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IPR OVER THE OUTER SPACE ACTIVITY**1. Abstract :**

The most vital element of success is to protect one's creativity. It's general human tendency to seek something for something done. At times, creativity may result in intellectual (or) intangible property which includes Patents, trademarks, trade secrets & copyrights. Due to rapid development in Science & Technology many institutions & organizations are making huge investments in form of time & money to go beyond the confinements of Earth by conducting research (or) by developing advanced space technology.

After the technical advancement and development, the study, explore and the Use of outer space is not a new concept but the problem arises in the implication of the IP law regime to the outer space. So there comes an immense need for laws that govern these outer space activities which are not universally available. When the IP laws were drafted no one thought that outer space exploration will reach such a milestone.

Later developed countries like USA, Germany, Japan, Russia has developed IP laws that extends its ambit in the Outer space. The development in the regime of the Outer Space is always dynamic and there will be new issues emerged frequently and it's impossible to have an updated and the Universal IP law deals with the Outer Space Activity.

This research paper flows in analyzing the existing provision in comparison with the US laws(as they recognized the outer space laws) and the provisions of that law along with the lacuna and the challenges rises.

2. Literature Review :

A) Public versus Private Conflicts in Theory between Space and IP Legal Regimes -

As regards the international treaties that govern IP, the most important ones are the Berne and the Paris Conventions and the TRIPS. The first two conventions comprise the first batch of multilateral treaties that addressed copyrights, patents, trademarks and designs.

The Paris and the Berne Conventions, together with some other IP conventions and agreements, are under the governance of the World Intellectual Property Organization (WIPO), an agency of the UN. It is clear that natural (or) legal persons are the beneficiaries of the IP law which is supported by the usage of the terms, the 'right holder' and 'owner' in the TRIPS.

B) Free Exploration versus Monopoly Rights -

It was reiterated in **Arts. I (2) and (3) of the OST** that

“Outer space, including the Moon and other celestial bodies, shall be *free for exploration and use* by all States without discrimination of any kind, on a basis of equality and in accordance with the international law, and there shall be *free access* to all areas of celestial bodies”.

There shall be freedom of scientific investigation in outer space, including the Moon and other celestial bodies, and States shall facilitate and encourage international cooperation in such investigation. Therefore, there are three basic rights - the right to free exploration, free use and free access.

- Firstly, the OST explicitly provides that states and intergovernmental organizations are the only two beneficiaries of outer space which stands in contrast with IP laws, where the beneficiaries are mainly natural or legal persons.
- Secondly, the OST highlights in **Art. I** that all countries, regardless of their economic development and without discrimination, shall somehow benefit from space exploration and use activities. This is the intrinsic merit of the 'province of mankind' provision. In contrast to outer space law, IP law mainly aims to protect private rights by conferring economic moral rights to IPRs owners who can exploit them through a variety of ways

for economic rewards. The means of exploitation include but are not limited to assignments, licenses, sublicenses, mortgages, compulsory licenses, etc.

- Thirdly, the OST also declares that any state or private actor under the supervision and licensing and accord of the state, without obtaining permission from other countries, can freely explore and use outer space for scientific research. The free use of space also includes commercial/economic purposes. In contrast, IP law grants a series of exclusive and monopolistic rights to prevent third parties from infringing onto the IPRs of the owner without prior consent or lawful justification.

C) Non-Territorial Sovereignty versus Territoriality Paradox in Theory between Space and IP Legal Regimes -

Three specific case studies related to claims of sovereignty in outer space by individuals will be examined through -

i) **The Lunar Embassy** -

In recent times, some private companies have started selling plots of land on the moon by issuing 'deeds of sale' as evidence of ownership for the buyers. Lunar Embassy is the most renowned company established in **1980** by Dennis Hope¹ that is selling 'extra-terrestrial estate'.

Arguments by Mr. Hope -

- Private individuals are not included in the prohibition of outer space appropriation as contained in **Art. II** of the OST.
- There is a loophole in the OST that allows the private appropriation of extra-terrestrial property.
- Hope also referred to the lack of response from the authorities in the US and other countries, to which he informed his claim of ownership over the moon.
- Hope deduced the lack of objection to his claim as acceptance of the legitimacy of his argument and implicit approval to claim ownership.

