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## **LEGAL ASPECTS OF SATELLITE TELECOMMUNICATION WITHIN GEOSYNCHRONOUS ORBITAL SLOTS REGARDING INTERNATIONAL ORGANIZATIONS**

### **Abstract**

Regarding satellite telecommunications, the critical legal theory of the generally accepted notion of international organizations tends to reflect the problems and issues in relation to the specific regulation of transnational services as a common good, which simultaneously begin to surface in the international community.

Particularly focusing upon the legal aspects of the International Telecommunication Union (ITU) as well as the similarities and differences it share compared to other international intergovernmental organizations with an identical purpose, this paper tends to thoroughly analyze numerous issues in regards to the regulations of the geosynchronous orbit as a natural, yet limited and even scarce resource, and within it, the availability of orbital slots that contain national communication satellites.

Possibility of exploitation, attempts of privatizing extraterrestrial real estate, manifestation of extraterritorial jurisdiction in comparison to its universal distinct and the significantly hazardous notion of space congestions all represent a realistic representation of what

international law fails to appropriately regulate so far in terms of satellite telecommunication, which should be regarded as a global service, instead of its deliberate limitation.

**Keywords:** ITU, satellite telecommunication, international organization, space law, orbital slots

## INTRODUCTION

Human communication is often regarded as unique in comparison to other species due to its abstract characteristic as well as representing important means of sending and receiving information. However, as our civilization has significantly developed over the past centuries, technology has contributed toward the progress in telecommunication and more importantly, satellite telecommunication. In other words, communication satellites play a crucial role in our modern society by their utilization related to television, internet, telephone and other necessary aspects of which everyday life is ordinarily consisted. And as we live with them, most either ignore, or are ignorant of, the substantial body of international law and less formal agreements that underlie modern international communications.<sup>1</sup> (Lyall 2011)

This type of essential requirement is primarily manifested by the extraterrestrial application of communication satellites. Although this may seem as a straight forward notion, there is a high potentiality regarding a mutual combination of natural and social issues, along with a particular emphasis on certain legal aspects in the field of international law.

To carry out a communication function, satellites need to be placed in a certain orbit and use the radio-frequency spectrum, both being limited to natural resources. Access to such increasingly sought –for parts of outer space, which are not subject to national appropriation and require rational, efficient and economical use in an interference-free environment, is managed by the International Telecommunication Union (ITU) – the United Nation’s specialized agency for information and communication technologies. (Elina Morozova 2019)

Although the global community is aware of the considerable amount of international organizations that are currently providing and regulating various services and activities, this paper primarily tends to analyze the legal aspects and issues of ITU as one of the oldest global international organization which among other areas, is specifically involved in assigning satellite orbits for basic telecommunication purposes. In addition to this, the specific regulation of satellite telecommunications often result in the contradiction of rather more traditional legal matters, such as clash of state sovereignty, given the fact that, after all, every international organization is consisted of multiple member states and their domestic laws respectively.

However, in order for us to analyze the legal aspects of ITU, principally, we must review the legal constitution issues related to international organizations and how they reflect upon the international regulation of satellite telecommunication.

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<sup>1</sup> Ignorance, defined as lack of knowledge or information related to international space law, in this case cannot be entirely interpreted as intentional, since international organizations in fact regulated these activities and services, however, that same regulation is not entirely complete, as it tends to miss significant aspects of both natural and social origin.

## CRITICAL LEGAL THEORY: PROBLEMS OF TRANSNATIONAL SERVICES AS COMMON THINGS

When it comes to defining an overall international legal personality, among other international organizations, the ITU also seems to lack rational from a theoretical standpoint. This notion is consisted of unsolved issues which are manifested by the very essence of satellite telecommunication as a service. In other words, when applied, such legal powers cannot be easily limited or explicitly granted due to the fact that the interests of the global community must be taken in consideration. Therefore, individual non-member states are perceived as isolated, figuratively speaking.

