



Swedish Defence University

Operationalisation of the principle of proportionality to siege warfare

Master Thesis

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Author: Victor Hugo Calero Granda

Supervisor: Jann K. Kleffner

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List of Acronyms

API	First Additional Protocol to the Geneva Conventions of 1949
AP II	Second Additional Protocol to the Geneva Conventions of 1949
BDA	Battle Damage Assessment
CDE	Collateral Damage Estimation
GC	Geneva Conventions of 1949
HR	Hague Regulations of 1907
HRC	Human Rights Committee
IAC	International Armed Conflict
ICC	International Criminal Court
ICJ	International Court of Justice
ICL	International Criminal Law
ICRC	International Committee of the Red Cross
ICTY	International Criminal Tribunal for the former Yugoslavia
IHL	International Humanitarian Law
IHRL	International Human Rights Law
LOAC	Law of Armed Conflict
NATO	North Atlantic Treaty Organization
NIAC	Non-International Armed Conflict
UN	United Nations
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNSC	United Nations Security Council
UO	Urban Operation

1. Introduction

Throughout history, sieges of cities and densely populated areas have played a key role in the military theatre. This method of warfare may “conjure up images of medieval warfare”² such as the sieges of Jerusalem, Vienna or Constantinople. However, in modern international and non-international armed conflicts, sieges continue to shape the nature of the hostilities in urban areas. Conflicts in Syria, Yemen, Ukraine, Sudan, and northern Gaza have demonstrated not just the resurgence of sieges in contemporary conflicts,³ but also its devastating humanitarian consequences for the civilian population trapped in an encircled and isolated area with limited access to basic resources. Cities as battlegrounds are a direct consequence of their strategic value, the rise of urbanisation, and the tactical advantage they may offer for the defender against a superior enemy.⁴ The catastrophic repercussions for civilians who find themselves in the middle of an ongoing urban warfare - for instance the siege in northern Gaza by the Israeli Defense Forces (IDF), which caused the internal displacement of more than 1.9 million people (about the 90% of the population in Gaza) in addition to the 47,354 Palestinians killed, and thousands of people that remain unaccounted for⁵ - has led to international consternation.⁶

The reasons why armed forces resort to sieges may differ. This method of warfare could be employed to gain control of a specific area and avoid a street-by-street fight in a populated zone,

² Emanuela-Chiara Gillard, ‘Sieges, the Law and Protecting Civilians’ (2019) Chatham House 1.

³ *Ibid.*

⁴ Laurent Gisel, Pilar Gimeno Sarciada, Ken Hume and Abby Zeith, ‘Urban Warfare: An Age-Old Problem in Need of New Solutions’ (2021), International Committee of the Red Cross (ICRC), Humanitarian Law and Policy Blog, available at: <<https://blogs.icrc.org/law-and-policy/2021/04/27/urban-warfare/>> accessed 23 February 2025

⁵ United Nations Report of the Secretary-General, Demand for ceasefire in Gaza, (2025) UN Doc A/79/73

⁶ See the demand of ceasefire in Gaza (A/RES/ES-10/26) by the United Nations General Assembly (UNGA)

and, therefore, compel the enemy to surrender with a lower cost of casualties. On the other hand, sieges can also be used as part of a strategy of “containing enemy forces in a particular location”,⁷ so that the besieged party cannot interfere elsewhere.⁸

Thus, conflict arises between the military advantage of sieges and humanitarian considerations when the besieged area contains civilian population. In this regard, a number of LOAC rules may be applicable to the elements of sieges with the aim of protecting the civilian population and *hors de combat* trapped in the area. Among these standards, the application of the principle of proportionality to sieges raises questions as to whether or not it is applicable and, if so, how it should be assessed. The classification of a siege as an attack is key to determine whether or not this rule is applicable. However, under the LOAC there is no definition of siege, nor it is determined whether it is a lawful method or warfare or whether it falls under the category of attack.

This thesis seeks to ascertain in which manner should the principle of proportionality be applied to sieges. In order to achieve this aim, it will only be considered sieges encircling both armed forces and civilians.

In this sense, this thesis will answer the following research question: How should the principle of proportionality be applied to sieges under the Law of Armed Conflict?

⁷ Gillard (n 2) 2.

⁸ *Ibid.*

To answer this question, the body of this thesis will be structured in four chapters. First, it will be analysed the concept of sieges considering its purpose, key elements, and legality. The second section will seek to answer whether sieges are considered an attack, in order to determine this, it will examine the definition of attack under the Additional Protocol I and its flexibility regarding its consequences. The next chapter will focus on the principle of proportionality, starting with an overview of its concept and followed by the main components involved. The fourth chapter will discuss the application of the principle of proportionality during a siege. In this section, it will be considered the main components, the time when the principle should be assessed, its continuous assessment during the siege, and the challenges of its ongoing application.

2. Sieges

Prior to determining the application of the proportionality rule to sieges, it is essential to understand the concept of this method of warfare. In this sense, this chapter will analyse the main components of a siege. Starting by providing its definition and purpose, this chapter will then focus on examining the basic elements that accompany a siege.

2.1 Concept and purpose

“[I]t is better to recapture an army entire than to destroy it, to capture a regiment, a detachment or a company entire than to destroy them. [...] supreme excellence consists of breaking the enemy's resistance without fighting.”

*Sun Tzu*⁹

⁹ Sun Tzu, active 6th century B. C. and Lionel Giles, *The Art of War* (Project Gutenberg 1910) Chapter III.

The conduction of military operations in populated areas during the last three decades are proof of the relevance of sieges in contemporary urban operations (UO). Due to the strategic importance of cities and strongholds, sieges are an alternative to conducting attacks in an urban area, which can be costly in casualties and incidental harm. In this line, the United Kingdom (UK) Ministry of Defence in its Law of War Manual states that “a more effective method [to attacks] may be to encircle enemy forces, cutting them off from supplies and communications with the outside world and forcing their surrender. The same is true of besieging a town or stronghold.”¹⁰ Furthermore, as a method in the conduct of hostilities, sieges clearly represent an advantage in order to gain control of a position, submit the enemy force and defeat it.¹¹

In legal terms, there is no definition under the LOAC of sieges. While referred to in various international treaties, the term has never been defined in international law nor the specific requirements that must be met to characterise it.¹²

According to the United States Department of Defense (DoD) the notion of a siege consists of the encirclement of a specific area and the resulting isolation of enemy forces by cutting off their supplies, communications, and reinforcement channels with the main objective to induce the besieged force to surrender.¹³ As noted by Dinstein, this area consists of a “military

¹⁰ UK Ministry of Defence, Law of War Manual (2004), para. 5.34.1.

¹¹ Georgia Gaggioli, 'Are Sieges Prohibited under Contemporary IHL?' Joint Blog Series on International Law and Armed Conflict (Ejil: Talk!, 30th June 2019) <<https://www.ejiltalk.org/joint-blog-series-on-international-law-and-armed-conflict-are-sieges-prohibited-under-contemporary-ihl/#more-16877>> accessed 23 March 2025.

¹² See: Article 15 of the Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (adopted, 12 August 1949, entered into force, 21 October) (hereinafter, Geneva Convention I or GC I); Article 18 of the Geneva Convention For the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea (adopted, 12 August 1949, entered into force, 21 October) (hereinafter, Geneva Convention II or GC II); and Article 17 of the Geneva Convention relative to the Protection of Civilian Persons in Time of War, adopted (12 August 1949, entered into force, 21 October) (hereinafter, Geneva Convention IV or GC).

¹³ US Department of Defense (DoD), Law of War Manual (2023) 320, para 5.19.1.

concentration, a strategic fortress or any other location defended by the enemy”,¹⁴ by encircling the area, the besieging force will cut it off from channels of support and supply.¹⁵

As a large operation, sieges involve various factors. However, for the purposes of this thesis it will be considered as its *sine qua non* requirements the encirclement and isolation of a defended locality. Other elements could be part of the operation as a whole and influence the circumstances in the besieged area, as will be discussed in the next sections.

2.3 Elements of a siege

As an operational strategy, sieges involve two main facets: encirclement and isolation.¹⁶ Though in military doctrine encirclement is usually employed as a synonym of siege, it consists of an offensive operation which, by encircling enemy forces in a specific area, has the aim of isolating the adversary and force its submission.¹⁷ The nature of the encirclement usually is composed of penetrations and envelopments pursuing to bypass large enemy forces. Typically, involves two encircling arms conducting a double envelopment as an extension of an ongoing operation.¹⁸

The second facet is the isolation, which encompasses sealing off an enemy force in the encircled area from access to resources and support by denying the freedom of movement.¹⁹ Considered to be a *sine qua non* of a siege,²⁰ isolation plays a supremely important role. According to the U.S.

¹⁴ Yoram Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict* (4th ed., Cambridge University Press 2004) 294.

¹⁵ *Ibid.*

¹⁶ Gillard (n 2) 3.

¹⁷ US Department of the Army, ‘Tactics FM 3-90’ (2023) 425.

¹⁸ *Ibid.*

¹⁹ *Ibid.*, 453.

²⁰ Sean Watts, ‘Humanitarian Logic and the Law of Siege: A Study of the Oxford Guidance on Relief Actions’ (2019) 8.

Army Field Manual on Urban Operations, the isolation of an urban environment is usually the main factor in UOs and may be decisive for the success of the operation because it compels the adversary force to withdraw or surrender before starting the decisive operation in the locality.²¹

Indeed, the imperative of isolation in siege warfare has been demonstrated throughout history. For instance, during the Second World War, German forces encircled the city of Leningrad as part of its offensive against the Soviet Union. Despite the encirclement facet, it was never completely isolated since there was a small passage that was not under German control. This lack of complete isolation allowed the Soviets to keep narrowed lines of supply open, specially through frozen lakes, and resist for more than 3 years under a severe siege that caused over 1 million casualties.²²

Isolation does not consist of just the physical separation of the enemy, but also involves psychological and electronic isolation of the besieged area. The essence of isolation lies on its physical facet. It has the aim of keeping the enemy force from receiving information, reinforcements, and supplies. The isolation usually is conducted employing a cordon technique against decisive points by using air, space and sea forces, and ground forces.²³

The electronic isolation is composed of electronic warfare and computer network attacks as part of an offensive information operation.²⁴ The objective is to “control the information flow into

²¹ US Department of the Army, Field Manual 3-06, Urban Operations (2006) 117.

