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IS THE REVISION OF THE OUTER SPACE TREATY NECESSARY? – A THEORETICAL APPROACH

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The beginnings of the space race in the middle of the 20th century are well known and documented. But not many people know of the very beginnings of the idea that the use of outer space should be regulated. Its roots do not go deep in the past, as humans could only venture far enough in the 20th century, and therefore, there was no need to establish any kind of rules prior to that period. One of the most common examples used to describe the birth of such an idea is in fact the quote attributed to Theodore von Karman, a rocket scientist at Caltech, who saw the need to establish some ground rules for human activities beyond Earth way back in 1942, more than a decade before the first satellite ever was launched: "Now, Andy, we will make the rockets – you must make the corporation and obtain the money. Later on you will have to see that we behave well in outer space... After all, we are the scientists but you are the lawyer, and you must tell us how to behave ourselves according to law and to safeguard our innocence."[1]

This article will attempt to give insight into two crucial questions that may be identified: what changes and challenges does the space law bring to the domain of public international law as a whole (1) and, closely related to the previous question, how should, if at all, the cornerstone principles of space law itself, as they are according to the current OST, be reinvented (2).

Key words: *Outer Space Treaty. – Karman Primary Jurisdiction Line. – Public International Law. – United Nations. – WMDs.*

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[1] Andrew G. Haley, *Space Law and Government*, Appleton-Century-Crofts, 1963, 584.

1. SPACE LAW – A CHALLENGE FOR PUBLIC INTERNATIONAL LAW

1.1. History

It is a common belief that the Treaty on principles governing the activities of States in the exploration and use of outer space, including the Moon and other celestial bodies (widely known as the Outer Space Treaty) was the very first attempt of the international community to try and codify human conduct in the outer space, but that is not the case. Just after the launch of Sputnik 1, in 1958 the UN General Assembly adopted its first resolution pertaining to the outer space.[2] A year later, the Committee on the Peaceful Uses of Outer Space (COPUOS) was established, with the task of tackling the legal status of the outer space. The formation of the United Nations Office for Outer Space Affairs (UNOOSA) followed suit. In 1963, The Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space was adopted, finally paving the way for a binding treaty to be signed.

However, the first comprehensive international legal document regarding the use of outer space, **The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies**, entered into force on 10th of October 1967. It was, at the time, one of the most complex treaties to be negotiated, as it was drafted during the height of the Cold War, which is a fact that gives us a quite logical answer to the question of why did the relevant stakeholders at the time think such regulation was necessary in the first place.

1.2. Innovating the classical public international law – which changes did the current "international space legislation" bring to the table?

Being still in its early stages of development, space law obviously relies heavily on international conventions regulating similar fields, but its specific nature also introduces some original solutions, which seem to defy the classical doctrine of public international law and present an opportunity for it to evolve. These occurrences will be addressed in this section of the paper.

[2] United Nations General Assembly Resolution 1348 (XIII), Question of the peaceful use of outer space (1958)

1.2.1. Derogating a norm of classical international law according to which the sovereign authority of states above their territory was presumed to spread out ad infinitum

The first article of the Convention on International Civil Aviation (Chicago Convention, 1st ICAO Convention) states as follows: *"The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory."*[3] (underlined by S.R.). As this Convention does not define the notion of airspace, its boundaries, nor does it provide any tangible criteria for its determination, it's only logical to conclude that this is a clear manifestation of the notion of sovereignty as per the classical doctrine of public international law, according to which the three-dimensional territory of a nation-state spreads upwards without any limit at all. But that seems to have changed with the adoption of the OST, which stipulates in its Article II[4] that no state may claim sovereignty beyond Earth, thereby implying that there is in fact an upper limit to the national airspace. Such provision, albeit unclear, along with its implications, is in its nature a derogation of the classical rule, and signals a new chapter in the development of the international law.

The OST itself also fails to define the limit of the national airspace, rendering its field of application undetermined. That leaves it at risk of being a *lex imperfecta* in international law, (although it was conceived with the intention of being a treaty-law, an instrument of *ius cogens*) depending on the interpretation by various subjects, which is in fact a huge legal gap (*lacuna iuris*), which is an issue that will be addressed further down the line.

1.2.2. Link with the conventions regulating maritime and aerial law – is there a certain creative analogy?

The outer space is in essence an uncharted territory, which seems to have been the starting point when the UN experts tried to think of solutions that could be applied in its regulation. Luckily, the international law has already dealt with this kind of situation and has, as a consequence, developed a more or less advanced system of rules, which certainly helped in the evolution of space law.