¹ Lunar Embassy, <http://lunarembassy.com> accessed 9th November, 2020

Hope also resorted to using the fact that he had registered his claim on the moon at a US governmental office in accordance with US domestic laws. He contended that his claim cannot be rejected by international law because even though international and national laws constitute two distinct legal orders, when a state commits to certain international legislations, it is obligated to ensure that the national law complies with these international legislations.

Neither the US (or) the Soviet (or) even the UN Secretary-General is obligated to respond to Hope. None of these authorities would have the power to recognize/refuse the lawfulness of the claim because such a claim has no legal basis as the moon is non-appropriable by any state or private entity.

It is therefore not sufficient for any 'owner' of property on the moon (or) other celestial bodies to use national law to justify his/her claim.

The illicitness of these activities undertaken by the Lunar Embassy has been also formally condemned by a court judgment. The Lunar Embassy has incorporated daughter companies to appoint ambassadors around the world. In October **2005**, Beijing industrial and commercial authorities suspended the license of the Lunar Embassy in China because Lunar Embassy was involved in speculation, fraud and profiteering.

The verdict of the Chinese court is a very significant means of confirmation of the non-appropriative nature of outer space and any private ownership claims that strive to be legally recognized as having (territorial) sovereignty with regard to the moon and other celestial bodies are null and void.

ii) Nemitz vs. NASA and Nemitz vs. US -

- US citizen Gregory Nemitz registered his claim to Asteroid 433, Eros in **2003**, which was published by the Archimedes Institute.

When NASA landed an aircraft on his property, he invoiced them for rent and parking. NASA did not pay, and their lawyer responded in a letter which stated,

‘Your individual appropriation of a celestial body appears to have no foundation in law. There is no similar statute related in outer space. Accordingly, your request for payment of a parking/storage fee is denied’².

- Nemtitz proceeded to file a suit against them in federal court that the US had utilized his property without fair compensation.
- The court ruled that neither the failure of the United States to ratify the Moon Treaty nor ratification in **1967** of the OST, created any rights for Nemtitz to appropriate property rights on asteroids.
- Nemtitz appealed the case to the Ninth Circuit Court of Appeals, who however maintained the previous verdict and ultimately dismissed the case³.

This case represents the rejection of extra-terrestrial private property rights that had been legally recognized.

iii) Bogota Declaration -

- The developing states were concerned that the geostationary slots occupied by the developed states could prevent them from using orbit/spectrum resources in the future, reflected in the **1976** Bogota Declaration.
- In this declaration, some of the equatorial developing countries claimed sovereignty rights over the parts of the geostationary orbit (GSO) that laid over their respective territories, thus any placement of satellites in this orbit would require their authorization and some compensation would be necessary.
- The existence and distinctive characteristics of the GSO depend on the relation of gravitational forces to Earth. Instead of considering the GSO as a part of outer space, therefore part of the national territory.
- Each nation is entitled to control its own natural resources, the equatorial states contended that sections of the GSO belonged to the nations that have territory directly underneath these sections.
- It was ultimately rejected by both the developed and developing countries. Space-faring states indicated that the arguments made by declarants did not have enough grounds to allow them to physically enforce their claims. Conversely, other developing states who

² ‘Nasa’s Response to Nasa Orbdev's Letter 010322’ <http://orbdev.com/010409.html>

³ The Eros Project for Space Property Law’ <http://www.erosproject.com/>

did not have an equatorial position indicated that the arguments in the Bogota declaration were limited and arbitrary.

- The request for territorial sovereignty over parts of the GSO contravenes the non-appropriation principle in **Art. II** of the **1967** OST as the GSO belongs to outer space and is therefore not subject to any governmental or state sovereignty.

The failure of the Bogota Declaration in turn served to reinforce the legality of the non-appropriation principle set forth in **Art. II** of the OST. The outer space, which comprises the moon and other celestial bodies, is non-appropriable by both governmental and private entities.