²² Anastasia N. Semenov, 'The Constant Struggle of Life and Death During the Siege of Leningrad'(2019), Gettysburg College 750; John Barber, 'Life and Death in Besieged Leningrad, 1941–44' (2005), Studies in Russian and East European History and Society 56.

²³ US Department of the Army (n 17) 117.

²⁴ *Ibid.*

and out of an urban area”²⁵ by isolating the command and control system within the besieged area, preventing unity in the besieged zone, and from the leadership outside of it, limiting the capacity of coordinated operations.²⁶

Psychological isolation has as its main objective the destruction of the morale of the enemy by creating the feeling of “isolation and hopelessness in the mind of the threat.”²⁷ It involves both of the aforementioned facets in addition to psychological operations to separate the enemy force from friendly population, non-governmental organisations (NGOs), and the political leadership of the adversary.²⁸

As a repercussion of these facets, starvation of the individuals within the encircled area is a common consequence, this element will be analysed in detail in section 2.7. Furthermore, with the purpose of inflicting more pressure on the besieged force, sieges are usually accompanied by heavy bombardments. However, their use, frequency, and intensity differ depending on the purpose of the siege, as Gillard argues:

“if the purpose of the siege is to contain enemy forces, there may be no need for bombardment, unless the forces attempt to flee. The situation is different if the objective of the siege is either to force the enemy to surrender or to assume control of the besieged area.”²⁹

²⁵ US Department of the Army (n 17) 117.

²⁶ *Ibid.*

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ Gillard (n 2) 3.

2.4 Legality of siege warfare under the LOAC

The consequences of sieges for civilians and people not taking direct part in the hostilities are usually catastrophic. Famine, lack of access to basic resources, heavy bombardments, high risk of dying in case of attempting to evacuate the besieged area, and limited supply inflows are just some of the potential consequences faced by civilians trapped in a siege. Yet, there is no explicit prohibition on the use of siege warfare under the LOAC. In fact, within the aforementioned legal framework, several articles refer to sieges and how to deal with their effects on the civilian population. For instance, Article 17 of the Geneva Convention IV, declares that:

“The Parties to the conflict shall endeavour to conclude local agreements for the removal from besieged or encircled areas, of wounded, sick, infirm, and aged persons, children and maternity cases, and for the passage of ministers of all religions, medical personnel and medical equipment on their way to such areas”.³⁰

In this sense, as Gaggioli argues, “one could say that IHL implicitly allows sieges by merely mentioning steps to be taken to mitigate their negative effects on civilians and civilian objects.”³¹ However, in absence of a prohibition *per se* of sieges under the LOAC, their legality, or illegality, is conditional to the elements and specific context of every siege. The next sections will address the contextual and consequential factors that accompany the encirclement and isolation facets of sieges. As will be demonstrated, these elements are essential for providing a comprehensive application of the proportionality rule.

³⁰ Geneva Convention IV (n 12).

³¹ Gaggioli (n 11).

2.5 Undefended Localities

Considering that sieges fall under the categorisation of an attack,³² conducting a siege against an open or undefended town is prohibited and classified as an unlawful attack. This prohibition can also be found in customary law applicable to both IACs and NIACs.³³ Under Article 25 of both the 1899 and the 1907 Hague Regulations, the prohibition is established as follows: “the attack or bombardment, by whatever means, of towns, villages, dwellings, or buildings which are undefended is prohibited”.³⁴ This provision is further developed in Article 59 of the Additional Protocol I determining that: “It is prohibited for the Parties to the conflict to attack, by any means whatsoever, non-defended localities”.³⁵

2.6 Bombardment

The Oxford Essential Dictionary of the U.S. Military defines bombard as an: “Attack (a place or person) continuously with bombs, shells, or other missiles.”³⁶

Being a legitimate method of warfare to be employed from land, sea or air, bombardments are subject to numerous rules. Following the aforementioned definition, bombardments are indeed

³² See Chapter 3.

³³ ICRC, Customary IHL Database (2005) < <https://ihl-databases.icrc.org/customary-ihl/eng/docs/home> > (hereinafter ICRC CLS), Rule 37.

³⁴ Regulations concerning the Laws and Customs of War on Land, annexed to the Convention (IV) respecting the Laws and Customs of War on Land; adopted at The Hague, 18 October 1907; entered into force, 26 January 1910 (hereinafter, 1907 Hague Regulations), Article 25.

³⁵ Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, adopted at Geneva, 8 June 1977 ; entered into force, 7 December 1978 (hereinafter, Additional Protocol I or AP I), Article 59(1).

³⁶ Oxford Dictionaries, *bombard*. The Oxford Essential Dictionary of the U.S. Military, Oxford University Press (2001)

<<https://www.oxfordreference.com/view/10.1093/acref/9780199891580.001.0001/acref-9780199891580-e-1090>> accessed on 13 March, 2025.

an attack constituting an act of violence employed in defence or offence against enemy forces, as defined in the Additional Protocol I.³⁷ Therefore, bombardments must comply with the proportionality rule which prohibits attacks “which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.”³⁸

Following the principle of distinction, bombardments must distinguish between civilians and combatants as well as between civilian objects and military objectives.³⁹ Based on this principle, Article 25 of the Hague Regulations prohibits “the attack or bombardment, by whatever means, of towns, villages, dwellings, or buildings which are undefended.”⁴⁰ The application of the principle of distinction is also laid down in the Additional Protocol I and II, Articles 51 and 13 respectively.⁴¹ Additionally, regarding the whole besieged locality as a military objective, considering that it contains civilians, is prohibited and would constitute an indiscriminate attack according to Article 51(5)(a) of the API.⁴²

Furthermore, both besieging and besieged forces have the obligation of taking constant care to spare the civilian population from the vicinity of military objectives,⁴³ and take precautionary measures “to avoid, and in any event to minimize, incidental loss of civilian life, injury to civilians and damage to civilian objects”.⁴⁴ However, as Gillard notes, considering the context in

³⁷ Additional Protocol I (n 35) Article 49(1).

³⁸ *Ibid*, Article 51(5)(b).

³⁹ ICRC CLS, Rules 1 and 7.

⁴⁰ 1907 Hague Regulations (n 34) Article 25.

⁴¹ Additional Protocol I (n 35) Article 51; Protocol Additional (II) to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts, 25 UNTS 609, adopted at Geneva, 8 June 1977; entered into force, 7 December 1978 (hereinafter, Additional Protocol II or AP II), Article 13(2)

⁴² Additional Protocol I (n 35) Article 51(5).

⁴³ ICRC CLS, Rule 24.

⁴⁴ Additional Protocol I (n 35) Article 57.

which sieges take place, where military objectives are located in close proximity to the civilian population, various practical challenges for the application of the law arise.⁴⁵

2.7 The prohibition against starvation of civilians as a method of warfare

Medically, starvation is defined as a “condition that occurs with prolonged deprivation of food, i.e., essential nutriment. This occurs under several circumstances, including warfare.”⁴⁶ As a result of the lack of food intake, starvation causes a gradual loss of fat and muscle mass.⁴⁷

The exact moment it occurs is undetermined. A healthy male weighing around 70 kilograms could be able to have enough calories to survive for 1 to 3 months.⁴⁸ Various factors affect how long a person can survive without food, such as age, sex, body size, and general health.⁴⁹ Similar as with food, the amount of time a person can survive without water depends on similar factors.⁵⁰

As a method of warfare, depriving the enemy of goods essential to survival has been present in most of the armed conflicts in the last decades. Sudan, Yemen, and Palestine (Gaza Strip), are just some of the examples of recent armed conflicts with over 1 million people each in Integrated Food Security Phase Classification (IPC) level 4 (Severe Chronic Food Insecurity).⁵¹ Classified by Oxfam as “food wars”, meaning the employment of food and hunger as weapons, this method

⁴⁵ Gillard (n 2) 4.

⁴⁶ Oxford Dictionaries, *starvation*, Oxford University Press (2001). <<https://www.oxfordreference.com/view/10.1093/acref/9780195160901.001.0001/acref-9780195160901-e-4286>> accessed on 17 March, 2025.

⁴⁷ Lies ter Beek and others ‘Unsatisfactory Knowledge and Use of Terminology Regarding Malnutrition, Starvation, Cachexia and Sarcopenia among Dietitians.’ *Clinical nutrition*, Volume 35 (2016).

⁴⁸ Amanda Barrel, ‘How long can you survive without food?’ (Medical News Today, October 12, 2023) <<https://www.medicalnewstoday.com/articles/how-long-can-you-go-without-food>> accessed on 17 March, 2025.

⁴⁹ Barrel (n 48)

⁵⁰ *Ibid.*

⁵¹ Marc Cohen and Ellen Messer, ‘Food Wars: Conflict, Hunger, and Globalization’ 2023 Oxfam America, 16.

of warfare is estimated to cause from 7 000 to 21 000 daily deaths in countries affected by armed conflict.⁵²

Under the LOAC, it is allowed to starve the enemy and is considered a legitimate method of warfare.⁵³ The prohibition against starvation of civilians as a method of warfare is codified in Article 54 of the Additional Protocol I and Article 14 of the Additional Protocol II.⁵⁴ Additionally, it is a customary rule applicable to both NIACs and IACs⁵⁵ and is also codified under the Rome Statute as a war crime applicable to IACs.⁵⁶

According to Dinstein, “The essence of siege warfare lies in an attempt to capture the invested location through starvation.”⁵⁷ Considered as the “most apparent restriction of siege warfare”,⁵⁸ views differ on whether the prohibition against starvation of the civilian population as a method of warfare in the context of a siege makes it unlawful. In this sense, it is key to consider the codification under Article 54 API:

- “1. Starvation of civilians as a method of warfare is prohibited.
2. It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of

⁵² *Ibid*, 26.

⁵³ US DoD (n 13) 323.

⁵⁴ The prohibition under Article 14 AP II is different from the one in AP I. However, the ICRC Commentaries to Article 14 AP II considered it similar to both Articles 54(2) and (3) of AP I (see 1987 ICRC Commentary to Art 14 APII, paras, 4806 - 4807).

⁵⁵ ICRC CLS, Rule 53.