Overriding the concept of human heritage<sup>2</sup> cannot be in compliance with the general purpose of international organizations as social constructs that provide the realization of any kind of good, activity or service. Put in another way, the common definition of an international organization does not possess the legal capacity to delimit benefits that are entitled to all humanity. This legal fallacy partly depends upon the characteristic of international organizations being generally created between states or as their abstractions. However, this form of discrimination could also be linked in terms of the derivative of the international organization. Namely, although it is indicative for the derivate to be recognized as a treaty, not all organizations derive directly from a treaty, though. Some have been created not by treaty, but by the legal act of an already existing organization. (Klabbers 2002)

Consequentially, ITU represents an exemplary outcome as an organization by resolution from the United Nations General Assembly. The legal status and structure of ITU does not promote complete or absolute unification in terms of the concept of common heritage, but rather through the awareness of promotion, primarily aimed towards international cooperation, a notion that can be perceived and interpreted as quite nebulous. In regards to its legal framework respectively, the founding document of the ITU is entitled as the “*Constitution and Convention of the International Telecommunication Union*”, dating from 1992.

Being an international treaty, it has been signed and ratified by almost all countries of the world however this alone does not guarantee the lack of national discrimination. Additionally, its purposes are not entirely in accordance with the nature and origin of satellite telecommunication as part of the many services of ITU.

Common heritage of mankind, as a principle of international law, is known for fundamentally defining elements and territorial areas as humanity’s common heritage from both natural and cultural standpoints. And while certain territorial areas are indeed validly recognized and internationally accepted as common heritage in theory, there are, however, potential applications to the concept that have been often argued. In particular compliance with the focus of this paper, equatorial countries have already proposed that

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2 The concept of human heritage mainly refers to the Latin term “*res communis omnium*” derived from Roman law. Its purpose is to represent and define the Geosynchronous orbit within outer space as part of the common heritage of mankind, otherwise known as a notorious principle in international law.

the geostationary orbit located over the high seas, should be equally recognized a common heritage of mankind.<sup>3</sup>

In order for international law to adequately analyze this request, above anything else, it must take the physics of satellite placement in consideration;

Arthur Clark had famously proposed the concept of geostationary satellites in 1945: If a satellite were placed above the equator at an altitude of about 35,786 km, it would orbit at the same rate as Earth's rotation, such as the satellite hovered above a specific point on the ground. (The Nation 2019)

That being said, it should be concluded that there are actually two crucially intertwined elements that need to be considered *res communis omnium* from a legal point of view: Geostationary orbits (considered as potential extraterrestrial real estate) and Electromagnetic spectrum (for satellite telecommunication).

It cannot be explicitly stated that the purposes of ITU are defined as a common heritage for mankind, despite that fact that it also includes satellite telecommunication in its primary services. This characteristic should be changed from an international standpoint whenever the nature and origin of a certain good possesses relatively high potential in terms of determining the validity of a certain international organization, such as ITU.

Technological advancements conducted by current standards of the ITU simultaneously lead toward the notion of global inequality, in respect of the geostationary orbit and electromagnetic spectrum as transnational domains.

Consequently, this issue could cause particular manifestations in concerns to national discrimination. In other words, concerning the relations with non-member states, Article 53 states that: *"each Member State reserves for itself and for the recognized operating agencies the right to fix the conditions on which it admits telecommunications exchanged with a State which is not a Member State of the Union"* (Constitution and Convention of the International Telecommunication Union 1992)

According to the abovementioned article, it is logical to conclude that this approach toward non-member states of the Union demonstrates subjectivity with reference to a potential application of *res communis omnium* in terms of international regulation as well as the manifestation of an unequal treatment in contrast to domestic law.<sup>4</sup>

The major difference between the legal concepts of obligatory and optionally is quite obvious in this scenario, where the term "right" reserved by the member states is used to describe a non-compulsory national will which opposes the actual meaning of a universal right to satellite telecommunication, often directed towards developing countries, since it is essential for the existence of a modern civilized society. In other words, many consider the universal access to satellite telecommunication as a human right available to every world country, no matter their financial, economic or scientific development. Moreover, the optional will of the member states of the Union does not represent a proper international

3 This request officially refers to the Declaration of the first meeting of Equatorial Countries in Bogota, Republic of Columbia, from 29 November through 3 December, 1976 with the primary purpose of considering the Geostationary orbit as a natural resource and be declared as a common heritage of mankind simultaneously.

4 The general term serves as a reference to every domestic law individually regarded by the member states of the Union, which supposedly have the right to regulate conditions regarding satellite telecommunication with non-member states of the Union.

communication between ruling authorities of sovereign states which should simultaneously manifest global equality on an international level.

