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VIETNAM - UNITED STATES COOPERATION IN POST-WAR REMNANT CLEARANCE: THE CASE OF LANDMINES AND UNEXPLODED ORDNANCE (1995-2015)

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ABSTRACT

Among the diverse war legacy issues impacting Vietnam–US relations, addressing the consequences of Unexploded Ordnance (UXO) stands as a cornerstone of bilateral cooperation. Since the normalization of diplomatic ties on July 11, 1995, both nations have established common ground through humanitarian-driven initiatives. By implementing concrete measures—ranging from technical survey and clearance operations to victim assistance—this collaboration has achieved substantial progress. These efforts not only mitigate the socio-economic impacts of war remnants but also serve as a vital catalyst for the broader development of the bilateral partnership."

Keywords: United States, Vietnam, bomb, mine, unexploded ordnance issue.

INTRODUCTION

Following the conclusion of the Vietnam War in 1975, bilateral relations entered a period of protracted stagnation. However, the cessation of the Cold War in 1991 sparked profound shifts in the global and regional geopolitical landscape, elevating economic integration and development as the primary international paradigms. These systemic changes acted as a catalyst for the normalization process. Concurrently, Vietnam's transformative *Doi Moi*, launched in 1986, significantly reshaped Washington's strategic perception of Hanoi. Following concerted diplomatic efforts and advocacy from both sides, the United States officially normalized diplomatic relations with Vietnam on July 11, 1995. This historic milestone established a robust foundation for a new era of engagement. Over the two decades following normalization (1995–2015), the partnership has witnessed substantial progress across multiple pillars, underpinned by the principles of mutual respect, equality, and reciprocal benefit. The landmark visit of US President Bill Clinton to Vietnam in 2000, followed by Prime Minister Phan Van Khai's historic official visit to the United States in 2005, institutionalized a framework for a constructive, stable, and multifaceted long-term partnership.

Frequent high-level exchanges and consistent engagement at multilateral forums have proven instrumental in fostering mutual understanding and deepening strategic trust. These diplomatic milestones have catalyzed broader cooperation across diverse sectors, including trade, culture, education, science and technology, and security-defense. A pivotal advancement occurred in July 2013, during President Truong Tan Sang's official visit, when the two nations formally established a 'Comprehensive Partnership.' By 2015, the United States had emerged as Vietnam's largest export market, with foreign direct investment (FDI) totaling nearly $11 billion, ranking 7th among all foreign investors (Vu Duy, 2015). Despite these significant achievements between 1995 and 2015, certain 'residual' challenges persist, necessitating proactive cooperation and transparent information sharing. Notably, addressing the legacy of Landmines and unexploded ordnance (UXO) remains a cornerstone of the bilateral efforts to mitigate war remnants.

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METHODOLOGY AND RESEARCH METHODS

This paper adopts a theoretical framework grounded in Constructivism and Pragmatism within the field of International Relations. Constructivism is employed to analyze the evolution of "strategic perception" among the stakeholders involved. Specifically, the research examines how joint humanitarian efforts have facilitated the cultivation of "strategic trust," effectively transitioning the bilateral relationship from a state of confrontation to a "Comprehensive Partnership." Adopting a multidisciplinary lens, the study integrates political science with academic linguistics through several key methodologies. First, from a linguistic perspective, the article utilizes Terminological Analysis to standardize core concepts—such as UXO (Unexploded Ordnance), ERW (Explosive Remnants of War), and AXO (Abandoned Explosive Ordnance)—in alignment with international conventions, notably Protocol V of the CCW. This ensures a cohesive conceptual framework for the study.

Second, the Historical Method is applied to systematize the evolution of Vietnam-US cooperation across pivotal stages, from the normalization of relations in 1995 to 2015. This historical overview elucidates the shift from early humanitarian dialogues in the 1990s to the formal institutionalization of cooperation, exemplified by the 2013 Memorandum of Understanding (MOU). Furthermore, the author conducts a Content Analysis of legal instruments, bilateral agreements, and official reports. Primary data sources include documentation from the Vietnam National Mine Action Center (VNMAC), the U.S. Department of State, and various international organizations and NGOs, such as the VVAF and Peace Trees Vietnam. Finally, the article employs a Case Study method, focusing on Quang Tri Province as a pioneering model. As the first locality to implement international cooperation programs in this field, Quang Tri provides a vital empirical basis for evaluating breakthrough results in mine action.

ADDRESSING THE LEGACIES OF WAR: US LANDMINES AND EXPLOSIVE ORDNANCE IN VIETNAM.