⁵⁶ UN General Assembly, Rome Statute of the International Criminal, ISBN No. 92-9227-227-6, adopted, 17 July 1998; entered into force, 1 July 2002 (hereinafter, Rome Statute), Article 8(2)(b)(xxv).

⁵⁷ Yoram Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflict* (Cambridge University Press 2021) 294.

⁵⁸ Maxime Nijs, ‘Humanizing siege warfare: Applying the principle of proportionality to sieges’, (2021) IRRC.

foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.

3. The prohibitions in paragraph 2 shall not apply to such of the objects covered by it as are used by an adverse Party:

(a) as sustenance solely for the members of its armed forces; or

(b) if not as sustenance, then in direct support of military action, provided, however, that in no event shall actions against these objects be taken which may be expected to leave the civilian population with such inadequate food or water as to cause its starvation or force its movement.”⁵⁹

Dinstein criticises this codification in regards to the context of a siege, since he considers it as a *sine qua non* consequence against the besieged force in order to conduct an effective siege. The question is then raised: “How can a siege be a siege if it is disallowed to destroy foodstuffs and drinking water installations sustaining the civilian population in a besieged, defended, locality?”⁶⁰ Based on the lack of clarity under API, Dinstein concludes that conducting a true siege is prohibited if civilians are affected.⁶¹

On the other hand, from a limited interpretation of Article 54(I) API, the ICRC study on customary law determines that the “prohibition of starvation as a method of warfare does not prohibit siege warfare as long as the purpose is to achieve a military objective and not to starve a

⁵⁹ Additional Protocol I, (n 35) Article 54.

⁶⁰ Dinstein (n 57) 296.

⁶¹ *Ibid.*

civilian population.”⁶² However, the ICRC also highlights the obligation of the besieging party to allow the free passage of essential supplies to the besieged area following the provision of the rule regarding access for humanitarian relief to civilians in need.⁶³ Therefore, based on this interpretation, sieges may be considered lawful if the purpose of employing starvation is limited to a military objective and not to starve the civilian population in the besieged area. However, as Gaggioli notes, there are various practical challenges in proving that the purpose of the besieging force is to starve the civilians. In this sense, it is argued that the denial of evacuation and of humanitarian assistance could indicate the unlawful purpose.⁶⁴

Both Articles 54(2) and (3) API demonstrate that regardless of the main objective, incidental or indirect starvation of civilians is prohibited in determined circumstances. Gaggioli follows this interpretation by providing an example in which a drinking water installation within a besieged area is destroyed by the adversary. In this case, the destruction of the water installation would be unlawful since it “may be expected to leave the civilian population with such inadequate food or water as to cause its starvation or force its movement.”⁶⁵

To conclude, it is considered that sieges have as a consequence the starvation of the individuals within the area and that the lack of clarity in Article 54 could restrict the employment of sieges as a method of warfare against a populated locality. As Dinstein states: “A broad injunction against sieges involving civilians is unrealistic, in view of the fact that there may be no other method of warfare to bring about the capture of a defended locality with a tenacious garrison and

⁶² ICRC CLS, Rule 53.

⁶³ *Ibid.*

⁶⁴ Gaggioli (n 11).

⁶⁵ *Ibid.*

impregnable fortifications.”⁶⁶ Furthermore, Nijs argues that a shift from the prohibition against starvation to the rules of humanitarian relief operations would not solve the issue, since, as it would be demonstrated in the next section, there are ambiguities regarding the requirement of consent and the right of control of the besieging party to these operations.⁶⁷

2.8 Humanitarian relief operations

Relief operations could offer a solution to the precarious situation for civilians trapped in a siege. Under the GC IV, High Contracting Parties are required to “allow the free passage of all consignments of medical and hospital stores” and “shall likewise permit the free passage of all consignments of essential foodstuffs, clothing and tonics intended for children under fifteen, expectant mothers and maternity cases”.⁶⁸ Recognised as a customary law applicable to both IACs and NIACs,⁶⁹ this provision is further amplified in Article 70 API by determining that:

“If the civilian population of any territory under the control of a Party to the conflict, other than occupied territory, is not adequately provided with the supplies mentioned in Article 69, relief actions which are humanitarian and impartial in character and conducted without any adverse distinction shall be undertaken”.⁷⁰ (the Additional Protocol II includes a similar provision)⁷¹

⁶⁶ Dinstein (n 57) 296.

⁶⁷ Nijs (n 58).

⁶⁸ Geneva Convention IV (n 12) Article 23.

⁶⁹ ICRC CLS, Rule 55.

⁷⁰ Additional Protocol I (n 35) Article 70.

⁷¹ Additional Protocol II (n 40) Article 18.

Consent to relief operations depends on the parties.⁷² However, the Oxford Guidance on the Law Relating to Humanitarian Relief Operations in Situations of Armed Conflict (hereinafter, Oxford Guidance) determines cases in which withholding consent would be considered arbitrary. One of these scenarios occurs when denying the relief operation would violate the prohibition of starving the civilian population, as the Oxford Guidance states:

“Withholding consent to humanitarian relief operations in situations where the civilian population is inadequately supplied and the state intends to cause, contribute to, or perpetuate starvation. This would violate the prohibition on starvation of the civilian population as a method of warfare”.⁷³

Nevertheless, with the purpose of supervising the humanitarian assistance to ensure that it will benefit exclusively the civilian population, and not the enemy force, parties can restrict the relief operation. If there are reasonable grounds to consider that the supplies are diverted for being used by the besieged force, the humanitarian relief can be interrupted on a basis of imperative military necessity and for a limited time.⁷⁴

⁷² Additional Protocol I (n 35) Article 70(3).

⁷³ Dapo Akande and Emanuela-Chiara Gillard, ‘Oxford Guidance on the Law Relating to Humanitarian Relief Operations in Situations of Armed Conflict’ (2016) UN Office for the Coordination of Humanitarian Affairs and University of Oxford (hereinafter, Oxford Guidance) 23.

⁷⁴ Michael N. Schmitt, Kieran Tinkler and Durward Johnson, ‘The UN Yemen Report and Siege Warfare’ (Just Security, 12 September 2019) <www.justsecurity.org/66137/the-un-yemen-report-and-siege-warfare/> accessed on 29 March 2025.

2.9 Are these rules sufficient to protect the civilians in a besieged and defended locality?

As it has been exposed in the sections of this chapter, there is a clear lack of practicality in the rules aimed at protecting the civilian population in a besieged area.

First, the close proximity of military objectives to the civilian population within a besieged area raises various practical challenges for the employment of bombardments. Considering the context in which sieges take place, where military objectives are located in close proximity to the civilian population, various difficulties arise for the besieging force, especially regarding the principles of proportionality and distinction. Furthermore, characterising the whole besieged locality as a military objective, considering that it contains civilians, would constitute as an indiscriminate attack.⁷⁵ In the case of the prohibition against starvation, if the purpose is to starve enemy forces, the protection to civilians contained in Article 54(1) API and Article 14 APII would be “diminished.”⁷⁶ Finally, regarding relief operations, the ambiguities in the requirements of consent and the cases in which the besieging party can exercise the right of control do not solve the problem.⁷⁷

Therefore, the ambiguous application by the aforementioned rules to sieges requires an additional safeguard under the LOAC. In this sense, the principle of proportionality seems to be a solution in an attempt to fill the gap.

⁷⁵ Additional Protocol I (n 35) Article 51(5)(a).

⁷⁶ Nijss (n 58).

⁷⁷ *Ibid.*

3. Is a siege considered an attack?

The term “attack” may bring to the mind the image of an offensive use of kinetic force, such as bombardments, ambushes, or assaults, against the enemy. However, the advancement of military technology and the rise of new means and methods of warfare have influenced and broadened the notion of attack. In this regard, in determining the applicability of the principle of proportionality to sieges, it is key to establish whether a siege constitutes an attack and therefore, triggers the application of the proportionality assessment. To achieve this objective, this chapter will subsume the legal requirements of an attack to a siege.

As exposed in Chapter 2, a siege consists of the encirclement of a defended area and the resulting isolation of enemy forces by cutting off their supplies, communications, and reinforcement channels with the main objective to induce the besieged force to surrender. Among the elements that accompany a siege, bombardments are usually employed with the purpose of inflicting more pressure on the besieged force. Individually, bombardments are a clear example of an attack, as exposed in Chapter 2.6. However, controversy arises regarding the classification of the entire operation as an attack. This will be further analysed in this chapter.

3.1 What is an attack?

Attacks are considered to be in the “heart” of the LOAC branch referred to as Hague Law.⁷⁸ This legal framework limits or prohibits specific means and methods of warfare in order to protect the

⁷⁸ Nijs (n 58).

civilian population during the conduct of hostilities. On the other hand, Geneva Law is focused on the protection of the *hors de combat* and persons in the power of the enemy.⁷⁹

Recognising that the term attack applies in separated bodies of international law, in this thesis, the analysis of the notion of attack will be limited to its application under the Law of Armed Conflict. Therefore, the implications of attack under *Jus ad Bello* as it is referred to in Article 51 of the United Nations Charter will not be considered.

Article 49(1) AP I defines attacks as “acts of violence against the adversary, whether in offence or in defence.”⁸⁰ In the commentary of this article, the meaning of attack is defined as a “combat action”.⁸¹ This with the objective of providing a wider scope of application to the notion of attack, not limited to the offensive idea of initiating combat, but recognising the implications of the actions taken by forces also in defence.⁸² This broad definition has been replicated in military manuals, for instance, in the UK Law of War Manual it is considered that the definition of attacks is not limited to the military sense, but includes the use of armed force to “slow or halt an attack by the enemy and counter-attacks.”⁸³ In regards to the concept of “act of violence”, there is no legal definition under the LOAC. Nevertheless, it is considered to denote physical force.⁸⁴

⁷⁹ Marco Sassòli, Antoine Bouvier, and Anne Quintin, and J. Grignon, *How does law protect in war?* (ICRC 2012) ; Rober Kolb, ‘Of Hague Law and Geneva Law’ (Lieber Institute, Articles of War, 29 November 2023) <<https://lieber.westpoint.edu/of-hague-law-geneva-law/>> accessed on 16 April 2025.

⁸⁰ Additional Protocol I (n 35) Article 49(1).

