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Conflicting Sovereignty Issue in Outer Space: An Analysis of the Current Existing Conventions Vis a Vis Impediments and Challenges.

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Abstract: *This paper seeks to highlight the current status quo of the space law legislations and throws a light on its efficacy. It also tries to answer the debatable question of sovereignty through analysis of several treaties. The next part of the paper provides a piece of critique on the governing regulations. The paper in its next part deals with issues such as Militarisation, Star wars Asteroid mining and various facets of space terrorism that have emerged as latest challenges in the recent times. The paper concludes with certain sets of recommendations that entirely that can be used to harmonize the current regulation and decelerate the rate of ambiguity involved.*

Keywords: *Outer Space treaty, The Moon Treaty, Star wars, Militarization, Liability, challenges, Space terrorism*

I. Introduction:

"We live on the shores of this tiny world, the third planet of nine circling an average star, the sun; This universe is more vast than one can ever imagine". With the development of scientific knowledge, man has fathomed the ocean and covered the air space. After 1957, there was an extensive use of the outer space and an immediate need for a law that could govern such activities was felt. Even after the unending tussle, every nation have at least resulted in a consensus that no state enjoys an absolute sovereignty on the space above them till infinity. There are several reasons why a comprehensive space legislation has to be formulated and proposed. The two developments i.e. extraordinary dependence in space activities and the growing convergence of interest which have radically changed the dimension of the purely national interest are few reasons why the an immediate need for space law was felt. Till, many years nothing; not even a single guiding principle could be propounded. However the gray area didn't go unnoticed for long[1].

The first United Nations conference on outer space (i.e. UNISPACE-I) was held in August 1968; This committee discussed in length, the issues pertaining to remote sensing, nuclear power, definition and limitation of the word 'outer space' etc. This committee acted as an ignition and chains of conferences followed it. Many treaties were brought in light and were ratified by many nations[2]. Now, we were in a better position than before. We no more had to wander clueless, looking for an answer.

The various treaties has already given the skeleton of a legitimate framework that can efficiently govern the space. All we need to do is to strike the right structure and formulate a legislation that can be followed by every nation. Looking at the advancement in the space laws; procrastination in this regard seems dangerous. The most eminent jurists worldwide have accepted that we need laws where the word 'Must' is more often used than the word 'May' i.e. we are in need of a rigid law something that doesn't leave any scope for ambiguity[3].

II. Analysis of Outer space Treaty:

1967, marked a grand success in the field of space law. A comprehensive treaty with 17 articles was first time brought in front of all the member countries of the United Nations: the Outer Space Treaty. This was the first commendable effort that gathered a lot of limelight because of its extensive scope, pragmatism and futuristic approach. A detailed analysis of the entire treaty is as follows:

- Article 1 of the treaty claims that the exploration can be carried out in outer space (inclusive of all celestial body) for economic and scientific development. 'Common interest' of all the nations would also be considered while such explorations are carried out. Such explorations have to be on the basis of equality

[1] Multimedia Space Educators' Handbook, NASA Johnson Space Center, Houston, Texas 77058
[2] OMB / NASA Report Number S677. See also research in 1975-1978, Edgewater Hospital, Dr. M.S. Mazel, Chicago, Il.23. Multimedia Space Educators' Handbook, NASA Johnson Space Center, Houston, Texas 77058
[3] M. BENKÖ, K.-U. SCHROGL (eds.) "Space Law: Current Problems and Perspectives for Future Regulation"Eleven International Publishing, Utrecht, The Netherlands, 2005

meaning thereby no country would enjoy an upper hand in this regard. Outer space qualifies as *res communis* (the property of all) under Article 1 of the Outer Space Treaty, rather than as *res nullius*, the principle that these resources belong to no one and are to be doled out on a first-come, first-served basis.

