

The Militarization of Outer Space as a Factor of Innovation of International Humanitarian Law: A Comparative Research

*Alexsandro Souza de Lima**

Abstract

Humanity, in more recent years, has witnessed a dramatic acceleration of changes in various aspects of life. The various technological advances throughout history have their effects in many different fields of science, among which International Humanitarian Law (IHL) is not exempt. In addition to customary norms, IHL has been codified in various treaties. It should be also noted that other normative instruments have been dynamically inserted within the scope of IHL, with the purpose of following the evolution of war technology, linked to the reception of humanitarian issues by States, standing as additional protocols. However, there is controversy about the need to update IHL in the face of certain new technologies, even though they may make belligerence possible in other environments, such as cyber and outer space. At this point, some theorists argue that the principles enshrined in that branch of law are sufficient to cope with the aforementioned developments. However, practice has shown that these new war like scenarios have raised doubts in the international community as to the applicability of IHL in certain circumstances that were previously unexplored. For this reason, efforts have been made to understand the topic, resulting in documents that, if not binding, at least bring a guiding character to the issue. It is, therefore, this theme that this research project addresses, seeking to identify the need to update the IHL due to the novelty of the considered environment.

Keywords: International Humanitarian Law, Outer Space.

* Alexsandro Souza de Lima, Outer Space Affairs Monitoring Department, Institutional Security Office of The Presidency of The Republic of Brazil.

1. Introduction

Humanity, in recent years, has witnessed a vertiginous acceleration of changes in various aspects of life, especially in available technology, that transforms and transcends relationships between people. The volume and quality of information available have reached levels previously thought as utopia, but which have become gradually incontestable.

The various technological advances throughout history reverberate its effects in different fields of sciences, including Law. At the mercy of such effects, there is the International Humanitarian Law (IHL), a Public International Law branch dedicated to regulate the use of force in international conflicts.

The International Humanitarian Law, also known as the Law of Armed Conflict (LOAC), consists of a set of rules intended to limit the consequences of an armed conflict. It is referred as being of customary origin, marked by regionalized coding initiatives. However, it was from the efforts of Henry Dunant, a Swiss businessman who was deeply touched by the suffering he witnessed at the Battle of Solferino, in 1859, that the first internationally accepted treaties came to light.

Following the customary law, IHL has been codified in several treaties, such as the Geneva Conventions, which address the protection of certain groups of people, and The Hague Conventions, which refer specifically to the conduct of hostilities. In addition to that, Protocols I and II to the Geneva Conventions address both fields mentioned before.

It should be noted that other regulatory instruments have been dynamically inserted into the framework of IHL, with the purpose to follow the evolution of the technology of war, tied to the receipt of humanitarian issues by the international community.

However, there are controversies about the need to update IHL to certain new technologies that allow belligerence in other environments, such as cyberspace and outer space. About that, some theorists advocate that the principles enshrined in that branch of law are enough to face the aforementioned developments. On the other hand, practice has shown that those new scenarios of war have produced doubts in the international community regarding the applicability of IHL in certain circumstances, yet unexplored.¹

Fomented by those different understandings, efforts have been made to address the question, resulting in documents which, if not binding, at least bring guidance to the issue. Such is the case, for instance, of the Tallinn Manual, tailored to identify the adherence of IHL to the so-called cyber war.

1 Steer, Cassandra. Why Outer Space Matters for National and International Security (January 8, 2020). Center for Ethics and the Rule of Law Papers, University of Pennsylvania Law School, 2020, Available at SSRN: <https://ssrn.com/abstract=3604805>.

In a similar manner, McGill University, Canada, in conjunction with University of Adelaide, Australia, have embarked on a joint project called MILAMOS, whose purpose is to edit a manual concerning the application of IHL and the space law to the military use of outer space in peacetime.