3. Research Problem :

Whenever we recall the space age we can't deny the role of the Global leaders, USA and Russia for the development of space era. In the modern era, use & exploration of outer space is not limited to public/governmental activity which also extends to commercial & private enterprises. Some entities also collaborate & work together in the area of outer space by sharing information & technology. So if any conflict/dispute arises between them there is no law that deals with this. There will be a huge issue in relation to ownership rights, confidentiality etc. In **January 2018**, around **230 scientists** visited the shuttle to pursue further research and experiments.

In total, **15 countries** are contributors. The space shuttle had been launched with an aim of performing research in space. The issue here was that how the jurisdiction could be decided to get the inventions registered under the patent laws of any country when the scientists belong to different countries⁴. In the race of ISS⁵ China has increased its technological capability and plans to send its first international space station into outer space in **2020**⁶ Commercial revenue and government budgets for the global space industry jumped to US\$304.31 billion in **2012**, representing growth of **6.7 per cent** from the total of US\$285.33 billion in **2011** and in **2013**, the space economy grew by **4 per cent**, reaching a new record of US\$314.17 billion and

⁴https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2820625, accessed on 09/11/2020

⁵ International Space Station(ISS)

⁶ 'Chinese Space Station to Benefit World', Xinhua News Agency (16 June 2012) http://news.xinhuanet.com/english/china/2012-06/16/c_123293484.htm, accessed on 09/11/2020

continued to grow to the total of US\$330 billion in **2014**⁷. As the commercialization of the outer space exploration had been increased so there arises increasing demand for the protection of the rights of the private entities and also the right of the sovereignty of the countries on the whole.

4. Research Question :

Does the US model of patent in outer space is sufficient enough to frame a multinational law on patents ?

5. Introduction :

The space Era has begun when the first satellite Sputnik I was launched in October 1957 where it continues from there when the second satellite Explorer I was launched by the USA a few months later. From then we could see the rapid growth in the field of outer space

5.1. Patent laws -

The time when the space law was evolved is at the time of cold war, where the international organization focuses only on managing the conduct and balancing the sovereignty in the outer space. So the primary importance was not given to the private activities in the space and therefore there are no major international space treaties that regulate the application of national patent laws to space activities⁸.

However **Art. VIII** of the **1967** OST expands the launching by state not only for the object but also over its personnel. But USA was the first country to bring The Patents in Space Act in **1990**. It was clearly stated that “any invention or its related components that have been created, applied (or) sold in outer space on a space vessel fall under the administration and authority of the US, synonymous with any invention that is created, applied or sold in the US itself”⁹ From this we can clearly see the USA connotation that any invention created on a US registered

⁷Space Foundation’s 2013 Report Reveals 6.7 Percent Growth in the Global Space Economy in 2012’, Space Foundation Press Release (2 April 2013), <https://www.spacefoundation.org/2013/04/02/space-foundations-2013-report-reveals-6-7-percent-growth-in-the-global-space-economy-in-2012-2/>>, accessed on 09/11/2020

⁸ [Anwasha Singh](https://www.mondaq.com/india/trademark/762020/intellectual-property-law-and-the-outer-space-a-promising-future-ahead) Khurana and Khurana, *Intellectual Property Law And The Outer Space: A Promising Future Ahead?* <https://www.mondaq.com/india/trademark/762020/intellectual-property-law-and-the-outer-space-a-promising-future-ahead>, accessed on 10/11/2020

⁹ PSA, 1990

spacecraft is considered to be the same as one created in the US itself and they can seek the remedy in the US court.

In **1998** a major notion was brought due to the prominence given to the ISS, the notion of incorporating national patent jurisdiction into an intergovernmental agreement that was related to collaborations on the ISS was proposed by the major space powers which were called as IGA. After the IGA Japan, Russia, US and the members of the EU can claim for the patent jurisdiction over the activities took part in the ISS. The major problem we could observe here is that the developing nations were not being the part of IGA and in case of corporation these nations may get the patent¹⁰.

5.2. Subject matters of the Patent -

The (ISS) is a unique scientific platform that enables researchers from all over the world to put their talents to work on scientific research and experiments that are unique to a zero-gravity space environment i.e. Microgravity. We can always see the prominence was given to the Pharmaceutical sector (look into the annexure). On basis of the annexure we can categories the inventions in the space activities as

- inventions produced on earth for space applications;
- inventions made on earth for terrestrial applications as a result of space activities (including telecommunications);
- inventions made in outer space for terrestrial applications;
- inventions made in outer space for spatial applications;
- inventions patented on Earth for spatial applications used in outer space. Out of which we have to look in to the category 3&4 as the rest falls under the general patent laws

5.3. Patentability and the ownership of the Space patent -

Patentability depends on meeting **three important requirements** - novelty, inventive step & industrial applications. But the question arises whether all these three provisions will be applied, it's easy to prove the third requirement.

