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Conference Paper

POTENTIAL HUMANITARIAN CONSEQUENCES OF NEW WARFARE TECHNOLOGIES AT SEA

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Abstract.

The International Committee of the Red Cross (ICRC), as a neutral and independent humanitarian organisation, underscores the vital function of maritime transport in sustaining the global distribution of goods and essential supplies. Armed conflict that disrupts maritime supply chains increases humanitarian risks, particularly for civilian populations and critical infrastructure across the Indo-Pacific region. This study applies a qualitative content analysis using international legal instruments, institutional reports, and peer-reviewed publications from the past decade. The analysis centres on International Humanitarian Law (IHL) as the core legal framework for mitigating the effects of armed conflict by protecting civilians and regulating the conduct of hostilities. The findings demonstrate that IHL retains its significance despite the evolving complexity of modern conflict and growing dependence on maritime systems. Ensuring its effective implementation requires broad-based understanding and universal commitment to uphold humanitarian norms amidst contemporary security threats.

Keywords: armed conflict, humanitarian risk, international humanitarian law, maritime conflict, supply chain disruption

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Introduction

The International Committee of the Red Cross (ICRC) operates as a neutral and independent humanitarian organisation(1,2). Neutrality reflects the principle of refraining from taking any political position, including avoiding declarations that identify any party to a conflict as right or wrong. This stance enables the ICRC to sustain humanitarian operations even in highly complex and sensitive environments. The organisation upholds independence as a core value, ensuring that its activities remain free from influence by governments or external actors. As a purely humanitarian body, the ICRC works under two principal mandates: to protect the lives and dignity of individuals affected by armed conflict and to provide them with material assistance. Equally important is the promotion of International Humanitarian Law (IHL), which seeks to prevent and alleviate human suffering during armed conflict (3).

Literature Review

Theoretical Studies

International Humanitarian Law (IHL) comprises a set of legal norms intended to prevent or mitigate the severe consequences of armed conflict (3). The rules aim to protect civilians and individuals who no longer participate in hostilities, while also imposing restrictions on specific methods and means of warfare. Although sustained dialogue regarding the humanitarian implications of emerging technologies remains essential, IHL continues to serve as the foundational framework for humanitarian protection. The Geneva Conventions, which have achieved universal acceptance, illustrate the lasting relevance of these legal principles (4). Nevertheless, securing humanitarian access during armed conflict remains a significant challenge, as it often requires complex negotiations with both state and non-state parties to the conflict (1).

Empirical Studies

Maritime transport serves as a fundamental component in facilitating the global movement of goods and basic necessities (5), including for humanitarian organisations like the ICRC (1). Reliance on maritime logistics becomes particularly evident in regions like the Pacific, where such infrastructure is indispensable to sustaining humanitarian operations. Armed conflict that disrupts the supply chains of food and essential goods generates considerable humanitarian risks (6). In addition, maritime hostilities can cause long-term ecological damage, including oil spills resulting from sunken vessels (7).

Civilian populations living in maritime environments, along with critical infrastructure, experience increased vulnerability during armed conflict (1). The introduction of new technologies of

warfare further complicates humanitarian response by intensifying operational risks and ethical dilemmas. A major concern involves the potential human cost of cyber and information operations (1). For example, cyber attacks targeting healthcare systems, including hospital networks, may produce catastrophic effects for civilian populations (9). Moreover, the spread of misinformation, disinformation, and hate speech has the potential to escalate conflict dynamics, incite violence, and undermine humanitarian response mechanisms (10). The growing deployment of autonomous weapon systems in maritime conflicts also presents serious humanitarian concerns (11). Systems driven by artificial intelligence and machine learning increase the risk of unpredictability and reduce human oversight, thereby raising questions regarding accountability and compliance with humanitarian norms.

Methods

This study adopts a qualitative content analysis approach, defined as a research technique used to draw replicable and valid inferences from textual material based on contextual meaning (12). The method enables a systematic examination of policy documents, institutional reports, and academic literature concerning the humanitarian consequences of new warfare technologies in maritime settings. The data sources include international legal instruments, institutional publications, and peer-reviewed academic works published within the past decade, with selection criteria emphasising relevance to international humanitarian law, armed conflict, maritime security, and emerging technologies in the Indo-Pacific region. The unit of analysis concentrates on International Humanitarian Law (IHL) and its application to contemporary warfare and the protection of civilian populations. This study was conducted over a one-year period, and the credibility of the data was ensured through source triangulation and cross-verification using expert-reviewed materials.

Results and Discussion

Recent developments emphasise the urgent need to examine the humanitarian implications of emerging technologies within the framework of International Humanitarian Law/IHL (1). Ensuring responsible and ethical application of these technologies requires the preservation of meaningful human oversight. Human judgement remains essential to uphold humanitarian principles and to ensure compliance with IHL during the deployment of autonomous or advanced weapon systems. States are therefore encouraged to engage in sustained dialogue to promote confidence-building measures and to maintain the applicability and

adaptability of IHL in response to evolving methods of warfare (1).

Although modern conflicts have become increasingly complex and violations of IHL persist, the legal framework continues to hold both relevance and necessity (1). A universal culture of compliance must be cultivated, grounded in the recognition that all states share responsibility for adherence to IHL, regardless of their direct involvement in hostilities. Similar to how a comprehensive understanding of traffic regulations is required before operating a vehicle, a sound grasp of IHL remains fundamental for responsible conduct during armed conflict.

International Humanitarian Law continues to function as a foundational legal structure for mitigating the humanitarian impact of war by safeguarding civilians and regulating the conduct of hostilities. As reliance on maritime transport intensifies and the dynamics of conflict grow increasingly sophisticated, the threats to civilian populations and critical infrastructure have become more severe. Nonetheless, the relevance of IHL endures and demands universal respect. This obligation must be reinforced by widespread understanding, which is indispensable for effective implementation and for sustaining humanitarian values amid changing security environments.

Conclusion

International Humanitarian Law (IHL) remains a foundational legal framework for mitigating the humanitarian consequences of armed conflict by safeguarding civilians and regulating the conduct of hostilities. As reliance on maritime transport continues to increase and the complexity of contemporary conflict escalates, threats to civilian populations and vital infrastructure have become more pronounced. Nevertheless, IHL retains its significance and demands universal adherence. Such commitment must be grounded in a firm and widely shared understanding of its principles, which is essential to ensure effective implementation and uphold humanitarian values in the face of evolving security challenges.

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