In addition to that, it is worth to remark the efforts made by the Woomera manual project, conducted jointly by the University of Adelaide, the University of Exeter, the University of Nebraska College of Law and the University of New South Wales in Canberra, among other partners across the globe. The purpose of the Woomera Manual, as stated by Steer,² is to provide clarity on the rules applicable to military activities in space, particularly on the use of force and the law of armed conflict.

It is therefore upon this issue that this proposal falls, the application of international humanitarian law in outer space, driven by the following general and specific objectives.

1.1. General objective

This research proposal aims at identifying the need of IHL updating, concerning the use of outer space for acts of aggression by international actors, facing a possible insufficiency of existing rules to deal with such a context.

1.2. Specific objectives

In order to pursue the main objective described before, this research aims at:

- a) making a review of space law literature in order to identify the aspects of the law relating to the military use of outer space;
- b) making a review of IHL literature in order to identify the applicability of IHL to outer space;
- c) identifying whether there are gaps in the application of IHL to outer space;
- d) identifying how technological innovations of the past have influenced to IHL updates; and
- e) identifying whether the use of military space systems for belligerent purposes has similar elements to past technologies, which entailed changes in the IHL.

1.3. Research background and motivation

When it comes to outer space, it is important to note that humankind has dramatically increased its dependence on satellite systems, whether in security, leisure, economy, education or entertainment. As asserted on the website of MILAMOS Project,³ the breakdown of the space infrastructure in

² Ibid.

³ McGill. About MILAMOS. Retrieved from: <https://www.mcgill.ca/milamos/about>. Accessed 1 August 2020.

which that dependence has been built could bring devastating impacts on a global scale.

Regarding the conduction of hostilities between states, IHL, with its humanitarian aspect, which aims to protect the innocents, has an important role to play. If this role is weakened by the existence of legal gaps, where the protection of the interests of people not involved in fighting would be lessened, that body of rules would lose its effectiveness in the role of, facing the odious social phenomenon that is the war, protecting the broader interests of human race.

In this respect, it is important to understand that IHL is the law applicable in the war, the so-called *Jus in Bellum*, and does not lend itself to consider the reasons for the occurrence of a conflict. Humanitarian in its essence, IHL has as its fulcrum the alleviation of human suffering on the occurrence of an armed conflict, either in the protection of groups of individuals or legislating on means and methods of warfare.

Such reasons points to the importance of the research proposed herein, given that the sufficiency of current IHL rules for military actions involving the outer space doesn't find consensus at the global level, what brings uncertainty to the application of this body of rules to that scenario.

Although the theme is discussed in the specialized environment, there are no incontestable understanding of the matter, what makes this research, by proposing a comparative study with other elements that gave rise to the update of IHL in order to follow humanity's technological development, interesting to hold high potential for contribution to education, training and learning of the subject.

At this point, it is worthy to mention some considerations concerning the background and motivation of the proponent to conduct the presented research. This author is a retired Colonel at Brazilian Air Force, where has worked as a legal adviser concerning international law and strategic adviser concerning space systems. The author is able to transit between such different roles due to a particular academic formation, which encompass a bachelor degree in Aeronautical Science, a bachelor degree in Law and a master in Engineering. The author academic background also includes short courses on international humanitarian law at Turkish Partnership for Peace Training Center (Ankara), International Institute of Humanitarian Law (San Remo) and *Bureau du droit des conflits armés* (Paris).

It is our belief that the dual use of outer space (civil and military) addresses new approaches for IHL, new challenges that cannot be accomplished by the conventions and protocols already in use. In that manner, this research project aims to conduct a comparative study, trying to show how innovations, in the past, have forced some alterations onto the regulations of IHL, and how those "drivers" are present nowadays, making the regulations

that we have at the moment insufficient to deal with all the challenges that the use of outer space encompasses.

1.4. Research limitations

The research is not intended to convey the solutions to be adopted for the update of IHL at the use of the belligerent outer space, by means of a proposal in writing of additional standards. It is limited only to identify the need for updating, in view of the controversy that exists on the subject, which hitherto had not been resolved among the experts.