First, for an invention to be considered new, reference needs to be made to the **state of the art** which is commonly used to assess the level of novelty. In general terms this means that it must not

¹⁰ CHEN Zhijie, *Application of Intellectual Property Rights to Outer Space Activities: An Adaptive Regulatory Approach in the Context of Space Commercialization*, pg12

be publicly know, either in use or published, anywhere in the world¹¹. This provision is very important in considering the inventions regarding the ISS. These provisions are important when it comes to examining the protection of patents in outer space because scientific staff members are usually stationed on the ISS for lengthy periods of time. Therefore, an invention could be utilized on the ISS (or) revealed to other members of the ISS before an application is formally submitted to protect this invention.

Here the interpretation of ‘novelty’ had become essential as it may be problematic in case whether inventions made on the ISS (or) information related to such inventions when broadcasted to other individuals who happen to be stationed. Here the US government become prominent by invoking the ISS Crew Code of Conduct, which was adopted by the ISS partners on **4 February 2000**¹² But the problem rises that applicability of this particular code in case of joint venture.

In case of the inventiveness it was stated by **Markus Reitzig** that

“This means an invention made in outer space (or) product that came about from being in outer space needs to be adequately inventive to be eligible for patenting. That is, the invention or product cannot be very apparent to ‘a person skilled in the art’, who has common general knowledge in the art to which the claimed invention pertains and the ability to use ordinary technical means for research and development (including experiment, analysis, and manufacture); who has the ability to exercise ordinary creativity in selecting appropriate materials, optimizing numerical range of the invention, and replacing the invention with equivalents. etc.; and who is able to comprehend all technical matters regarding the state of the art in the field to which a claimed invention pertains at the time of filing based on his/her own knowledge.”¹³

This need for inventiveness is one of the important bases in applying for a patent, and that would be better justified in case of the microgravity situation where the distinction can be brought. Here the problem arises again when it was the multilateral venture and the question rises about who owns the IP rights and which particular national or regional legislation may adhere.

¹¹Sean B Seymore, ‘Rethinking Novelty in Patent Law’ Duke Law Journal 919; Dennis Verhoeven and others, ‘Measuring Technological Novelty with Patent-Based Indicators’ (2016) 45 Research Policy 707.,<https://ideas.repec.org/a/eee/respol/v45y2016i3p707-723.html> ,accessed on 09/11/2020

¹²The Code of Conduct for the International Space Station Crew was approved on 15 September 2000 in Washington DC by the Multilateral Coordination Board, the highest-level coordination body established through the ISS Agreements.

¹³Markus Reitzig, ‘What Do Patent Indicators Really Measure? A Structural Test of ‘Novelty ‘and ‘Inventive Step’ as Determinants of Patent Profitability’ (2003) 33 Research Policy 939.,<https://www.semanticscholar.org/paper/What-Do-Patent-Indicators-Really-Measure-A-Test-of-Reitzig/8b5693a892abc0775582ee02f8d5ccf1016ffee0> ,accessed on 2/11/2020

5.4. Product or the Process -

Whenever there is a challenge in orally describe a novel item, or difficult to understand its structure, but the process used to make or create this novel item is known, then a product by-process claim can be a feasible means.

Here we should consider the micro gravity situation and the problem lies in the process in the microgravity situation will not be the same when compared to the Earth's atmosphere. However another criteria would be to look on by this product by process means the resultant product of the patented process will also be automatically protected¹⁴. In turn if the process of the other product is same but the product is different the problem would rise in the form of infringement.

The US court had taken an advanced step by a recent decision of the US Court of Appeals for the Federal Circuit who stated -

‘regardless of how broadly (or) narrowly one construes a product-by-process claim, it is clear that such claims are always to a product, not a process’ but yet in this case a problem is when the particular process is yet to be protected.