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[3] Article 1 of the Convention on International Civil Aviation, Chicago, 1944

[4] Article II of the Treaty on principles governing the activities of States in the exploration and use of outer space, including the moon and other celestial bodies, 1967

The United Nations Convention on the Law of the High Seas was drafted before the OST, in 1958 and it represents a comprehensive legal instrument in this matter, where it is also a *sedes materiae,* along with the 1982 United Nations Convention on the Law of the Sea (UNCLOS, Montego Bay Convention). The UN High Seas Convention (UNHSC) has inspired the redactors of the OST with regard to principle of assistance described in the Article 12 of the Convention[5]. Expectedly, the OST echoes with similar solutions, most notably in articles V[6] and IX[7], where it can be quite clearly noted that this principle of assistance, which permeates both conventions, was transplanted to the OST from the UNHSC, but taking into consideration the specificities of the field of application of the OST.

On the other side, we perceive a much more limited analogy between space law and aerial law: the ICAO convention has the doctrine of sovereignty embedded throughout its text, and does not allow for any significant deviation in its interpretation. A notable difference here is that the legal regime of flight in extra-atmospheric space is comparable to the navigation on the high seas (regulated by the UNCLOS), whereas according to the ICAO convention, such free flight would be impossible.

1.3. Does the OST show a certain number of legal gaps (lacunae iuris), and/or other inconsistencies?

1.3.1 The problem of precise delimitation between the national airspaces and the outer space

It has already been stated that the ICAO doesn't define neither the notion of airspace nor the extent of it, and by consequence, neither

[5] Article 12 of the United Nations Convention on the Law of the High Seas (1958):

"1. Every State shall require the master of a ship sailing under its flag, n so far as he can do so without serious danger to the ship, the crew or the passengers,

(a) To render assistance to any person found at sea in danger of being lost;

(...)

(c) After a collision, to render assistance to the other ship, her crew and her passengers and, where possible, to inform the other ship of the name of his own ship, her port of registry and the nearest port at which she will call. (...)"

[6] Art. V of the OST: "States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance (...)"

[7] In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance (...)

its upper boundary as it stands right now. If we perform a mental exercise of interpreting the ICAO convention literally, national airspaces have no upper boundary. Conversely, if we interpret the OST the same way, the outer space has no lower boundary, as neither of these notions have been defined in any *ius cogens* international rule. This evident legal gaping pit leads us to two paradoxical conclusions:

Firstly, this could *theoretically* mean that therefore, the legal regime of the ICAO convention will apply "infinitely upwards" and that any legal instrument pertaining to the outer space is left without any effect.

Secondly, according to another extreme interpretation, it could mean that the OST would prevail, via the principle of the posterior law (*lex posteriori derogat legi priori*), and that its dispositions would apply "through-and-through", effectively rendering the ICAO convention useless and non applicable.

However, from a rational standpoint, even if we apply any of the above stated interpretation criteria, realistically, what this could mean is that both legal instruments would be valid and applicable in parallel, keeping in mind that each of them pertains to different circumstances. The problem arises in borderline cases, where a state may claim that its sovereignty has been violated by an overflying vessel, particularly in the 'grey zone' between the national airspace and the outer space. Judging by the attitudes of the UN member states, most notably the USA, this legal gap could as well be intentional, as the following (juridically nonsensical) quote illustrates: "It should be noted that, among other things, if the American national law and the international agreements such as the Chicago Convention from 1944 have already established the complete and exclusive sovereignty of the United States over the airspace above our territory, we have never admitted that we don't have any rights over the most remote regions of space. (underlined by S.R.) [?!]"[8] This immodest claim is clearly in contravention of Article II of the Outer Space Treaty, and should such an issue arise, any eventual claims by the United States to any celestial body should be deemed null and void by the international community, should the outer space remain a sovereignty-free zone in perpetuity. Furthermore, the arguments that can be found in the literature boil down to the No Present Need Theory, which simply put, presents the following conclusions:

[8] René H. Mankiewicz, « De l'ordre juridique dans l'espace extra-aéronautique », *Annuaire français de droit international*, 5/1959, 110.

"(a) That the absence of explicit agreement has not yet led to international tensions and does not appear likely to be able to do so.

