

Assessing the Economic, Legal, and Developmental Impact of Cluster Munitions in Arab Countries

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Abstract

This study aims to assess the economic, legal, and developmental impacts of the use of cluster munitions in Arab countries through a comprehensive analysis that integrates both theoretical and applied dimensions of this phenomenon. The study is grounded in the central premise that the effects of cluster munitions are not confined to periods of armed conflict, but rather extend into long-term burdens that undermine economic stability, generate complex legal challenges, and hinder sustainable development trajectories. The research adopts a descriptive-analytical methodology based on a review of recent Arabic literature, analysis of international legal frameworks, and examination of Arab experiences in dealing with explosive remnants of war. Several analytical dimensions are employed, including environmental impact, food security, investment climate, reconstruction costs, and human capital, alongside an evaluation of the roles of governance, technology, and international organizations in addressing this issue. The findings reveal that cluster munitions impose a multifaceted economic burden by disrupting productive activities, reducing the usability of agricultural land, increasing reconstruction costs, and diminishing investment attractiveness due to heightened risk levels. Furthermore, the study identifies a significant gap in the international legal framework, attributed to weak enforcement mechanisms and uneven state commitments, which limits the effectiveness of legal prohibitions on such weapons.

Keywords: Cluster Munitions, Economic Impact, International Humanitarian Law, Sustainable Development, Human Security, Reconstruction

Introduction

Cluster munitions have emerged as a critically important subject of scholarly and policy inquiry within the contemporary international system, owing not only to their immediate operational effects in armed conflicts but, more significantly, to their enduring economic, legal, and developmental repercussions. The necessity of studying this topic lies in the

growing recognition that the consequences of such weapons extend far beyond the battlefield, shaping long-term trajectories of recovery, governance, and sustainable development in affected regions. Despite their continued justification on the basis of short-term military advantage, there is an urgent need to reassess their overall utility and effectiveness through a multidimensional analytical lens that captures their broader societal costs. This study is therefore timely and essential, as it addresses a critical gap in understanding the full spectrum of impacts associated with cluster munitions, particularly within the Arab context.

The significance of this study derives from its potential to inform multiple stakeholders, including policymakers, legal practitioners, development agencies, and academic researchers. By systematically examining the economic burdens, legal complexities, and developmental disruptions caused by cluster munitions, the research contributes to more evidence-based decision-making and strategic planning. It highlights how the continued use or legacy of such weapons undermines national development priorities, weakens institutional capacities, and complicates compliance with international legal standards. Furthermore, the study provides practical value by identifying pathways through which affected countries can mitigate these impacts, enhance recovery efforts, and align their policies with sustainable development objectives.

In the Arab region, the importance of this topic is particularly pronounced due to the intersection of ongoing conflicts, structural economic vulnerabilities, and governance challenges. Cluster munitions exacerbate existing fragilities, transforming what may initially appear as a military issue into a comprehensive socio-economic and legal crisis. Their effects permeate key sectors such as agriculture, energy, and investment, while also imposing long-term constraints on land use, productivity, and human capital development. As such, the study is highly relevant for governments seeking to stabilize their economies, for international organizations engaged in humanitarian and reconstruction efforts, and for local communities striving to rebuild their livelihoods.

From a utilitarian perspective, this research underscores the limited effectiveness of cluster munitions when evaluated against their extensive and persistent costs. It challenges prevailing assumptions regarding their strategic value by demonstrating that their long-term consequences often outweigh any immediate tactical gains. In doing so, the study advances a more comprehensive understanding of security, one that integrates economic resilience, legal accountability, and human development. This broader perspective is crucial for developing more balanced and sustainable policy responses.

Accordingly, this study aims to provide an in-depth and integrated assessment of the economic, legal, and developmental impacts of cluster munitions in Arab countries. It seeks to analyze the structural and institutional challenges that hinder effective responses, while also offering actionable recommendations to enhance mitigation strategies and support sustainable recovery. By bridging theoretical analysis with practical implications, the research aspires to contribute meaningfully to both academic discourse and policy formulation, ultimately promoting more effective, equitable, and forward-looking approaches to addressing this complex issue.