In academic and legal discourse, various terminologies are employed to describe war remnants, most notably Unexploded Ordnance (UXO) and Explosive Remnants of War (ERW). While these terms are occasionally used interchangeably due to their shared characteristic of failing to detonate as intended (Martin *et al.,* 2019, p.2), international law provides precise distinctions. Under Protocol V of the United Nations Convention on Certain Conventional Weapons (CCW), ERW is defined as an overarching category encompassing both UXO and Abandoned Explosive Ordnance (AXO) (IMAS Mine Risk Education Best Practice Guidebook 1, 2005). Pursuant to Article 2 of the Protocol, explosive ordnance refers to conventional munitions containing explosives—excluding mines and booby-traps as defined in Protocol II. Furthermore, AXO is specifically categorized as explosive devices that remained unused during armed conflict but were subsequently left behind or discarded without adequate control by a conflicting party (Landmine Action, 2004).

While an Abandoned Explosive Ordnance (AXO) refers to a device that may or may not have been primed, fused, armed, or otherwise prepared for use, Unexploded Ordnance (UXO) is specifically defined as an explosive device that was prepared for use and deployed in armed conflict but failed to detonate as intended (Martin *et al.,* 2019, p. 2). For the purpose of this study, the term 'post-war unexploded ordnance' encompasses a broad spectrum of munitions, including landmines, artillery shells, mortar rounds, grenades, and missile warheads utilized by ground forces, as well as sub munitions (cluster bombs) and air-delivered missiles. Although 'UXO' remains the conventional English term for such remnants, the potential presence of AXO in the field necessitates a more inclusive terminology. Consequently, the author adopts UXO and ERW (Explosive Remnants of War) as interchangeable terms to ensure a comprehensive analytical scope.

According to data released by the Vietnam National Mine Action Center (VNMAC) on April 4, 2018, an estimated 800,000 tons of Unexploded Ordnance (UXO) remain scattered across Vietnam's diverse landscapes, encompassing plains, forests, mountains, and inland waterways. This contamination is particularly concentrated in central provinces near the former Demilitarized Zone (DMZ). Approximately 6.1 million hectares—representing 18.71% of the national land area—are confirmed or suspected to be contaminated. As of December 2014, 9,116 out of 11,134 communes and wards across all 63 provinces remained affected to varying degrees, with contamination exceeding 80% in certain localities (VNMAC, 2020). Beyond immediate safety risks, the 10 to 15 million bomb craters created during the war have caused significant land instability and increased vulnerability to soil erosion. This extensive UXO presence has severely hindered land reclamation, reforestation, and agricultural cultivation. Furthermore, the illicit harvesting of explosives for blast fishing has led to catastrophic resource depletion and aquatic pollution.

The persistence of unexploded ordnance (UXO) continues to pose a lethal threat to the Vietnamese population, extending the war's tragic legacy long after the cessation of hostilities. Since 1975, the country has recorded over 40,000 fatalities and 60,000 injuries, disproportionately affecting primary breadwinners, ethnic minority communities, and children. Central Vietnam, the most heavily contaminated region, alone accounts for over 10,540 deaths and 12,260 injuries (VNMAC, 2020). Official statistics indicate that only approximately 30% of annual explosive incidents result from the intentional scavenging, collection, or illicit trade of UXO. Technical experts emphasize that the majority of these remnants remain highly volatile; although their detonation mechanisms were successfully activated during deployment, they failed to explode due to mechanical malfunctions, thus remaining in a hazardous 'armed' state.

VIETNAM-US COOPERATION IN ADDRESSING POST-WAR LANDMINES AND UNEXPLODED ORDNANCE (1995-2015)

Cooperation in the clearance of bombs, mines, and unexploded ordnance.

In early 1990, Vietnam and the United States initiated dialogues concerning Washington's humanitarian assistance in mitigating war legacies, with a primary focus on supporting individuals with disabilities sustained during the conflict. This marked the inception of a three-decade partnership dedicated to addressing war remnants (Dang Huyen, 2020). By 1996, the Vietnamese Government designated Quang Tri as the pilot province for international cooperation with Peace Trees Vietnam. Notably, Peace Trees was the first US-based non-governmental organization (NGO) licensed to operate in explosive ordnance clearance and reforestation within the country (Communist Party of Vietnam, 2015). Since 1998, the United States has consistently expanded its support through the provision of specialized technology. This includes advanced detection systems, portable X-ray units, robotic platforms, and dedicated Explosive Ordnance Disposal (EOD) vehicles.

