

A Systematic Approach to Strategic Management in Humanitarian Post-War Demining Action: the Case of Ukraine.

Oleksi Botnarenko¹, Shahab Moeini¹, Azzeddine Oudjehane^{2*},
Stefan Flückiger², Vaheed Ghaffari², Charith Munasing³,
Mohammed Zamani²

¹ International Humanitarian Demining Academy - IHDA -

² SubSphereI Corporation, <https://www.subsphere.ca/about-us/>

³ ZHAW, Zurich University of Applied Science

Abstract: This article explores the development of international humanitarian law as it pertains to the legal framework supporting mine action. It provides a historical and legal analysis of foundational instruments, including the Hague Conventions of 1899 and 1907, which established principles governing the humane conduct of war and the prohibition of weapons that cause unnecessary suffering or pose enduring threats to civilian populations. Special attention is given to the evolution of these legal norms in the Geneva Conventions of 1949 and their Additional Protocols, as well as to the influence of subsequent international agreements, most notably the 1997 Ottawa Convention on global mine action efforts.

The article highlights the significance of the Ottawa Convention in mitigating the humanitarian impact of armed conflict through the prohibition of the use, stockpiling, production, and transfer of anti-personnel mines. It also examines the role of the International Mine Action Standards (IMAS), developed under the auspices of the Geneva International Centre for Humanitarian Demining (GICHD), in enhancing international coordination, providing technical assistance, and supporting training initiatives for mine-affected countries.

Furthermore, the article assesses the intersection between international legal instruments and the necessity for effective administrative and legal mechanisms aimed at protecting civilians through comprehensive mine clearance strategies. Ukraine's experience is presented as a case study, illustrating the challenges of post-conflict demining amid ongoing political instability and military threats, alongside its commitments under the Ottawa Convention.

In conclusion, the article underscores the evolution of legal norms from general humanitarian principles to specialized instruments designed to address the specific challenges of landmine risk. It advocates strengthened legal frameworks and enhanced alignment between national and international standards as essential components for improving the effectiveness of humanitarian demining operations, emphasizing the critical role of international cooperation.

Keywords: Humanitarian Demining, Ottawa Convention, International Mine Action Standards (IMAS), Ukraine, Explosive Remnants of War (ERW)

I. The Development of International Conventions Regulating the Use of Explosive Devices

The regulation of explosive devices in armed conflict has evolved as a central concern of international humanitarian law (IHL), particularly in response to the devastating long-term impact of landmines and other explosive remnants of war (ERW) on civilian populations. Over time, the international community has established a normative framework composed of treaties, conventions, and customary law aimed at mitigating these risks. These legal instruments not only seek to regulate the conduct of hostilities but also to address post-conflict obligations, including clearance, victim assistance, and risk education.

A foundational milestone in this legal evolution was the 1899 Hague Convention (II) on the Laws and Customs of War on Land, which, although not explicitly focused on landmines, articulated several principles that would later underpin mine action law. Chief among these was the principle of humanity, which prohibits the use of weapons that cause superfluous injury or unnecessary suffering, and the principle of distinction, requiring belligerents to distinguish between combatants and civilians (International Committee of the Red Cross [ICRC], 2005). The Convention also emphasized proportionality and military necessity, framing the early legal discourse on the use of indiscriminate weapons.

While the 1899 Hague Convention and its successor, the 1907 Hague Convention (IV), did not specifically ban explosive devices such as landmines, they laid the conceptual groundwork for future restrictions. They established obligations for belligerents to avoid means and methods of warfare likely to cause excessive harm to civilians or to result in long-term environmental or infrastructural damage. The Martens Clause, introduced in the preamble to the 1899 Convention, also reinforced the idea that, in cases not covered by specific treaties, populations remain under the protection of principles of humanity and the dictates of public conscience (Sandoz et al., 1987).

The devastation caused by mines during and after the World Wars further amplified the need for regulation. As a result, subsequent international instruments began to more directly address explosive hazards. The 1980 Convention on Certain Conventional Weapons (CCW) and its Amended Protocol II (1996) provided the first binding rules specifically targeting the use of landmines, booby traps, and similar devices. These included prohibitions on the indiscriminate use of mines, obligations to mark and record minefields, and measures to protect civilians in mined areas (UNODA, 2018).