The conception of satellite telecommunication can be further explicated through its definition as a public service on one hand, and as a global service on the other. These definitions should be distinguished by domestic law and international law, while emphasizing the strict and proper application and meaning of “state sovereignty” in predicted and limited cases.

Namely, in regards to satellite telecommunications as a public service provided by the state, state sovereignty<sup>5</sup> should be manifested as a right of each nation to determine the legal organization of satellite telecommunication within its territory through domestic law. However, this right should not only apply specifically to the member states of the Union, but to all world nations globally.

On the other hand, in regards to satellite communication as a global service provided by the principles of international law, the concept of common heritage of mankind should also be manifested as a right but not in the terms of state sovereignty. Put in another way, the access of satellite telecommunication is perceived to be provided by a transnational area or territory, where the regulations of privatization do not apply. Due to its origin, the abovementioned service, consequentially, represents an “inherited” right manifested in a universal manner.

That being the case, the binary question concerning satellite telecommunication as a public service versus a global service, should simultaneously provide a legal balance between the adoption of rules, as well as setting the boundaries concerning domestic law realized through state sovereignty and international law realized through the principle of common heritage of mankind. As for the role of international organizations such as the likes of ITU, it should be concluded that their current definition is limiting in respect of the conception of satellite telecommunication.

#### ALLOCATING THE GEOSTATIONARY ORBIT IN A LEGAL MANNER - POSSIBILITY FOR EXPLOITATION

Another essential characteristic regarding the principle of common heritage is that considered areas and resources must be protected from exploitation by individual corporations or national states. And while it does not seem entirely appropriate to consider individual corporations, there is a high potentiality for the notion of national states to be specifically associated with the structure of international organizations. This logical presumption is derived from the factuality of an international organization being consisted of certain and individual member states.

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<sup>5</sup> The concept of state sovereignty has a double interpretation. While it originally represents the complete manifestation of control over satellite telecommunication as a public service within a certain territory, it should simultaneously represent the global equality among world countries, additionally applying to the fact that satellite telecommunication, consequentially, require universal access and regulation as well.

In addition, the ITU, as an international organization itself, tends to manage the space ownership issue by the allocation of slots for satellites located in the geostationary orbit.

Going back to ITU's founding document, regulations concerning the use of radio-frequency spectrum and of the geostationary-satellite and other satellite orbits seem to gravitate toward a less formal "obligation", specifically stated in article 44 (2):

*"In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries."* (Constitution and Convention of the International Telecommunication Union 1992)

The content of this article can be more associated with the definition of a legal guideline<sup>6</sup> rather than an obligation which should manifest global equality. And following a legal guideline is never mandatory, which consequentially leaves member states of the Union with the opportunity to conduct acts of exploitation by articles of a legal document that are in no way legally binding. Moreover, the attempts of the Bogota Declaration to assert sovereignty over the geostationary orbit have been largely abandoned, prior to the lack of international recognition and support. In addition to this, one of the main conclusions brought by the abovementioned declaration surmises that the solutions proposed by the International Telecommunications Union and the relevant documents that attempt to achieve a better use of the geostationary orbit that shall prevent its imminent saturation, are at present impracticable and unfair and would considerably increase the exploitation costs of this resource especially for developing countries that do not have equal technological and financial resources as compared to industrialized countries, who enjoy an apparent monopoly in the exploitation and use of its geostationary synchronous orbit. (Japan Aerospace Exploration Agency n.d.)

Although on the basis of probability, from a legal standpoint, it is necessary to appropriately analyze the potentiality of exploitation conducted by the Union, at least theoretically.

Hence, when it comes to satellite telecommunication activities specifically, it must be noted that ITU was not as such given formal authority by its member states to 'license' or 'authorize' the physical occupation of positions in the global commons of outer space as such by individual states, for example through the allocation of orbits or geostationary slots along the lines of allocation of frequencies. (von der Dunk 2015, p.15)

While the physical factuality of outer space cannot be unambiguously claimed, it is necessary to mention that the notion of the abovementioned statement should not be consequently assumed that member states regarding the ITU cannot manifest any form of jurisdiction. Its realization is regulated within article 2<sup>7</sup> of the United Nations' Outer

6 Legal guidelines cannot be associated with obligations due to their different aspects of authority upon national states as subjects, as well as their purpose to determine a course of action. The legally binding degree of a legal guideline refers to the term "soft law", whose practical effects have no force upon national states, nonetheless.