In the realm of impact assessment and technical surveys, the U.S. government had allocated over $3 million by June 2000 to facilitate equipment procurement and conduct field investigations in UXO-contaminated rural areas. Between 2000 and 2001, the U.S. Department of State, partnering with the Vietnam Veterans of America Foundation (VVAF), collaborated with the Vietnamese Ministry of National Defense (MND) to launch a nationwide impact assessment project. Following bilateral consultations, a phased implementation strategy was adopted, prioritizing pilot surveys in the most heavily contaminated central provinces. Consequently, in early 2001, the State Department formalized a $1.4 million grant agreement with the VVAF to execute a 'Level One Survey,' providing a critical baseline for subsequent clearance efforts (Human Rights Watch & ICBL, 2001, p. 586).

In June 2000, Vietnam formally became the 37th nation to join the U.S. Government's humanitarian mine action program. Concurrently, both nations signed a bilateral agreement in which Washington pledged $1.75 million in specialized clearance equipment. According to the U.S. Department of State, the federal budget for fiscal year 2001 allocated approximately $3 million for further procurement, encompassing personal protective equipment (PPE), metal detectors, and specialized vehicles, alongside victim assistance initiatives (Bureau of Political-Military Affairs, 2001). Complementing these efforts, the Vietnam Veterans of America Foundation (VVAF) spearheaded comprehensive impact surveys to delineate the extent of unexploded ordnance (UXO) contamination and identify critical intersections where war remnants impeded agricultural production and economic infrastructure.

On April 25, 2004, the VVAF formalized a Memorandum of Understanding (MoU) and a Project Document with the Technology Center for Bomb and Mine Disposal (BOMICEN), under the Vietnamese Ministry of National Defense. This collaborative initiative, titled 'Investigation, Survey, and Assessment of the Impact of Unexploded Ordnance from the Vietnam War,' was financed by the

U.S. Department of State. Phase I concluded in May 2005, having successfully delineated contamination boundaries and identified disposal protocols for over 308 hectares across 344 communes in Ha Tinh, Quang Binh, and Quang Tri provinces. During this phase, 6,205 explosive remnants were safely removed and neutralized (U.S. Embassy & Consulate in Vietnam, 2021). According to official U.S. government records, bilateral assistance for UXO clearance from fiscal years 1993 to 2006 totaled over $30 million, encompassing service costs, logistics, and integrated support projects(U.S. Embassy & Consulate in Vietnam, 2021).

Regarding human resource development for Unexploded Ordnance (UXO) clearance, the United States significantly bolstered its support for Vietnam's National Action Program on Settling the Consequences of Post-War Unexploded Ordnance (Program 504) between 2005 and 2020. This cooperation intensified following the landmark 2013 Memorandum of Understanding on UXO remediation. The U.S. Indo-Pacific Command (USINDOPACOM), in coordination with Vietnamese authorities, conducted multiple specialized training programs for the Vietnam People's Army (VPA) Engineering Corps. Notable initiatives included an underwater EOD (Explosive Ordnance Disposal) diving course for eight Vietnamese personnel in Guam in January 2013. Subsequently, from July 1–12, 2013, 13 instructors from the Humanitarian Mine Action (HMA) program under USINDOPACOM facilitated a comprehensive training seminar at the Engineering Technical College for 64 military practitioners dedicated to war remnant remediation.

On September 21, 2015, a regional training workshop was convened in Hanoi to provide senior officers from Cambodia, Laos, Myanmar, Sri Lanka, Thailand, and Vietnam with advanced expertise in Explosive Ordnance Guide (EOG) management and post-war remediation. This initiative facilitated a platform for regional practitioners to exchange best practices and strengthen collaborative recovery efforts. Funded by the U.S. Department of State's Bureau of Political-Military Affairs and the Office of Weapons Removal and Abatement, the course was delivered by the Center for International Stabilization and Recovery (CISR) at James Madison University. The program's implementation was further bolstered by the support of the Vietnam Veterans of America Foundation (VVAF), the Association for Empowerment of Persons with Disabilities (AEPD), and the Government of Vietnam.

From August 8–31, 2016, the U.S. Army Pacific (USARPAC), in collaboration with the Vietnam National Mine Action Center (VNMAC), conducted a Humanitarian Mine Action (HMA) training program at the Engineering Military Academy in Son Tay, Hanoi. The initiative sought to professionalize Vietnam's technical workforce in alignment with International Mine Action Standards (IMAS), facilitating both domestic clearance operations and Vietnam's growing contributions to United Nations Peacekeeping Operations (UNPKO). Under a 'Train-the-Trainer' (ToT) model, a nine-member U.S. mobile training team partnered with 15 Vietnamese explosive ordnance disposal (EOD) specialists and 15 medical technicians to develop a core group of on-site instructors for VNMAC. Following the successful conclusion of this initial phase on August 31, 2016, both parties scheduled the second iteration of the program for the summer of 2017 (U.S. Embassy & Consulate in Vietnam, 2016).