5.5. Ownership -

Once all the previous conditions are satisfied now concern for ownership arises. Previously there is an only body that is state that had the financial means to embark on space projects and thus patent ownership which is realized within the framework of an employment contract, then the invention would be that of the employer¹⁵ the US entity again created their frame work to make it inclusive of the factors of the Private entities being part of the Outer space Activity.

5.6. NASA Model -

As stated before the patent was owned by the state itself which in turn discouraged private parties from taking part in space activities. However an initiative had been taken by the US government to develop a guide that can be used as a reference source to create, use, transfer ownership and protect patents in terms of the ISS.

NASA provides access to commercial users of ISS resources by relying on **two types of agreements;**

a) Space Act Agreements and Cooperative Research &

¹⁴ Supra note,n7 P 154

¹⁵John Hagedoorn, ‘Sharing Intellectual Property Rights—an Exploratory Study of Joint Patenting Amongst Companies’ (2003) Industrial and Corporate Change 1035, <https://ideas.repec.org/a/oup/indcch/v12y2003i5p1035-1050.html> accessed on 29/10/2020

b) Development Agreements (CRADAs).¹⁶

Under the former one given the authority to enter into contracts, leases and cooperative agreements, and also to execute them with the condition that the inventions that came about from these contracts (or) agreements fall under the ownership of the US government.¹⁷ It also divide the agreements into **two types** i.e. **reimbursable and non-reimbursable**. NASA is compensated under reimbursable agreements, the other party will receive a license that is exclusive, incurs no royalties, and is irrevocable. Under non-reimbursable agreements, the exchange of patents is not mandatory. However, NASA could contemplate granting either an exclusive (or) semi-exclusive commercial license to the participating party¹⁸.

Whenever we consider the ESA model, its ESA's Implementing Rules for the ISS Exploitation Programmes went on giving more right of the arbitration incase of the Patent ownership. In this regard ESA clearly defines

“the user who is responsible for all of the utilization costs will enjoy exclusive ownership of information, data and intellectual property, as well as access and use to them”, and when the ESA partially funds user activities (or) is otherwise involved in the user activities, access to information, data and intellectual property and their use by the ESA will be discussed in accordance with the relevant policy, in order to provide payment to the ESA in terms of royalties on the use of the information, data and intellectual property (or) fee payments related to the services provided by the ESA and their financial support”¹⁹

5.7. Joint Venture -

In case of the Joint Ventures there are two problems to be summed up;

- a) Acknowledging the Contribution of co-inventor where the NASA has stated the rules are general in the provisions of the general patent.
- b) Who is the Actual Owner of the Patent.

¹⁶Tiphany Baker Dickerson, 'Patent Rights under Space Act Agreements and Procurement Contracts: A Comparison by the Examination of Nasa's Commercial Orbital Transportation Services (Cots)' (2007) 33 Journal of Space Law 341;

¹⁷Dickerson, 'Patent Rights under Space Act Agreements and Procurement Contracts' (n 30) 342.

¹⁸ Ibid,344

¹⁹ESA's institutional intellectual property rules—modification for the commercial utilization of intellectual property, 'ESA's New Intellectual Property Policy', 253 and 257.

General principles on joint inventions provided by NASA are in place, which are based on the Space Act Agreements while in regard to ESA general principles around partnership activities in the ESA Resolution are outlined including that agreements in partnerships are negotiated on an impromptu basis as nowhere the word 'joint invention' is specified in the ESA²⁰. Here the second issue of the Actual owner will arise as the countries with outer space patent can only get the authority which leaves the other country to left out as they had no specific provisions and they can't be a patent holder.

5.8. Patent Infringement in the Space -

Connecting factors to determine applicable law -

Nationality being connecting factor in case of the patent issues it was argued that the applicable law must be that of the state of the person(s) who have committed the infringement. In case of the application of the patent under the nationality it would serve its purpose but in case of the infringement towards the Patent it results in a lot of confusion.

Use of nationality as a connecting factor to determine applicable law may have detrimental consequences. There could be complications when a group of individuals with different nationalities violate a patent.