The CCW also recognized the enduring threat posed by unexploded ordnance, leading to the adoption of Protocol V on Explosive Remnants of War (ERW) in 2003, which obligates parties to clear ERW after hostilities and to provide risk education and assistance to affected populations. These protocols helped bridge the gap between the principles enshrined in earlier treaties and the operational realities of modern warfare.

Taking together, these instruments reflect a trajectory in IHL from general principles to increasingly detailed and enforceable obligations. The legacy of the 1899 Hague Convention remains significant, not only for its normative influence but also for initiating a legal tradition that seeks to reconcile military necessity with humanitarian concerns. In the context of mine action, it catalyzed the development of comprehensive administrative and legal mechanisms designed to protect civilians from the lasting impact of explosive weapons.

II. Expansion of the Hague Conventions and the Legal Foundation for Mine Action

The 1907 Hague Convention (IV) Respecting the Laws and Customs of War on Land marked a critical expansion of international humanitarian law (IHL), building upon the principles first codified in the 1899 Hague Convention. While the foundational objective of both instruments was to regulate the conduct of warfare, mitigate human suffering, and uphold the humane treatment of combatants and civilians, the 1907 revision incorporated key legal

refinements informed by the operational and ethical challenges of early twentieth-century conflicts (Roberts & Guelff, 2000).

One of the most significant developments in the 1907 Convention was its detailed articulation of the legal responsibilities of occupying powers. It clarified the obligations of belligerents toward civilian populations in occupied territories, established limits on the destruction of property, and sought to constrain the methods and means of warfare, including emerging technologies that could cause disproportionate or indiscriminate harm. Although the Convention did not explicitly reference landmines or explosive remnants of war (ERW), its broader humanitarian provisions laid the groundwork for later normative developments in mine action (ICRC, 2005).

The Convention's emphasis on protecting civilians and its reiteration of the Martens Clause which affirms that even in cases not covered by specific treaties, populations remain under the protection of customary norms and humanitarian principles served as a legal and moral foundation for future regulatory frameworks addressing weapons with lasting post-conflict effects (Sandoz et al., 1987). As such, the Convention contributed significantly to the evolving discourse on state obligations regarding post-conflict remediation, including the clearance of explosive devices.

The enduring threat posed by landmines and unexploded ordnance (UXO) became increasingly evident throughout the twentieth century, as contaminated areas impeded the return of displaced persons, restricted access to arable land, and resulted in continued civilian casualties long after active hostilities ceased. The recognition that the use of such weapons had consequences extending well beyond the battlefield led to a growing consensus within the international community regarding the necessity of legal instruments that could effectively govern mine clearance, victim assistance, and risk reduction (Moyes, 2004).

Although the 1907 Hague Convention did not include provisions explicitly regulating mine action, its legal principles particularly those concerning the protection of civilians, the proportionality of force, and the responsibilities of occupying powers served as precursors to later treaties such as the 1980 Convention on Certain Conventional Weapons (CCW) and the 1997 Ottawa Convention. These subsequent instruments built on the humanitarian vision of the Hague framework and established binding obligations for the post-conflict management of explosive remnants and mine-contaminated land (UNODA, 2018).

In sum, the 1907 Hague Convention significantly influenced the legal, ethical, and administrative architecture upon which contemporary mine action standards are based. While its language did not specifically address demining, its principles laid a durable normative foundation for the development of international legal regimes that have sought to protect civilian populations from the enduring hazards of landmines and ERW. The Convention's legacy is evident in the integration of mine action into broader post-conflict recovery and humanitarian response mechanisms, affirming its place as a cornerstone of international humanitarian law.

III. The Geneva Conventions and the Advancement of Civilian Protection

The adoption of the Geneva Conventions Relative to the Protection of War Victims in 1949 marked a transformative development in international humanitarian law (IHL), reflecting the international community's response to the unprecedented scale of suffering witnessed during the Second World War. Comprising four core treaties, the Conventions established comprehensive legal protections for those not actively participating in hostilities including the wounded, shipwrecked prisoners of war, and civilian populations (International Committee of the Red Cross [ICRC], 1949a, 1949b, 1949c, 1949d). They provided the legal foundation for a modern humanitarian framework focused on mitigating the impact of armed conflict, including the growing threat posed by explosive remnants of war (ERW).