Through the concerted efforts of Vietnam, the United States, and various international and non-governmental organizations, bilateral cooperation in war remnant remediation has yielded substantial results. The systematic clearance of unexploded ordnance (UXO) has not only reclaimed contaminated land but also facilitated joint reforestation initiatives, significantly restoring local ecosystems and stimulating socio-economic development. Beyond physical decontamination, these efforts have restored a sense of human security, allowing affected communities to achieve long-term stability. Nevertheless, the magnitude of the UXO challenge necessitates a multi-decadal commitment. Addressing the remaining contamination will require sustained capital investment and specialized human resources, demanding a steadfast, long-term strategic partnership between Hanoi and Washington.

Victim Support Activities

The U.S. government maintains its commitment to assisting survivors of Unexploded Ordnance (UXO) in Vietnam through multifaceted initiatives, including vocational training, medical care, and physical rehabilitation. Between 1987 and June 2010, Washington allocated $47 million toward disability assistance programs in Vietnam, significantly benefiting UXO victims, primarily through the Patrick J. Leahy War Victims Fund (LWVF). A pivotal development occurred in 1991 when the U.S. government earmarked $1 million for a specialized Prosthetics Program. This aid was channeled through prominent non-governmental organizations, including World Vision International and Vietnam Assistance for the Handicapped (VNAH), establishing a foundational model for bilateral humanitarian cooperation.

Similarly, Vietnamese victims of unexploded ordnance (UXO) are also among the beneficiaries of this program. However, it wasn't until 1993 that the United States provided direct support to UXO victims (Vietnam Ministry of Labour, War invalids and Social Affairs, 2014). On August 16, 2013, the U.S. non-profit organization Clear Path International (CPI) announced it had received $524,000 in grant aid from the U.S. Department of State to provide necessary support to Vietnamese UXO victims. In 2015, the U.S. Department of State funded the "Community Liaison and Unexploded Ordnance Clearance Project in Quang Tri Province, 2015-2017". The project, with a total budget of approximately $10 million, aimed to reduce the risk of casualties from UXO and support socio-economic development for the people of Quang Tri Province affected by the war.

Chào bạn, với tư cách là chuyên gia nghiên cứu Quan hệ Quốc tế (IR) và Ngôn ngữ học, tôi đánh giá đoạn văn này của bạn cung cấp những thông tin rất đắt giá về sự dịch chuyển phương thức hỗ trợ của Hoa Kỳ: từ hỗ trợ trực tiếp sang nâng cao năng lực cho các tổ chức địa phương (localization). Tuy nhiên, đoạn văn đang gặp một số lỗi về cấu trúc câu (sentence fragments), lỗi đóng/mở ngoặc và sử dụng thuật ngữ chưa tối ưu. Để đạt chuẩn văn phong khoa học quốc tế, chúng ta cần thể hiện rõ tính thể chế hóa của các chương trình này. 1. Bản hiệu đính đề xuất (Recommended Revision) "A Memorandum of Understanding (MoU) for this project was formalized on May 19, 2015, between the Provincial People's Committee and the Mines Advisory Group (MAG). Concurrently, the U.S. Government continues to assist persons with disabilities through the United States Agency for International Development (USAID). This initiative is regarded as a 'core element of bilateral cooperation' and represents one of the earliest efforts to address war legacies under the Patrick J. Leahy War Victims Fund (LWVF), which has been operational since 1989. Through USAID, the U.S. Government announced two subsequent funding initiatives: 'Enhancing Opportunities and Empowering Persons with Disabilities II' and 'Hold My Hand II,' with an aggregated budget of approximately $4 million. These programs are designed to be implemented by local Vietnamese organizations, aiming to enhance the quality of life for persons with disabilities and foster their comprehensive social inclusion (U.S. Embassy & Consulate in Vietnam, 2021).

CONCLUSION

Spanning nearly three decades, Vietnam–US cooperation in remediating post-war unexploded ordnance (UXO) has evolved into a strategic partnership, with Washington contributing over $166.3 million between 1993 and 2020. This collaboration has institutionalized a robust framework for technical surveys, contamination mapping, and clearance, significantly alleviating Vietnam's fiscal constraints. Beyond physical remediation, joint Mine Risk Education (MRE) and victim assistance programs—including physical rehabilitation and socio-economic reintegration—have drastically reduced casualties. Notably, in Quang Tri province, annual casualties plummeted from nearly 70 (2001–2005) to just 10 (2010–2015), supporting the strategic goal of achieving 'impact-free' status by 2027. Ultimately, this partnership has bolstered Vietnam's institutional capacity and technical expertise, driving the nation toward strategic autonomy in UXO management. By reclaiming contaminated land and fostering community resilience, these efforts not only stimulate socio-economic development but also play a pivotal role in preserving national sovereignty and territorial integrity in strategic border and maritime regions.