7 The notion of outer space mentioned in article 2 is generally referenced since the geostationary orbit is still

Space Treaty, dating from 1967, which states that outer space “*is not subject to national appropriation by claim of sovereignty by means of use or occupation or by any other means.*” (Outer Space Treaty 1967)

Although the nature of jurisdiction is understandably limiting, still it does not exclude nations, or more specifically, member states of the Union to conduct extraterrestrial research under domestic law. In other words, no States can rightly exercise claim of sovereignty, because by its very nature the geostationary orbit has no determinable boundaries and the orbit cannot be effectively controlled. (Agama 2017)

Concerning the ITU as an international organization, although certain legal disputes could eventually emerge in relation to the overall definition of an international organization trying to “adapt” within the concept of the geostationary orbit as a global common and the obtained extraterrestrial services which seem to be individually regulated by national laws and their consequential amalgamation into international space law, it is essential to acknowledge the importance of international organizations regarding towards the development of satellite telecommunication regulation and more importantly, the construction of a much stronger legal framework in the future of international space law.

When it comes to analyzing the high potentiality of exploitation of the geostationary orbit respectively, the term “allocation” can be properly interpreted in respect of two separate aspects:

- a) The legal aspect regarding national utilization of satellite telecommunication within the domain of international law;
- b) The natural aspect regarding the resource limitation of radio frequencies within the electromagnetic spectrum;

Given the previous interpretation of the legal “collision” regarding the dual characteristic of satellite telecommunication regulations, remarking a duality between domestic laws of member states and their limitation of sovereignty claims in relation to outer space generally, the national utilization of satellite telecommunications can be recognized within the guaranteed freedom of extraterrestrial territory, irrespective of the degree of scientific or economic development.<sup>8</sup> Simultaneously, the United Nations Committee on Peaceful Uses of Outer Space considers seven nonmilitary primary uses of the geostationary orbit: communications, meteorology, earth resources and environment, navigation and aircraft control, testing of new systems, astronomy and data relay. (Finch 1986)

Besides theoretically, the international principle should consequentially apply in practice as well. However, considering the geostationary orbit, being a transnational area in outer space, international legislators cannot entirely determine the placement of this current issue

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officially considered as a transnational area, contradictory to the unsupported and unrecognized claims and demands of the Equatorial countries.

<sup>8</sup> The principle is theoretically based upon the international status of outer space being an area beyond possession, although there is a significant difference between legal theory and legal practice, as there are many nations that do not manifest the necessary scientific and /or economic degree of development in order for them to actively conduct extraterrestrial activities. The primary fundament for this principle seems to be loosely based upon the fact that it is legally considered for any good or service obtained from outer space and its celestial bodies, to be considered as *res communis omnium*.



in relation to the legal aspect regarding national utilization of satellite telecommunication within the domain of international law, although its interdependence with the natural aspect habitually intertwines. In other words, regulations manifested by international organizations must have a primary fundament upon the scientific factuality of the geostationary orbit and its unalterable characteristics, meaning that it is necessary for international space law to appropriately adjust.

Furthermore, the realization of these legal adjustments can be additionally scrutinized through the physical capacities regarding the geostationary orbit. Namely, radio frequencies within the electromagnetic spectrum are considered international resources which enable satellite telecommunication. As a result, communication satellites are frequently placed in a geostationary orbit in order for Earth-based satellite antennas to be permanently positioned in the sky toward the satellites' locations respectively, excluding their need for tracking-purposed rotation. But even though the radius is significantly wide-ranging, the placement in geosynchronous slots cannot be fully manifested due to the fact that it does not possess the spacious capacity for an unlimited number of satellites.

This being said, it is logical to assume that the geostationary orbit issue places the developed countries which have the technological resources and skills required to make use of the attributes of the geostationary orbit at odds with those countries which are afraid that, when they acquire the required skills to make use of the geostationary orbit, the resource will have vanished. (Finch 1986)

Perceived from a legal standpoint, this position of technological leverage contributes towards the emergence of a spillover effect<sup>9</sup> with reference to the negative impact that scientific superiority of developed nations has upon the potentiality for natural resource exploitation relating to developing nations which have not yet launched communication satellites, on an international level.