The Geneva Conventions extended and reinforced the principles established by the earlier Hague Conventions of 1899 and 1907, particularly the obligations of belligerents to distinguish between combatants and civilians and to avoid disproportionate harm. These shared principles established a normative continuum between the two legal

regimes. While neither convention series explicitly addressed landmines or post-conflict demining, both laid the ethical and legal groundwork for future regulatory frameworks that would govern the use, clearance, and long-term impact of explosive devices (Henckaerts & Doswald-Beck, 2005).

Over time, the legal regime of IHL evolved to explicitly confront the dangers associated with indiscriminate weapons such as landmines. The expansion of the Geneva legal corpus was most evident in the adoption of the Additional Protocols of 1977 and 2005, which augmented the protective scope of the 1949 Conventions and codified principles directly relevant to mine action.

Additional Protocol I (1977) addresses international armed conflicts and prohibits the use of weapons that cause superfluous injury or have indiscriminate effects. It obligates parties to take “all feasible precautions” to protect civilians and civilian objects, including through the clearance of explosive hazards after the cessation of hostilities (ICRC, 1977a, Art. 57). These provisions underline the legal rationale for post-conflict demining as a duty under IHL.

Additional Protocol II (1977), which applies to non-international armed conflicts, is particularly relevant in the context of modern intrastate conflicts where mine contamination often persists for years. It reaffirms the duty to protect civilian populations and establishes legal grounds for humanitarian activities, including mine clearance within sovereign territory (ICRC, 1977b).

Additional Protocol III (2005) introduced the red crystal as a third protective emblem alongside the red cross and red crescent. While it does not directly regulate mine action, the protocol reinforces the principle of neutrality in humanitarian operations, which is vital for demining agencies operating in complex or contested environments (ICRC, 2005).

Collectively, these protocols significantly strengthened the legal architecture protecting both civilians and humanitarian actors engaged in explosive ordnance risk reduction. They also laid the groundwork for national and international mechanisms to implement mine action activities including the designation of competent authorities, coordination of technical operations, and the development of victim assistance programs.

Mine action has since become a central component of post-conflict recovery and stabilization efforts. Effective administrative and legal support now encompasses the drafting of national legislation, alignment with international standards such as the International Mine Action Standards (IMAS), capacity building for mine clearance operations, and public awareness initiatives aimed at reducing civilian casualties. Harmonizing national legal frameworks with international obligations has proven essential in creating integrated, multi-sectoral responses to mine risk (GICHD, 2023).

The Geneva Conventions and their Additional Protocols underscore the international community’s enduring commitment to the protection of civilians and the regulation of warfare. Although they did not directly legislate the use or clearance of landmines, their principles have become the normative and legal foundation upon which modern mine action regimes are built. Today, these instruments continue to inform international legal discourse and practice on explosive remnants of war, ensuring that mine action remains anchored in the humanitarian ethos of international law.

IV. The Ottawa Convention and the Evolution of Mine Action Standards

The adoption of the Convention on the Prohibition of Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction commonly known as the Ottawa Convention in 1997 represented a watershed moment in the development of international humanitarian law (IHL). Emerging from a concerted global campaign led by states, non-governmental organizations (NGOs), and civil society, the Convention institutionalized a normative rejection of anti-personnel mines due to their indiscriminate nature and long-term humanitarian consequences (United Nations [UN], 1997).

The Ottawa Convention imposes comprehensive legal obligations on States Parties. It prohibits the use, development, production, stockpiling, and transfer of anti-personnel mines and mandates their destruction within four years of accession. It further requires the clearance of mined areas within ten years and the provision of assistance to mine victims, including medical care, rehabilitation, and socio-economic reintegration. These provisions embed humanitarian principles into the treaty's operational framework and have significantly shaped contemporary mine action policy and practice (International Campaign to Ban Landmines [ICBL], 2022).

One of the Convention's most influential legacies is its role in catalyzing the development and global adoption of the International Mine Action Standards (IMAS). These technical guidelines provide a unified framework for planning, implementing, and monitoring mine action activities, encompassing land release, survey and clearance operations, information management, explosive ordnance risk education (EORE), and victim assistance. IMAS ensure consistency, safety, and accountability across the global mine action sector and serves as a cornerstone for both national programs and international interventions (Geneva International Centre for Humanitarian Demining [GICHD], 2023).

Established in 1998 to support the implementation of the Ottawa Convention, the Geneva International Centre for Humanitarian Demining (GICHD) has become a central institution in the global mine action architecture. The Centre provides technical support, operational guidance, and policy expertise to states and organizations involved in mine action. It collaborates with United Nations agencies, the International Committee of the Red Cross (ICRC), donor governments, and humanitarian actors to enhance coordination and improve outcomes in mine-affected contexts (GICHD, 2023).

