

COMMERCIALIZATION OF OUTER SPACE AND IPR

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ABSTRACT

Intellectual property rights can be generalized as the rights of the creator, which protects and safeguards him from any misuse of his creation, it is usually recognized as the subject of national legislations. In the last few decades, the exploration of satellite related activities have become significant and requires legal regulations and monitoring from the international community.

Even though at the first sight these two areas of law seem to fall in separate domain but the growing commercialization and advancement in space technology has given rise to the conflict between the fundamental ideologies of these sectors as one relies on the principle of “private ownership/monopoly rights” whereas the other propagates the theory of “common heritage”.

One of the grounds for the harmonization of these two sectors comes from the fact that there is an increasing shift from state owned activities to private and commercial activities, as these non-governmental actors are more aware about their “property rights”. Another base for harmonization of these two sectors is the increased development of the sophisticated technology using outer space exploration which requires protection of IP which are only protected in the territory of their country and not in outer space.

This paper attempts to critically analyze the legal provisions, treaties, policies, rules pertaining to IPR issues in outer space activities arising out of the constant growing commercialization of it.

INTRODUCTION

Post World War II the soviets in the year 1957 were successful in launching their first artificial satellite “sputnik I” into space. Four years later Russian Lt. Yuri Gagarin in 1961 became the first human ever to orbit earth in Vostok I.

In the light of the recent Soviet Union’s activity in the space the American government launched their own satellite Explorer I in year 1958. Subsequently various other nations like India, EU and China had started their own space exploration programs.

With the increase in the space activities in the twentieth century there was a rise of certain rights and liabilities in regards to the activities in outer space. Possibly the most eminent among them was the role of IPR. The ideology behind the IPR is to incite advancement without the dread that a competitor might steal/or assumes the credit for the idea. The philosophy behind security of IP law in outer space exercises is that the certainty that when an innovation happens past a region further away from the reach of any country cannot disentitle the maker to the rights guaranteed over it. As the interest of the masses in outer space activities started to plummet towards the end of the twentieth century even the governments started to deprioritize the funding for space exploration. Since the year 1993 the NASA budget has never totalled over 1% of the overall Americas federal budget, whereas in the height of its space activities in the year 1966 its budget was a total of 4.41% of the federal budget. Since the government have started to deprioritize space exploration there have been massive budget cuts even in agencies like NASA which has resulted in discontinuing a various space programs for example the space shuttle program of NASA which brought astronauts and other cargo pieces to the international space station, this was discontinued in 2011 due to the budget cuts.

To fill the gap left by these discontinued programs many private companies since 2004 have been given delegated commissions from various space agencies to perform certain vital functions. Among them is the takeover by SpaceX and Orbital ATK for the resupplying to the space station with cargos launch from US.¹ This was possible through public private partnership under the agencies commercial orbit transportation service programs, which

¹ Available at https://www.nasa.gov/mission_pages/station/structure/launch/overview.html

allowed the companies to develop the rockets and spacecraft's for safe reliable and cost effective commercial transportation to and from the space station and earth.

Commercialization and privatization of outer space activities have also been observed in India's space program, which follows the policy of using the capacities and infrastructure of Indian industries for their projects. The commercial wing of Indian space research organizations (ISRO) namely Antrix Corporation was established in 1992. Recently, India has opened its market for private players as can be witnessed by its various policies, example, satellite communication policy 1997, mapping policy 2005 and remote sensing data policy 2011, predominantly the commercialization is in telecommunication area.

With the constant shift of state owned activities to private and commercial activities the space technology has underwent a drastic change. As the technology increases so does the ever-rising dilemma of IPR that they bring along.

INTERNATIONAL SPACE LAW TREATIES

The UN in its resolution of 1957 formed the committee on the Peaceful Use of Outer Space (COPUOS) which came into function in 1959 for the purpose of governing the "exploration and use of space for the benefit of all humanity: for peace, security and development. The committee was tasked with reviewing International Corporation in peaceful uses of outer space, studying state related activities that could be undertaken by the UN and studying the legal problems arising from the exploration of outer space."² Further the GA established two subsidiary bodies namely, the legal subcommittee (LSC) and the scientific and technical subcommittee (STSC). In case there was any proposal in regards to outer space activities presented in front of GA it had to be addressed at two levels, LSC would determine the legal aspect and the STSC would deal with the technical details of the same.