Since radio frequencies within the electromagnetic spectrum, by their origin, are technically considered as natural resources, its manifestation could be reflected through the subjective utilization of natural resource management, where the notion of exploitation is primarily dictated by the significantly higher demand of developed nations compared to developing countries, respectively. Additionally, without the factual possibility of expending or replenishing radio frequencies within the electromagnetic spectrum as limited resources, the allocation of resources should represent a process with a global regard, conducted by the ITU as an international organization, in such a manner that will support an international strategy not limited to its member states only. As a consequence, the concerning global strategy may create the illusion of resource maximization, however, the geostationary orbit issue cannot be entirely interpreted in international proportions.

Efficient allocation of limited resources requires a new system which would allow for the maximization of resources to not be achieved through an illusion of restricted utilization only. That being so, it could be concluded that the domain of international law is in need of a special legal entity as an advance of the generally known definition of an international organization that has the capacity to provide the implementation of such a system.

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<sup>9</sup> Not to be confused with the Spillover Law Theory and Legal Definition: the legal principle of separating the same evidence that is relevant to both a defendant and a codefendant;

## EXTRATERRESTRIAL REAL ESTATE AND THE UNIVERSAL DISTINCT FROM EXTRATERRITORIAL JURISDICTION

Regarding its composition, the Union ordinarily calls upon the principle of universality<sup>10</sup> as well as the desirability of universal participation in the Union. However, when it comes to orbital positioning, it plays a very important role for its member states, as any nation planning to launch a satellite in the geostationary orbit, must firstly apply to the ITU for an orbital slot.

Orbital slots, often referred to as “the parking spots” of outer space, cannot be unreservedly regarded as extraterrestrial real estate as such claims have not yet been recognized by any authority, with no legal standing whatsoever. Also, the geosynchronous orbit is regarded as a scarce real estate. Lack of supply of radio frequencies as a “commodity” for satellite telecommunication should inevitably lead to an increase in orbital slots prices if the number of buyers is high, emphasizing the demand. In reality, with the exception of the significantly high demand for orbital slots, regarding world nations, there is no cost for an orbital slot.

The notion of universal jurisdiction significantly differs from the notion of extraterritorial jurisdiction<sup>11</sup>, as the contrast follows the application of international law on one hand, and domestic law on the other, no matter if the legal element or aspect in question is “abroad”, or in this case, a transnational territory.

In theory, according to universal jurisdiction, international organizations such as the ITU and its member states are allowed to claim jurisdiction over a certain legal aspect, similarly to extraterritorial jurisdiction, where the main difference lies in the legal eligibility. Namely, in order for an extraterritorial claim to be effective, there has to be a sort of legal “agreement” regarding the external territory. And since the external territory in this case is regarded to the geostationary orbit, within outer space, there is no need for a special agreement, due to the fact that it is universally guaranteed for outer space to be freely explored by any nation in the world community.

However, the legal eligibility comes to a negative lighting when universal jurisdiction cannot be obtained in practice due to the lack of economic and/or scientific advances concerning developing countries. Consequently, particular international norms and rights that are considered *erga omnes*<sup>12</sup> and are closely linked to the universal status of outer space, is not the real problem, regarding satellite telecommunications, but rather the individual advantages of nations.

Another important technical aspect to consider is the “lifespan” of a communication satellite; even though a satellite ordinarily stays in orbit until the end of its mission, which

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10 While the principle of universality is ordinarily defined as the allowance for the assertion of jurisdiction in cases where the alleged crime may be prosecuted by all states, based on the principle that such crimes harm the international community, regarding the composition of the Union, it serves as a reference to outer space being an area where regulations are most universal in their applicability.

11 The notion of extraterritorial jurisdiction in this context mainly refers to national space law, meaning that every state conducting extraterrestrial activities is consequently regulated by their domestic laws that apply in outer space. In other words, nations are able to exercise authority beyond its normal boundaries, that is, the geostationary orbit;

12 Concerning the direct and practical availability of satellite telecommunications, the Latin phrase *erga omnes*, meaning “towards everyone” is referred to the universal status of outer space in theory;

is usually a couple of years, generally speaking. As a result, national administrations by ITU ordinarily keep refilling for the slot, thus giving it an indefinite purpose of utilization, meaning that the orbital slot can be used by a certain nation for an unlimited or unspecified amount of time.