REFERENCES

1. Ministry of Labour, War invalids and Social Affairs - Vietnam(Bộ Lao động - Thương binh và Xã hội) (March 14, 2014). Hội nghị đối tác phát triển khắc phục hậu quả bom mìn sau chiến tranh (Conference of Development Partners on Addressing the Consequences of Post-War Landmines and Unexploded Ordnance). http://old.molisa.gov.vn/vi/Pages/chitiettin.aspx?IDNews=20431. Accessed March 29, 2022.
2. Bureau of Political-Military Affairs (2001). To Walk the Earth in Safety: The United States Commitment to Humanitarian Demining. https://2009-2017.state.gov/t/pm/rls/rpt/walkearth/2001/6941.htm.Accessed on March 29, 2022.
3. U.S. Embassy & Consulate in Vietnam(January 20, 2021). The United States and Vietnam Highlight the Results of Cooperation in Addressing the Consequences of War. https://vn.usembassy.gov/vi/hoa-ky-va-viet-nam-neu-bat-ket-qua-hop-tac-khac-phuc-hau-qua-chien-tranh/. Accessed March 29, 2022.
4. U.S. Embassy & Consulate in Vietnam(August 31, 2016). U.S. and Vietnam Cooperate to Enhance Humanitarian Mine Clearance Capacity. https://vn.usembassy.gov/vi/hoa-ky-va-viet-nam-hop-tac-nang-cao-nang-luc-ra-pha-bom-min-nhan-dao/. Accessed March 29, 2022.
5. Communist Party of Vietnam (2015). The Vietnam Peace Tree Organization strives to overcome the consequences of war. https://dangcongsan.vn/xa-hoi/to-chuc-cay-hoa-binh-viet-nam-no-luc-khac-phuc-hau-qua-chien-tranh-308218.html.Accessed March 24, 2022.
6. Dang Huyen (July 11, 2020). Resolving the Consequences of War - a Bright Spot in Vietnam-US Relations. https://baotintuc.vn/chinh-polit/giai-quyet-hau-qua-chien-tranh-diem-sang-trong-quan-he-viet-nam-hoa-ky-20200711123558401.htm.Accessed March 29, 2022.
7. Human Rights Watch, International Campaign to Ban Landmines (2001). Landmine Monitor report 2001 : toward a mine-free world. New York: Human Rights Watch.
8. Landmine Action (2004). Protecting Civilians from Explosive Remnants of War, A Guide to Providing Warnings under CCW Protocol V, Landmine Action, London.
9. Martin, M., Dolven, B., Feickert, A. & Lum, T. (2019). War Legacy Issues in Southeast Asia: Unexploded Ordnance (UXO). https://crsreports.congress.gov/product/pdf/R/R45749. Ngày truy cập 25/3/2022.
10. Nguyen Phuc (April 4, 2019). Quang Tri is the locality with the highest concentration of unexploded ordnance in the country.https://thanhnien.vn/thoi-su/quang-tri-la-dia-phuong-o-nhiem-bom-min-lon-nhat-nuoc-1067523.html. Accessed March 24, 2022.
11. Vietnam National Mine Action Center(VNMAC) (January 5, 2020). National landmine contamination data. http://vnmac.gov.vn/vi/tin-tuc/so-lieu-o-nhiem-bom-min-tren-ca-nuoc.t-61.html. Accessed March 24, 2022.
12. U.S. Embassy & Consulate in Vietnam (July 29, 2021). Unexploded Ordance (UXO) Removal. https://vn.usembassy.gov/fact-sheets-unexploded-ordnance-uxo-removal/.Accessed 29/3/2022.
13. IMAS Mine Risk Education Best Practice Guidebook 1(2005). Glossary of Terms and Resources, UNICEF and GICHD, Geneva. https://www.gichd.org/fileadmin/uploads/gichd/Publications/IMAS-MRE-Guidebooks-2005-complete-en.pdf, Accessed August 14, 2016.
14. Vu Duy (2015). A New Historical Milestone in Vietnam-US Relations.http://vov.vn/chinh-polit/new-historical-milestone-in-vietnam-us-relations-411663.vov,Accessed August 14, 2015.

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