2. Literature review

This chapter aims to present relevant theoretical references to international humanitarian law. Similarly, it sets out aspects relating to space law, as discussed by references considered relevant for this purpose. In this manner, the relationship between the both branches is addressed. Finally, the militarization of outer space is discussed, in the sense of the presence of military artefacts in that environment and how it challenges the application of IHL.

2.1. International humanitarian law

International humanitarian law is formed by a group of rules that aims to limit the effects of armed conflict. It seeks to protect people who do not or no longer participate in hostilities. It protects civilian proprieties, important to their owners, in particular, as well as elements that have value to humanity in general, as the cultural property and the environment. It also seeks to limit the suffering caused to combatants, by limiting the means and methods for employment in the fighting.⁴

The principles of IHL can be found in literature, sometimes with small variations regarding the adopted taxonomy, as follows:

- a) Humanity: all people should be treated with dignity, without discrimination based on sex, nationality, religion or political belief;
- b) Military necessity: is connected directly to the necessary and sufficient use of force to obtain advantage in certain attack
- c) Limitation: prohibits the use of means and methods of warfare that may cause unnecessary suffering.
- d) Distinction: refers to the distinction between persons and property that may or may not be objects of attack; and
- e) Proportionality: when legitimate targets are attacked, civilians and civilian objects must be spared and the collateral damage minimized.

4 ICRC. What is international humanitarian law. 31 January 1998. Retrieved from https://www.icrc.org/por/resources/documents/mis_c/5tndf7.htm.

To investigate the relevance of the principles of IHL into outer space, Freeland argues that those are applicable to military use in that context.⁵ In the author's opinion, there is no territorial limitation, in the laws and customs of war, on IHL application that addresses wherever hostilities take place, as well as other areas that may be affected by the conflict.

However, the author asserts that, given the peculiar nature of outer space, the principles of IHL, designed to regulate the land fighting in armed conflict, are neither specific enough nor fully appropriate in relation to military actions in outer space.

In fact, as explained by that author, countries are increasingly dependent on space technology to maintain and increase the standard of living of its citizens. The non-military use of outer space seems to be vital for the survival of humankind. However, at the same time, many of the satellite services provided are also used for military purposes, which denotes the dual use of technology. In theory, that could be identified, in case of conflict, as lawful military targets (principle of distinction), but with consequences difficult to measure, in case of attack, endangering the principle of proportionality.

Thus, although the parties in conflict should make every effort to apply the existing principles to the case in question, the unique characteristics of the outer space, where civil and military uses of satellites develop crucial activities for all involved, the need for more specific rules emerges, in order to provide a comprehensive approach to protect humanity from catastrophic consequences that the use of outer space as a theatre of war could bring.

2.2. Space law

As said by Lyall,⁶ in a broad sense, space law can be understood as a set of interrelated standards that apply, or even govern, human interactions and activities in relation to outer space. Those authors argue that the need for such a set of rules emerged with the launching of the first artificial satellite, SPUTNIK I, in 1957.

According to Freeland, the launch of the Soviet space artifact Sputnik I has marked "the dawn of the space age, the space race between the United States of America and the Union of Soviet Socialist Republics (USSR) and the legal regulation of the use and exploitation from outer space".⁷ So, from that

5 Freeland, S. Legal Regulation of the Military Use of Outer Space – what role for International Humanitarian Law? In: *Proceedings of The Bruges Colloquium Technological Challenges for the Humanitarian Legal Framework*. 11th Bruges Colloquium. 21-22 October 2010. pp. 87-97. Retrieved from: https://www.coleurope.eu/sites/default/files/upload_s/page/collegium_41_0.pdf.

6 Lyall, F. & Larsen, P.B. *Space Law: a Treatise*. New York: Routledge, 2016.

7 Freeland, S. Legal Regulation of the Military Use of Outer Space – what role for International Humanitarian Law? In: *Proceedings of The Bruges Colloquium Technological Challenges for the Humanitarian Legal Framework*. 11th Bruges

moment, a technological escalation has started, affecting the standard of living of the human species through, for example, facilitation of public services by telecommunications satellites, global positioning systems (GPS), remote sensing technology for weather forecasting and disaster management and television stations broadcasting.