⁸¹ ICRC, Commentary on Article 49 of the 1977 Additional Protocol I to the Geneva Conventions, 1987, para. 1880.

⁸² *Ibid.* para. 1879.

⁸³ UK Ministry of Defence (n 9) para. 5.20.2.

⁸⁴ Quoted in Nijs, Maxime, *Humanizing siege warfare: Applying the principle of proportionality to sieges*, from: Michael Bothe, Karl Josef Partsch and Waldemar A. Solf, ‘New Rules for Victims of Armed Conflicts: Commentary on the Two 1977 Protocols Additional to the Geneva Conventions of 1949’, (2013) 2nd ed., Brill Nijhoff, Leiden and Boston, MA, , p.

In this sense, questions arise regarding the classification of sieges as attacks since the encirclement and isolation facets do not necessarily involve a use of physical force against the enemy force.

To answer the question whether a siege constitutes an attack or not, this section will determine that kinetic force is not the only factor to consider in classifying an attack and that it must be understood based on its consequences. In this sense, State practice and the opinion of experts in classifying sieges as attacks will also be considered. After having determined the nature of sieges, it will be established whether sieges classify as an attack as a whole or as various individual attacks against the same objective.

3.2 Consequence-based approach

According to the Vienna Convention on the Law of Treaties, these international agreements should be interpreted based on the “context and in the light of its object and purpose.”⁸⁵ In this sense, an analysis on the prohibitions and restrictions contained in API regarding attacks demonstrates that the main concern is not based on the violent dimension of the acts, but rather on their violent consequences and how to avoid them.⁸⁶

For instance, regarding the protection afforded to civilians in attacks, Article 51(2) determines that civilians “shall not be the object of the attack. Acts or threats of violence the primary

⁸⁵ Vienna Convention on the Law of Treaties of 23 May 19 (adopted on 23 May 1969, entered into force 27 January 1980), 1155 UNTS 331, Article 31(1).

⁸⁶ Michael N. Schmitt, ‘Attack’ as a Term of Art in International Law: The Cyber Operations Context’, in Christian Czosseck, Rain Ottis and Katharina Ziolkowski (eds), Proceedings of the 4th International Conference on Cyber Conflict (NATO CCD COE Publications 2012) 290.

purpose of which is to spread terror among the civilian population are prohibited.”⁸⁷ In reference to the concept of proportionality, under Art. 51(5)(b), one type of indiscriminate attack occurs when it is “expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.”⁸⁸

In relation to the precautions of military operations, Article 57(1) determines that they are meant to spare the civilian population, civilians, and civilian objects.⁸⁹ Specifically regarding the planning of attacks, Article 57(2) determines that, at the moment of selecting the weapons and tactics to be employed, all feasible precautions must be taken with the “view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects.”⁹⁰ Furthermore, parties to the conflict must: refrain from launching an attack “which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated”; and, cancel or suspend an attack if it is apparent that the objective is not military or it would cause excessive collateral damage; if the attack will affect civilians, issue warnings if feasible.⁹¹ Based on the reading of the aforementioned Articles of API, among others, Schmitt concludes that under the LOAC, a consequence-based approach is applied in the rules that operationalise attacks.⁹² Schmitt considers this approach in regards to cyber attacks. However, in this thesis it is considered that it could equally apply to sieges since

⁸⁷ Additional Protocol I (n 35) Article 51(2).

⁸⁸ *Ibid* Article 51 (5)(b).

⁸⁹ *Ibid* Article 57(1).

⁹⁰ *Ibid* Article 57(2)(a)(ii).

⁹¹ *Ibid* Article 57(2)(a)(iii); Article 57(2)(b); and Article 57(2)(c).

⁹² Schmitt (n 86) 291.

the encirclement and isolation facet may not be violent *per se*, but the consequences for the population within the area are indeed violent.⁹³

Similarly, under the legal architecture applicable to cyber warfare, the Tallinn Manual defines a cyber attack as:

“a cyber operation, whether offensive or defensive, that is reasonably expected to cause injury or death to persons or damage or destruction to objects.”⁹⁴

In this sense, the term act of violence is not limited to actions involving kinetic force, but rather the “crux of the notion lies in the effects that are caused.”⁹⁵ It is considered that the term violence is addressed based on its violent consequences and not limited to the kinetic force of the act, therefore, attacks are determined by the consequence of an operation and not the nature of it.⁹⁶

Furthermore, an analogous interpretation of the notion of attack can also be found in the legal framework applicable to outer space operations. Among the limitations on the use of weapons and other military activities in outer space, the ICRC is of the view that the prohibition of indiscriminate and disproportionate attacks, and the obligation to take all feasible precautions to avoid, or at least to minimise, incidental civilian harm “apply not only to kinetic operations against space objects, but also to non-kinetic operations that would disable space objects without

⁹³ This has been discussed in Chapter 2.

⁹⁴ NATO Cooperative Cyber Defence Centre of Excellence, & Schmitt, M. N, Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations (Tallinn Manual 2.0), (2017). Rule 92.

⁹⁵ *Ibid.* para. 3.

⁹⁶ *Ibid.*

necessarily damaging them physically.”⁹⁷ In its interpretation, the ICRC does not explicitly refer to the proportionality rule. However, by stating that the assessment of the lawfulness of an attack should consider direct and indirect harm or damage to civilian objects, it is clearly referring to balancing the humanitarian concerns prior to an attack that is not necessarily required to cause a direct harm, but also indirect.⁹⁸

The consequence-based approach can also be seen in the use of chemical weapons. In the case *The Prosecutor v. Duško Tadić*, it is demonstrated that although chemical weapons do not usually have a kinetic effect, they are considered attacks.⁹⁹ As another analogous case, Bellal and Casey-Malsen considered how, under various jurisdictions, pointing a weapon as a threat would qualify as an act of violence even if it is never fired.¹⁰⁰ Furthermore, in their analysis they also took into account the partly concurring opinion of Judge Chile Eboe-Osuji in the *The Prosecutor v. Bosco Ntaganda* case where it was stated that “Assailants need not shoot to rob their victims. Vocal or silent demand of compliance with force of arms is enough—an understanding that the assailant wants “your money or your life” is enough, whether or not the assailant vocalises that message.”¹⁰¹

Under International Criminal Law (ICL) the notion of attack has also been discussed following a consequence-based approach. In the case *The Prosecutor v. Bosco Ntaganda*, Decision on the

⁹⁷ ICRC, ‘The Potential Human Cost of the Use of Weapons in Outer Space and the Protection Afforded by International Humanitarian Law Position’ (IRRC 2021), 3.

⁹⁸ *Ibid.*; G. Blair Kuplic and Jonathan Sawmiller, ‘Humanity on the final frontier: Challenges in applying international humanitarian law to modern military space operations’, IRRC (2024) 17.

⁹⁹ *Prosecutor v Tadic* (Appeals Chamber) IT-94-1-AR72 (26 January 2000), paras. 120-124.

¹⁰⁰ Annyssa Bellal and Stuart Casey-Maslen, *The Additional Protocols to the Geneva Conventions in Context* (Oxford University Press 2023) 226.

¹⁰¹ *Prosecutor v. Bosco Ntaganda* (Appeals Chamber) ICC-01/04-02/06 A A2 (30 March 2021), Partly concurring opinion of Judge Chile Eboe-Osuji, 29 March 2021, para. 111.

confirmation of Charges, the Pre-Trial Chamber II (PTC II) of the International Criminal Court (ICC) held that: “in characterizing a certain conduct as an ‘attack’, what matters is the consequences of the act, and particularly whether injury, death, damage or destruction are intended or foreseeable consequences thereof”.¹⁰² Following this approach, the Amicus Curiae Observations of Professor Geoffrey S. Corn brings clarity by determining the following key elements of an attack:

- 1) A *sine qua non* requirement is that an act of violence produces violent consequences on the adversary. The repercussions include “death or injury in the case of persons, or physical damage or destruction in the case of objects.”¹⁰³
- 2) This act of violence must be “reasonably expected” to have violent consequences. The expectation is based on the “level of likelihood of occurrence” and the nexus between the act and the consequences.¹⁰⁴
- 3) The motivation of the belligerent party must be to cause harm to the other party. From the reading of Article 49(1), the term ‘against’ clearly denotes a motive element that should be considered. In this sense, Corn notes that the destruction of property as a result of a military activity which was not motivated to produce a direct harm does not qualify as an attack. These actions include, *inter alia*, “damage caused by maneuver, destruction of portions of buildings to gain entry or exit for tactical advantage, or taking shelter in an unoccupied civilian building and modifying it for defensive purposes”.¹⁰⁵

¹⁰² *Prosecutor v. Bosco Ntaganda* (Pre-Trial Chamber II) ICC-01/04-02/06 A (9 June 2014), 17–18.

¹⁰³ *Prosecutor v. Bosco Ntaganda* (Appeals Chamber) ICC-01/04-02/06 A2 (14 August 2020), Amicus Curiae Observations by Prof. Geoffrey S. Corn *et al.*

¹⁰⁴ *Ibid.*

¹⁰⁵ *Ibid.*

The application of these factors to siege warfare justify its classification as attacks. First, as exposed in the previous chapter, sieges involve violent consequences for the individuals within the besieged area. Whether caused by bombardments or starvation, the repercussions of sieges (direct or indirect) are death or injury of the individuals usually accompanied with physical destruction of objects within the area. Second, considering starvation as a consequence of sieges, as exposed in Chapter 2.7, it is an effect to be reasonably expected by the besieging forces. Third, regarding the motivation, by cutting off the channels of supply, the besieging force is clearly demonstrating the intention of causing the isolation of the besieged force and, therefore, its starvation as a direct consequence. Furthermore, if bombardments are also employed, the aforementioned requirements are immediately fulfilled.

Similarly, various States have incorporated a similar categorisation of sieges as attacks. The DoD Law of War Manual determines that “[t]he general rules that apply to conducting attacks also apply to attacks by forces laying siege.”¹⁰⁶ In considering starvation within sieges, the aforementioned Manual also considers the application of the principle of proportionality to military actions with the intention of starving the enemy. In this context, the besieging force must not conduct this method of warfare if “it is expected to result in incidental harm to the civilian population that is excessive in relation to the military advantage anticipated to be gained.”¹⁰⁷ Following this approach, the UK Law of War Manual determines that “[t]he principles of the law of armed conflict, particularly the rules relating to attacks, apply equally to situations of siege or encirclement.”¹⁰⁸

¹⁰⁶ US DoD (n 13) para. 5.19.4.