² Available at <http://www.unoosa.org/oosa/en/ourwork/copuos/index.html>

Outer Space Treaty

Outer Space treaty was adopted by general assembly in its resolution 1962(XVIII). The treaty declares the general principles that govern the States activities in exploration and use of space. It provides for the basic framework on international space law. Some of the principles laid down in this treaty is:³

Benefit for all

Article I of the treaty establishes the principle that the exploration and use of outer space shall be carried out for the benefit of all countries without any discrimination on the basis of economic status or scientific development and should be based on equality and international law. Essentially establishing that there shall be open access to all celestial bodies.

Non Appropriation

Article II declares that the space and every celestial body is not a subject of national appropriation by claims of sovereignty.

Position of International law

Article III states that all the parties to the treaties while carrying out any activity in outer space will comply with the international law, which will also include the UN Charter.

Liability Clause

Article VI lays down the concept of liability wherein it is established that all the parties to the treaties shall take the responsibility in international community in regards to any national activity in outer space whether such activity is carried out by either governmental or non-governmental entities. The non-governmental entities will have to take proper authorization and supervision of the concerned activity by any appropriate state parties.

Jurisdiction Clause

Article VIII states that the party, which registers an object that is launched in the outer space, will have jurisdiction and control over the concerned object and over any personnel thereof. It

³ Available at <http://www.unoosa.org/pdf/publications/STSPACE11E.pdf>

also states that the ownership of object will not be affected by its presence in outer space or on any celestial body. Such objects or any part of it if found outside the limits of the party which registered the concerned object shall be returned back to that party.

Principle of cooperation and mutual assistance

Article IX states that while exploring the outer space the parties to the treaty should comply with the general principle of cooperation and mutual assistance and shall perform all their activities in the space with regard to mutual interest of all the other parties to the treaties.

Liability Convention, 1972

This convention was adopted by the GN in its resolution 2777(XXVI). This convention provided that the launching state will be absolutely liable for any damages caused by its space objects on the surface of the earth or to aircraft. It also provides for settlement procedure for the claims of any form of damages.

Registration Convention, 1975

The convention was adopted by the GA in its resolution 3315(XXIX). Under Article 2 of this convention it was established that every space object when launched into the earth orbit or beyond shall be registered by the launching state by means of an entry in an appropriate registry. The secretary general has to maintain the register and ensure that there is open access to the information given by the states and international intergovernmental organizations.

Moon treaty, 1979

It was adopted by the GA in its resolution 34/68. The treaty elaborates on many of the outer space treaty provisions, which are applied to the moon and all the other celestial bodies. It provides that these bodies can be used only for peaceful purposes and that their environment should not be harmed. Some of the basic features that the treaty states are: “Common heritage of min kind”, Exploration on equal and fee basis, bodies not to be subject to claims of sovereignty.

The agreement establishes that the exploration of moons or any other celestial body resources should be in accordance with the international regime.

INTERNATIONAL IPR TREATIES

Paris Convention for the protection of industrial property, 1883 was the first intellectual property treaties which established certain basic rules for the international community. Among these basic principles are: national treatment:

National Treatment: Article II states that the countries to the union must grant the same protection to other nationals as it would as it would grant to its own nationals.

Right to priority: Article IV of the treaty states that on the basis of the first application filed in any one of the contracting states the applicant may apply for protection in any other state which is a party to the treaty. This subsequent application would be considered to be filed on the same day as the first application. It also states that patents, which are granted in different states for the same invention, are independent of each other.

Non-infringements of rights of patents: Article V states certain condition wherein the rights of the patentee are not infringed.⁴

Patent Corporation treaty, 1970 was adopted during the Washington Diplomatic Conference on the Patent Cooperation treaty. The treaty seeks to for patent protection for any invention by filing for international patent application.

WIPO Copyright treaty, 1996 is a special agreement under the Bern Convention, which provides for the protection of works and rights of their authors in the digital environment. In specific the WCT provides for the protection of computer programs, whatever the mode or form of their expression and second the compilation of data or other material/databases, which by reason of selection or arrangement constitute as intellectual creations. Article VIII states the right of communication which establishes an artist exclusive right of authorizing to the public of their works including the authority of making their work available in such a manner so that the public may access these works from their individual time and space. This article is additionally relevant to transmissions to and from a space craft.