In case of Multilateral Treaty the application of nationality as a connecting factor with respect to a patent that has been registered in India, the US, Japan, France, and Germany would mean that a citizen of any other country aside from these five countries, can infringe on a patent but would not suffer any liability²¹

Under **Article VIII** of the OST²² and by the **Article II (1)** of the Registration Convention the jurisdiction in space has been cleared along with the support of the registration clause. Jurisdiction is not only applicable to the space object that is registered with a country, but also

²⁰ESA Intellectual Property Resolution, section 4.

²¹ Sandeepa Bhat B, 'Inventions in Outer Space: Need for Reconsideration of the Patent Regime' (2010) 36 Journal of Space Law

²² Art. VIII of the OST states that, A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth...

applies to any personnel on the space vessel. This is true regardless whether they are situated in outer space (or) on another celestial body. So the jurisdictional aspect is well settled and cleared.

Whenever the Multilateral treaty (or) the agreement arises in patenting the invention two questions needs to be addressed that is

a) Who is the patent owner?

b) Is it the individual who invented the patented product (or) the one who initially filed an application for a patent?

Both situations are supported by different countries worldwide. The most controversial state in case of the patent application to the US laws regarding the multilateral venture is the divided stance between the US and most of the other nations, in which the former adheres to a patent system based on first-to-invent, versus the latter who follow a patent system that is first-to-file²³ Another problematic situation arises when in the event that the outer space invention is implemented (or) financed by a group of individuals with different citizenships. This may also result in each individual would return to their own country and register the patent in his/her own name based on either first invention (or) first filing. The only possible solution that would address these issues is to have all the states consent to a specific patenting system²⁴

After the increasing involvement of the private entities in the outer space exploration and the commercialization, Space companies have been given with the liberty to establish themselves in any nation of their desire, and launch technology advancements might eventually evolve to the point where companies can launch a spacecraft from almost any country of their choice. When that is the case, flags of convenience would probably nullify the patent system that protects outer space inventions.²⁵

The principle of 'minimal contacts' in the US concerns the doctrine of personal jurisdiction which stipulates that there needs to be sufficient contact prior to subjecting a 'foreign' entity to the jurisdiction of a 'state'. That is the activity this foreign corporation must have met certain basic

²³ Hammerle and Ro, 'Extra-Territorial Reach of US Patent Law' (n 9) 263-65.

²⁴Bradford Lee Smith, 'Intellectual Property Issues for the Galileo Project' (44th Colloquium on The Law of Outer Spacet, Oulouse, France, October 2001)

²⁵ Hammerle and Ro, 'Extra-Territorial Reach of US Patent Law' (n 9) 263-65.

requirements within the state²⁶ due to this the SC of the USA often have tried to reconcile with the idea that US patent law is completely territorial .

By *'Deepsouth Packing Co. v. Laitram Corp., Laitram'*²⁷

the SC heed caution in interpreting patent law, and enacted 35 U.S.C. § 271; that it creates the balance towards it. Later 35 U.S.C. § 105 was introduced to extend the parameters of patent violation to include acts that take place in outer space on a space object (or) one of its components that are under the administration of the US. Beyond these many steps had been taken by the courts in US the problem arises with the exception to the 35 U.S.C. § 10

5.9. Impact of 35 USC§105 Exceptions: Flags of convenience -

After the increasing in the participations from the space companies and commercialization they provide more leniencies to establish in order to establish them in any nation desire for and launch technology advancements might eventually evolve to the point where companies can launch a spacecraft from almost any country of their choice. When that is the case, flags of convenience would probably nullify the patent system that protects outer space inventions²⁸.

One of the goals of the 35 U.S.C. § 105 was to ensure that any loophole for liability of patent infringement of an object that is used in outer space would be shut down as had incorporated strict territorial language. However; the result was not as anticipated. The drafters had the good intention to reconcile 35 U.S.C. § 105 with the OST, yet in the process, they sealed off one loophole and unwittingly created another loophole. The exceptions towards the 35 U.S.C. § 105

(a) specified and otherwise provided for through an international agreement which involves the US as one of the parties (Exception I) or

(b) found on a foreign state registry that complies with the Registration Convention which is very relevant to the American private enterprises because the venue selected to register their space objects could be within their discretion²⁹

²⁶ Kevin C McMunigal, 'Desert, Utility, and Minimum Contacts: Toward a Mixed Theory of Personal Jurisdiction' (1998) 108 The Yale Law Journal 189.