¹⁰⁷ *Ibid*, para. 5.20.2.

¹⁰⁸ UK Ministry of Defence (n 10) para. 5.34.

A similar position has been considered by the Group of Eminent International and Regional Experts on Yemen in their 2019 report in regards to the principle of proportionality. The Group of Experts highlighted that: “Given the severe humanitarian impact that the de facto blockades have had on the civilian population and in the absence of any verifiable military impact, they constitute a violation of the proportionality rule of international humanitarian law.”¹⁰⁹

Furthermore, the interpretation of sieges as attacks has also been taken by various scholars. According to James Kraska, “siege implicates the principles of distinction and proportionality in the law of armed conflict. The besieging force must distinguish between the garrison force and entrapped civilians and may only use proportional force in prosecuting the siege.”¹¹⁰ Regarding the aforementioned report on the situation in Yemen, Michael Schmitt, Kieran Tinkler, and Durward Johnson consider that “[s]ieges are lawful so long as directed at enemy forces (and not intended to starve the civilian population), compliant with the rule of proportionality, and consistent with the requirement to take precautions in attack.”¹¹¹ Following this line, according to Sean Watts, “[t]he required precautions against disproportionate incidental harm are therefore exceedingly important during siege operations.”¹¹² These opinions on the notion of sieges further ratify the classification of sieges as attacks.

To conclude, from the interpretation of the definition of attack under the API considering its context and purpose; the analogous application of the notion of consequence-based attack under

¹⁰⁹ Human Rights Council, Report of the detailed findings of the Group of Eminent International and Regional Experts on Yemen (3 September 2019) UN Doc. A/HRC/42/CR, para. 58.

¹¹⁰ James Kraska, ‘Siege’ (2009) *Max Planck Encyclopedia of Public International Law*, 1.

¹¹¹ Schmitt, (n 86).

¹¹² Sean Watts, ‘Under Siege: International Humanitarian Law and Security Council Practice concerning Urban Siege Operations’ (*Counterterrorism and Humanitarian Engagement Project*, May 2014) <<https://archive.blogs.harvard.edu/cheproject/research/>> Accessed on 30 March 2025.

cyber warfare, outer space operations, chemical weapons, and the example cited by Judge Chile Eboe-Osuji; and considerations in the field of ICL, specifically the elements set out by Professor Geoffrey S. Corn in relation to the effects and motivation of attacks. It can be established that, in light of the consequence-based approach, a siege qualifies as an attack on the basis of the violent effects inflicted. This finding is based on the *sine qua non* elements of a siege, the encirclement of the enemy force and its isolation, irrespectively of the use of bombardment, which, as stated above, is an attack regardless of whether it is carried out as part of a siege or not. Among the effects considered, the main violent result is the starvation of the adversary in the besieged area and of the civilian population within it, which, as previously exposed, is a consequence of the encirclement and isolation facets of a siege.

Furthermore, in qualifying sieges as attack, it is pertinent to consider the position taken by the ICTY in the Prosecutor v. Dragomir Milošević case where the Trial Chamber determined that Sarajevo was besieged by the Sarajevo Romanija Corps (SRK). The siege lasted four years, from 200 to 3 000 shells launched per day, an estimated 13 352 deaths, including 5 434 civilians.¹¹³ A clear example of the catastrophic consequences of sieges in modern history. The Trial Chamber concluded its analysis of the war crimes committed during the siege by qualifying the nature of the context in Sarajevo as follows:

“it was certainly a siege in the sense that it was a military operation, characterised by a persistent attack or campaign over a period of fourteen months, during which the civilian population was

¹¹³ Eleftheria Christou, ‘What Caused the Siege of Sarajevo and Why Did It Last so Long?’ (*History Hit*, 4 July 2019) <<https://www.historyhit.com/the-longest-siege-in-modern-history-how-did-the-siege-of-sarajevo-unfold/>> accessed on 29 March 2025.

denied regular access to food, water, medicine and other essential supplies, and deprived of its right to leave the city freely at its own will and pace.”¹¹⁴

Despite the classification as a persistent attack, this concept was not defined by the Trial Chamber.

3.6 Attack as a whole

Before conducting the proportionality assessment of a siege, it is key to determine the nature of the attack. In this regard, the classification of a siege as an attack as a whole is based on the specific context and elements involved in the encirclement.

As Gillard highlights, “[i]f the military advantage anticipated from a single attack is not dependent on or affected by other acts, then that act is the ‘attack as a whole’”.¹¹⁵ However, it is also noted that if there is an operation combining various acts that contribute to the same anticipated military advantage, then the entire operation would be considered as an attack as a whole.¹¹⁶ This position has been taken by various States at the moment of making declarations/reservations on the Additional Protocol I. For instance, Australia stated that “references to the “military advantage” are intended to mean the advantage anticipated from the military attack considered as a whole and not only from isolated or particular parts of that attack.”¹¹⁷

¹¹⁴ *Prosecutor v. Dragomir Milošević* (Judgment in Trial Chamber III) IT-98-29/1-T (12 December 2007), 751.

¹¹⁵ Gillard (n 2).

¹¹⁶ *Ibid.*

¹¹⁷ Notification by the depositary addressed to the ICRC on 24 June 1991, Australia declaration on Protocol I (21 June 1991). Identical declarations upon ratification of Additional Protocol I were also made by Australia, Belgium, Canada, France, Germany, Italy, the Netherlands, New Zealand, Spain and the UK. See https://ihldatabases.icrc.org/applic/ihl/ihl.nsf/States.xsp?xp_viewStates=XPages_NORMStatesParties&xp_treatySelected=470.

In this sense, it is considered that the coordinated acts that conform an attack as a whole individually may or may not amount to attacks, however, this classification does not change the nature of the entire operation as an attack as a whole.¹¹⁸ Furthermore, this operation should not be understood as the entire war effort but as a limited and finite operation.¹¹⁹

Regarding the target of the operation in this type of attack, it is not limited to a particular objective but could also involve coordinated attacks on various targets as long as the military advantage anticipated from a specific target depends on targeting other objects.¹²⁰

In the case of sieges, the anticipated military advantage from besieging a defended locality depends on a set of attacks, such as: counter-attacks against the besieged forces and operations to prevent weapons and reinforcements to enter the area as part of the isolation, and the use of starvation against the besieged force. In this sense, based on this dependency in a siege of the various set of attacks that conform it, this method of warfare is regarded as an attack as a whole. It is key that, to be considered part of the operation as a whole, these attacks make a crucial contribution to the same military advantage of the large operation.¹²¹ As it will be exposed in the next chapters, this classification of sieges as an attack as a whole is of essential importance for the application of the proportionality rule.

¹¹⁸ Emanuela-Chiara Gillard, 'Proportionality in the Conduct of Hostilities: The Incidental Harm Side of the Assessment' (2018) Chatham House 9.

¹¹⁹ Marco Sassòli, *Legitimate Targets of Attacks under International Humanitarian Law* (Cambridge 2003) 5.

¹²⁰ Gillard (n 2) 10.

¹²¹ Jeroen van den Boogaard, *Proportionality in International Humanitarian Law* (Cambridge University Press 2023) 272.

4. Principle of proportionality

The qualification of sieges as attacks triggers the application of the principle of proportionality. Prior to determining the way in which proportionality should be assessed in a siege, this chapter will analyse the rule under the LOAC, its codification, and main components. The application of the proportionality rule to sieges will be analysed in Chapter 5.

4.1 Concept and codification

“[T]he law of proportionality, deciding what attacks are permissible, is far too vague to be useful, and leads to experts on different sides talking past each other.”

*Daniel Reisner*¹²²

War is usually accompanied by death, destruction, and catastrophic consequences for the civilian population. As Jeroen van den Boogaard notes, “It is a myth that civilian casualties can be entirely avoided during contemporary armed conflicts”.¹²³ Although civilians should not be directly targeted, the rule of proportionality may permit loss of civilian life, injury to civilians, and damage to civilian objects as consequences of an attack as long as they are not excessive to the military advantage anticipated to it. In this sense, the principle of proportionality appears as a clear example of how the LOAC recognises the nature of armed conflicts.

¹²² Jeremy Bob Yonah, ‘Meet the godfather of Israeli experts on international law and war crimes’ (*The Jerusalem Post* 24 April, 2016)
<<https://www.jpost.com/israel-news/meet-the-godfather-of-israeli-experts-on-international-law-and-war-crimes-452131>> Accessed on 2 April 2025.

¹²³ van den Boogaard (n 121) 6.

Proportionality is understood as a commensurable data that is used as a guide to distribute equal weight to different interests.¹²⁴ However, it should not be considered a mathematical formula nor a guesswork.¹²⁵ Essentially, proportionality requires military commanders to, before launching an attack, carry out an assessment of the components of it as far as it is possible and with the information available prior to the attack. In this sense, proportionality prohibits:

“an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated.”¹²⁶

As a customary rule, the principle follows the aforementioned definition and is applicable to both IACs and NIACs.¹²⁷ Furthermore, the principle is also present in the precautionary measures an attacker must take, as established in Article 57 API. The relevance of these measures in the application of the principle of proportionality is analysed in Chapter 5.3.1.

4.2 Main components

Generally, the proportionality assessment is based on two elements: expected incidental harm and concrete and direct and anticipated military advantage.

¹²⁴ Sigrid Redse Johansen, *The Military Commander's Necessity: The Law of Armed Conflict and Its Limits* (Cambridge University Press 2019) 255.

¹²⁵ van den Boogaard (n 121) 187.

¹²⁶ Additional Protocol I (n 35) Article 51(5)(b).

¹²⁷ ICRC CLS, Rule 14.