⁴ Available at http://www.wipo.int/export/sites/www/patent-law/en/developments/pdf/ip_space.pdf

REQUIREMENT OF IP PROTECTION IN OUTER SPACE ACTIVITY

Disregarding the fact that space technology was always an area of highly advanced technology but the commercialization of space activities and the subsequent increase in the international creations in the past few years the IPR protection has come in conflict with outer space activities and has raised a bigger question regarding the need to harmonize these two polar opposite regimes of law. As the space activities shift from state owned to private and commercial activities the technology around the same has developed exponentially. These activities include remote sensing in space, broadcasting, research and manufacturing in outer space and in certain places performing certain tasks such as transportation of cargos to international space stations by private actors. With the entry of private agencies there was a seemingly growth in the conscience in regard to the ownership in both tangible and intangible property. These private agencies are by a great margin more aware about their rights of ownership with the amount of financial and technical resources contributed by these private agencies for space activities in collaboration with the governmental agencies.

UN while recognizing the immense protection of space technology for social economic development organized three global conferences on the exploration and peaceful use of outer space – UNISPACE Conferences which aimed to establish a dialogue between states and international organizations with the sole purpose of constructing an institute of corporation for the peaceful use of outer space. All these three UNISPACE Conferences were held in Vienna. From 19th to 30th July, 1999 a workshop on IPR in space was held along with the third UN conference on exploration and peaceful use of outer space (UNISPACE III). This conference is regarded as a major intergovernmental conference for the purpose of building the blue print for the peaceful use of the outer space in the twenty first century. Certain recommendations given in this conference with regards to the growing role of IPR in outer space are:

Giving due consideration to the growing commercialization and privatization of space activities, there should be an increased attention towards the protection of intellectual property rights. While enforcing IPR the basic principles of the outer space as developed by the UN through various treaties and declarations, such as non-appropriation of any celestial body, should be considered.

While harmonizing IPR standards and outer space legislations relating to IPR the constant effort should be towards enhancing international coordination and cooperation in both state and private sector. Specifically while establishing rule for covering issues arising due to contradictions between the two legal regimes certain questions should be examined and clarified like: enforcement of national legislation in outer space; ownership and use of IPR developed during space activities and licensing rules.

Every state should provide protection of IPR with regards to space related technologies while encouraging and aiding the free flow of scientific information.

Education about activities concerning IPR in outer space should be encouraged.

Keeping up with the progress made in UNISPACE III, the international community will gather in June of 2018 in Vienna for UNISAPCE +50 to celebrate the fifth anniversary of the first UN Conference on the exploration and peaceful uses of outer space. This conference is considered to be an opportunity for the international community to debate and consider the future course for Space Corporation for the benefit of mankind keeping with the success of the previous three conferences. One of the main theme of this conference is to further the ground breaking work done to encourage the development of IPR in outer space activities

HARMONIZATION OF IPR AND SPACE LAW

With the exponential growth in the outer space technology due to the entry of private agencies in space exploration there is a new legal dimension that needs to be solved for achieving international cooperation and coordination in outer space. Since the entry of the private Agencies in the space exploration one of the issues that have risen to the surface is the presence of intellectual property rights in outer space and its technology. Outer space has resulted in numerous innovative legal dimensions to the intellectual property rights regime which has resulted in a lot of legal debates especially in regards to the application of national laws in outer space for the enforcement and observance of rights, omission and procedure for settlement of disputes. For the start of the process of harmonization between these seemingly contradicting

principles of law there has to be 2 step procedure of harmonization so as to eliminate all areas of conflict. The initial step of harmonization would be-

Harmonization of outer space law and IPR

There are certain issues that are frequently raised during the application of national patent law in outer space. Patent law is territorially confined within a national border, the country in which the invention is patented. For example US Patents does not confer rights of action against those who infringe outside the border of US. In this manner, patent law is national in character. The question that is frequently asked is: whether the territorial jurisdiction under the IPR law permits the extension of national/regional law to the objects which the respective country has patented/registered and launched into space. In absence of any international treaty providing for the extension of territorial jurisdiction, it has been concluded under a number of national agreements that registered space objects are to be treated as quasi territorial for the purpose of IPR.

The outer space treaty in Article 1 and 2 lays down some of the basic principles of international space law including that the exploration of moon and other celestial bodies and use of outer space should be for the benefit of mankind and the principle of non-appropriation of outer space by any nation. In this regard the frequently asked question is: should the enforcement of IPR result in conflict with the above stated fundamental principles in terms of open access to information derived from state activities?

Aside from the questions relating to the jurisdiction of the patents the most basic issues is whether an invention in outer space is patentable? There aren't any expressive provisions in any national patent legislation nor does any international instrument appear to prevent the patenting of any such invention. Under TRIPS Article 27(1) states that "patent shall be available for any inventions, whether product or processes in all fields of technology provided they are new, involve an industrial step and capable of industrial application as established by the article that the patents will be permitted for any invention which meets the basic requirement and there is nothing in TRIPS which prevents any invention in outer space from patent protection.