As pointed by Freeland, despite of the Soviet Union has not requested any international authorization for the launch of Sputnik I, there were no complaints from the international community as to the infringement of any country's sovereignty, making clear the operation of a new frontier of human activity, outer space, in which the concepts of this sovereignty, already well established in regard to the regulations of maritime, land and air spaces, found no resonance.

Continuing on his observations, Freeland informs that, since then, multilateral initiatives have been taken, establishing a considerable body of legislation to deal with the various aspects of the use and exploration of outer space. Among these are the following:

- a) Treaty on principles governing the activities of States in the exploration and use of outer space, including the moon and other celestial bodies (Outer Space Treaty, signed in 1967. Enacted in Brazil by Decree n° 64.362 of April 17, 1969;
- b) Agreement on the rescue of astronauts and return of astronauts and objects launched into outer space (signed in 1968. Enacted in Brazil by Decree n° 71.989 of 26 March 1973);
- c) Convention on international liability for damage caused by space objects (signed in 1973. Enacted in Brazil by Decree n° 71.981 of 22 March 1973);
- d) Convention relating to the registration of objects launched in outer space (signed in 1975. Enacted in Brazil by Decree n° 5.806 of 19 June, 2006); and
- e) Agreement governing the activities of States on the Moon and other celestial bodies (Signed in 1979. Not ratified by Brazil).

The author also states that, as a principle of space law, the use and exploration of outer space should be for peaceful purposes. However, this term has brought controversy about whether addresses a non- militarization, in the broad sense of the use for military nature activities, or not aggressive, as the use of military force itself.

Freeland points out that the regulatory regime so far has not met the already existing technological and commercial cadence that involves the use of space. In this regard, the dependence of nations on space assets has grown, a seemingly

irreversible trend.⁸ It would, in the author's view, naive to ignore the reality of the military presence in space, a fact already incontestable, which should, on the other hand, identify what needs to be done to provide, at least from a regulatory point of view, a framework able to protect humanity in the future.

Thus, despite an elaborate body of laws regulating the initiation and conduct of hostilities in the terrestrial context, the interpretation and extension of the application of this body of law in outer space has never been comprehensively and objectively addressed. In light of the various efforts made to address the issue, there is a broad consensus that the rule of law in outer space should be strengthened. There should be greater certainty about how to avoid, or at least minimize, the serious and widespread impact of such conflict in outer space.⁹

According to Monserrat Filho,¹⁰ concerning that issue, what is on the agenda today and in the coming years is whether the outer space will be or not transformed, as have been the earth, the sea and the air space, in the theatre of all forms of military action, including the use of weapons.

2.3. The militarization of space

The first "Gulf War" is recognized in the literature as the first "space war", given the dependence of military operations in outer space based resources, such as satellite communications and imaging for planning and evaluation of military operations. Since then, as pointed out by Stephens and Steer,¹¹ military doctrine accepted as conceivable that future wars will be fought from, through and even in outer space.

According to those authors, the Outer Space Treaty prohibits the placement of nuclear weapons or any other weapon of mass destruction in orbit around the Earth, on other celestial bodies or even in space. However, apart from this prohibition, the states are not prevented by any treaty or customary international law on the use of other types of weapons in space.

In addition, although the Article IV of the Outer Space Treaty assures that the Moon and other celestial bodies are to be used for peaceful purposes, there is consensus that such uses address only non aggressive acts, which allows many military activities related to the outer space to be considered acceptable in the light of that treaty.¹²

8 Ibid.

9 McGill. About MILAMOS. Retrieved from: <https://www.mcgill.ca/milamos/about>. Accessed 1 August 2020.

10 Monserrat Filho, J. Aggression in outer space. In: *Brazilian Space Law Journal*. Retrieved from: <http://www.sbda.org.br/revista/Anterior/1737.htm>.