- This Treaty also tries to put an end to the unending debate on the conflicting sovereignty issue in the outer space. The outer space (inclusive of all celestial body) are not subject of any state. As a testimony to this, Article 3 of the treaty affirms that the activities in outer space would be governed by the principle of International Law and would not be subjected to any domestic legislation of any country.
- The Treaty ensures that no State would place any object carrying nuclear weapon or any kind of mass destruction weapon in the space. It restricts any activity involving such weapons that can prove to be a potential threat to any nation.
  Further Article IV of the treaty declares that all the nations would use the space only for peaceful purpose and not try to militarize the space.
  This prevents militarization of space and conduction of any weapon test in the space.
- Article VI of the Treaty also tries to build up an international responsibility and liability for the outer space.
- One of the most pertinent feature of this act is the futuristic approach of Article V of the treaty. This ensures the safety of astronauts and space vehicles in case of emergency, distress or accidents. Every state in pursuance to the aforementioned article must return safely both the astronauts and the space vehicle, no matter what condition they are in. Indeed the outer space treaty is a milestone that we have achieved, however there still lied few lacunas, few unaddressed challenges. The next section deal with the unaddressed challenges with regard to space law Vis a Vis the outer space treaty.

III. The Unaddressed Challenges :

The doctrinal analysis and a detailed review of literature show that there are many problems in regard to the space law that have not been addressed till date. Following is a list that highlights the most disputed ones:

- Space law indeed is an ever growing area. The biggest challenge in this regard is gaining consensus. To evolve a successful legislation a unanimous consent is required; in absence of which no consistent framework can be formed. To quote an example, very recently few nations such as France, United States of America etc proposed the limitation of the atmosphere. They tried to set up a standardised height beyond which the area shall be termed as outer space. However this turned out to be a bone of contention. Countries like Belgium challenged the veracity of such claims and refused to accept such a notion.
- There is no guideline that clearly and distinctly deals with the procedural laws. Further, No treaty, provides the jurisdiction for the settlement of disputes.
- As earlier stated, Nothing till date has been able to coin a proper definition of outer space. Nothing has yet satisfyingly resolved and set up boundaries between the air space and the outer space.
- A methodology for quantification of damage during mishaps due to space objects and related events remains unclear and undetermined.
- The extent of liability in case of damage due to space activities has not been clearly determined. Further in case of joint liability; The question of Whose liability would supersede the other's liability remain an unanswered question.
- The extent of jurisdiction of the states is still a question of dispute that has not been addressed completely. Many countries contend that the jurisdiction of the state must be extended to the orbit of geo stationary satellites owned by that particular nation. This is a clear violation of the terms of the outer space treaty.

Challenges continue to grow, but all the attempts of ending the gray areas and ambiguous claims seem futile.

IV. The Moon treaty: A futile Attempt

Man's first step on moon opened plethora of doubts pertaining to the legal framework that can governs activities on Moon. Even after having excellent features the Moon Treaty proved to be a futile attempt since very few countries agreed to the terms and conditions mentioned in it[4]. Only nine nations have ratified the Moon Treaty (Australia, Austria, Chile, Mexico, Morocco , the Netherlands, Pakistan, Philippines, and Uruguay),as compared to the Outer Space treaty, which has been ratified by over 90 countries. Following are some of the notable features of the act:

[4] Pop, Virgiliu (2009). Who Owns the Moon?: Extraterrestrial Aspects of Land and Mineral Resources Ownership. Space Regulations Library. Springer. ISBN 978-1-4020-9134-6.

- It provides international Law as the guiding principle for any exploration on Moon. Thus keeping parallel theme as that of the Outer space treaty[5].
- The Moon Treaty, does not place a moratorium on exploitation of natural resources, but insists upon the establishment of an international regime to monitor and control such exploitation. In fact, mining could be begun on an experimental basis even while clearer rules are established and eventually made law
- Article III, talks about peaceful use of the surface of Moon thus prohibiting the signatories from militarising Moon.
- Exploration of Moon must be done keeping in mind the common interest and benfit. It opens the door for exploration for the sake of scientific development.
- Bans any ownership of any extraterrestrial property by any organization or person, unless that organization is international and governmental.
- Requires all resource extraction and allocation be made by an international regime.
- Bans altering the environment of celestial bodies and requires that states must take measures to prevent accidental contamination[6].

