

UNMANNED AIRCRAFT SYSTEMS AND INTERNATIONAL LAW¹

SISTEMAS AÉREOS NÃO TRIPULADOS E O DIREITO INTERNACIONAL

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Abstract

With the increase in the use of Unmanned Aircraft Systems (UAS), and in light of the controversy associated with their use in actions against international armed groups outside the framework of International Humanitarian Law (IHL) and International Human Rights Law (IHRL), there is a need to understand the status of UAS under International Law (IL) and whether this status limits their use. The study used qualitative research methods and inductive reasoning to investigate how UAS are used in armed conflict or counterterrorism operations and to understand how the principles of IL affect military UAS operations. The study found that, under IL, UAS are not considered illegal as weapons systems, per se, but their capabilities are affected and limited by the protections afforded by IHL and IHRL.

Keywords: Armed Conflict, International Human Rights Law, International Humanitarian Law, International Armed Group, Unmanned Aerial System.

Resumo

Motivado pelo aumento da utilização de Sistemas Aéreos não Tripulados (UAS), assim como pela controvérsia que estão a causar mediante a sua possível utilização para além dos limites do Direito Internacional Humanitário (DIH) e do Direito Internacional dos Direitos

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Humanos (DIDH), largamente em ações contra grupos armados internacionais, torna-se necessário conhecer qual a interpretação do Direito Internacional (DI), no que se refere ao emprego de UAS e se este posicionamento pode limitar a sua capacidade de uso. Através de uma metodologia assente numa metodologia científica de investigação qualitativa, segundo um raciocínio indutivo, abordou-se a utilização dos UAS em conflitos armados, ou em operações contra o terrorismo, com o objetivo de compreender a forma como, mediante a aplicação do DI, as operações militares com estas aeronaves são afetadas. O estudo permitiu concluir que os UAS não são considerados pelo DI ilegais per se como sistemas de armas, mas as suas capacidades são afetadas e limitadas pela proteção conferida pelo DIH e pelo DIDH.

Palavras-chave: *Conflito Armado, Direito Internacional dos Direitos Humanos, Direito Internacional Humanitário, Grupo Armado Internacional, Sistema Aéreo não Tripulado.*

Introduction

Drones or unmanned aerial systems with the capacity to carry weapons are essential for current military operations, especially when they avoid unnecessary risks to combatants. Traditionally, before new weapons can be used, the moral and legal implications must be analysed. The main problem lies specifically in the use of armed drones, which raises different questions about whether such use is consistent with the laws governing armed conflicts (González-Regueral, 2017, p.3-4).

The current debate on drones derives from the fact that they are the primary means of conducting targeted attacks against members of terrorist groups whose actions have reached a level of violence comparable to that of an armed conflict. On the one hand, the fight against this type of terrorism must be governed by the general principles applicable to the fight against terrorism, i.e. the police model for drone use and Internal Criminal Law, in addition to the international conventions in force. On the other, a confrontation between a government and this type of group is likely to be classified as an armed conflict; in that case, the applicable model would be International Humanitarian Law (IHL) (Serrano, 2011, p.9).

The aim of this study is to investigate the legal status of Unmanned Aircraft Systems (UAS) under International Law (IL), and to what extent this status limits their use.

As advised by Sampieri, Collado & Lucio (2014, p.39), the research topic was delimited according to three distinct domains: time, space, and content. In terms of time, the study focuses on the current era, specifically on the timeframe from 2001 (the beginning of the Global War on Terror) until the present day. In terms of space, the study examines the areas where unmanned aerial vehicles (UAVs) operate, which covers all situations in which this instrument is used, be it international or national armed conflicts or in isolated actions against terrorist targets. The research will be delimited in terms of content to the Armed Forces (AAFF) of the States that comply with Public International Law (PIL). However, drone

use by non-governmental organizations, armed terrorist groups, or militias will not be covered in this research. Therefore, the study will analyse whether Remotely Piloted Aircraft (RPA) comply with PIL regulations, both in regards to IHL and International Human Rights Law (IHRL).

The civilian regulations governing the operation of UAVs, such as air traffic control standards and qualification requirements, will not be addressed in either of the above cases. The study will only examine how they are used by the United States of America (USA), the world's largest user of drones, although other cases will be analysed to contextualise the research.

The General Objective (GO) of the research is to understand how the application of PIL affects military UAS operations within the context of armed conflict or in counterterrorism operations.

The following Specific Objectives (SO) were set out to help achieve the GO:

SO1 – Describe how, where, and against whom UAS are used by the military in armed conflict or counterterrorism operations.

SO2 – Describe the status of UAS operations under PIL, specifically in regards to IHL and IHRL.

SO3 – Analyse how PIL affects the planning of military UAS operations.

The following Research Question (RQ) was defined to help achieve the GO: To what extent does PIL affect the planning of military UAS operations within the context of armed conflict or in counterterrorism operations?

To answer the RQ, the following Subsidiary Questions (SQ) were posed:

SQ1 – How, where, and against whom are UAS used by the military in armed conflict or in counterterrorism operations?

SQ2 – What limits are imposed by IHL and IHRL on the use of UAS?

SQ3 – What is the legal impact of these limits on the planning of military UAS operations?

The line of research was established during the documentary review carried out in the exploratory phase, as was the qualitative research methodology, which is based on inductive reasoning and on the analysis model described in the Body of Concepts introduced in the first and second chapters.

The article is divided into five chapters, beginning with the introduction and ending with the conclusions. The first and second chapters cover the theoretical and legal framework and the research methodology, providing a conceptual basis and framing the issue under discussion.

The remaining three chapters comprise the analytical section, with the third and fourth chapters containing the descriptive dimension, which relied on documentary analysis and interviews to categorise and reduce the data. The general use of UAS will be described, as well as the general principles of IHL and IHRL which apply to operations using these systems. Thus, chapters 3 and 4 correspond to SO1 and SO2.

The fifth chapter consists of the final analytical part and examines the legal restrictions on the planning of UAS operations. This chapter corresponds to SO3.

Finally, the most relevant conclusions are presented, including the main methodological procedures, an assessment of the findings, the study's contributions to knowledge and recommendations, as well as suggestions for future research.

1. Theoretical Framework

1.1. Unmanned Aircraft

The Joint Air Power Competence Center (JAPCC) (2010, p.3) defines an Unmanned Aircraft (UA) as an aircraft that does not require a human operator and is capable of flying under remote control, at different autonomy levels, or under autonomous programming.

UA are one of the elements that make up an Unmanned Aircraft System (UAS). According to the North Atlantic Treaty Organization (NATO) (2016, p.C-2), the components of a UAS system include the unmanned aircraft, the support network, and all equipment and personnel needed to control it, as well as the elements needed for take-off and landing. They can carry a lethal or non-lethal payload and are not classified as a guided weapon or similar device designed for the delivery of munitions (JAPCC, 2010, p.3, 22).

UA or Unmanned Aerial Vehicles (UAV) are divided into two categories: those that are controlled remotely, or RPAs (NATO, 2016, p.117), and programmed autonomous vehicles that do not allow pilot intervention in the management of the flight (OACI, 2011, p.11).