²⁷ 406 U.S. 518 (1972)

²⁸ Kleiman, 'Flags of Convenience' (n 133) 5.

²⁹ Hammerle and Ro, 'Extra-Territorial Reach of US Patent Law' (n 9) 262-63.

For better understanding concerns, if we take hypothetically US company that launches and controls a satellite from a facility located outside of the US (State B). Even if the company is violating the patent of the US company it will lead to no actions against the company as the control and the registration is within the other state.

This was well stated in *Hughes Aircraft Co. v. US*³⁰ is a comparable case, in which the US Court of Claims ruled that ARIEL 5, a satellite, did not constitute any violation of a US patent. ARIEL 5 was produced in the UK where it was also primarily controlled, and had never entered the US even though the central communications link that tracked and acquired information for the satellite was at the Goddard Space Center operated by NASA in Maryland, US.

The court applied the case of Decca, and rationalized that even though a good amount of control originated from the US, the point of control was actually in the UK, so the UK had more control over the spacecraft and consequently, the US could not establish jurisdiction³¹.

Similarly, situation will be same if the a satellite is launched by an American company from a facility that is in a foreign country, but the headquarters of the company controls the spacecraft in the US and still uses the patentable object in their space craft that been registered under other state it will also get the exemption by the clause 2. Academics would suggest that the US Congress needs to modify 35 U.S.C. §105 by amending Exception II. The amendment would necessitate US courts to adhere to extraterritorial principles when they are deciding whether the jurisdiction falls under the US in claims of patent infringement that has taken place on a spacecraft with a foreign flag.

³⁰ 481, 35 USPQ2d 1243 (1994)

³¹Hughes Aircraft Co. V. United States, 243

6. Conclusion :

Need for a Multinational law -

Always the idea of establishment of a new category was proposed called 'space patent' under the framework of the PCT and there will be the designated patent office specially empowered to provide for space patent applications and a new regime would grant inventors IP protection for a certain period of time amongst all of the signatory countries on all of the use of their invention in space.

This solution may possibly respond to the issue of jurisdictional gaps in space law with respect to patent law; the notion that patents are nationally territorial in nature and space extends beyond any national jurisdiction³². Whenever we have to consider the signatory proceedings two issues would need to be addressed in a patent protection agreement in space - enforcement and state liability as state liability is important in case if the space activity is going beyond the commercialization as the state can't only bear all the liability.

The ideal solution to address the problem of flag of convenience and the registration clause in accordance with the private entities provisions is to create a new jurisdiction in the effective protection of patents. This system would mean that space technology inventors are only required to file one patent in one jurisdiction, rather than every launching state. They would also be eligible to use the courts of this new multinational jurisdiction to enforce their patent against violators of their outer space patent, and it does not matter whether the spacecraft that has infringed upon the patent is registered or not.³³

By this we don't avail any loopholes to misuse the patent provision on basis of the registration on the country with no stringent legislations in relation to the Patent infringement as usually this is made to avoid the flags of convenience which are often under fire as they provide a permissive environment that encourages criminal acts, poor work conditions and damage to the environment³⁴

³² Zhao, 'Patent Regime in Hong Kong' (n 13) 181

³³ Supranote, n5P291, para 1

³⁴ Herbert Roof Northrup and Richard L Rowan, *The International Transport Workers' Federation and Flag of Convenience Shipping*, vol 7 (Olin Inst 1983); Nathan Lillie, 'Global Collective Bargaining on Flag of Convenience Shipping' 42 *British Journal of Industrial Relations* 47; Rex S Toh and Sock-Yong Phang, 'Quasi-Flag of Convenience Shipping: The Wave of the Future' (1993) *Transportation Journal* 31.

However many had argued that the Multinational law is not possible unless the countries reached the standards for establishing it. But other side of the argument is that the countries with the distinguished law to outer space have the monopoly to change the laws regarding the outer space and they had a huge possessions in it. Unless proper authorization is provided by the state /national body the privatization in the field of space law is not possible and the development in the space related activities and the expenses regarding it will always lie on the state.