V. Star Wars Inter alia Militarisation , Demilitarisation of the space and Space Preservation Treaty:

The Anti-Ballistic Missile (ABM) Treaty, signed in 1972, between the United States and the former Soviet Union (now applying to Russia) was to prohibit the use of defensive systems that might give an advantage to one side over the other in a nuclear war. The Mutually Assured Destruction scenario was invoked here to assure that each nation had enough weapons to survive a nuclear attack and therefore have the ability to annihilate the other. Their rationale was that as long as both sides remained defenseless, in this respect, neither country would dare attack the other.

While the United States has now withdrawn from this treaty (as of mid-December 2001), even before that, was controversially spending a lot of public money on research and development of a "Star Wars" missile defense program. While bound to the treaty, such research and development was breaking the treaty. However withdrawing from the treaty completely, allows research and development to proceed.

Internationally, for many years, it has been agreed that space should be used for peaceful purposes, and for the benefit of all humankind. However, recent years has seen increasing militarisation of space. The militarisation of space means placement and improvement of military hardware and military technology in the outer space. The early exploration of space in the mid-20th century had, in part, a military motivation, as the United States and the USSR used it as an opportunity to demonstrate ballistic missile technology and other militarisable technologies. The second mode of militarisation is the Global Positioning System. This satellite navigation system is used for determining one's precise location and providing a highly accurate time reference almost anywhere on Earth or in Earth orbit. It uses an intermediate circular orbit (ICO) satellite constellation of at least 24 satellites. The GPS system was designed by and is controlled by the United States Department of Defense and can be used by anyone, free of charge. The primary military purposes are to allow improved command and control of forces through improved location awareness, and to facilitate accurate targeting of smart bombs, cruise missiles, or other munitions. The satellites also carry nuclear detonation detectors, which form a major portion of the United States Nuclear Detonation Detection System. European concern about the level of control over the GPS network and commercial issues has resulted in the planned Galileo positioning system. Network-centric warfare relies heavily on the use of high speed communications which allows all soldiers and branches of the military to view the battlefield in real-time. Real-time technology improves the situational awareness of all of the military's assets and commanders in a given theatre. For example, a soldier in the battle zone can access satellite imagery of enemy positions two blocks away, and if necessary e-mail the coordinates to a bomber or weapon platform hovering overhead while the commander, hundreds of miles away, watches as the events unfold on a monitor. This high-speed communication is facilitated by a separate internet created by the military for the military. Space warfare is combat that takes place in outer space, i.e. outside the atmosphere. Technically, as a distinct classification, it refers to battles where the targets themselves are in space. Space warfare therefore includes ground-to-space warfare, such as attacking satellites from the Earth, as well as space-to-space warfare, such as satellites attacking satellites. Midst all this militarisation process UN felt the need to intervene.

[5] Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, 1363 U.N.T.S. 3

[6] Michael Listner (March 19, 2012). "The Moon Treaty: it isn't dead yet". The Space Review.

VI. The Space preservation Treaty and the Stand of United States of America in encouraging Arms Race in Space:

The Space Preservation Treaty was a proposed 2006 UN General Assembly resolution against all space weapons. Three countries, most notably the United States of America, abstained from voting on most provisions of this treaty because the proposed treaty did not do enough to clearly define what is meant by a "space weapon", and therefore was open to wide interpretation and impossible to verify whether it was being violated.

According to the print media, The United States considers space capabilities—including the ground and space segments and supporting links—vital to its national interests. Consistent with this policy, the United States will: preserve its rights, capabilities, and freedom of action in space; dissuade or deter others from either impeding those rights or developing capabilities intended to do so; take those actions necessary to protect its space capabilities; respond to interference; and deny, if necessary, adversaries the use of space capabilities hostile to U.S. national interests;

The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space. Proposed arms control agreements or restrictions must not impair the rights of the United States to conduct research, development, testing, and operations or other activities in space for U.S. national interests; Despite its commitment to peaceful use of space as stated in its policy, just a few weeks later, the US was the lone vote against such a resolution at the UN General Assembly (and has voted against such a measure in the past), as mentioned further above. The policy therefore appears to meet the US Air Force's desire for weapons in space. The fear is that others will take a similar view (using the rhetoric of protecting its own interest in space) and encourage an arms race.