(b) That an attempt to reach explicit agreement on establishment of an altitude boundary would invite many states to make claims to sovereignty which in analogous cases such as the high seas, have led to immoderate claims. In other words, the Pandora's box might be harder to close than to open.

(c) That any boundary set might have to be set too high because fear of the unknown would lead states to claim as much as they could. On the other hand, that future activity at lower altitudes may be acceptable if there is no explicit agreement on the extent of airspace.

(d) That an agreement reached later is likely to fix a lower altitude than an agreement reached now.

(e) That an agreed altitude once achieved will be next to impossible to reduce.

(f) That an arbitrarily chosen upper limit could easily become a bone of contention. This is in that disputes may arise from boundary violations, which are all the more likely because space objects are in fact difficult to track or identify."[9]

With new technological advancements in mind, such lack of a precise boundary will over time pose an increasing problem in day-to-day affairs and has a potential to cause severe uncertainty with regard to the legal status of satellites and other extra-and-high-atmospheric and hybrid vessels, which would effectively constitute borderline cases and would be extremely difficult to adjudicate according to the current legal framework of the OST, should such scenario happen. The deciding criterion for determining a clear boundary that would separate national airspaces from the outer space would therefore have to be a technical, scientific and empirical one, as to achieve a clean break and to avoid the messy analogy with the UNCLOS, which proposed a maximal limit (yet not a fixed distance from the baseline) for declaring territorial waters, where there are situations in which some states haven't exercised their right to the full extent, and when they do afterwards, that becomes a source of international contention, despite the already existing cogent international trea-

[9] Dr. Gbenga Oduntan, "The Never Ending Dispute: Legal Theories on the Spatial Demarcation Boundary Plane between Airspace and Outer Space", *Hertfordshire Law Journal*, 1(2)/2003, 64–84.

ty. The prime example of this scenario was seen in October 2018 when Greece announced it would extend its territorial waters from 6 to 12 nautical miles, in accordance with the Montego Bay convention, a move that Turkish authorities said would constitute *casus belli*.[10]

A clear solution for delimitation might be found in the concept of the **Karman primary jurisdiction line**. Simply put, this solution is based on physics: at about 83 km, the airplanes are no longer able to fly due to the absence of the aerodynamic lift.[11] This line was later set to 100 km above sea level by the Fédération aéronautique internationale (FAI), and von Karman, after considerable discussion with FAI scientists agreed to this change, which was later supported by both the USA and the USSR.[12] It would therefore make perfect sense to establish the demarcation line at exactly that altitude. The Background paper prepared by the secretariat of the Legal Sub-Committee of the COPUOS[13] specifies the attitude of the representative of Iran in this regard, who stated that it would be "materially simpler to define the atmosphere than to define space"[14]. Therefore, it would stand to reason that the primary question here isn't at all the question of defining the outer space itself, but rather the question of defining the atmosphere with regard to its upper limit. Asking the question as such and defining the given notion within this logical framework could have far better practical implications with regard to already mentioned borderline cases. Apart from the von Karman line of primary jurisdiction, this paper also considers some additional solutions, like demarcation based upon the equation of the upper limit of national sovereignty with the concept of "atmosphere", demarcation based upon the division of space into zones, a simultaneous application of different criteria, but concludes with following observations:

> "As a result of these discussions the Scientific and Technical Sub-Committee agreed as follows: '(a) That there was consensus in the Scientific and Technical Sub-Committee that it is not possible

[10] "What If Greece Extends Its Territorial Waters to 12 Miles in the Aegean?" *Greek Reporter*, *https://greece.greekreporter.com/2018/10/21/what-if-greece-extends-its-territorial-waters-to-12-miles-in-the-aegean/*, 22. November 2018.

[11] A. Haley, 79.

[12] Frans von der Dunk, Handbook of Space Law, *Edward Elgar Publishing*, 2015, 67.

[13] The Question of the Definition and/or Delimitation of Outer Space*, http://www.unoosa.org/pdf/limited/c2/AC105_C2_L007E.pdf,* 22. November 2018.