While this does not guarantee that an orbital slot is automatically “privatized” by a nation. In other words, it’s the first-come, first-served principle that applies to orbital positioning, which without any formal acquisition of sovereignty, records a promptness behavior to which it grants an exclusive grabbing effect of the space concerned. (Space Legal Issues 2019)

In comparison to similar international organizations, it is worth mentioning that the ITU does not entirely represent a monopoly concerning satellite telecommunication. Even though there are multiple international (intergovernmental) organizations, Intelsat and Intersputnik are the most prominent organizations to appropriately analyze, particularly their jurisdiction aspect;

Intelsat Corporation, for instance, was originally formed and previously recognized as International Telecommunications Satellite Organization, even though its legal constitutions has changed and is now defined as a communications satellite services provider. As an organization, Intelsat was based upon the Communications Satellite Act of 1962<sup>13</sup>, aiming to join private communication companies in order to make satellites more obtainable. Although the act itself encourages global coverage, its jurisdiction is predominantly based upon domestic law and the concept of privatization, specifically stating:

*“In order to facilitate this development and to provide for the widest possible participation by private enterprise, United States participation in the global system shall be in the form of a private corporation, subject to appropriate governmental regulation.”* (Communications Satellite Act 1962)

Intertwining domestic law and privatization in contrast to the global community, primarily regarding the U.S, emphasizes the presence of extraterritorial jurisdiction on a national level. However, interesting enough, similarly existing international organizations tend to manifest different regulations in consideration of non-member states of another international organization, such as the case with Intersputnik;

Intersputnik, on the other hand, was created through the Intersputnik agreement, signed in 1971 after three years of negotiation. Its purpose was to create an international communications system using Earth satellites. Intersputnik was to be considered a juridical person.<sup>14</sup>It differed from Intelsat in that nonmembers of the ITU could join, and it did not use the weighted voting formula which in the early years of Intelsat gave the United States a major control. (Library of Congress, 1976, p.7)

13 With president John F. Kennedy signing the Communications Satellite Act of 1962, it is interesting to notice that its original purpose was to deal with the issue of commercialization of space communications, which by itself, was very controversial in that time.

14 Intersputnik as a juridical person, would represent an organization that is legally authorized with rights and duties, while simultaneously being recognized as a legal person in the international community. This constitution allows its identification as an opposition to other international organizations that regulate the benefits obtained through the service of satellite telecommunications;

Even though Intersputnik is nowadays mainly considered a commercial entity, its objective continues to represent the tendencies of common use of communication satellites, thus creating an additional option for nations, previously regarded as nonmember states, to obtain the status of member states in order to achieve a manifestation of equality when it comes to using the service of satellite communication as a human heritage. Therefore, while Intersputnik was established among Socialist countries, other nations have since been invited to join the system, apparently in the hope of making it competitive with Intelsat. (Library of Congress, 1976, p.127)

International competition concerning satellite telecommunications contributes for the contrasting concept of jurisdiction to be perceived in a dual manner: organizationally and inter-organizationally. In other words, a certain international organization, such as ITU, would singularly regulate extraterritorial jurisdiction among its member states as a whole, all while maintaining an international relation and tolerance with oppositional international organization of identical purposes, known as inter-state cooperation.

## SPACE CONGESTION AND GEOSYNCHRONOUS ORBITAL SLOTS

Satellite positioning is known to have a fundamental purpose and role when it comes to obtaining extraterrestrial assets, primarily satellite telecommunications, to be more specific. However, it was previously mentioned that the geostationary orbit, although quite vague, has limited capacity that cannot possibly support an unlimited number of satellites. Consequently, it is defined as a limited and even a scarce natural resource of transnational origin, simultaneously contributes in being under the destructive influence of a much bigger issue perceived from both natural and legal aspect – space debris.<sup>15</sup>

Namely, it has been so far perceived that space debris orbiting in the geostationary orbit has a lower collision speed compared to the low Earth orbit (LEO). In fact, this physical characteristic is rather expected, considering that all communication satellites share the same speed, altitude and plane, being located exactly above Earth's equator.

However, a new analysis has found that the threat posed by space debris to satellites in geosynchronous Earth orbits (GEO) is much greater than has been assumed until now. Researchers predict that the population of active GEO satellites can be expected to suffer one potentially mission-terminating impact every four years on average. (Physics World 2017)

This being said, the rapidly evolving space industry may come to an abrupt halt due to the formation of a hazardous extraterrestrial zone for active communication satellites within currently registered orbital slots. While it seems that the main issue for satellite operators was to make better use of the currently available geosynchronous orbital slots or to ultimately develop new positions, a new legal issue simultaneously arises: international liability for damage caused by space objects regarding international organizations respectively.