VII. Liability and Responsibility Vis a Vis The convention on International Liability for Damage caused by the Space Objects:

The extent of liability in case of damage by space objects remain a very disputed and heated debate till date. The Convention for Damage caused by the Space Objects, 1971 was an attempt to resolve this debate. This treaty was brought up in the United Nations on 29th of November, 1971. This treaty is the first attempt to determine the extent of liability of the countries in mishaps caused by their space objects. Article II of this act declares that there exists an absolute liability to pay for the damages caused by the space object on the surface of the earth or to air craft or to anything else. The country cannot evade the liability. There lies no defence in such cases. Further, Article III says that in the event of damage being caused somewhere else 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 of another launching state the latter shall be liable only if the damage is due to its fault or the fault of the person for whom it is responsible.

But what in the case of joint liability? What if two nations jointly undergo space venture and during that causes damage to the third country?

Article III clears the extent of liability pertaining to Two or more joint tortfeasors. It declares that both the nations in such a case would be jointly and severely liable for damage caused.

VIII. Judicial Pronouncements:

Several judicial pronouncements in this regard act as perfect guides and let us know the questions such as who is liable, why is he liable, what exactly is the extent of liability etc.

8.1. In the *Corfu Channel Case*[7], the Court imposed liability for Albania's omission to act despite its knowledge of the relevant circumstances.

8.2. In the *Spanish Zone of Morocco claims*[8], Judge Huber emphasized that

"...responsibility is the necessary corollary of a right. All rights of an international character involve international responsibility. Responsibility results in the duty to make reparation if the obligation in question is not met..."

8.3. International Court of Justice in the *Barcelona Traction case* [9]noted that:

"...An essential distinction should be drawn between the obligations of a State towards the international community as a whole, and those arising vis-à-vis another State in the field of diplomatic protection. By their very nature the former are the concern of all States. In view of the importance of the rights involved, all States can be held to have a legal interest in their protection; they are obligations erga omnes..."

8.4. The PCIJ in the *Chorzów Factory case* [10]held that

[7] (United Kingdom v. Albania) [1949] I.C.J. Rep. 4.
[8] Spanish Zone of Morocco claim, 2 R.I.A.A., p. 615 (1923)
[9] (Belg. v. Spain), 1970 I.C.J. 3 (Feb. 5) p. 32
[10] PCIJ, Series A, No. 17, 1928, p. 29.

"...it is a principle of international law, and even a greater conception of law, that any breach of an engagement involves an obligation to make reparation", hence, imputing liability on the wrongful acts of the state..."

In the lights of the afore mentioned judicial pronouncements the International Law has gained momentum in determination of liability and responsibility of countries in case of global threat.

Fall of the Sky lab, 1979

Skylab was a space station launched and operated by NASA, the space agency of the United States. Skylab orbited the Earth from 1973 to 1979, and included a workshop, a solar observatory, and other systems. Numerous scientific experiments were conducted aboard Skylab during its operational life, and crews were able to confirm the existence of coronal holes in the Sun. The Earth Resources Experiment Package (EREP), was used to view the Earth with sensors that recorded data in the visible, infrared, and microwave spectral regions. Thousands of photographs of Earth were taken, and records for human time spent in orbit were extended.

Plans were made to refurbish and reuse Skylab, using the Space Shuttle to boost its orbit and repair it. However, development of the Shuttle was delayed, and Skylab re-entered Earth's atmosphere and disintegrated in 1979, with debris striking portions of Western Australia. This indeed caused a lot of damage in the areas of Australia and Canada. The extent of liability of the United States was cent percent. But did they live up to the expectation of international standards? This question remains unanswered[11].