NATO currently uses the UAV classification (Table 1) defined at the meeting of the Joint Capabilities Group UAV held in 2009 (JAPCC, 2010, p.6; NATO, 2016, pp.14).

Table 1 - NATO UAS classification

Class	Category	Normal employment	Normal Operating Altitude	Normal Mission Radius	Primary Supported Commander	Example platform
CLASS I (less than 150 KG)	SMALL 20 KG	Tactical Unit (employs launch system)	Up to 5K ft AGL	50 km (LOS)	BN/Regt, BG	Hermes 90 Luna
	MINI 2-20 kg	Tactical Sub-unit (manual launch)	Up to 3K ft AGL	25 km (LOS)	Coy/Sqn	Aladin DH3 DRAC Eagle Raven Scan Skylark Strix T-Hawk
	MICRO <2 kg	Tactical Pl, Sect, Individual (single operator)	Up to 200 ft AGL	5 Km (LOS)	Pl, Sect	Black Widow
CLASS II (150 kg to 600 kg)	TACTICAL	Tactical Formation	Up to 10,000 ft AGL	200 km (LOS)	Bde Comd	Aerostar Hermes 450 iView 250 Ranger Sperwer
CLASS III (more than 600 kg)	Strike/ Combat	Strategic/Nacional	Up to 65,000 ft	Unlimited (BLOS)	Theater COM	
	HALE	Strategic/Nacional	Up to 65,000 ft	Unlimited (BLOS)	Theater COM	Global Hawk
	MALE	Operational/theater	Up to 45,000 ft MSL	Unlimited (BLOS)	JFC COM	Predator B Predator A Harfang Heron Heron TP Hermes 900

Source: JAPCC (2010, p.6).

Originally used for surveillance, drones have evolved to enable the delivery of lethal force, carry laser-guided munitions and conduct precision strikes, and are gradually replacing piloted aircraft (Figure 1) (IBAHRI, 2017, p.7).

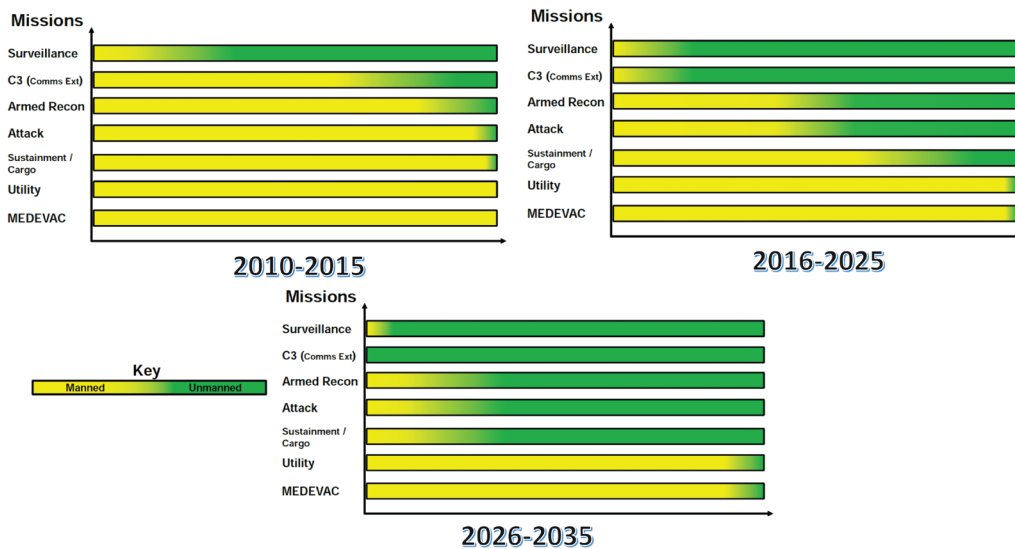


Figure 1 - Manned - Unmanned Mix Roles Transition

Source: US Army (2010, p.33, 50, 60).

1.2. International Humanitarian Law

IHL is a “set of international rules based on treaties and agreements derived from conventional use and warfare customs, which seek, for humanitarian reasons, to minimise the effects of armed conflict by restricting the methods and means of warfare, as well as to protect affected people and property”. It can be applied in three types of situations: international armed conflicts (IAC); non-international armed conflicts (NIAC); and military operations carried out by the United Nations Organization (UN) (MADOC, 2007, pp. 11 and 19).

According to the Appeals Chamber of the International Criminal Tribunal for the former Yugoslavia (ICTY), “an armed conflict exists whenever there is a resort to force between two States or protracted armed violence between governmental authorities and organised armed groups or between such groups” (Wuschka, 2011, p.902).

Article 2, common to the Geneva Conventions (GC), states that an IAC consists of “all cases of declared war or of any other armed conflict which may arise between two or more of the High Contracting Parties, even if the state of war is not recognized by one of them” (CICV, 2016). IACs are governed by Customary International Law (CIL), by the four GCs of 1949, which have been universally ratified, and by Protocol I Additional (PAI) of 1977. Although the latter has not been universally ratified, its most relevant rules relating to the conduct of hostilities are generally considered to fall under the scope of CIL (IBAHRI, 2017, p.19).

A NIAC exists when there is “protracted armed violence between governmental authorities and organized armed groups or between such groups within a State”². The definition of a NIAC requires intense violence involving an organized group. Furthermore, Protocol II

² Procurator v Tadić, 1999. Appeals Chamber Judgment IT-94-1-A, p.70.

Additional to the Geneva Conventions (PA2) states that nonstate armed groups must be under a “responsible command” and “exercise such control” over a part of the territory of a State “as to enable them to carry out sustained and concerted military operations” (CICV, 2017, p.87).

1.3. International Human Rights Law

IHL does not apply outside of armed conflict, so the legality of drone attacks must be considered only within the framework of IHRL, which also applies to armed conflict, in a relationship of concomitance, in which the most specific will prevail when there is a conflict between rules, whether those rules be from IHL or IHRL (IBAHRI, 2017, p.33).

IHRL consists of a series of international human rights treaties and other instruments which have been adopted since 1945, providing the legal basis for inherent human rights and developing international human rights as a whole³, such as the Universal Declaration of Human Rights (NU, 1948), the International Covenant on Civil and Political Rights (ICCPR) (UN, 1966) and the Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (CAT) of 1984 (ICRC, 2015, p.35).

1.4. Unmanned Aerial Systems and International Law. Where are we now?

In September 2014, the Human Rights Council (HRC, 2014, p.3) held an expert meeting on “the use of remote piloted aircraft or armed drones in anti-terrorist or military operations according to IL, including IHL and the IHRL”. The panellists concluded that current drone use practices raise serious questions regarding compliance with PIL, in particular IHRL. Therefore, there are pertinent concerns regarding their selective strike capabilities and other practices which must be addressed to ensure they comply with IL (HRC, 2014, p.17). It was also concluded that the starting point of any legal analysis on armed drones should be existing IL. Changing well-established rules of IL to incorporate the use of drones may have unintended consequences in the long run because such actions tend to weaken those rules. The existing legal framework is sufficient and does not need to be adapted to the use of drones; rather, it is the use of drones that must comply with DI (HRC, 2014, p.18). On the other hand, authors such as Cuesta (2015, p.11) argue that it is IL that must be updated since any innovations in warfare pose new challenges.