Concept and Operational Nature of Cluster Munitions

Cluster munitions are defined as weapons systems that deploy a container designed to release dozens or hundreds of submunitions over a wide geographical area, with the aim of achieving extensive battlefield coverage. Strategically, they are categorized as impact maximization tools, intended to increase the effectiveness of a single strike by targeting multiple points simultaneously. However, this operational model relies on dispersion rather than precision, creating a significant gap between intended military objectives and actual outcomes, particularly in mixed civilian environments.

One of the most critical aspects of these weapons is their failure rate, as a proportion of submunitions remain unexploded after deployment, becoming persistent hazards. These unexploded remnants constitute what can be described as a deferred risk inventory, posing long-term threats that may persist for decades and significantly increase the burden on affected states. In many Arab countries, where demining infrastructure is limited, these remnants become enduring obstacles to reconstruction.

From a business analysis perspective, cluster munitions can be viewed as tools with low short-term operational costs but extremely high long-term costs. This discrepancy highlights a fundamental flaw in strategic cost-benefit assessments. While they may yield rapid tactical outcomes, they generate prolonged financial and developmental liabilities borne by both the state and society.

International Legal Framework Governing Cluster Munitions

The legal framework regulating cluster munitions is rooted in the principles of international humanitarian law, which seeks to minimize the impact of armed conflict on civilians. Key principles include distinction, requiring differentiation between military and civilian targets, and proportionality, prohibiting excessive use of force. Due to their indiscriminate nature, cluster munitions pose direct challenges to compliance with these principles.

The 2008 Convention on Cluster Munitions represents the most explicit legal instrument in this domain, prohibiting the use, production, and stockpiling of such weapons, while obligating states to clear remnants and assist victims. However, the absence of universal adherence creates an incomplete legal environment. This disparity results in what may be termed a compliance gap, undermining the convention's effectiveness.

In the Arab context, the lack of a unified legal approach weakens regional coordination. Divergent national positions, often justified by security considerations, reflect an ongoing tension between sovereignty and humanitarian norms.

Theoretical Perspectives on Cluster Munitions Use

Human Security Theory

Human security theory shifts the focus of security from the state to the individual, encompassing economic, health, environmental, and social dimensions. Cluster munitions threaten all these aspects, producing conditions of chronic insecurity in affected communities.

Economic Cost of War Theory

This theory emphasizes both direct and indirect financial burdens of conflict. Cluster munitions generate negative externalities, including reduced agricultural productivity, decreased investment attractiveness, and increased reconstruction costs.

Sustainable Development Theory

Cluster munitions undermine the balance between economic, social, and environmental development. Their presence disrupts poverty reduction efforts, food security, and environmental sustainability.

Governance and Risk Management Theory

Effective management of cluster munition impacts requires strong institutional coordination. Weak governance structures and lack of data significantly hinder mitigation efforts.

Environmental Impact of Cluster Munitions

The environmental impact of cluster munitions remains one of the most overlooked dimensions in conflict analysis, despite its long-term consequences. Explosions and unexploded ordnance release toxic substances and heavy metals into the soil, reducing fertility and agricultural productivity. This contamination often penetrates deep soil layers, making remediation both costly and technically complex, particularly in resource-constrained contexts.

Unexploded submunitions also disrupt ecosystems by destroying vegetation and biodiversity, transforming affected areas into environmentally degraded zones that are difficult to rehabilitate in the short term. This has cascading effects on food chains and rural livelihoods. Moreover, environmental damage extends to water resources, as toxic substances contaminate groundwater and surface water. This creates direct health risks and increases water treatment costs, placing additional pressure on already scarce water resources in many Arab countries.

Therefore, cluster munitions should be understood not only as military or humanitarian threats but also as strategic environmental challenges that hinder sustainability. Addressing these impacts requires integrating environmental rehabilitation into post-conflict recovery strategies, rather than focusing solely on clearance operations.