In analysing the notion of military advantage, it is key to start by differentiating military advantage from military necessity. As van den Boogaard explains: “The mere fact that an attack may result in some type of military advantage does not in itself mean that an attack is militarily necessary.”¹²⁸ In this sense, it is established that the fact that something could be attacked, does not mean it must be attacked.¹²⁹ Military advantage is defined as the benefits of a military nature that are a result of an attack and, as a limitation to it, other types of advantage such as political, economic or moral are excluded.¹³⁰ In this regard, the advantage of an attack has as requirements been concrete and direct. These elements require a measurable effect and a close connection between the attack and the military purpose.¹³¹

On the other side of the equation, incidental harm is composed of loss of civilian life, injury to civilians, and damage to civilian objects.¹³² Within the framework of an IAC, a civilian is anyone who is not a combatant and the civilian population comprises all the individuals considered as civilians.¹³³ Since the combatant status is not applicable to NIACs, Melzer defines civilians as “all persons who are neither members of State armed forces, nor members of organized armed groups (i.e. persons assuming a continuous combat function), belonging to a party to the conflict.”¹³⁴ Regarding *hors de combat*, van den Boogaard notes that “[a]ny person or object enjoying protection against direct attack, as can be reasonably foreseeable for the attacker, must be included on the civilian, or protective side of the proportionality assessment.”¹³⁵ In this sense,

¹²⁸ van den Boogaard (n 121) 180.

¹²⁹ *Ibid.*

¹³⁰ HPCR, Manual on International Law Applicable to Air and Missile Warfare, Rule 1.

¹³¹ van den Boogaard (n 121) 181.

¹³² Additional Protocol I (n 35) Article 51(5)(b).

¹³³ *Ibid* Article 50.

¹³⁴ Nils Melzer, The ICRC’s Clarification Process on the Notion of Direct Participation in Hostilities Under International Humanitarian Law, 2009, Proceedings of the ASIL Annual Meeting, 191.

¹³⁵ van den Boogaard (n 121) 177.

under customary law, the proportionality rule is considered broader and may encompass other protected persons.¹³⁶ Furthermore, to consider the incidental harm in the proportionality equation, it must occur as an effect of the attack, excluding cases not due to the physical effects of the attack and effects of other actors, and it must be foreseeable to the attack based on available information and what could be reasonably expected.¹³⁷

Regarding the determination of when the expected incidental harm would be excessive in comparison to the anticipated military advantage. The notion of excessiveness is wide but not indeterminate. In this sense, Gillard concludes that, if conducted in good faith, a reasonable manner, and collecting the required information, commanders have a “broad margin” to establish whether the incidental harm could be excessive to the military advantage.¹³⁸

5. How should the principle of proportionality be applied to a siege?

As a limit to military operations, the principle of proportionality has various challenges regarding its application. In this sense, issues arise in determining the components of the equation in this context and when they should be balanced.

5.1 Main components of the equation in a siege

Neither the expected incidental harm nor the anticipated military advantages can be quantified with mathematical precision.¹³⁹ However, decomposing the proportionality formula into its

¹³⁶ van den Boogaard (n 121) 177.

¹³⁷ Gillard (n 118) 25.

¹³⁸ *Ibid* 26.

¹³⁹ *Ibid* 3.

different elements in the context of a siege is key to better understanding its application, challenges, and possible outcomes.

5.1.1 The military advantage for the besieging force

As demonstrated in Chapter 3, sieges involve various coordinated acts of violence. In this sense, in considering the military advantage of this type of attacks, Article 8(2)(b)(iv) of the Rome Statute incorporates the term overall to military advantage as follows: “the concrete and direct overall military advantage anticipated.”¹⁴⁰ In line with this approach, van den Boogaard argues that “the military advantage of a planned attack must be assessed for the operation as a whole”.¹⁴¹ Therefore, the whole siege is considered as a large operation which involves operations of a smaller scale.

Regarding attacks conducted in the context of a siege, it is debatable on whether all the attacks that take place in this scenario should be included. In light of the rules applicable to sieges, Gillard considers that “the bombardment and encirclement elements of sieges must be considered separately.”¹⁴² On the other hand, van den Boogaard argues that if there is a “crucial importance on the strategic level” of specific targets as part of a larger operation, an attack against these targets “may take into account more than only the military advantage to be expected on the tactical level, thus for a single strike.”¹⁴³ In this case, it is argued that, since the military

¹⁴⁰ Rome Statute (n 56) Article 8(2)(b)(iv).

¹⁴¹ van den Boogaard (n 121) 272.

¹⁴² Gillard (n 2) 4.

¹⁴³ van den Boogaard (n 121) 272.

advantage is being enlarged, the considerations on the expected incidental harm also need to be broadened.¹⁴⁴

Based on these approaches, it is considered that the inclusion of an attack within the consideration of the siege as a whole depends on the importance to the strategic level afforded by the specific target to the whole operation. For instance, in order to starve enemy forces in a besieged area, a bombardment is launched against the main food storage in an encircled locality. Targeting this storage building is considered crucial to achieve the military advantage of the operation as a whole since it would severely diminish the access to food in the area and will directly contribute to starving enemy forces. However, since there are civilians within the area that also depend on this objective, the collateral damage estimation should also be broadened.

Furthermore, the specific military advantage of a siege as a whole should be analysed in terms of importance and urgency. The importance of the besieged locality may be strategic, operational or of a tactical nature. The besieging military commander may consider the different advantages based on the main purpose of the siege, for instance the importance of a city by the sea is interrelated to the access to the port, offering various advantages for the attacking force. Regarding the urgency, it may be an urgent advantage, moderate or distant, depending on the time until the military advantage of besieging the area is manifested.¹⁴⁵ Therefore, there is no specific timeframe within which the anticipated military advantage is expected to actually occur.¹⁴⁶ In this sense, the military advantage of a siege will continue applying as long as the siege lasts. However, as Gillard notes, “as a long period between an attack and the expected

¹⁴⁴ van den Boogaard (n 121) 273.

¹⁴⁵ *Ibid* 272.

¹⁴⁶ Gillard (n 118) 11.

occurrence of the military advantage may decrease the likelihood of the advantage occurring and, therefore, the weight to be given to it.”¹⁴⁷ This factor is also considered in Chapter 5.1.2.2.

Another relevant element to consider in sieges is the inclusion of the protection of the besieging force in the assessment. The protection of one's own forces could be one of the reasons for conducting a siege and avoid a high number of casualties as a result of a street-by-street fight, as discussed in Chapter 2. Whether this element should be included or not in the equation has been subject of debate. Van den Boogaard navigates through this discussion considering that it is advantageous to military commanders not to lose soldiers and equipment, something that causes low morale among soldiers and fewer forces for the continuation of the hostilities.¹⁴⁸ This position is consistent with the declarations made by various States upon ratification of API, where it was considered that the protection of the attacking forces is part of the military advantage that could be gained in an attack.¹⁴⁹

However, there is a limitation to this component based on the requirements of directness and being sufficiently concrete.¹⁵⁰ In this regard, van den Boogaard acknowledges that this position is limited by the determination of the actual forces being protected.¹⁵¹ Van den Boogaard concludes by considering that, indeed, the protection of the attacking forces is part of the military advantage as long as the advantage is sufficiently concrete and direct.¹⁵² This approach is

¹⁴⁷ Gillard (n 118) 11.

¹⁴⁸ van den Boogaard (n 128) 184.

¹⁴⁹ Declarations made by Australia, New Zealand and Canada: ICRC Database, Treaties, States Parties and Commentaries, Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977., States parties and signatories <<https://ihl-databases.icrc.org/en/ihl-treaties/api-1977/state-parties>> Accessed on 4 April 2025.

¹⁵⁰ van den Boogaard (n 128) 186.

¹⁵¹ *Ibid.*

¹⁵² *Ibid.*

considered in this thesis as one of the main military advantages a siege could offer to the attacking force in order to safeguard forces, equipment, and the morale of the besieging party.

As an additional element to be considered, the likelihood of the military advantage offered by inducing the besieged force to surrender should be incorporated in the equation. This element is of particular relevance in regards to sieges in which the anticipated military advantage is high and the incidental harm is similarly high without being excessive, but the probability of success of the besieging force is small. However, the expectations of achieving the objective of the siege are hard to determine considering the contextual nature of sieges and their duration. In this regard, the lack of a precise frame to assess the probability of success and, considering the nature of proportionality as a “prediction rather than an exact science”, it is argued that commanders must be sufficiently confident that the operation will have the anticipated outcome.¹⁵³ Otherwise, conducting an attack, which has low probability of success could be contrary to the requirement of concrete and direct military advantage.¹⁵⁴

Therefore, after conducting an analysis on the military advantage anticipated and the expected incidental harm, a risk assessment should be carried out by the commander addressing the probability of success of the operation and the likelihood of its materialisation as an additional factor.¹⁵⁵ In this sense, it is considered essential to conduct thorough precautionary measures and gather information in order to have a clear picture of the factors that mainly influence the success of the siege.

¹⁵³ van den Boogaard (n 128) 262.

¹⁵⁴ *Ibid.*

¹⁵⁵ *Ibid.*, 263.

5.1.2 Incidental harm in an encircled area

As the unintentional side effect of a siege, the incidental harm caused in a besieged area raises various challenges on the way it should be addressed. As Gillard highlights, “while it might be feasible to identify the anticipated military advantage when planning the siege, identifying the expected incidental harm is much more difficult, as it will depend on the duration of the encirclement.”¹⁵⁶ The context of the besieged locality generates catastrophic consequences for the civilians trapped in an area with very limited access to resources and which gets worse as time goes by. These factors exacerbate the weight that should be given to the collateral damage in the proportionality equation.

5.1.2.1 Contextual elements

The context of a siege is hostile for civilians. Limited access to basic resources, such as food, water and medicines, which become scarce over time and could cause starvation. This coupled with isolation, not only physical, but also psychological and electronic, and most likely the use of bombardments, which can lead to loss of civilian life, damage to civilian objects and even mental harm, among other effects.

To illustrate the importance of the contextual elements, an example brought by Gaggioli will be analysed. In a besieged locality, the besieging force destroyed a drinking water installation.¹⁵⁷

¹⁵⁶ Gillard (n 2) 8.

¹⁵⁷ Gaggioli (n 11).