According to Neves (2018), “IHL does not have a body of rules governing unmanned aircraft, which are therefore not prohibited by IHL. In itself, the use of drones for military purposes does not constitute a violation of IHL rules, but if that use does not respect the fundamental principles and specific rules of IHL provided for in the GC treaties and international custom, it will be in violation of IL”.

³ Office of the High Commissioner for UN Human Rights (<http://www.ohchr.org/SP/ProfessionalInterest/Pages/InternationalLaw.aspx>).

2. Methodology

The methodology followed in this Individual Research Work is based on an inductive (Santos et al., 2016, pp.2022) and descriptive (Álvarez, 2011, p.118) model.

Given the nature of the problem, the study used a qualitative scientific research methodology, as advised by Strauss and Corbin (1998 cited in Santos et al., 2016, p.116), and a case study research design (Santos et al., 2016, p.29, 39).

As suggested by Freixo (2011, p.113), the main data collection techniques used in this methodological procedure were traditional documentary analysis and semistructured interviews (Santos et al., 2016, p.93).

The methodology was developed in three phases: exploratory, analytical, and conclusive. In the first phase, the preliminary readings were selected and exploratory interviews were conducted. This provided a framework for defining the object of research, the research objectives, and the research questions. Having consolidated the theoretical framework, the analysis model was defined within the conceptual domain depicted in Figure 2 and analysed in the conceptual map provided in Table 2.

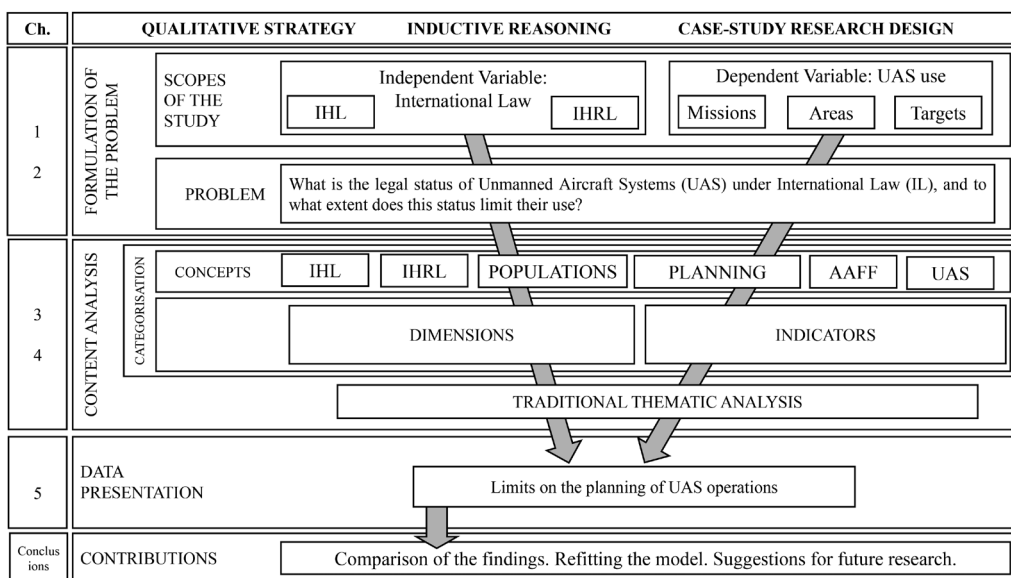


Figure 2 - Analysis model

Table 2 - Conceptual Map

Object				
The aim of this study is to investigate the legal status of Unmanned Aircraft Systems (UAS) under International Law (IL), and to what extent this status limits their use.				
General Objective		Research Question		
Understand how the application of PIL affects the use of UAS in military operations within the context of armed conflict or in counter-terrorism operations.		To what extent does PIL affect the planning of military UAS operations within the context of armed conflict or anti-terrorist operations?		
Subsidiary Questions	Concepts	Dimensions	Indicators	Collection Technique
SQ1 – How, where, and against whom are UAS used by the military in armed conflict or in counterterrorism operations?	Unmanned Aerial System (UAS)	Unmanned Aerial Vehicles (UAV) RPA / Drone	Payload	State-of-the-art, Documentary
			Missions	
		Areas	Areas of Active Hostilities	
			Outside Areas of Active Hostilities	
		Targets	Counterterrorism	
			Non-State armed groups	
SQ2 – What limits are imposed by IHL and IHRL on the use of UAS?	<i>Jus ad bellum</i> (Legitimacy in the use of force) Art. 2 of the UN Charter	Consent	State	State-of-the-art, Documentary, Interviews
			UN Security Council Art. 39 and 42 of the UN Charter	
		Legitimate Defence Art. 51 of the UN Charter	Armed attack	
			State actor	
			Non-State actor / armed group	
			Necessity	
			Imminent	
			Proportionality	
			UNSC notification	
			<i>Jus in bello</i> (IHL)	
	Proportionality Art. 51 and 57 of PA I			
	Non-International Armed Conflict Art. 3 of the GCs, PA II	Unnecessary Suffering or Humanity Art. 35 of PA I		
		Military Necessity Art. 2 and 54 of PA I		
	IHRL	Jurisdiction	Organization PA II	
			Intensity	
			Own Territory	
		Right to Life Art. 6 of the ICCPR	Occupied Territory	
			Consent	
			Threat	
		Cruel, Inhuman or Degrading Punishment	Imminence	
Proportionality				
SQ3 – What is the legal impact of these limits on the planning of military UAS operations?	Planning	<i>Jus ad bellum</i>	Consent	Documentary
			Legitimate defence	
		<i>Jus in Bello</i>	International Armed Conflict	
			Missions	
		Non-International Armed Conflict	Participants Art. 13 PA II	
			IHL	

Next, in the analytical phase, the data was collected, analysed, and treated using traditional thematic content analysis. In the conclusions phase, the results were appraised and discussed in order to present the study's conclusions, implications, and contributions to knowledge.

Given the emphasis that this study places on the Law, in addition to the above methodological considerations, when examining legal documentation, chapters four and five also use a socio-legal typology to verify whether the legal rules have been complied with, without, however, making any assessments regarding their legitimacy or validity (Odar, 2016,

p.10). That is, in accordance with the classification provided by Diaz (1998, p.164 cited in Odar, 2016, p.14), this investigation will focus on how the Law affects social reality and, on the effects and consequences of a given enforceable right.

3. Use of Unmanned Aircraft

UAS are proliferating across the spectrum of military conflict. This has led NATO to recognise the importance of these systems (JAPCC, 2010, p.i) because, compared to other weapon systems, they have inherent advantages such as the ability to hover over targets for long periods and to strike specific targets without risks for the operator (Zenko, 2015 cited in European Parliament, 2017, p.8).

The use of combat UAVs is not substantially different from how other aircraft are employed. Considering their greater capacity for continuous observation and precision strikes, it can be said that the use of UAVs in combat is as much or even more acceptable than manned aircraft strikes (Magalhães, 2015, p.18).

3.1. Various uses of unmanned aircraft

Given that their payload⁴ depends on the mission to be accomplished (Nieto, 2014, p.164), in addition to kinetic operations, UAS can be used in a wide variety of tasks, such as: observation and reconnaissance, target acquisition, search and rescue, delivery of humanitarian aid, and transportation of equipment (Turns, D., 2014 cited in Sehwat, 2017, p.166).