11 Stephens, D. & Steer, C. Conflicts in Space: International Humanitarian Law and Its Application to Space Warfare. 22 January 2016 *McGill Annals of Air and Space Law*, Vol XXXX (2015); Rumlae Research Paper No. 16-18. Retrieved from: <http://ssrn.com/abstract=2722315>.

12 Ibid.

On the application of IHL to conflicts involving outer space, those authors also comment:

In assessing how IHL would apply to regulate warfare from, through and within space, it is first critical to assess whether existing IHL does indeed even apply to that environment. This question may seem paradoxical, since the density of regulation in this field would intuitively lead to the conclusion that it would apply, yet this is not so self-evident. The conduct of warfare and its legal regulation has been largely compartmentalized into theatres on land, at sea and in the air. While there is obvious overlap, since many conflicts are fought over geographical boundaries and across land, sea and air, and while general legal principles apply across all environments, it is still possible to conceive of a differentiation between each. There is no stand-alone regulation of warfare in space; in fact, the space environment finds very limited expression in the existing corpus of IHL.

Therefore, this statement shows the existence of gaps on the applicability of IHL to conflicts where the use of outer space plays a role. If it is not possible to assert that the existing rules are sufficient to deal with the issue, there is undoubtedly room for investigating the need for new specific rules.

3. Methodology

Silva defines research as “a set of actions, proposals to find a solution to a problem, which are based on rational and systematic procedures.”¹³ For those authors, the key elements of a research are the problem whose solution is not yet known and the information that need to be pursued for the sake of meeting a solution to the proposed problem. According to Oliveira, “scientific research is the way we seek to build scientific knowledge. It comprises finding, selecting, structuring and solving problems relating to the human being.”¹⁴ This proposal can be classified as an applied research. Thus, the objective is to reach a practical application of knowledge from the literature, identifying gaps in international humanitarian law in the context of the military use of outer space.

As to its approach, the proposal is characterized as qualitative. Therefore, it will not require application of methods and statistical techniques. It is exploratory regarding its objectives and its technical procedures, based essentially on literature and documentary research, with a view to understanding the problem presented.

13 Silva, E.L.; Menezes, E.M. *Research methodology and preparation of dissertation*. 4th ed. Florianópolis: UFSC, 2005. Retrieved from: http://tccbiblio.paginas.ufsc.br/files/2010/09/024_Metodologia_de_pesquisa_e_elaboracao_de_teses_e_d_issertacoes1.pdf. Accessed on 27 August 2007.

14 Oliveira, M.S. Methodological guidelines for broad sense of monographs. 2003. Retrieved from: <http://www.prrg.ufla.br/Legis/Orientacoes%20monografias%20versao%20portal%2003.pdf>.

4. Schedule of Activities

In order to develop the work described above, it is proposed a four-year period, as follows:

Year	2021	2022	2023	2024
Compulsory subjects	x	x		
Literature review	x	x		
Identifying applicability of IHL to outer space.		x		
Identifying gaps in the application of IHL to outer space		x		
Identifying how technological innovations of the past gave rise IHL updates.		x	x	
Identifying to what extent the use of military space systems has similar elements to technologies which entailed changes in the IHL.		x	x	
Thesis writing		x	x	x
Review of work				x
Thesis presentation				x

5. Estimated budget

In order to cope with the research needs, we present the following table showing the expected costs.

DESCRIPTION	ANNUAL (USA \$)	SCHOLARSHIP PERIOD (USA \$)
Bibliographic acquisition	500,00	2,000.00
Participation in seminars and conferences, including travel costs.	1,500.00	6,000.00
Laptop		2,000.00
E-book reader		300,00
Printer		300,00
Printer cartridges	100,00	400.00
Ream paper	50.00	200,00
Dissertation Binding		50.00
WHOLE EXPENSES		11,250.00