible Solutions**

**Efficient Landmine Detectors**

Because it is risky and dangerous to perform human operations on ERWs search, many countries developed alternative methods to detect the location of ERWs such as the use of robots, drones, sensors, metal detectors, and even animals. In Cambodia, a nonprofit Organization from Belgium is using Gambian Giant Rats to sniff out the location of landmines. Doing so has already led to the discovery of 2 million landmines across the country. The cat-sized rats are physically adapted to detecting explosive TNTs. The Anti-Personnel Landmines Removal Product Development Organization, Anti-Persoonsmijnen Ontmijnende Product Ontwikkeling (APOPO), has cleared ERWs across countries such as Tanzania, Mozambique, and Angola. One single rat can perform in an incredibly efficient manner, searching up an area of over 2 thousands square feet under 20 minutes when human takes up four full days. The cost of training the rats is also extremely low in comparison to dogs, and the operation does not pose any danger to the rats. Performing such operations requires technical support, development, and funding. Just recently the United Kingdom has provided 60 thousand Euros as financial aid to help train giant rats in Tanzania via the United Nations Development Programme. While countries that have the highest density of ERWs are developing nations, it is hard for some of them to acquire funding and support unless provided via international organizations or neighboring countries.

**International Effort**

International cooperations are needed in order to achieve a landmine-free world. The signatories on the Mine Ban Treaty does not cover full State Parties in the World, major players of the world such as the United States of America needs to implement the Mine Ban Treaty into their National laws, even though they don’t have as much leftover explosive remnants of war, it is also crucial to maintain world sustainability by prohibiting future production and development of such weapon. International technological advancement also plays an essential role as smart mines might come in play in the future battlefield, international cooperation on the development of a safer, more consistent and reliable smart mine might contribute to the issue. As mentioned from one the five pillars of United Nations Mine Action, education should come in as an important part of solving the issue in order to prevent incidents and speed up the progress of mine clearance. Through educational talks, both developing and developed nations can learn about the significant impact unexploded ordnances can have in our world and thus how to make our world a more sustainable place.
Bibliography


“Meet the Giant Rats That Are Sniffing out Landmines.” National Geographic, National Geographic Society, 7 Oct. 2015, news.nationalgeographic.com/2015/10/151006-giant-rats-landmines-cambodia-science-animals/.


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