Drones were originally developed for reconnaissance. With the possibility of using them to carry out strikes, the range of situations in which they are used greatly increased. Among those uses, one of the strategies for the War on Terror, targeted killing, generates the most controversy because, when conducted within the scope of military operations, these operations include the intentional, premeditated, and deliberate use of lethal force by States acting within the existing law; or, within the context of armed conflict, by an organized armed group against a specific individual not in the custody of the perpetrator (Wuschka, 2011, p.298; UNHRC, 2010, p.3).

Table 3 compiles a list drone capabilities, missions, and payloads, which were studied and analysed based on the data obtained from the selected sample.

⁴ On-board equipment required for a mission such as electro-optical cameras, radars, communications receivers, range finders, multispectral sensors, and weapons (Nieto, 2014, p.164).

Table 3 - UAS capabilities, missions and payloads

UAS		Sample						
Capabilities / Missions		Payload (JAPCC,2010, p.4) (USARMY, 2010, pp.83-84 and 105)	(US Army, 2010, p.17, 89 and 105)	(JAPCC, 2010, p. 14)	(Exército Brasileiro, 2014, pp4.8-4.11) (1)	(EMAD, 2015, pp.7-10)	(USMC, 2015, pp.7-8)	(Vicente, 2013, p.232) (2)
Command and Control	Communications Relay	Airborne Data Relay Node (Voice & Data)	X	X	X	X	X	X
Electronic Warfare		Electronic Warfare Sensors (EW)	X	X	X	X	X	X
SAR/CSAR	ISR/Communications Relay	EO/IR /Relay	X	X	X	X	X	X
ISR	Surveillance on Land / at Sea	Image Sensors (EO/IR/FMV/SAR/ISAR) SIGINT Sensors LASER Range Finder Moving Target Indication RADAR (MTI/MMTI) Weather (METOC)	X	X	X	X	X	X
	Reconnaissance		X	X	X	X	X	X
	Target Intelligence		X	X	X	X	X	X
	Imagery Intelligence		X	X	X	X	X	X
	Signals Intelligence		X	X	X	X	X	X
	Battle Damage Assessment		X	X	X	X	X	X
	Target Acquisition		X	X	X	X	X	
Chemical, Biological, Radiological, Nuclear & explosive events reconnaissance (CBRNE)		Multispectral LIDAR CBRNE Sensors	X	X	X	X		X
IED Capture		LIDAR & LADAR	X	X	X	X		
Strike	Target Designation	LASER Range Designator	X	X	X	X		
	Armed Strike	Lethal weapons (Missiles & bombs) Non-lethal weapons (electrical, energy, acoustic, and chemical)	X	X	X	X	X	
	Armed Reconnaissance		X	X			X	
	Close Air Support (CAS)		X	X	X	X	X	
	Suppression Enemy Air Defence		X	X			X	
				X	X			
Logistic Support	Supply Provision / Medical Support	Supplies & Equipment	X	X	X	X	X	
Force Protection	Aerial Escort	ISR & Weapons	X		X	X	X	X
	Surveillance	ISR	X		X	X		X
Intelligence Activities	PSYOPS	Leaflets and Announcements	X		X			

Electro -Optical (EO)
Full Motion Video (FMV)
Infrared (IR)
Inverse Synthetic Aperture RADAR (ISAR)
Light Detection and Ranging (LIDAR)
LASER RADAR (LADAR)
Signals Intelligence Sensors (SIGINT)
Synthetic Aperture RADAR (SAR)

(2) Only Brazilian Army UAVs
(1) Range of application of a future Portuguese UAS capability

This analysis of drone missions and payloads revealed that some missions are nested within others, therefore, only the missions listed in Figure 3 will be considered.



Figure 3 - UAS missions

3.2. Typical Locations and Targets of unmanned aircraft

The US first carried out extraterritorial drone strikes in Afghanistan in 2001 (Brookman-Byrne, 2017, p.4), in the wake of congressional approval of the use of military force against the nations, organizations, or persons who committed or helped to commit the September 2001 attacks, or harboured those organizations or persons (US Congress, 2001, p.1). Since then, missions have been carried out in different locations (Figure 4).

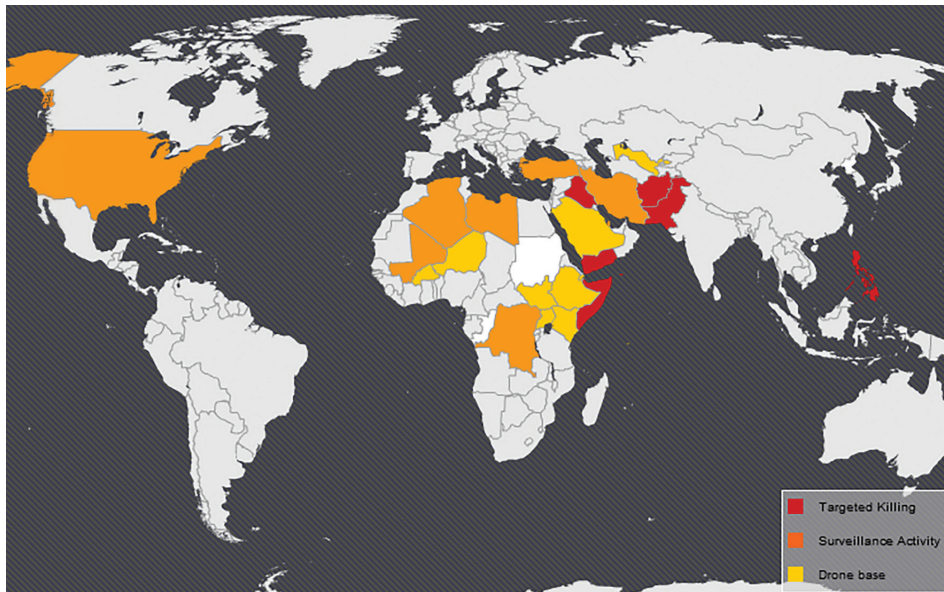


Figure 4 - US drone activity

Source: Shaw (2013).

The US government defines two areas of activity of UAVs: Areas of Active Hostilities, which include locations such as Afghanistan, Iraq, Syria, and Libya (Savage, 2017); and Outside Areas of Active Hostilities, where actions against terrorism are carried out (DNI, 2016, p.1).

The notion of Areas of Active Hostilities is associated with regions where armed conflict exists and where the rules of IHL apply (Brookman-Byrne, 2017, pp. 4-5). Outside Areas of Active Hostilities refer to areas that fall outside the scope of armed conflict; is a political phrase that is not mentioned in IHL, which can, in theory, be applied anywhere in the world (DeYoung, 2016).

One of the main UAV tasks consists of operations against terrorism, which include Targeted Killings (UNODA, 2015, p.17), in which the targets are terrorists from different armed groups.

Drone strikes are conducted against persons who belong to non-state armed groups located in the regions highlighted in Figure 4, especially targeting insurgent leaders in what is termed selective assassinations, Targeted Killings, or Personality Strikes (Alcalde & Aguiar, 2014, p.40, 53; Güell, 2014, p.165).