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<sup>15</sup> Referring to space debris of artificial origin, two debris fields are currently formed around planet Earth, one of them being around the Geostationary orbit, besides the low Earth orbit;

While the jurisdiction of international organizations was previously discussed in this paper, the supposed perplexity of international liability represents an important aspect that needs to be appropriately analyzed from a legal standpoint.

However, firstly, it is necessary to define the role of international organizations regarding the hypothetical, yet highly potential scenario of orbiting space debris to collide with a communication satellite within the geostationary orbit.

As part of the five agreements that are fundamental for the very creation and essence of space law, the Convention on International Liability for Damage Caused by Space Objects, also known as the Space Liability Convention, dating back to 1972, has the purpose of expanding the liability rules from an international aspect and may properly apply in regards to the regulations that are consequent to the abovementioned possibility.

Concerning its status, among the four international intergovernmental organizations, only Intersputnik has directly declared acceptance of the rights and obligations written in the Agreement. However, regarding the ITU, the European Telecommunications Satellite Organization (EUTELSAT IGO) has also declared direct acceptance toward the Agreement with the main purpose of further provision of rights to use orbital locations and radio frequencies assigned to the member states of the ITU. In other words, we have a manifestation of indirect acceptance which results with identical legal effects in terms of accompanying rights and obligations.

With reference to communication satellites, the Liability Convention specifically defines the term damage as *“property to international intergovernmental organizations”*, while the term space object mainly alludes to artificial objects that do not have to necessarily be fragments of satellites for that matter.

Article 3 states: *“In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.”* (Liability Convention 1972)

In theory, international liability concerning the damaging of a communication satellite in the geostationary orbit would have a vague characteristic and would not only necessarily include nations as member states of international organizations as liable in regards to any damaged communication satellites. Otherwise speaking, nations that legally launched and owned the previous artificial space object<sup>16</sup> – now space debris, and may simultaneously not be a member state of a supposed international organization, would also have to demonstrate good faith, that is, the honest intent to fulfill a promise or contract in a fairly manner. The demonstration of fault should, therefore, signify an appropriate agreement based on the principles prescribed by the Liability Convention.

In order for this to be additionally achieved, the supposed nations in question are also necessary to rely upon the Convention on Registration of Objects Launched into Outer Space, otherwise known as the Registration Convention, adopted in 1974. Information regarding the registered space objects should be able to appropriately clarify the sides, in

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<sup>16</sup> The term artificial space object is closely associated with manmade constructions and items that have been sent into space by a certain nation – governmental space agency or private space company.

terms of determining the liable launching state, as well as settling hypothetical disputed over damaged communication satellites in the future.

Since the register is kept by the United Nations Office for Outer Space Affairs (UNOOSA), international organizations, such as the ITU, are guaranteed to be predominantly considered, thus directly expanding their purposes, rights and obligations toward their member states and also other world nations.

## CONCLUSION

Satellite telecommunications represent a unique global service, which, although are currently provided and regulated by international organizations, face many legal issues and fallacies in regards to the traditional legal doctrine. Therefore, considering the transnational nature and origin of satellite telecommunications, perhaps the recognized definition of an international organization may not be entirely suitable.

In other words, changing or adapting the essence and definition of international organizations in relation to extraterrestrial activities, may be a highly potential consideration for international legislators. Many issues including sovereignty, rights and obligations, access, potential privatization, clashes between international law and domestic law should be appropriately taken in consideration to avoid manifestation of monopoly as well as discrimination on an international level.

Additionally, orbital slots located in the geosynchronous orbit are exposed to significant potentiality of damage, where regulations regarding international liability have not been officially predicted.

Space has become a highly congested area while satellite operators bring great risks of creating debris, prior to collision occurrences under intimidating velocities. Existing opportunities may seem irrelevant in the future, as the legal construction of international organizations does not act in compliance with the global community. Consequently, there is a necessity for new systems where certain adaptations to specific parameters need to be made as a form of privatization of orbital slots within the geostationary orbit as extraterrestrial real estate, which is a real challenge to international law and to the future legal regulation of international organizations.

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