This will have a negative impact for all the individuals within the area, regardless of their combatant or civilian status. In this sense, the drinking water installation is an object indispensable for the survival of the civilian population and the attack could be considered as unlawful if it “may be expected to leave the civilian population with such inadequate food or water as to cause its starvation or force its movement.”¹⁵⁸

The collateral damage is assessed based on “that which would not occur but for the attack.”¹⁵⁹ In this sense, Gillard argues that “what matters is that the harm meets the criteria of causation and foreseeability. Therefore, this approach should also consider the basis of information that the attacker had in the planning phase or could reasonably have been expected to have.”¹⁶⁰ As exposed, in a different situation, where there was no siege as an attack as a whole but a mere destruction of the water installation, the collateral damage would have been different. However, in this scenario the besieging commander is aware of the limited access to water caused by the isolation, which restricts the possibility of acquiring water from external sources. This element exacerbates the weight given to the incidental harm based on the cascading effects of this facet and how it influences the repercussions of other acts of violence conducted in the context of the siege. This example further demonstrates how applying the principle of proportionality to the same attack but in different contexts alters the weight provided to the collateral damage, increasing it exponentially.

¹⁵⁸ Gaggioli (n 11); Additional Protocol I (n 33) Article 54(3)(b).

¹⁵⁹ Gillard (n 124) 16.

¹⁶⁰ *Ibid.*

As this example illustrates, the context of a siege should be considered as an additional factor to be incorporated in the proportionality assessment. The inclusion of this element alters the balance of the equation, giving an additional weight to the incidental harm.

One apparent solution that could be considered in assessing the collateral damage is to allow humanitarian relief as a measure to try to repair the damage caused to the civilian population. However, as Gillard exposes, there is something “counterintuitive” in respect to the essence of the rule of proportionality about considering the expectation that humanitarian relief operations will be conducted as a justification of increasing the incidental harm.¹⁶¹ In this sense, the besieging force could not justify minimising the incidental harm on the basis of allowing relief operations in the future.

As determined in Chapter 2, the isolation of an encircled area is not limited to a physical separation, but rather it is usually accompanied by an electronic and psychological separation. Depending on the specific context, various inconveniences for the civilian population arise. These limitations could include economic loss, commercial limitations, limited access to the internet, a feeling of hopelessness, stress or fear from ongoing hostilities. However, collateral damage is based on physical injury, loss of life or damage to civilian objects, not mere inconveniences faced by civilians as a result of the attack.¹⁶² Therefore, these effects should not be included in the equation.

¹⁶¹ Gillard (n 124) 20.

¹⁶² Johansen (n 129) 266.

5.1.2.2 Duration of sieges

As exposed below, the context of a siege makes it extremely hard to establish a foreseeable incidental harm, not just because of the contextual factors previously discussed, but because of the uncertainty of the duration required to meet the expected military advantage. In contrast with targeting operations and kinetics attacks of a short duration, sieges have the element of unpredictability regarding the exact duration of it, which could be from a couple of days to several years. In this sense, the effects of a siege may be of a reverberating nature. In other words, the consequence of, for instance, bombarding a dual-use object, will probably cause a cascading effect for the duration of the siege, threatening the survival of the civilians within the besieged area.

In assessing reverberating effects on the incidental harm, the assessment has a qualitative nature.¹⁶³ In regards with the consequences in larger operations, van den Boogaard highlights that the collateral damage has a subjective nature as a result of “the fact that the temporal aspect of both the anticipated military advantageous outcome of the attack and the civilian damage that it is expected to cause, are undefined.”¹⁶⁴ As is the case of a siege based on its contextual factor and the uncertainty regarding the duration of the attack as a whole.

5.2 Sub-conclusion

As exposed, determining the anticipated military advantage of a siege raises various challenges for the commander. Considering the importance and urgency elements specific to the siege, the

¹⁶³ van den Boogaard (n 128) 234.

¹⁶⁴ *Ibid*, 235.

protection of the besieging forces, and the likelihood of the military advantage offered by inducing the besieged force to surrender, it is very challenging to establish it in advance of launching the encirclement facet.

Similarly, the nature of sieges raises further difficulties in the estimation of the incidental harm. The volatile context of a siege, in which a single bombardment can completely change the situation for the civilians within the area, plus the uncertainty on the duration of the operation, and therefore, its cascading effects, makes it extremely difficult to accurately identify the foreseeable collateral damage in the planning phase of the operation.

The challenging nature of the inclusion of these elements to the proportionality rule makes it almost impossible to consider all the factors within the two sides of the proportionality equation in just an *ex ante* assessment.

5.3 Operationalisation of the principle of proportionality to sieges

In order to fulfill the gap left by the *ex ante* assessment in the execution of a siege, it is required to frame a constant application of the proportionality principle to assess the changing factors in the equation. The legal basis for this tailored application will be analysed below.

5.3.1 Precautionary measure

The nature of the rule of proportionality makes it a precaution in itself.¹⁶⁵ Precautionary measures taken by the besieging force play a crucial role in sieges. One of their main contributions is in establishing a set of obligations that should be conducted prior to launching an attack, as it is established in Article 57 of the Additional Protocol I. Considering the classification of sieges as attacks, among the requirements the belligerent force should consider prior to targeting the objective, Article 57(2)(b) establishes the obligation to cancel or suspend an attack if:

“it becomes apparent that the objective is not a military one or is subject to special protection or that the attack may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated”.¹⁶⁶

Following a subsumption of the law, to the detailed description of sieges, it is essential to consider that as a persistent attack, if it becomes apparent that the continuation of the siege will cause excessive incidental harm in comparison to the direct and concrete military advantage, the commander should suspend or cancel the encirclement and isolation.

This implies a subsequent assessment to review the expected effects of the siege on the incidental harm, as described in the previous section, to incorporate it in the proportionality assessment and

¹⁶⁵ van den Boogaard (n 121) 105.

¹⁶⁶ Additional Protocol I (n 35) Article 57(2)(b).

determine if the expected incidental harm is not excessive in relation to the concrete and direct military advantage of besieging the area.¹⁶⁷

However, without boots on the ground, various practical challenges arise for the besieging commander in finding a way to acquire this essential information. In this sense, the following section will present an alternative to support the fulfillment of the besieging force's obligation to cancel or suspend the siege if it becomes apparent that it would be excessive in relation to the military advantage.

5.3.2 Continuous monitoring systems

As the *sine qua non* of warfare, targeting is defined as an activity that encompasses the planning of the use of armed force and the actual execution of the attack, covering a broad range of LOAC implications.¹⁶⁸ In a targeting process, the information available plays an essential role in regards to the proportionality rule. The access to information highly depends on the level of sophistication of the armed force. From advanced drone surveillance to what is visible from the distance, the resources available for the belligerent parties determine their capacity to gather relevant data for the proportionality assessment. However, regardless of the sophistication of the armed force, the targeting process is usually guided by the following steps:

1. Determine the location of the target and the surrounding area;
2. Classify it as a military objective or not;

¹⁶⁷ A similar approach has also been considered by Maxime Nijs, 'Humanizing siege warfare: Applying the principle of proportionality to sieges', (2021) IRRC.

¹⁶⁸ van den Boogaard (n 128) 89.

3. Take all the feasible precautions to minimise collateral damage;
4. Balance the expected incidental harm, if any, and the anticipated military advantage; and
5. During the execution take the following measures:
 - a. Take the appropriate care in firing the weapon to hit the selected target; and
 - b. Cancel or suspend the attack if it becomes apparent that the objective is not a military one or the incidental harm would be excessive.¹⁶⁹

As exposed in the previous section, the proportionality rule applied to the context of a siege will be relevant in the assessment of step 5(b). This step depends on a large extent on the information available to the commander. In this regard, an alternative way in which this information could be obtained and support the proportionality assessment in the context of a siege will be provided below. Furthermore, the alternatives to be presented also aimed to limit the subjective application of the proportionality assessment by increasing the objectivity of the factors, and therefore of the equation. However, these methodologies are limited to the level of sophistication of the besieging force and its available resources.

In order to have an accurate picture of the incidental harm an attack may cause, various States and international coalitions have developed assisting systems to help commanders in determining the proportionality in a more precise manner. The collateral-damage estimation (CDE) methodology is defined in the NATO Allied Joint Doctrine for Targeting as “[a]n approximation of the potential inadvertent casualties, damage, and or/destruction.”¹⁷⁰ However, it is further clarified that it “does not relieve the commander of their obligations under the principle of

¹⁶⁹ van den Boogaard (n 128) 91-92.

¹⁷⁰ NATO, ‘Allied Joint Doctrine for Targeting’ AJP-3.9 (2021), 1-5

proportionality”.¹⁷¹ NATO’s methodology is based on target parameters, such as location and proximity to civilians and/or civilian objects and the mitigation of risks in support of certified CDE analysts to model the potential variables, such as the type of weapon system and the method, or time, of engagement.¹⁷² As a computer programme, the CDE methodology also helps in predicting the extent to which the military objective will be eliminated, something to take into account when assessing the anticipated military advantage of the attack. Furthermore, this methodology may assist the commander in regards to the feasible measures to avoid or minimise the incidental harm.¹⁷³

However, there may be factors that cannot be incorporated in the programme. An example provided by van den Boogaard is when launching an attack against a military objective close to a busy street. It is noted that the CDE programme will help based on “general assumptions that there are less people on the streets at night than there would be during the day.”¹⁷⁴ However, the circumstances could be different, altering the result provided by the CDE. In this sense, it is highlighted in the US CDE methodology (CJCSI 3160.01C) that:

“the CDM is not an exact science. The supporting technical data and processes of the methodology are derived from physics-based computer models which generate statistical results, weapons test data, and operational combat observations. All of these sources contain some degree of inherent variability.”¹⁷⁵

¹⁷¹ NATO (n 170) 1-28.

¹⁷² *Ibid* 1-28

¹⁷³ van den Boogaard (n 128) 99.

¹⁷⁴ *Ibid* 101.

¹⁷⁵ US Army, ‘No-strike and the collateral damage estimation methodology’ CJCSI3160.01A, Chairman of the Joint Chiefs of Staff Instruction (2012), D-2.