Pursuant to Article 2 of its Statute, the GICHD's mandate includes the organization of expert groups to review field practices and improve operational methodologies; the maintenance of a global information management system tailored to the needs of UN mine action coordination structures; and the delivery of specialized training for national mine action authorities and information management professionals. Through research, capacity-building programs, and normative development, the GICHD plays a key role in advancing technical innovation, policy alignment, and evidence-based decision-making across the sector (GICHD, 2023).

The GICHD's significance extends beyond technical expertise; it has contributed to the professionalization of the mine action field and the mainstreaming of humanitarian disarmament principles in international discourse. Its role in fostering knowledge exchange, standardizing best practices, and supporting the integration of emerging technologies such as unmanned systems and artificial intelligence illustrates its strategic value in adapting mine action to evolving challenges (ICBL, 2022).

Membership in the GICHD network is open to all States Parties to the Ottawa Convention, enabling countries to align national policies with global standards and benefit from international support. Active engagement with the Centre reinforces state commitments to humanitarian principles and strengthens national capacities for mine clearance, risk education, and victim assistance. Participation also signals adherence to international norms of transparency, safety, and ethical conduct in post-conflict recovery.

Importantly, while 164 countries have signed the 1997 Ottawa convention, there are 34 non-signatories, among them the US, the Russian Federation, India, Pakistan, Vietnam, Laos, South Korea, North Korea, Iran and Saudi Arabia. All Sub-Saharan countries are signatory states. Additionally, Russia's attack on Ukraine in 2022 and the prolonged armed conflict has changed the nature of the debate. Not only is Ukraine one of the most heavily-affected countries, but governments in general are today less likely to engage in a global ban. Notably, Estonia has recently (June 2025) decided to withdraw from the Ottawa Treaty.

However, in sum, the Ottawa Convention and the institutions and standards that emerged in its wake have still transformed the global approach to mine action from ad hoc responses to a systematized, legally grounded, and professionally coordinated field. It operationalizes humanitarian values through enforceable obligations, technical

rigor, and institutional collaboration. As such, the Convention continues to serve as a model for the integration of humanitarian concerns into disarmament and arms control regimes.

V. Ukraine's Ratification of the Ottawa Convention and Legal Delays

Ukraine ratified the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction (commonly known as the Ottawa Convention) on 27 March 2005, formalized through the enactment of the national Law on the Ratification of the Convention (Verkhovna Rada of Ukraine, 2005). This ratification represented a significant normative and humanitarian commitment by the Ukrainian state, obligating it to eliminate anti-personnel mine stockpiles, cease the use and production of such weapons, and implement comprehensive mine clearance and victim assistance activities as stipulated under the Convention (United Nations, 1997).

Despite this early legal endorsement, the subsequent development and enactment of a national mine action law on Mine Action in Ukraine was subject to prolonged delay, raising critical concerns regarding the effectiveness of Ukraine's domestic implementation mechanisms. The legislative gap, extending over a decade, underscores the structural and institutional challenges that can impede timely compliance with international humanitarian legal obligations, particularly under conditions of political volatility and active conflict.

One of the most salient factors contributing to the delay was Ukraine's post-ratification political instability. Key events, including the 2004–2005 Orange Revolution, the 2014 Revolution of Dignity, and the onset of hostilities in eastern Ukraine, diverted governmental attention and legislative resources away from long-term humanitarian priorities, including mine action (Kyselova, 2020). Although these crises necessitated immediate political responses, the persistent de-prioritization of mine action legislation indicates underlying deficiencies in strategic policy integration, particularly within Ukraine's broader security and development frameworks (International Crisis Group, 2021).

The escalation of armed conflict in the Donetsk and Luhansk regions further complicated the legislative environment. The emergence of new contamination zones and shifting frontlines created operational demands for dynamic and responsive mine action strategies. Ironically, these exigencies did not catalyze faster legal reform. Instead, they revealed deep institutional fragmentation, including overlapping mandates among ministries, unclear lines of authority, and insufficient coordination between civilian and security agencies (OSCE, 2019). A more integrated administrative structure, informed by international best practices, might have expedited legislative alignment with evolving operational realities.