Table 4 – Estimated drone strike figures

State (User)	Number of strikes	Minimum total killed	Maximum total killed	Minimum civilians killed	Maximum civilians killed
<i>Pakistan (US, 2004-present)</i>	428	2.511	4.020	424	969
<i>Yemen (US, 2002-present)</i>	254	890	1.228	166	210
<i>Somalia (US, 2002-present)</i>	46	323	479	10	28
<i>Afghanistan (Coalition, 2008-2012; US, 2015-present)</i>	2.920	2.849	3.718	142	200
<i>Iraq/Syria (US, UK, 2014-present)</i>	1.381	n/a	n/a	n/a	n/a
<i>Libya (US, 2011)</i>	145	n/a	n/a	n/a	n/a

Source: IBAHRI (2017, p.8).

Other drone strikes were targeted at people whose identity was unknown but whose “pattern of life activity” linked them to terrorist organizations, suggesting that they were involved in some kind of terrorist activity or militancy (Güell, 2014, p.168). These attacks are called profile or signature strikes (Jordán, 2014, p.82).

4. UAS Operations under International Law

The starting point for determining the legality of UAS operations is to establish the context in which they are employed (Rushby, 2017, p.26).

The first part of this chapter deals with the legitimacy of the use of force in armed conflict, as well as with the principles that must be followed. For IHL to apply, the legal possibility of using force or *Jus ad Bellum* should first be determined. If such use is legal, subsequent actions will fall under *Jus in Bello*.

In the next section, the principles governing IHRL with regard to the use of UAS will be examined.

4.1. *Jus ad Bellum* or legitimacy in the use of force

Article 2 of the Charter of the United Nations (UN, 1945, p.2) prohibits “the use of armed force against the territorial integrity” of another State, in compliance with CIL (UNODA, 2015, p.17). This includes drone strikes in the territory of another State, which constitute a violation of that article. However, in some scenarios, the use of force may be legal, particularly: with the consent of the State; in self-defence; or on approval of the United Nations Security Council (UNSC) in accordance with Chapter VII of the UN Charter (MADOC, 2007, p.12). This framework for the use of force by States is called *Jus ad Bellum* (IBAHRI, 2017, p.10).

4.1.1. Consent

A State's consent to the use of force or request for intervention by another State in its territory must be given freely and be clearly established (UNODA, 2015, p.19) and come from the top echelons of government⁵. Article 2 of the UN Resolution on the Responsibility of States (UN, 2001a, p.6) refers to the "limits" of consent, limiting an intervention to the boundaries of its mandate (UN, 2008, pp.74), adding that States who give their consent and those who exercise force are bound by IHL and IHRL (IBAHRI, 2017, p.1013).

4.1.2. Self-defence

One of the most controversial aspects of the use of UAS in self-defence is its invocation in response to terrorist attacks. After the attacks of 11 September, the UN determined that it was legitimate to invoke the right of self-defence to counter attacks by international terrorist armed groups (UN, 2001b, p.1).

Article 51 of the UN Charter (UN, 1945, p.11) allows a State to invoke legitimate defence when it has been the victim of an armed attack until the UN takes the necessary measures, and States must communicate the measures they took to the UNSC. According to the International Court of Justice (ICJ), the use of force shall comply with the principles of necessity and proportionality (CIJ, 1996).

The requirement of necessity means that there is no other option of defence, other than the use of force, that can "stop or repel armed attacks" (Rushby, 2017, p.29).

According to the ICJ (Nicaragua v. United States of America, 1986), IL only allows self-defence if the response is proportional to the armed attack, but that does not mean such a response must be symmetrical to that attack. The assessment of proportionality requires a reference point. The ICJ is inclined to acknowledge the possibility that a defence measure will be considered disproportionate when its intensity is greater than the severity of the armed attack (IBAHRI, 2017, pp.16-17).

4.2. Application of *Jus in Bello* in armed conflict

The legal use of armed drones is a distinct issue from the existence of a legitimate claim for the use of force (IBAHRI, 2017, p.19).

Regardless of the means used, military actions in a conflict must comply with a set of basic principles (Figure 5) to minimise collateral damage (González-Regueral, 2017, p.8). Those principles underlie the "Law of War" and consist of compliance with the principles of distinction and proportionality (Tasman, 2014, p. 4), as well as of humanity and military necessity. These principles are codified in PA I and exist in CIL for IAC and NIAC (CICV, 2015, pp.46-47; Alcañiz, 2018).

⁵ Article 7(2) of the Vienna Convention on the Law of Treaties states that Heads of State, Heads of Government, and Ministers of Foreign Affairs do not require specific authorisation to represent a State.

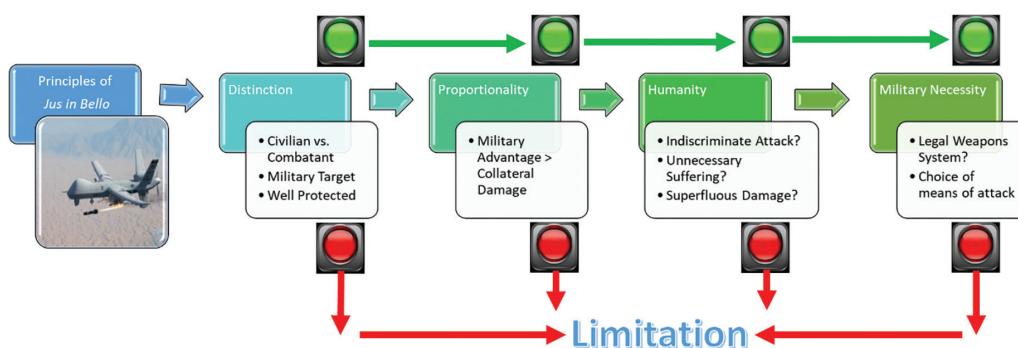


Figure 5 - Principles of Jus in Bello

4.2.1. Distinction

Article 48 of PA I states that, in order to ensure the protection of the population and civilian property, the parties involved in an armed conflict must distinguish the civilian population and combatants from military to civilian targets at all times, and the operations carried out must exclusively attack military targets (CICV, 2017).

Civilians in an armed conflict are protected as such, except when and during such time as they participate directly in hostilities. In a given NIAC, persons who are considered members of an organized armed group and who have a “continuous combat function” can be attacked at any time (Melzer, 2010, p.73).

The International Committee of the Red Cross (ICRC) advises that only persons who participate directly in hostilities on a permanent basis meet this definition (a member of an organized armed group whose function is propaganda does not have a permanent combat role, while the classification of a bomb maker is less clear) (Rushby, 2017, p.33).

4.2.2. Proportionality

The principle of proportionality aims to limit the damage caused by military operations, considering that the use of modern means of combat is likely to cause collateral damage to civilians and civilian property, forcing the military leadership to strike a balance between the military advantages it expects to gain and the resulting collateral damage. The principle of proportionality generally rests on the prohibition of the use of weapons and methods capable of causing superfluous evil or unnecessary suffering (MADOC, 2007, pp.13-13), as provided in Articles 51 and 57 of PA I (CICV, 2017, pp.39-44).