[14] *Ibid.*

at the present time to identify scientific or technical criteria which would permit a precise and lasting definition of outer space;

(b) That the working papers prepared by the delegations of Canada and France, as well as the background paper prepared by the Outer Space Affairs Group of the United Nations Secretariat, and the relevant summary records of the Scientific and Technical Sub-Committee's meeting would be made available to the Legal Sub-Committee to assist it in its deliberations;

(c) That a definition of outer space, on whatever basis recommended, is likely to have important implications for the (...) aspects of space research and exploration, and that it is therefore appropriate that the Scientific and Technical Sub-Committee continue its consideration of this matter at future sessions; and that Member States be invited to submit further relevant material for the study of the Sub-Committee."[15]

1.3.2. Non-conventional weapons in space – their status and potential proliferation

The second major issue that requires a revision of the OST is the deployment of weapons of mass destruction in the outer space. The OST in its current form does indeed prohibit the deployment of nuclear weapons and other types of WMDs[16], which is not a problem in itself. It is in fact the technological advancements that should be addressed, as the line between WMDs and non-WMDs becomes more blurred given that even defining the notion of WMDs would require significant effort and great compromises for such definition to be universally accepted. This ambiguity of the term "Weapon of Mass Destruction" will be illustrated by the example of kinetic orbital bombardment.

This weapons system is made of a satellite deployed in orbit around the Earth storing inert tungsten rods which may be simply dropped above the targeted area, where the buildup of velocity and the picking up of the force momentum will cause such rods to crash to the surface of the Earth destroying their target with the strength of a smaller tactical nuclear weapon but without any of the radioactive

15 *Ibid.*

16 Article IV of the OST

fallout. The force itself would come solely from kinetic energy, according to Newton's Second Law of Motion, where the exerted force equals mass multiplied by acceleration of the projectile.[17] This device poses a problem because it cannot be identified as a WMD outright, having in mind that the main destructive component of such a weapon is an inert metal (tungsten) rod, which is *per se* quite harmless, unless used in a certain way. It is rational, however, to assume that the drafters of the OST were not yet able to imagine the extent of the innovation in the field of warfare in the future. Of course, one could offer a line of argumentation favoring the hypothesis of an intentional legal gap: bearing in mind the historic circumstances in which the OST was negotiated and redacted (during the Cold War), such ambiguity could be explained by the reluctance of the main actors on the international scene at that time, the United States and the USSR, to limit themselves more than they absolutely had to all the while attempting to limit their adversary the most they could by a binding international treaty concluded within the framework of the United Nations. But whatever the actual situation may be, the fact remains that this legal gap has the potential to remain an increasingly problematic issue in the future, as described by the problem of kinetic orbital bombardment.

The OST does not deal with the deployment of conventional weapons either, because they are generally not perceived to be of any real threat to any country, because almost every form of conventional weaponry fired from outer space is likely to burn up in the atmosphere due to excessive friction, whereas conventional weapons can cause severe problems on the objects already in space, which is a fact that should be enough to instigate support for the revision of the OST in the international community especially having in mind that since the OST entered into force, numerous countries have established their presence in space and would need to be held accountable in the case of need. Also, as it stands right now, such deployment of weapons would surely be against the spirit of the current OST but, as it has been said earlier, this is not expressly prohibited by any international treaty. If the previous jurisprudence of the International Court of Justice is any clue,

[17] Richard L. Garwin, "Space Weapons: Not Yet", paper presented at the Pugwash Workshop on Preserving the Non-Weaponization of Space, Castellón de la Plana, Spain, 2003

the international community should not expect too much from this body, having in mind its advisory opinion on the question of the legality of threat or use of nuclear weapons, where it stated that "in view of the current state of international law and of the elements of fact at its disposal, [the Court] cannot conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful" (underlined by S.R.).[18]

It is the opinion of the author that any revision of the OST should, naturally, preserve the non-military use of the outer space itself, even in the eventuality that in the future legal regimes governing the outer space itself and particular celestial bodies are separated.

2. THE NEED TO REINVENT THE CORNERSTONE PRINCIPLES OF SPACE LAW

2.1. Introduction

Late 20th and early 21st centuries have witnessed an enormous population growth in just several decades. This increase in the number of persons living on Earth has inevitably caused a surge in demand for resources, which are becoming increasingly scarce. The US Census Bureau estimates that there are 7,5 billion people currently alive in the world[19] whereas the estimates of the maximal number of people that Earth can sustain vary greatly, but given the current dangers of climate change, we might assume that a too great number of people has the potential to become an increasing issue in the future. That would mean that we must turn elsewhere for resources if we are to make our development sustainable. A good place for that would be the outer space, where we might mine the minerals needed from captured asteroids. The population could in recent future (it is rational to assume that this may take up to a century, considering the current trends in the development of space exploration) be sent to colonize the nearest celestial bodies, thus alleviating the overpopulation problem on Earth.