Resource limitations also played a critical role. Although the financial and technical demands of implementing mine action are considerable, the initial development of a legal framework is relatively low-cost and often prerequisite to international funding and technical assistance (GICHD, 2023). Ukraine's inability to strategically leverage the lawmaking process to attract donor engagement and support from international agencies such as the United Nations Mine Action Service (UNMAS) and the Geneva International Centre for Humanitarian Demining (GICHD) represented a missed opportunity to accelerate progress.

Legal harmonization with international standards, particularly the International Mine Action Standards (IMAS), required specialized input, stakeholder consultations, and regulatory reviews. While such deliberations are justified for the sake of legal accuracy and policy coherence, the absence of structured pathways for international technical cooperation further delayed outcomes. International partners offered substantial expertise and support mechanisms during this period, but these resources were not systematically incorporated into Ukraine's legislative process (UNMAS, 2021).

Procedural inefficiencies also hindered legislative advancement. Protracted bureaucratic processes, limited interagency communication, and redundant consultations impeded the law's timely adoption. While participatory

governance and public transparency are core democratic values, in the context of an acute humanitarian threat, greater legislative agility coordinated through an empowered central authority would have been both feasible and desirable.

In conclusion, Ukraine's delayed implementation of a national mine action framework following its ratification of the Ottawa Convention highlights a complex interplay of political, institutional, and technical challenges. The case underscores the importance of embedding mine action within national security agendas, building administrative capacity, and fostering international cooperation as critical prerequisites for fulfilling treaty obligations. Strengthening these governance dimensions is essential not only for legal compliance, but also for safeguarding civilian populations and promoting long-term post-conflict recovery in mine-affected regions.

VI. International Agreements Signed and Ratified by Ukraine

Legal Delays and the International Treaty Framework for Mine Action in Ukraine

The delayed adoption of the Law of Ukraine on Mine Action can be attributed to a complex interplay of objective and subjective factors. These include prolonged political instability, the onset and persistence of armed conflict, economic constraints, and institutional fragmentation. While such obstacles are not uncommon in conflict-affected states, many could have been mitigated through stronger legal foresight, interagency coordination, and strategic policy prioritization. The absence of a timely legislative response hindered the effective implementation of mine action activities and prolonged civilian exposure to landmines and other explosive remnants of war (ERW), undermining both national security and Ukraine's compliance with international humanitarian obligations.

Political and military developments played a particularly influential role in shaping the trajectory of mine action legislation. The period following Ukraine's ratification of the Ottawa Convention in 2005 was marked by major political upheavals including the Orange Revolution (2004–2005), the Revolution of Dignity (2014), and the subsequent armed conflict in the Donetsk and Luhansk regions. These events consumed the attention of political leadership and legislative institutions, delaying essential reforms in security and humanitarian governance (International Crisis Group, 2021). Nonetheless, the strategic significance of mine action, especially amid expanding contamination from landmines and ERW warranted more timely legislative action. The delay reflected not only competing priorities, but also a broader lack of administrative preparedness and weak cross-sectoral integration.

The lack of a legal framework also limited Ukraine's ability to systematically coordinate with international partners, access external funding, and implement technical standards such as the International Mine Action Standards (IMAS). These standards, promoted by the Geneva International Centre for Humanitarian Demining (GICHD) and other actors, are essential for ensuring safe, efficient, and standardized mine clearance practices (GICHD, 2023). In the absence of enabling legislation, Ukraine faced difficulties in institutionalizing these practices across national mine action authorities, which in turn compromised the scale and effectiveness of humanitarian clearance operations.

At the international level, Ukraine has demonstrated a broad commitment to global disarmament norms by signing and ratifying multiple treaties relevant to the regulation of explosive weapons and the protection of civilians. The table below summarizes Ukraine's engagement with key international agreements:

Treaty or Convention	Adopted	Location	Ukraine's Ratification
Convention on Certain Conventional Weapons (CCW)	10 Oct 1980	Geneva, Switzerland	1 Dec 2000

Treaty or Convention	Adopted	Location	Ukraine's Ratification
Protocol II to the CCW (Mines, Booby Traps, and Other Devices)	10 Oct 1980	Geneva, Switzerland	15 May 2003
Amended Protocol II to the CCW	3 May 1996	Geneva, Switzerland	3 Sep 1999
Protocol V to the CCW (Explosive Remnants of War)	28 Nov 2003	Geneva, Switzerland	7 Dec 2004
Ottawa Convention (Anti-Personnel Mines)	18 Sep 1997	Ottawa, Canada	27 Mar 2005
Convention on Cluster Munitions (CCM)	30 May 2008	Dubrovnik, Croatia	Signed but not ratified
Chemical Weapons Convention (CWC)	13 Jan 1993	Paris, France	14 Sep 2005
Biological Weapons Convention (BWC)	10 Apr 1972	London/Washington/Moscow	18 Dec 1974