The fact that drones only offer the option of killing or not killing affects the decision about when to use them. The legitimacy of using them in a remote area where capture is not viable will depend on the value of the military target (Rushby, 2017, p. 37).

4.2.3. Humanity or unnecessary suffering

The application of this principle limits States as to the range of possible choices between the means and methods of using the weaponry available (Liu, 2012, p.629). This principle is provided in Article 35 of PA I (ICRC, 2017, p.31), which prohibits the use of weapons systems that may cause unnecessary suffering during the acquisition of a military target, finding any additional suffering to be unacceptable. The problem is how to define unnecessary suffering, since there is no globally accepted standard (Sehrawat, 2017, p.179).

4.2.4. Military necessity

This principle states that force can only be used against legitimate targets and that any legal weapons system can be used to accomplish the mission, thus allowing the killing of enemy combatants and others when there is no other option. The same principle applies to the destruction of property, but such destruction may not, however, be an end in itself. Weapons systems that cannot be directed to a specific military target are forbidden (Sehrawat, 2017, p.180).

4.3. Non International Armed Conflict

Article 3 of the GCs (CICV, 2016, pp.37-38) and PA II (CICV, 2017, pp.87-115) state that IHL does not recognise any specific category of persons. Therefore, only persons who do not participate directly or who have ceased to participate in hostilities have the right to protection. Since they are not considered combatants or prisoners of war, members of armed groups can be prosecuted under the country's law (CICV, 2015, pp. 28-29).

The International Law Association Committee (ILA, 2010, p.2) has determined that in order for armed conflict to exist, there must be the presence of organized armed groups and clashes with a certain degree of intensity (Alcañiz, 2018).

4.3.1. Organization requirement

The ICTY adopted the following requirements for an armed group to be considered an organization: the existence of a headquarters and command structure, being organized enough to execute military tactics, the existence of designated operating areas, building control points, the ability to acquire, transport and distribute weapons, the ability to speak "with one voice", and the use of spokespersons and public communications (IBAHRI, 2017, pp.20-21).

4.3.2. Intensity

Establishing the level of intensity required for a NIAC to exist requires a casebycase analysis, and the ICTY has identified a series of indicative criteria (IBAHRI, 2017, p.22): the number of combatants, the type and quantity of weapons employed, the number of dead, and the duration and territorial extension of the conflict (ILA, 2010, p.30; Serrano, 2013, p.278).

4.4. International Human Rights Law

According to the UN Global Counter-Terrorism Strategy (UN, 2006), States should ensure that any action taken to combat terrorism complies with their obligations under IL, taking into account the multiple facets of the IHRL and how they relate to drone activity (IBAHRI, 2017, p.34).

The “core” Human Rights refer to fundamental rights such as the right to life and the prohibition of torture or cruel, inhuman, or degrading treatment or punishment, which States are obliged to respect in all circumstances and that can never be derogated from (CICV, 2015, p.37).

4.4.1. Jurisdiction

The first step in determining whether a State has obligations under IHRL is to consider whether the affected individual is under the jurisdiction of that State.

Article 2 of the ICCPR (UN 1966, p. 2) states that States must ensure the protection of individuals “within its territory and subject to its jurisdiction”, which restricts its application to acts practiced within the territory of that State. The Human Rights Committee has determined that a State has jurisdiction outside its own territory if it has effective control over a geographical area of another State, or over prisoners of war or detainees (Alcañiz, 2018). In addition, IHRL is applied to a State “through the consent of the Government of a territory” (IBAHRI, 2017, pp.34-36).

What the law does not allow is that a State commits IHRL violations that it would not commit in its own territory (Heyns et al., 2016, p.825). Therefore, any actions taken by a State outside its territory must comply with IHRL and CIL.

4.4.2. The right to Life

The right to life is a fundamental right under IHRL for which there are no territorial limitations (UNODA, 2015, p.26). According to Article 6 of the ICCPR (UN, 1966, p.4) this principle is binding on all States, as no person can be arbitrarily deprived of his or her life (Heyns et al., 2016, p.819). In accordance with the interpretation of the UN Human Rights Committee⁶, a state can use lethal force outside armed conflict when it enforces the law. Furthermore, the Committee established that such force must be both proportional to the threat and necessary, that is, it must be the only means available to stop a threat. Therefore, the lethal use of drones outside armed conflict is only legal if there are other lives at stake and the urgency of the situation leaves no other choice. This is in line with the interpretation of the European Court of Human Rights (ECHR) (McCann and Others v. The United Kingdom, 1995, p.194) regarding the use of lethal force in law enforcement operations. However, the law is not clear as to the situations in which lethal force can be used against a developing threat. This determination must be done on a case-by-case basis (IBAHRI, 2017, pp.36-37).

⁶ Human Rights Committee, 1982, *General Comment No 6, HRI/GEN/1/Rev.6*.

Likewise, Targeted Killing is only legal in limited cases such as to protect human life and when no other option is available; according to Article 2 of the ECHR (CE, 2010, p.6) this is an absolute requirement when deciding to deprive someone of his or her life (European Parliament, 2017, p.15).

4.4.3. The right not to be subjected to cruel, inhuman, or degrading punishment

Under article 7 of the ICCPR (UN 1966, p.5), drone strikes may infringe upon the right not to be subjected to cruel, inhuman, or degrading punishment. As such, studies are needed to address the psychological impact on the populations of areas of drone activity (IBAHRI, 2017, p.37).

Nowak (2006, pp.830-832 cited in IBAHRI, 2017, pp.37-38) suggests that negligent conduct that leads to suffering can be cruel, inhuman, or degrading. Such an interpretation leaves open the possibility that mental suffering caused by persistent drone overflight may be included in the definition of cruel, inhuman, or degrading treatment, since Article 16 of the CAT does not specifically require intent. Therefore, cruel, inhuman, or degrading treatment can be inflicted even due to negligence.

5. Limits on the planning of UAV operations by the Armed Forces

In this chapter, we will analyse the missions where UAS are used under the principles of IL to demonstrate how the planning of UAS operations is limited by the observance of the rules of IL. A colour key will be used to illustrate this (Figure 6).



Figure 6 – Colour key

The following sequence of analysis was proposed by NATO's *Elementary Course on International Law of Armed Conflicts*, which addresses the applicability of the law (Figure 7).