[18] International Court of Justice Advisory Opinion: Legality of the Threat or Use of Nuclear Weapons, *https://www.icj-cij.org/en/case/95*, 30. November 2018.

[19] U.S. and World Population Clock, *https://www.census.gov/popclock/*, 01. December 2018.

2.2. Potential application of the principle of sovereignty in the outer space

2.2.1. Should the outer space remain a "sovereignty-free" zone and is that even sustainable?

"Colonization –– pushing humanity's living room beyond its "surly bonds" –– might, depending on how it's implemented, represent a complete answer to the potential disaster of overpopulation and its effects."[20]

As it stands right now the legal status of the outer space and celestial bodies regulated by the OST negates the establishment of any kind of sovereign authority anywhere beyond Earth. That would mean the exclusion of such possibility in the future as well, unless the treaty changes.

However, the current OST prohibits this type of actions both expressly and implicitly. Its Article II reads as follows: "Outer space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means." This is a major obstacle in the way of durable space exploration, as on the long run no state will have any incentive to pour obscene amounts of money, time and other resources to explore the outer space and other celestial bodies if they will not be allowed to keep whatever they find beyond Earth's atmosphere. This approach severely hinders our ability to tackle some of the major tasks in our development as a species. It is therefore indispensable for the international community to permit the establishment of sovereign zones on the celestial bodies, as a firm legal ground for the respect of private property rights in space (which is a topic that will be addressed in the following section).

2.2.2. Possible pathway to the sovereignization of the outer space and celestial bodies

Under the currently far-fetched assumption that there is a unanimous political will to proceed with this significant amendment to the OST, the most pertinent solution would be to allow the peaceful occupation of celestial bodies in the measure in which the state in question

[20] Ezra J. Reinstein, Owning Outer Space, *Northwestern Journal of International Law & Business*, 1/1999, 60.

is capable to exercise effective control (*uti possidetis*). Additionally, the UN legal framework would continue to apply to the newly formed extraterrestrial colonies and would of course comprise the UN Charter, which is particularly important, having in mind that letting states race against each other in these new terrains would inevitably become a source of international contention, so that the already tried and tested means of peaceful dispute resolution could apply.

The outer space itself, once its lower boundary determined by, for example, the concept of the von Karman line of primary jurisdiction, should have a status similar to that of the high seas, where the principle of peaceful passage could apply. Essentially, this would be a *mutatis mutandis* adoption of the UNCLOS dispositions, notably the articles 88 and 89 of the UNCLOS[21] as well as the others relevant to the field.

This solution would create separate regimes for the outer space itself and for celestial bodies. This proposal comes with a sizeable caveat, as there is no precise definition of a celestial body, which is an additional challenge for the UNOOSA.

2.3. Private property rights in space

2.3.1. On legal grounds to establish private property rights of humans in space

A question of whether humans have the moral legitimacy to appropriate things in the outer space emerges. Barring any theological or overly philosophical analyses, this section will focus on the legal aspect of the concept of private property rights in space.

The basic precondition for a functioning legal order anywhere is the existence of a sovereign authority that imposes peremptory norms and fundamental laws which serve as basic safeguards for any eventual rights that may be acquired (including but not limited to the right to own private property). Based on such sovereignty, the judicial authority serves as the guardian of subjective rights. These requirements are the same whether we're talking about a location on the Earth or else-

[21] Article 88 Reservation of the high seas for peaceful purposes
The high seas shall be reserved for peaceful purposes.
Article 89 Invalidity of claims of sovereignty over the high seas
No State may validly purport to subject any part of the high seas to its sovereignty.

where (the outer space). Hence the implied claim that the article II of the OST ought to be abolished, from the previous section of the paper.

However, the question that remains is the following one: having in mind that humans consider themselves entitled to the Earth and continually exercise their rights of property on Earth for millennia, what is their original *iustus titulus* and *modus acquirendi* from which all other subjective rights stem?[22] And consequently, could humans extend this sphere beyond Earth on the same grounds? These are juridical questions that cannot be simply answered, particularly not in a paper such as this one, since they require meticulous work of grand legal minds, but the intention of the author was to merely point out the fact that these questions might arise in the eventual efforts to establish a regime of private property rights in outer space.