These instruments collectively form the normative core of the international humanitarian framework addressing the risks posed by landmines, cluster munitions, chemical and biological weapons, and other indiscriminate threats. They establish obligations for signatory states to prohibit, regulate, and remediate the use of such weapons, and to protect civilian populations through clearance operations, risk education, and victim assistance (ICRC, 2017; UNMAS, 2021).

Administrative and legal support structures are critical to transforming these international obligations into actionable national policy. This includes not only the creation of legal mandates for demining and post-conflict recovery, but also the development of regulatory bodies responsible for coordination, monitoring, and enforcement. National legal frameworks should facilitate the delegation of responsibilities to specialized agencies, ensure transparent reporting mechanisms, and uphold the rights and welfare of mine victims in accordance with international standards (UNDP, 2022).

Equally important is the integration of mine action legislation with mechanisms for international cooperation and technical assistance. This involves legal provisions that enable partnerships with international donors, humanitarian demining organizations, and UN agencies, as well as the legal recognition of IMAS and related protocols. Without such mechanisms, mine action efforts are vulnerable to fragmentation, inefficiency, and financial insecurity risks that undermine both operational outcomes and long-term sustainability.

In summary, the delay in enacting Ukraine's mine action legislation following its ratification of the Ottawa Convention reveals key governance gaps in strategic planning, legal harmonization, and institutional coordination. Strengthening the legal and administrative foundations for mine action is not only critical for protecting civilian populations, but also for enabling Ukraine to fulfill its international commitments and mobilize the global partnerships required to confront the enduring threat of landmines and explosive remnants of war.

VII. Historical and Legal Evolution of Mine Action in Ukraine

The history of mine action in Ukraine traces its origins to the post-Second World War era, when extensive minefields and unexploded ordnance (UXO) were left scattered across Ukrainian territory as a result of large-scale military operations. These explosive remnants of war (ERW) continued to pose significant threats to civilian populations and economic recovery for decades following the cessation of hostilities. However, the scale, complexity, and humanitarian impact of mine contamination have grown exponentially in the context of more recent conflicts first, the armed confrontation in eastern Ukraine since 2014, and subsequently, the full-scale Russian invasion that began in February 2022. These developments have necessitated a paradigm shift in Ukraine's approach to mine action, prompting calls for a more adaptive, comprehensive, and strategically coordinated national response (UNMAS, 2023).

During the Soviet period, mine clearance activities in Ukraine were administered primarily through military engineering units, operating under a centralized, state-controlled model. These units were equipped to conduct basic clearance and explosive ordnance disposal (EOD), but the approach lacked civilian oversight, humanitarian safeguards, and integration into broader legal or developmental frameworks (GICHD, 2021). Following the declaration of independence in 1991, Ukraine began a gradual transformation of its security and civil protection architecture, including preliminary efforts to institutionalize mine action. A significant milestone in this transition was Ukraine's participation in international legal frameworks such as the 1997 Ottawa Convention, which prohibits the use, stockpiling, production, and transfer of anti-personnel mines. Ukraine's ratification of the Convention in 2005 marked a shift from a strictly military-centered clearance model toward one aligned with humanitarian disarmament principles (Verkhovna Rada of Ukraine, 2005).

In the early 2000s, the Ukrainian government established several institutions tasked with addressing explosive threats, including the State Emergency Service and specialized EOD units within law enforcement structures. However, these early institutional efforts were not underpinned by comprehensive legal reforms or a national mine action strategy. The outbreak of hostilities in the Donetsk and Luhansk regions in 2014 exposed the inadequacies of Ukraine's existing mine action capacity. The widespread deployment of anti-personnel mines improvised explosive devices (IEDs), and other forms of ERW in populated and agricultural areas created urgent operational and humanitarian challenges. By 2022, Ukraine was among the most heavily mine-affected countries in the world, with contamination directly impeding humanitarian access, economic activity, and civilian safety (HALO Trust, 2023).