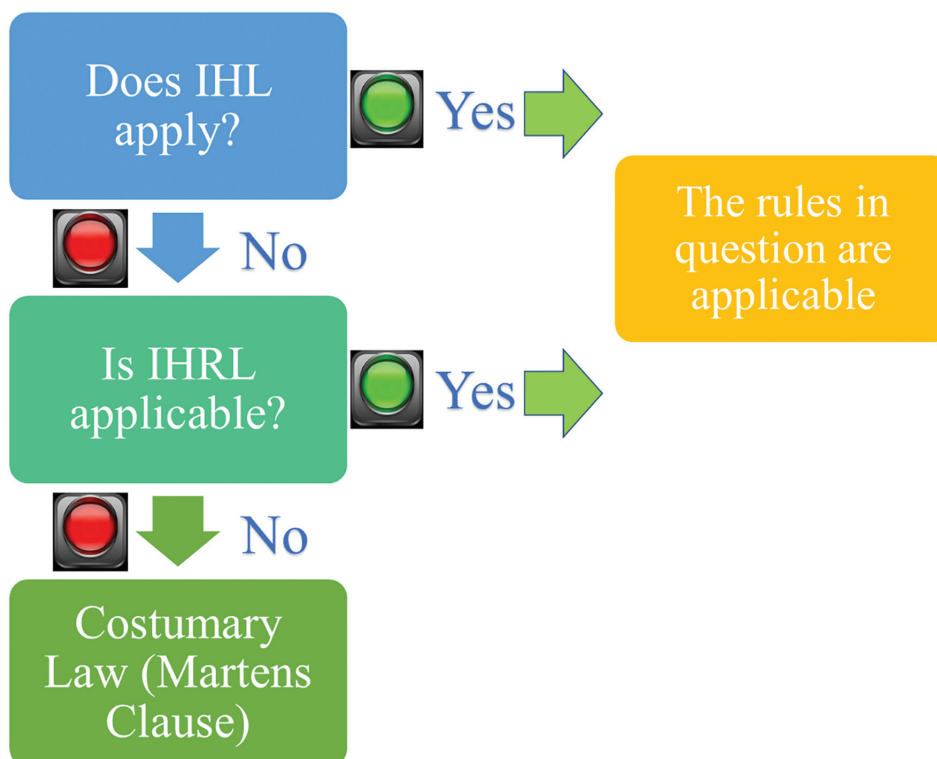


Figure 7 – Applicability of the rules of IHL

Source: NATO (2008 cited in Roque, 2013, p.130).

5.1. Determination of *Jus ad Bellum*

The first phase of analysis is required to determine the legitimacy of *Jus ad Bellum*. However, there is no relation between the cause of the use of force and the manner in which it is used, and the determination of *Jus ad Bellum* must consider which principle of IL authorises the use of force (consent, legitimate defence, or UN resolution). When any of these requirements is fulfilled, UAS are one of the means available and should, in any case, be employed in accordance with IHL.

However, even when force is not used, if UAVs are deployed outside national jurisdiction (Saura, 2014, p.122) in any type of mission, drone overflight is not permitted in the airspace of another State without its consent pursuant to Article 3 of the Chicago Convention (OACI, 1944, p.1).

5.2. Limits on the application of *Jus in Bello*

Figure 8 compares the different UAV missions and the principles of IHL that govern armed conflict, showing the limits imposed on UAS operations in an IAC.

UAS missions	Distinction	Proportionality	Humanity	Military Necessity
C2				
EW				
ISR				
Strike				
Log Sup				
PSYOPS				

Figure 8 - Limits on UAS operations in IAC

Combat actions such as targeted killing and signature strike generate the most controversy, since they imply the use of lethal force against a specific individual (Wuschka, 2011 cited in Magalhães, 2015, p.16).

One of the fundamental aspects of the principles of military necessity and humanity is that only legitimate weapons can be used. The Geneva Protocol of 1925 prohibits the use of chemical and biological weapons (League of Nations, 1925, p.1), which means that UAVs are limited in this regard. However, this does not make UAVs illegal; it merely states that these weapons cannot be used.

As for the principle of distinction, UAVs offer an advantage over traditional systems because they are capable of hovering over a target for long periods of time, thus enabling detailed monitoring when determining whether or not an individual is a legal target (Rushby, 2017, p.33).

With regards to the principle of proportionality, drone strikes that can result in the death of civilians are illegal if such accidental damage is excessive in relation to the concrete and direct military advantage expected (IBAHRI, 2017, pp.24-25). UAVs have the ability to use lighter weapons that create less shrapnel than those used by traditional aircraft (Byman, 2013 cited in Rushby, 2017, p.36). On the other hand, UAV strikes offer only the option to kill or not to kill, without the option of surrender since there are no troops in the ground. However, this dichotomy does not make UAS illegal, although it will limit the decisions of military leadership, which will depend on the value of the target (Rushby, 2017, p.37). This in no way differs from the use of manned attack aircraft.

5.3. Limitations applicable to Non-International Armed Conflict

The principles discussed above apply to NIAC (ICRC, 2015, pp.47-47), therefore, the limitations on the UAV operations depicted in Figure 8 are also valid for this type of conflict.

In a NIAC, the main problem is to determine if an armed conflict exists or if the situation is the result of internal tensions and disturbances such as ‘riots, isolated and sporadic acts of violence’”, which do not fall under the definition of armed conflict (CICV, 2017, p.88). However, NIAC status is determined before force is used, and is entirely independent of the means that will be employed. Therefore, this condition does not limit the use of UAV. The greatest challenge is determining who is directly involved in the hostilities.

The method used to determine whether a person is a direct participant in hostilities, a status that leads to the loss of protections, is of vital importance when assessing the legality of any attacks (IBAHRI, 2017, pp.28-31). To facilitate this process, the ICRC has defined three elements (Melzer, 2010, pp.33 and 46-64) that must be present for someone to be considered a direct participant (Figure 9). States must interpret these definitions and determine whether or not a target can be attacked:

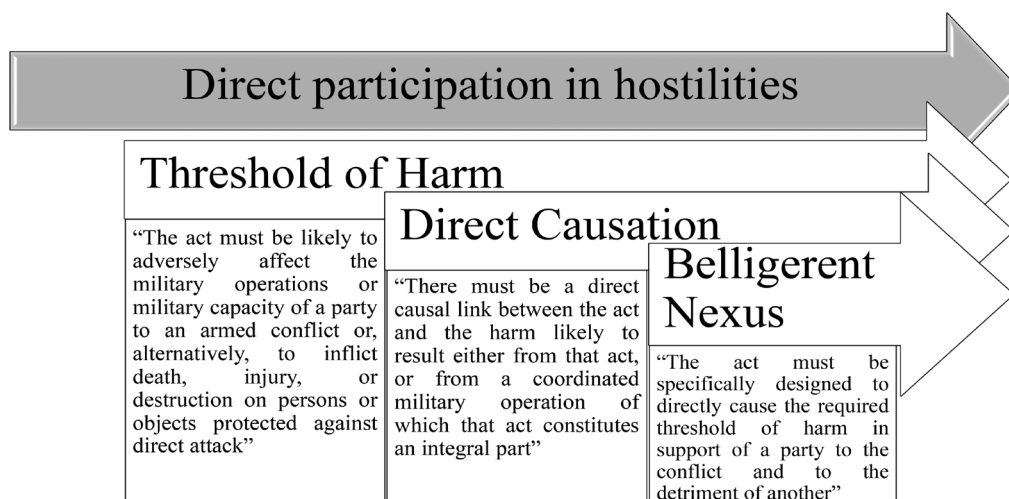


Figure 9 – Direct participation in hostilities

Source: Melzer (2010, pp.4664).

5.4. Limits on the use of UAVs under IHRL

If drone activity sites are located outside a declared armed conflict area, IHL does not apply and the use of these means falls under IHRL. UAV strikes on such locations by a State in the territory of another without their consent or that of the UNSC constitute a violation of IL and of that country’s territorial integrity and sovereignty (PE, 2014, p.4).

UAV operations can be carried out in areas where a State has jurisdiction, in possible actions against terrorism, and in peacetime, and must respect the limitations on the use of UAVs under IHRL, as shown in Figure 10.