IX. Asteroid Mining: Question of Ownership

Article II of the Outer Space treaty clearly bans "appropriation," other provisions actually support property rights. The treaty makes clear that both the exploration and use of outer space shall be free of restraint and discrimination, and that there will be free access to all parts of space. It also states that the use of equipment and facilities necessary for peaceful activities is fine. And anything launched into (or built in) space remains the private property of its owner.

Any entity that can claim something as an exclusive resource, control its transport and distribution, and can exchange it for something else of value (in this case, other lunar samples), clearly owns that object. This is the single most important legal precedent for property rights in space, and should provide great comfort to those who wish to exploit the resources of outer space. It is also consistent with many commentators, who allege that the Outer Space Treaty's prohibition on "appropriation" relates only to entire celestial bodies as they exist "in nature," and that both individuals and nations can claim ownership of resources extracted from celestial bodies. The only real question, then, is the extent of this ownership: Can an entire asteroid be claimed if it is being mined?

Under the Outer Space Treaty, if a company is mining an asteroid, no other entity could come along and start mining on the other side if doing so could interfere with the first set of miners. If the asteroid were large enough to accommodate two independent mining operations, both could likely proceed, each gaining ownership of whatever material they extract. Thus, customary international law already gives would-be asteroid miners a sound basis for their business model.

But what if a mining company captured an asteroid, changing its orbit to bring it closer to Earth and thus make return of extracted materials easier? Would the entire asteroid belong to the mining company because the asteroid, as a whole, was "extracted" from its "natural" orbit — becoming more like a single rock or an artificial satellite than a moon or a planet? The answer to this question has yet not been determined.

X. Space Terrorism:

While benefits of space technologies are unquestionable, overdependence on space-based systems exposes the world vulnerability to terrorist sabotage; evidently, any interference in any of the infinitely active space program would entail an enormous cost. Therefore, it is understandable that the administration is paranoid about terrorist threat to the "Continental US space assets."

10.1. **Jamming Global Position System (GPS):** Global Position System (GPS). It uses a constellation of thirteen satellites that transmit three dimensional triangularized locations anywhere on the earth's surface. It is not too difficult for a terrorist organization to develop an area jamming capability that can ensure smart missiles used by US troops are misguided while attacking targets[12].

[11] Billings, L. (2006) To the Moon, Mars, and beyond: culture, law, and ethics in space-faring societies, Bulletin of Science, Technology & Society, 26(5), 430-437

[12] National Research Council (U.S.). Committee on the Future of the Global Positioning System; National Academy of Public Administration (1995). The global positioning system: a shared national asset: recommendations for technical improvements and enhancements. National Academies Press. p. 16. ISBN 0-309-05283-1., Chapter 1, p. 16

10.2. **Cyber-terrorism** : During the Kosovo conflict in 1999, NATO computers were blasted with e-mail bombs and hit with denial-of-service attacks by hacktivists protesting the NATO bombings. In addition, businesses, public organizations, and academic institutes received highly politicized virus-laden e-mails from a range of Eastern European countries, according to reports. Web defacements were also common[13].

Cyber-terrorism is yet another facet of space terrorism. Security of military installations, power plants, air traffic control centers, banks and other communication networks is already at stake due excessive dependence on Internet. Increased Internet usage is the vulnerable component in space operations[14]. Reports indicate that militant groups like the Al-Qaeda and Hamas are equipped to carry out cyber attacks. Soon after the Columbia mishap, there were reports that seven of the NASA computer servers were hacked. Since foolproof security of any computer system is a myth, the entire world has plenty to worry about. The intention of a cyber terrorism attack could range from economic disruption through the interruption of financial networks and systems or used in support of a physical attack to cause further confusion and possible delays in proper response. Although cyber attacks have caused billions of dollars in damage and affected the lives of millions, we have yet witness the implications of a truly catastrophic cyber terrorism attack.