Impact of Cluster Munitions on Food Security

Food security is among the sectors most severely affected by the proliferation of cluster munitions, particularly in Arab countries that rely heavily on domestic agriculture as a primary source of food. The presence of unexploded ordnance in agricultural lands renders them unsafe for cultivation, thereby reducing arable land and directly affecting agricultural productivity. This decline in production contributes to rising food prices and increased dependence on imports.

Moreover, the persistent threat posed by these munitions prevents farmers from returning to their lands, resulting in loss of livelihoods and increased poverty rates in rural communities. This impact extends beyond individuals to the national economy, as agricultural supply chains are disrupted and the capacity for self-sufficiency is weakened.

From a strategic perspective, cluster munitions contribute to a condition of “food vulnerability,” wherein states become more susceptible to external shocks such as global price fluctuations and political crises. This undermines governments’ ability to effectively manage food security and increases pressure on public budgets.

Accordingly, addressing the impact of cluster munitions should be integrated into food security policies through land clearance initiatives, support for farmers, and rehabilitation of agricultural infrastructure to ensure sustainable production.

Role of International and Regional Organizations

International organizations play a pivotal role in addressing the consequences of cluster munitions, particularly in countries with limited institutional capacity. These organizations provide technical and financial support for clearance operations, as well as humanitarian assistance to victims. However, the effectiveness of these efforts varies depending on the level of coordination with local governments.

Regional organizations, on the other hand, contribute to enhancing cooperation among affected states and facilitating the exchange of expertise and best practices. Nevertheless, their role remains limited in the Arab world due to weak institutional integration and the absence of unified regional strategies.

Funding also presents a significant challenge, as many programs depend on international aid, making them vulnerable to political and economic fluctuations. This dependency undermines the sustainability of interventions and delays the achievement of desired outcomes.

Therefore, strengthening the role of these organizations requires the development of strategic partnerships with governments, improved institutional coordination, and the establishment of sustainable financing mechanisms.

National Institutional Framework for Managing War Remnants

The institutional framework constitutes a critical component in managing the remnants of cluster munitions, as the success of clearance operations depends on the presence of effective institutions capable of planning and implementation. In many Arab countries, these institutions suffer from limited resources and weak coordination, leading to delays in operations.

The absence of clear legislative frameworks further constrains institutional effectiveness and creates accountability gaps, negatively affecting the quality of implementation and increasing operational risks.

Additionally, the lack of accurate and comprehensive data on contamination sites poses a major challenge. Many operations rely on incomplete information, resulting in increased costs and extended timelines.

Thus, strengthening the institutional framework requires capacity building, legislative reform, and the adoption of advanced information systems to support evidence-based decision-making.

Impact on the Investment Environment

Cluster munitions represent a significant non-traditional risk factor that directly affects the investment environment. Areas contaminated with such remnants are typically classified as high-risk zones. Investors, whether domestic or foreign, base their decisions on stability and security, and the presence of unexploded ordnance increases uncertainty and operational risk, leading to capital flight or redirection toward more stable markets.

Furthermore, these munitions increase the cost of investment projects, as companies are required to incur additional expenses related to land surveys, worker safety measures, and contracting specialized clearance firms before initiating operations. These costs are categorized as market entry costs, which become disproportionately high in affected countries, thereby reducing their investment attractiveness.

In addition, cluster munitions influence sovereign risk ratings, as international financial institutions consider security risks when assessing creditworthiness. The presence of active war remnants undermines investor confidence and increases borrowing costs, negatively affecting macroeconomic stability.

Consequently, addressing the impact of cluster munitions is not only a humanitarian or environmental necessity but also an economic imperative for improving investment climates and stimulating growth.

Cost of Reconstruction in Affected Areas

The cost of reconstruction in areas affected by cluster munitions is significantly higher compared to regions subjected only to conventional destruction. This is primarily due to the need for comprehensive clearance operations before initiating any infrastructure or investment projects, adding both time and financial burdens to reconstruction processes.

Clearance operations require advanced technologies and specialized expertise, often at high cost, particularly when data on contamination sites is incomplete. This leads to delays in development projects and increases overall costs, placing additional strain on government budgets and slowing economic recovery.