UAS Missions	Right to Life		Cruel Punishment	
C2				
EW				
ISR				
Strike				
Log Sup				
PSYOPS				

Figure 10 - Limits on UAS operations under IHRL

There are no limitations with regard to Command and Control and Logistic Support, as these actions do not contradict any Fundamental Rights. As for PSYOPS, whenever the application of IHRL must comply with national laws, the use of UAVs in a psychological operation will be prohibited within NATO countries whenever the populations of those countries cannot be target audiences.

EW and ISR do not infringe upon the right to life in any way, although negligent use may call into question and infringe upon the right not to be subjected to cruel, inhuman, or degrading punishment. The use of drones in these operations requires careful consideration, particularly where that State's law is concerned.

With regard to drone strikes, the use of lethal force must be necessary (last resort), proportional (to protect a life), and regulated by domestic legal standards. IHRL does not permit collateral damage; therefore, whenever there is a danger of striking unintended human targets, the use of lethal force is prohibited (Rushby, 2017, pp.37-38). This does not apply in the case of UAS that carry non-lethal weapons (e.g. tear gas). IHRL doctrine has held that all measures necessary to prevent the use of force should be taken during the planning phase (McCann and Others v. The United Kingdom 1995, p.29).

Conclusions

This study aimed to understand how PIL limits the operations of the AAFP with respect to the use of UAS. To that end, the following RQ was formulated: To what extent does PIL

affect the planning of military UAS operations within the context of armed conflict or in counterterrorism operations?

The first and second chapters systematised and discussed the methodology used in the research. Concurrently, a conceptual body was developed to standardise the concepts used in the study.

The methodological approach consisted of inductive reasoning based on qualitative analysis and a case study research design. A socio-legal typology was also used to address the areas that deal specifically with IL, and the research was supported by documentary data.

The third chapter described how UAS are used in armed conflict or counterterrorism operations. UAS are proliferating across the spectrum of military conflict and are mainly used in ISR and combat missions, as well as for Command and Control and Logistics Support. The research revealed that, in order to determine what are the limitations on use of UAVs under PIL, the primary focus of analysis should be the missions involving armed UAVs.

Although these systems can be used in any scenario, they are currently deployed to areas where armed conflict exists or in isolated actions in areas of activity that harbour various armed terrorist groups, although officially no armed conflict exists.

In addition to ISR missions to gather intelligence on potential targets, the targets against which UAVs are employed are isolated individuals who are members of non-state armed groups or terrorist groups.

The fourth chapter described IHL and IHRL in the context of UAS operations. It was revealed that there is no specific law regulating UAS and that the legal basis for UAV use is based on the IL framework in which they operate. Thus, for each mission, the aspects of IL that apply must be carefully determined.

Like any other weapons system, UAS operations under IHL are legal if there is legality in the use of force – *Jus ad Bellum* –, and if force is used in a way that does not violate *Jus in Bello*.

Therefore, the requirements that must be met before any UAS operation can be deployed are: the consent of the appropriate authority, the existence of a UN resolution under Chapter VII, or if selfdefence has been invoked in the face of an attack by another State or an armed group.

Any violations of the applicable international laws will render the strike illegal, so all actions involving UAVs are limited by IHL. Thus, for each mission, it must be assessed if the principles of distinction, humanity, proportionality, and military necessity, which apply to IAC and NIAC, are respected. In the case of armed conflict, IAC must be differentiated from NIAC, since the protections afforded under IHL are different for each situation.

As for IHRL, respect for the right to life and the right not to be subjected to cruel, inhuman, or degrading punishment are a permanent requirement. In any of these cases, UAS can only be used when the State has jurisdiction over the intended targets.

The right to life limits any use of UAVs to non-lethal operations unless they are employed to protect another human life. As for the right not to be subjected to cruel punishment, several authors consider that the psychological effects of continuous UAV overflight on certain areas can be considered cruel punishment.

Finally, the fifth chapter analysed the impact of PIL in the planning of UAS operations by the AAFF. The range of possible UAS actions were compared against the principles of IHL and IHRL, and the planning limitations imposed by the principles of the Law were discussed.

It was determined that the capabilities of these systems are limited by the requirement of compliance with IL, and that those restrictions are particularly strict in the case of drone strikes. This limitation means that extremely detailed planning is required to comply with the principles of IHL, in particular those of distinction, proportionality, humanity, and military necessity.

In NIAC, special care should be taken to distinguish individuals directly involved in hostilities and non-participants whenever PIL does not provide a concise definition of what constitutes participation in hostilities. It should be emphasised that only participants in hostilities can be targeted.

In cases when IHRL applies in peacetime, the protections afforded by law are greater. Therefore, even if states have jurisdiction over the terrorist targets of their operations, the use of lethal force with UAS is prohibited, except where there is danger to the life of others and when there is no other option. Even in these circumstances, at no time can these targets be subjected to cruel, inhuman, or degrading punishment.

Having achieved the different SO, the GO is thus accomplished and two main conclusions can be drawn, which provide the study's main contributions. First, there is nothing inherently illegal in UAS. Their use is legal if it complies with the applicable IL. It is up to the States, commanders, or operators to decide, on a case-by-case basis, if such use complies with IL. UAVs are not weapons of war, but an aerial platform from which weapons are deployed.

Second, the data showed that there is a wide range of legislation regulating the operation of these systems in the different scenarios where UAS are employed. It was found that, whenever UAS are used, it is necessary to verify what laws apply because, depending on the legal framework, the status of some operations may change from authorised to prohibited.

The main contribution of this investigation is the fact that military UAS operations must be conducted according to the flowchart in Figure 11, which shows how UAS can be used in the projected scenarios and the limits imposed by IHL and IHRL, especially in the missions marked in yellow in Figures 8 and 10.

Furthermore, the study provided a discussion about IL, which focused on the importance of correctly interpreting and applying its principles and revealed that different legal concepts, such as the definition of armed conflict, are formalised in the judgments of certain international courts. It was also found that some concepts are not clearly defined because they are difficult to measure, giving rise to different interpretations that could provide arguments for States to justify the use of UAS. In light of the results obtained, it is recommended that certain concepts be revised, namely the concept of armed group, the limit necessary for an armed strike, proportionality in selfdefence, proportionality in *Jus in Bello*, unnecessary suffering, and what constitutes direct participation in hostilities.

As for suggestions for future research, this study raised questions that will be relevant in the near future: the dialectic between the use of autonomous systems equipped with artificial

intelligence and the issues surrounding the application of IHL to machines with autonomous decision-making capacity, which do not yet exist but are likely to be developed in the near future. According to the interviewees, the possibility of using fully autonomous systems endowed with artificial intelligence and the ability to make their own decisions, which could be responsible for violations of IL, is an issue that has not yet been raised before a court. The question, then, is whether a loophole exists and whether IL has to be broadened to integrate autonomous systems.

UAS are a reality in today's society. As a legal weapons system, and like any other system, their use falls under IL. However, since drone use has been associated with selective killings, UAV operations have met with considerable controversy as far as their legality is concerned. When analysed from the perspective of human decisions, the legality of drone actions should not be sufficient to invalidate a system from which considerable benefits have already been drawn.

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