10.3. **Demolition of e-governance base**: The aim of e-governance is to make the interaction of the citizens with the government offices hassle free and to share information in a free and transparent manner. It further makes the right to information a meaningful reality. In a democracy, people govern themselves and they cannot govern themselves properly unless they are aware of social, political, economic and other issues confronting them. To enable them to make a proper judgment on those issues, they must have the benefit of a range of opinions on those issues. Right to receive and impart information is implicit in free speech. This, right to receive information is, however, not absolute but is subject to reasonable restrictions which may be imposed by the Government in public interest.

XI. Recommendations and Conclusion:

Following sets of recommendations can be followed in order to build the basic structure of the space law globally:

a) International Court of Justice must be declared as the apex body to adjudicate matters pertaining to matter pertaining to space law.
b) United States of America must ratify the Space Preservation Treaty and set an example for the other nations.
c) Amend the Outer Space Treaty to try and work around the *res communis* doctrine and shape the treaty more in line with the present day global realities.
d) The countries must Shape domestic space policy and regulations to provide a platform to begin to reshape international space law. Domestic space policy could evolve into multilateral agreements with other countries regarding the use of space.
e) The objective of demilitarisation of space must be taken seriously and countries must start acting on the same.
f) The gray areas in the current legislations must not be interpreted for countries selfish motives.
g) Stronger Laws on Asteroid and Moon mining must be encompassed in the upcoming legislations.
h) All the countries must ratify the Moon treaty.
i) Effective measures against space terrorism and cyber terrorism must be taken. Constant watch is required in this regard.

To be effective, the goal of rethinking international space law must be one of action rather than talk. It will require time and investment into space policy and legal think tanks to lay the foundation for the new era in international space law.

Evolving an efficient legal framework for the outer space is the sine quo non of the hour and hence any procrastination in this regard would mean nothing but inviting ordeals. The United Nations has already played its part, its time for the member nations to abide to the peace restoration treaties and make the quest of law making possible.

[13] Colarik, Andrew M. (2006). Cyber Terrorism: Political and Economic Implications. Idea Group, U.S.. ISBN 1-59904-022-0.

[14] Verton, Dan (2003). Black Ice: The Invisible Threat of Cyber-terrorism. Osborne/McGraw-Hill, U.S.. ISBN 0-07-222787-7.

References:

Articles and Books

[1] W. L. ANDREWS "The Taxation of Space Commerce" Kluwer Law International, The Hague, Boston, 2001.
[2] K.-H. BÖCKSTIEGEL "Space Law: Changes and Expectations at the Turn to Commercial Space Activities" Kluwer Law and Taxation Publishers, Deventer, The Netherlands, 1987
[3] ALMOND, H. COMMENT "Emerging Law of Outer Space: The Analogy of Maritime Salvage" Journal of Space Law, Vol. 19, 1991, p. 67.
[4] H. J. HAUBOLD "Space Law and Space Science at the United Nations" Earth, Moon, and Planets, Vol. 73, N. 2, 1996
[5] V. S. VERESHCHETIN "The Law of Outer Space in the General Legal Field: Commonalities and Particularities" Revista Brasileira de Direito Aeronáutico e Espacial, N. 93, 2010, p. 42.
[6] V. S. VERESHCHETIN, G. M. DANILENKO "Custom as a Source of International Law of Outer Space" In F. LYALL, P. B. LARSEN (eds.), "Space law", Ashgate, 2007.
[7] L. VIIKARI "Time is of the Essence: Making Space Law More Effective" Space Policy, Vol. 21, Issue 1, 2005, pp. 1-5.
[8] O'Donnell, Declan J., "Welcome to our Inaugural Issue," Space Governance Journal, Vol. 1 No. 1, June, 1994, p.4
[9] Michael Listner (March 19, 2012). "The Moon Treaty: it isn't dead yet". The Space Review.
[10] Verton, Dan (2003). Black Ice: The Invisible Threat of Cyber-terrorism. Osborne/McGraw-Hill, U.S.. ISBN 0-07-222787-7.