In response, the Ukrainian Parliament adopted the Law of Ukraine on Mine Action in Ukraine in 2018, aiming to provide a national legal framework for coordinating and implementing humanitarian demining activities. While this law represented a significant step toward legal harmonization with international standards, particularly the International Mine Action Standards (IMAS), it remains primarily focused on the civilian dimensions of mine action. The legislation outlines procedures for non-technical and technical surveys, risk education, and clearance in non-combat zones, and designates responsibilities for mine action authorities. However, it omits critical components such as military demining in active combat areas, rapid-response EOD operations by emergency services, and the systematic destruction of surplus ammunition and ordnance depots (OSCE, 2019; GICHD, 2021).

This legislative gap underscores the fragmented and incomplete nature of Ukraine's mine action policy. Although the 2018 law provides an important legal baseline, it does not reflect the operational complexity of Ukraine's contemporary security environment, where mine contamination affects not only rural and agricultural zones but also residential communities and critical infrastructure. Moreover, coordination across military, civilian, and humanitarian sectors remains inconsistent, undermining the overall efficiency of mine clearance operations. The institutional landscape is further complicated by overlapping mandates, insufficient funding, and variable technical capacity across implementing agencies (UNDP, 2022).

From a historical and legal standpoint, Ukraine's progression from post-conflict clearance to a formalized mine action strategy has been slow, reactive, and unevenly implemented. While Ukraine has made strides in aligning its policies with international humanitarian principles and treaty obligations, such as those articulated in the Ottawa Convention and the CCW Protocols, domestic institutional and legal systems remain underdeveloped. Cooperation with international actors such as the United Nations Mine Action Service (UNMAS), the Geneva International Centre for Humanitarian Demining (GICHD), and NGOs like the HALO Trust has helped build technical expertise and institutional capacity. However, these partnerships cannot substitute for a cohesive and integrated national policy framework that addresses the full spectrum of mine action activities, from battlefield clearance to long-term victim support and land rehabilitation.

In sum, the development of mine action in Ukraine illustrates both the possibilities and limitations of externally supported humanitarian disarmament in a context of ongoing conflict. Sustainable progress will require not only continued international engagement, but also a significant strengthening of Ukraine's domestic legal frameworks, administrative structures, and interagency coordination mechanisms.

VIII. Conclusion

The evolving nature of armed conflict in Ukraine marked by widespread contamination from landmines, improvised explosive devices, and explosive remnants of war has underscored the urgent need for a comprehensive, coherent, and responsive mine action system. While Ukraine has taken important steps by ratifying key international treaties such as the Ottawa Convention and by adopting the Law on Mine Action in Ukraine, the current legal and administrative framework remains incomplete and insufficiently adapted to the multidimensional challenges posed by contemporary warfare.

The historical trajectory of mine action in Ukraine reveals a reactive approach characterized by delayed legislative action, fragmented institutional coordination, and an overreliance on humanitarian partners. The predominance of a civilian-focused mine action strategy has left critical gaps in addressing military demining, emergency response, and the strategic clearance of infrastructure vital to national security and economic recovery. In a context where mine contamination directly impedes development, displaces communities, and endangers lives, these legal and operational deficits cannot be overlooked.

To move forward, Ukraine must undertake a systematic reform of its mine action architecture. This includes the integration of humanitarian and military clearance efforts within a unified legal framework; the strengthening of inter-agency coordination mechanisms; and the full incorporation of international standards such as the International Mine Action Standards (IMAS) into national practice. Moreover, sustained political commitment, stable financing, and proactive international cooperation are essential to ensure the long-term effectiveness and sustainability of mine action operations.

Ultimately, the establishment of a robust, adaptive, and rights-based mine action system is not only a legal and humanitarian imperative, it is a precondition for Ukraine's post-conflict reconstruction, social resilience, and alignment with international humanitarian norms. Addressing the legacy of past conflicts while preparing for future contingencies requires a holistic policy approach that places civilian protection, legal accountability, and operational efficiency at the center of national mine action strategy.