Furthermore, the EU-Led Military Operations Concept determines the flexibility of the application of the CDE to various environments and how it can change during the course of the operation due to “fluid/changing nature of the intelligence, operational and targeting environment.”¹⁷⁶ In this case, the operational environment in which the CDE is used plays a decisive role in the estimation. As noted in the US CDE methodology (CJCSI 3160.01C), “the art of the CDM is not only complementary but critical. Targeting professionals, intelligence analysts, and operations personnel should employ their combined expertise, experience, and current intelligence to tailor the science to the specifics of the operational environment.”¹⁷⁷

Considering the described contextual challenges of sieges and its fluctuating nature, the role of the CDE is key in supporting the proportionality assessment of the commander to arrive to a clearer assessment and therefore a more sustained decision. However, the computer programme is not going to determine whether the attack should be launched or not, nor it is going to provide a proportionality assessment considering all the variables. The CDE must be interpreted by the commander in order to fulfill the requirements under the proportionality rule with the support of targeting professionals, intelligence analysts, and legal advisers.

Another tool that may support commanders in assessing the proportionality in a siege is a battle damage assessment (BDA). Notwithstanding the fact that the principle of proportionality applies before an attack (and, depending on the circumstances, during its execution), a battle damage assessment could provide relevant information to consider in the course of a siege.

¹⁷⁶ European Union Military Committee, ‘EU-Led Military Operations Concept’ CSDP/PSDC 750, (2016) 14.

¹⁷⁷ *Ibid.*

A BDA has the objective of gathering information on the site where the incidental harm occurred and understand the consequences of the conducted operation for the civilians.¹⁷⁸ Usually it takes place by mobilising units to the place of the targeted objective, however, alternatives may be considered in situations in which it is impossible to access the area, such as sieges. In this case it is suggested to employ alternative ways such as aerial surveillance to obtain videos or images and analyse the effectiveness of the attack and the incidental harm.¹⁷⁹

Conducting this continuous assessment would help commanders in ensuring that they plan attacks on the basis of proportionality and the commander can become aware of a potential violation of the proportionality rule during the siege. This updated information should be analysed prior to conducting further acts of violence against the besieged area by supporting the commander in understanding the changes in the context after an attack and alter the weight in the balance accordingly. Furthermore, the information gathered would support the commander in complying with Article 57(2)(b) API, which establishes the obligation to cancel or suspend an attack if it becomes apparent that the objective is not a military one or that the attack may be expected to cause excessive collateral damage in relation to the concrete and direct military advantage anticipated.¹⁸⁰ The application of this article to the nature of a siege, as established in section 5.3.1, requires from the besieging party a continuous obligation of monitoring the effects of the siege on civilians and civilian objects to incorporate them in the proportionality assessment.

¹⁷⁸ US Department of the Army, 'Protection of Civilians', Army Techniques Publication 3-07.6. (2015), 5-10.

¹⁷⁹ *Ibid.*

¹⁸⁰ Additional Protocol I (n 35) Article 57(2)(b).

Additionally, as noted by Gillard, the information gathered in a BDA supports belligerents in understanding the nature and extent of incidental harm caused and to adjust future practice as necessary to comply with the proportionality rule.¹⁸¹ In this sense, it is suggested that commanders should address incidental harm in “lessons learned exercises, including information on the harm caused in past attacks, in order to further refine proportionality assessment methodologies.”¹⁸² The result of this process becomes useful information which should be taken into account in future proportionality assessments.

This approach is also considered in the US Law of War Manual. The Manual highlights that BDA and after-action assessments support the identification of measures to “mitigate the likelihood of future incidents of civilian casualties.”¹⁸³ Furthermore, it is considered that the investigation is needed even in “close call” incidents without collateral damage but in which there was a high risk of causing incidental harm and it “was not fully understood when relevant decisions were made.”¹⁸⁴

Both the CDE and BDA are methodologies which support the precision of the expected incidental harm and concrete and direct military advantage of a siege. However, these techniques are not exempted from the contextual limitations of a siege. In the case of the CDE, the variability of the circumstances within the besieged area may alter the data provided in regards to the expected incidental harm and military advantage. Regarding the BDA, the lack of access to the besieged area represents the major challenge in gathering the information after the attack. A

¹⁸¹ Gillard (n 134) 51.

¹⁸² *Ibid.*

¹⁸³ DoD Law of War Manual (n 13) 261.

¹⁸⁴ *Ibid.*

common limitation for both methodologies is the level of sophistication of the besieging force. Less sophisticated besieging forces may not have access to a computer programme such as the CDE and would have to base their estimations on other sources, such as what they can see from outside of the area or previous information about the amount of civilians living in the area. Similarly, in the case of BDA, besieging forces may not have access to aerial surveillance or satellite images of the besieged area, increasing the complexity in assessing the effects of an attack and updating the information in the equation in a continuous manner.

6. Conclusion

Sieges have played a critical role in the history of warfare and will continue to be present in future hostilities. Whether to gain control of a specific area, avoid a street-by-street fight in a populated zone, or contain enemy forces in a specific location, sieges may offer a significant military advantage to the belligerent force. On the other side, the consequences for the civilian population within the besieged area are usually catastrophic. From starvation, to the use of bombardments and the isolation of the location, the unintentional repercussions of this method of warfare result in devastating consequences for the civilians trapped in a volatile and unpredictable scenario.

As demonstrated in Chapter 2, the LOAC is not indifferent to the consequences of sieges. Rules regulating key elements that accompany siege warfare, such as bombardments and starvation, aim at providing a legal safeguard to civilians within the besieged area. However, as has been

exposed in Chapter 2.9, there is a clear lack of practicality in the individual application of this set of rules to the context of a siege.

Therefore, the ambiguous application of these rules illustrates the necessity of an additional safeguard to be applied to sieges as a whole rather than to the individual attacks that play a crucial role in a siege. In this sense, the operationalisation of the principle of proportionality seems to be a solution in an attempt to fill the gap. Nevertheless, as has been demonstrated, the way in which this rule should be applied is not exempt of challenges. In this regard, this thesis has provided the following key findings:

First, the classification of sieges as attacks has been established considering the consequences of its employment. This based on the following reasons:

1. the interpretation of the definition of attack considering context, object, and purpose of the Additional Protocol I;
2. the analogous application of the notion of consequence-based attack under cyber warfare, outer space operations, and chemical weapons; and
3. the subsumption of a siege to the elements set out by Professor Geoffrey S. Corn in relation to the effects and motivation of attacks.

It can be established that, in light of the consequence-based approach, a siege qualifies as an attack on the basis of the violent effects inflicted. Among the consequences considered, the main violent result is the starvation of the adversary in the besieged area and of the civilian population within it, which is a consequence of the encirclement and isolation facets of a siege.

As attacks, it has been demonstrated that sieges constitute a set of coordinated attacks part of a larger operation with a specific common aim. Therefore, the frame of reference of a siege for conducting the proportionality assessment should consider the attacks with crucial importance to the large scale operation against the besieged area as part of a siege as a whole.

Second, in regards to the components of the proportionality equation in a siege. It has been established that commanders should consider the overall military advantage anticipated. This advantage should also incorporate the importance and urgency elements specific to the siege, the protection of the besieging forces, and the likelihood of the military advantage offered by inducing the besieged force to surrender. As has been demonstrated in this thesis, determining the anticipated military advantage of a siege carries various practical challenges for the commander.

On the other side of the equation, the volatile context of a siege, in which a single bombardment can completely alter the situation for the civilians, plus the uncertainty on the duration of the siege, and therefore, its cascading effects, makes it extremely difficult to identify the foreseeable collateral damage in the planning phase.

The challenging nature of the inclusion of these elements to the proportionality rule makes it almost impossible to consider all the factors within the two sides of the proportionality equation in just an *ex ante* assessment.

Third, the application of the principle of proportionality to sieges should follow a continuous assessment. As demonstrated in Chapter 5.3.1, the legal basis for this adaptation of the principle from an *ex ante* assessment to an ongoing application is based on the precautionary measure established in Article 57(2)(b) of the Additional Protocol I.

In order to fulfil the aforementioned provision, the application of the principle of proportionality to sieges should be guided by continuous monitoring systems. Besieging forces should incorporate methodologies to ensure that those planning and deciding attacks are provided with all the necessary information. These measures are dependent on the different capabilities and resources of the besieging force, which must do everything feasible to have access to information and analysis on factors that can affect incidental harm in a siege. Two methodologies have been introduced:

The CDE methodology, as shown in Chapter 5.3.2 may provide an approximation of the incidental harm of the siege and a prediction on the military advantage. Additionally, this computer programme can prepare suggestions of feasible measures to avoid or minimise the incidental harm. Given the contextual challenges of sieges and their fluctuating nature, the role of the CDE is key in supporting the commander's assessment of proportionality to arrive at a clearer balance and, thus, a more sustained decision. However, the software does not relieve the reasonable commander of the obligations under the proportionality rule.

An additional feature which can help commanders assess proportionality in a siege is a BDA. As exposed in Chapter 5.3.2, employing this method in a siege supports commanders in their

awareness of a potential violation of the proportionality rule. This based on the information gathered to be considered by the commander in complying with the obligation to cancel or suspend the siege if it becomes apparent it would cause excessive collateral damage in relation to the concrete and direct military advantage anticipated.

The methodologies exposed in this thesis are not exempted from the contextual limitations of a siege. In the case of the CDE, the variability of the circumstances within the besieged locality may alter the data provided in terms of the expected incidental harm and anticipated military advantage. Regarding BDA, the lack of access to the besieged area represents the major challenge in gathering the information after the attack. A common limitation for both methodologies is the level of sophistication of the besieging force. Less sophisticated forces may not have access to a computer programme such as the CDE or may not have access to aerial surveillance or satellite images of the besieged area, increasing the complexity in assessing the effects of an attack and updating the information in the equation.

To conclude, this thesis has incorporated the elements of a siege, its context, and its consequences into an equation that is notable for its lack of clarity and subjectivity. Operationalising the principle of proportionality to sieges involves a number of difficulties due to the nature of this method of warfare. However, through a legal analysis, it has been established that the principle of proportionality should be applied to sieges as a whole following a continuous assessment through the employment of methodologies that support the recompilation of elements to be incorporated in the equation.

As a concluding remark, it should be acknowledged the incredibly difficult task that the besieging commander has in relation to the application of the proportionality rule. The challenges analysed in this thesis, and the answer provided to the question, apart from demonstrating the various difficulties that arise from choosing this method of warfare, exemplify the importance of having prepared legal advisers that are able to support the military commander. However, in the end it is the military commander, the one with the responsibility of deciding whether to launch the siege or not, continue besieging or cancel the operation, and to balance what, ultimately, are human lives.

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