In the satellite telecommunication industry it is important to send satellite constellations into proper orbital positions in order to achieve the most successful and effective operations. This technique uses a method, which calculates and appropriates velocity and orientation. Orbits fundamentally are not patentable and are not inventions and hence do not qualify as patentable subject matter. Nevertheless orbits maybe considered being a part of technological process for sending a satellite into an appropriate position. US in its United Nation Patent Trademark Office (UNPTO) have under certain cases granted a number of patents to methods for locating telecommunication satellite in orbital slots. Even though orbits are part of the patented process the overall process of satellite orbiting cannot be regarded as a product of nature since there is additional subject matter, which showcases human inventions.

Another gray area in the subject matter in patents in outer space is the generation of cost efficient nuclear power using Helium-3 available on the moon. Some of the eminent issues regarding generation of nuclear power in outer space is to what extent a process for generating nuclear power can be protected/patented and which aspect of it forms appropriate subject matter for patent protection. Process for generation of nuclear power has been patented in many countries, nonetheless any particular method of production maybe disintitiled to be patented on number of grounds for example lack of novelty or the process being too obvious. It has been concluded in many countries that the process/apparatus for producing nuclear power might be patentable but nuclear power does not form appropriate subject matter as it is neither a product nor a process but a type of energy.

A satellite navigation service, which is beneficial for any satellite navigation system, requires a prominent amount of financial investment usually from the private agencies. Therefore the method or the system of processing navigation satellites signals is considered to be an appropriate subject matter for patent protection with the aim to secure a return on the investment made in this process.

Another issue relates to the interpretation of Article 5 of Paris convention which establishes that under certain circumstances there can be limitation imposed on the exclusive rights granted to a patentee in the public interest in order to ensure freedom of transport. "In any country of the Union the following shall not be considered as infringements of the rights of a patentee:

the use on board vessels of other countries of the Union of devices forming the subject of his patent in the body of the vessel, in the machinery, tackle, gear and other accessories, when such vessels temporarily or accidentally enter the water of the said country, provided that such devices are used there exclusively for the needs of the vessel;

The use of devices forming the subject of the patent in the construction or operation of aircraft or land vehicles of other countries of the Union, or of accessories of such aircraft or land vehicles, when those aircraft or land vehicles temporarily or accidentally enter the said country.

The doctrine of temporary presence in this regard appears to apply to the use of patent invention in spacecraft. The second paragraph of the article applies to any use on aircraft and land vehicles. US Patent law has broadened the definition under sec 272 of US Patent Act wherein it extends the implementation of principle of temporary presence to space crafts and also broadens the terminology to include space craft.⁵ In the case of *Huges Aircraft Co. V. US*⁶, the court held that launching of spacecraft, which incorporated US, patented technology is within the limits of temporary presence defense of section 272 and hence there couldn't be any infringement.

Harmonization of Various Domestic IPR Laws

There is a necessity to establish and develop a uniformity between IP protection laws of various countries even with the presence of a number of IPR convention and treaties there are still certain discrepancies with the various domestic IPR laws with regard to space activities for example the extent of patent protection, subject matter of patents and jurisdiction of a state over an object launched by it in outer space.

⁵ 2 U.S.C. 2457(k) reads 'Any object intended for launch, launched, or assembled in outer space shall be considered a vehicle for the purpose of section 272 of Title 35'.

⁶ *Hughes Aircraft* (n 176)

CONCLUSION

This article try to examine the scope of IPR regime and international space law, the conflicts between these two regimes and the possible areas of reconciliation for the efficient implantation of intellectual property rights in outer space activities.

Outer space is considered to be “common heritage of mankind” which affords human a vast area of innovation, discovery and seemingly limitless joint venture programs with both state as well as private entrepreneurs. The entry of private agents in the space activities has given special dimension to the space law, especially in connection with intellectual rights considering the significant amounts of financial investments made by these private agencies and their conscience in regards to the protection of their property.

So the contentions between the Intellectual Property Laws and the Space Law administration can be settled through a synchronized framework which can be produced by the worldwide Intellectual Property Rights and Space Law people group under the hold of UN Bodies like UN COPUOS and WIPO. The fit arrangement of Intellectual property rights administration for the space ought to completely agree to the essential standards of the universal space law and such other worldwide commitments.