References

- [1] Geneva International Centre for Humanitarian Demining (GICHD). (2023). International Mine Action Standards (IMAS). <https://www.mineactionstandards.org>
- [2] Geneva International Centre for Humanitarian Demining (GICHD). (2023). International Mine Action Standards (IMAS). <https://www.mineactionstandards.org>

- [3] Geneva International Centre for Humanitarian Demining (GICHD). (2023). International Mine Action Standards (IMAS). <https://www.mineactionstandards.org>
- [4] Geneva International Centre for Humanitarian Demining (GICHD). (2023). International Mine Action Standards (IMAS). <https://www.mineactionstandards.org>
- [5] Geneva International Centre for Humanitarian Demining (GICHD). (2021). Ukraine Mine Action Review.
- [6] HALO Trust. (2023). Ukraine: Emergency Mine Action Response Report.
- [7] Henckaerts, J.-M., & Doswald-Beck, L. (Eds.). (2005). Customary International Humanitarian Law: Volume I – Rules. Cambridge University Press.
- [8] International Campaign to Ban Landmines (ICBL). (2022). Landmine Monitor 2022. <https://www.the-monitor.org>
- [9] International Committee of the Red Cross (ICRC). (1949a). Geneva Convention I: For the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field. <https://ihl-databases.icrc.org>
- [10] International Committee of the Red Cross (ICRC). (1949b). Geneva Convention II: For the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea. <https://ihl-databases.icrc.org>
- [11] International Committee of the Red Cross (ICRC). (1949c). Geneva Convention III: Relative to the Treatment of Prisoners of War. <https://ihl-databases.icrc.org>
- [12] International Committee of the Red Cross (ICRC). (1949d). Geneva Convention IV: Relative to the Protection of Civilian Persons in Time of War. <https://ihl-databases.icrc.org>
- [13] International Committee of the Red Cross (ICRC). (1977a). Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I). <https://ihl-databases.icrc.org>
- [14] International Committee of the Red Cross (ICRC). (1977b). Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II). <https://ihl-databases.icrc.org>
- [15] International Committee of the Red Cross (ICRC). (2005). Customary International Humanitarian Law: Volume I – Rules (J.-M. Henckaerts & L. Doswald-Beck, Eds.). Cambridge University Press.
- [16] International Committee of the Red Cross (ICRC). (2005). Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Adoption of an Additional Distinctive Emblem (Protocol III). <https://ihl-databases.icrc.org>
- [17] International Committee of the Red Cross (ICRC). (2017). A Guide to the Legal Framework Governing Mine Action. Geneva: ICRC.
- [18] International Crisis Group. (2021). Reforming Ukraine's Political Institutions.
- [19] International Crisis Group. (2021). Ukraine's Reform Agenda in the Shadow of War.

- [20] Kyselova, T. (2020). Ukraine's Transition and the Role of Conflict. *Ukrainian Journal of International Law*, 32(1), 45–62.
- [21] Moyes, R. (2004). *Tampering: Deliberate Handling and Use of Live Ordnance in Cambodia*. Landmine Action.
- [22] Organization for Security and Co-operation in Europe (OSCE). (2019). *Report on Mine Action in Ukraine*.
- [23] Organization for Security and Co-operation in Europe (OSCE). (2019). *Assessment of Ukraine's National Mine Action Legal Framework*.
- [24] Sandoz, Y., Swinarski, C., & Zimmermann, B. (Eds.). (1987). *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949*. Martinus Nijhoff.
- [25] United Nations Development Programme (UNDP). (2022). *Capacity Assessment of Ukraine's Mine Action Institutions*.
- [26] United Nations Development Programme (UNDP). (2022). *Legal Frameworks for Mine Action: Challenges and Opportunities*.
- [27] United Nations Mine Action Service (UNMAS). (2021). *Annual Report on Global Mine Action*.
- [28] United Nations Mine Action Service (UNMAS). (2021). *Annual Report on Mine Action and*
- [29] United Nations Mine Action Service (UNMAS). (2023). *Annual Report: Mine Action and the Impact of Conflict in Ukraine*.
- [30] United Nations Office for Disarmament Affairs (UNODA). (2018). *The Convention on Certain Conventional Weapons (CCW)*. <https://www.un.org/disarmament/the-convention-on-certain-conventional-weapons/>
- [31] United Nations. (1997). *Convention on the Prohibition of Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction (Ottawa Convention)*. <https://www.un.org/disarmament/anti-personnel-landmines/>
- [32] United Nations. (1997). *Ottawa Convention*. <https://www.un.org/disarmament/anti-personnel-landmines/>
- [33] Verkhovna Rada of Ukraine. (2005). *Law on the Ratification of the Ottawa Convention*. No. 250-V.
- [34] Verkhovna Rada of Ukraine. (2005). *Law on the Ratification of the Ottawa Convention*.