2.3.2. The need to guarantee these rights from a practical perspective.

"If a firm is eventually able to bring ore down to Earth, the total wealth available to humanity will be increased. The estimated Helium-3 reserves on our moon would create, in a controlled fusion reaction, 10 times as much energy as is contained in Earth's recoverable coal, oil, and gas combined. What is stopping these companies now, perhaps more than the money or technology, is the uncertainty of the legal regime. If exploitation of outer space's bounty is our goal, we must establish a space property legal system that creates both incentives and predictability."[23]

The idea that stands at the foundation of this need is based on the extraction of resources, which would contribute to the development of the civilization as well as to the scientific discoveries. It has already been stated that the Article II of the OST hinders such a possibility and disincentivizes efforts put into space exploration. But even according to the more liberal interpretations, this provision of the OST is profoundly ambiguous: "the acquisition of absolute title does not mean that States are prohibited from exercising any rights over these areas.", argues one author.[24] This goes on to demonstrate that there is

[22] Milan Mijović, "Private Ownership in Outer Space – Still Waiting?" in *Pravni zapisi, God. IV br. 2*, Pravni fakultet Univerziteta Union, Beograd, 2015, 315.

[23] Ezra J. Reinstein, *op. cit.*

[24] Ogunsola O. Ogunbanwo, *International Law and Outer Space Activities*, Nijhoff, The Hague, 1975, 69.

no certainty when it comes to establishing private (or any other kind of) property rights in the outer space, which further discourages entrepreneurial activities in the long run, regardless of the popularity that projects such as MarsOne, Elon Musk's SpaceX enjoy at this time. Eventually, if the status quo is maintained, these endeavors are likely to subside as they would be deemed non-profitable by their own entrepreneurs.

2.3.3. Proposed fundamental set-up

Relevant international instruments that regulate matters of private property law all guarantee the right to private property, even though the *ratio legis* for most of them are not economic reasons, but rather different issues, such as for example the protection of basic human rights (such as the European Convention on Human Rights and Fundamental Freedoms, the Refugee Convention etc.). However, having in mind that celestial bodies are the common heritage of humankind, they should also be used for the purpose of improving the humankind. Correspondingly, Reinstein posits that the one who can use a celestial body or a part of it in the greatest interest of the humankind, is the one who can profit the most of it. This is a matter of logical analysis and, as Reinstein once again puts it, elementary economic theory. If this utilitarian ratio is to be adopted, that would leave little to no space for ideological proclamations and philosophical disputes in this matter.

This would ultimately have for its effect the identical regime of private property that is almost universally accepted on Earth (with some variations between states and legal systems, although the basic idea is pretty much the same). Of course, granting absolute property rights does not mean that they do not have exceptions. As sovereign national law would apply, the corresponding limitations of for example environmental character would apply as well. The possibility to introduce this type of limitations is precisely why this paper advocates the abrogation of the no-sovereignty-rule on the celestial bodies in the earlier sub-section.

As for the technical aspect of putting in place legal norms guaranteeing private property rights in space, the author would like to paraphrase an idea that was suggested during the conference where this paper was initially presented: it may be prudent to establish something

like a "regulatory umbrella", where the basic principles governing the outer space and celestial bodies would be laid out in the new OST, but there would also be a series of "sub-treaties" concretizing certain aspects, such as, for example private property rights.[25] This mechanism would be a foundation in international law for each individual state to impose its own property law on a part of celestial body it effectively controls (*uti possidetis* – see above 2.2.2. Possible pathway to the sovereignization of the outer space and celestial bodies).

3. CONCLUSION

Although the OST was a remarkable achievement of its era, it is not immune to time and innovation. The fact that it has been left intact for over 50 years has caused it to obviously be outdated. As it is right now, it inhibits the progress of the international community and the humanity as a whole, which is why it must be radically reformed in the recent future, as to shed its Cold War era mentality and allow for a stimulating and orderly growth of the activities in the outer space.

Rational analytical process leads us to the conclusion that the reforms proposed in this paper are far from even being considered by the UN, because of the chronic lack of political will at that level, but the purpose of this paper was not to convince the officials but rather to try and point out to the best ways to solve some of the problems that space law faces today. The author is of strong opinion that a systematic and a comprehensive codification of the space law would go a long way towards establishing a reliable legal framework for space exploration, which would instigate a wave of innovation, and that would in turn have very practical consequences on everyday lives of the human population worldwide.

[25] This idea was initially suggested by Mr. Dragan Martin, a fellow undergraduate student in international law at the University of Belgrade, Faculty of Law as a part of peer-reviewing process.

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