Moreover, the presence of cluster munitions limits governments' ability to implement strategic infrastructure projects such as roads, airports, and industrial zones, as these initiatives become associated with elevated risks. Delays in reconstruction negatively impact employment opportunities and economic growth, perpetuating social crises.

Thus, cluster munitions act as a cost multiplier in reconstruction efforts, necessitating their early integration into national recovery plans to accelerate rehabilitation and reduce financial waste.

International Legal Responsibility

Cluster munitions raise complex legal questions regarding international responsibility for their use, particularly in light of the widespread harm inflicted on civilians. Under international humanitarian law, states are accountable for actions that violate the laws of armed conflict, including the use of indiscriminate or disproportionate weapons.

However, the enforcement of such responsibility faces practical challenges, including difficulties in proving violations, the complexity of international legal procedures, and the absence of effective enforcement mechanisms. Furthermore, the non-participation of some states in relevant international conventions creates legal gaps that may be exploited to justify their use.

The issue of individual criminal responsibility also arises, as military leaders may be held accountable before international courts for war crimes. Nonetheless, such accountability remains limited due to political considerations and insufficient international cooperation. Therefore, the current legal framework requires further development to strengthen accountability mechanisms and prevent impunity, thereby contributing to the reduction of future use.

Impact on Human Capital

Human capital is a fundamental driver of development, yet it is significantly affected by cluster munitions through the injuries and disabilities they cause. These effects result in the loss of a portion of the workforce, reducing productivity and hindering economic growth.

Cluster munitions also negatively impact education, as they prevent children from accessing schools in affected areas, leading to declining educational attainment and increased dropout rates. This creates long-term skill gaps that undermine development prospects.

From a health perspective, these weapons place substantial pressure on healthcare systems, as victims often require long-term medical care, consuming limited health resources and affecting service quality.

Thus, the impact of cluster munitions on human capital extends beyond immediate harm to encompass long-term deterioration in productive and educational capacities.

Conclusion

The findings of this study confirm that cluster munitions are no longer merely military tools within the context of armed conflict; rather, they have evolved into structural impediments that affect economic stability, undermine legal frameworks, and obstruct development pathways in Arab countries. Their true impact extends beyond immediate human losses to include disrupted production, erosion of human capital, increased reconstruction costs, and deteriorating investment environments. This temporal extension transforms cluster munitions into a chronic crisis rather than a temporary wartime condition.

Economically, cluster munitions impose a compounded financial burden, as states face both lost investment opportunities and the high costs of clearance and rehabilitation. This imbalance distorts resource allocation and limits governments' ability to invest in productive development initiatives. Elevated risk levels in affected areas further reduce economic competitiveness and delay integration into global value chains.

Legally, the study highlights a clear gap between the theoretical framework of international humanitarian law and its practical application. Weak enforcement mechanisms, divergent state commitments, and sovereignty considerations all limit the effectiveness of legal

prohibitions. This underscores the need for more binding legal instruments and stronger accountability mechanisms.

From a developmental perspective, cluster munitions pose a direct obstacle to achieving sustainable development goals by affecting food security, limiting access to natural resources, and preventing population return. Their impact on human capital, through injury, disability, and disrupted education, further undermines long-term productivity and perpetuates development gaps.

Addressing this issue requires a strategic shift from fragmented responses to an integrated risk management approach. This approach should incorporate economic, legal, and developmental dimensions into comprehensive national policies, supported by improved governance, advanced information systems, and technological innovation in clearance operations. Strengthening partnerships among governments, international organizations, and the private sector is essential to accelerating progress and reducing costs.

Additionally, raising public awareness and enhancing the role of media are critical for reducing risks and preventing injuries, particularly in rural communities. Drawing on comparative Arab experiences can also contribute to the development of more effective models by adopting best practices and avoiding past shortcomings.

In conclusion, cluster munitions represent a critical test of Arab states' capacity to manage complex, multidimensional crises. Success lies not only in their removal but in transforming affected areas into opportunities for sustainable recovery and development. This requires clear political will, innovative strategies, and effective regional and international cooperation to mitigate the long-term impacts of this phenomenon.

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