

THE NEED FOR A UNIFORM LAW SYSTEM PROTECTING INTELLECTUAL PROPERTY RIGHTS IN OUTER SPACE

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ABSTRACT

Effective intellectual property protection will become a key element in the regulatory environment for the commercial exploitation of outer space. Presently, intellectual property rights are protected by national or regional laws based on the very principle of territoriality. In order to protect intellectual property rights in outer space a solution has been found by extending the national law of the state of registry of a space object. Hence, as is the case for patents on earth, different national laws apply different regulations, providing conditions of uncertainty and conflict. This obstructs in particular private parties seeking to invest in space technology- and applications. A solution should be found in the establishment of an international framework for the protection of intellectual property rights in outer space, in particular in the field of patents. The chance of success of the creation of a Space Patent Treaty will depend on the willingness of states to reconcile their differences in patent law systems. Positive efforts will in turn accelerate the process of further harmonisation of terrestrial patent law. This might finally lead to a uniform and transparent patent law system for inventions made on earth as well as in outer space.

INTRODUCTION

Whilst advance in a wide range of space technologies and applications will create more potential for new space applications by the private sector, the protection of intellectual property rights will play an important role in attracting the participation of the private sector. Effective intellectual property protection will become a key element in the regulatory environment for the commercial exploitation of outer space, with specific emphasis on the most important intellectual property right, the right of invention. Furthermore, the World Intellectual Property Organisation (WIPO) noted that the effective acquisition and protection of intellectual property rights would have a positive effect on the participation of the private sector in the development of outer space activities and of the further development of space technology in general¹.

Moreover, as many space projects involve international co-operation there is a need for a simple, uniform and reliable international legal framework. Presently this is not the case.

THE CURRENT SITUATION

Intellectual property rights are established and protected by national or regional law of the countries concerned based on the principle of territoriality. Different national laws apply to different regulations. Although some harmonisation has taken place², there is still room for uncertainty and conflict. Moreover, inventions undertaken in outer space have brought another dimension to the legal environment in which these take place and where international space law plays an important role. First, the question arose whether international space law would permit the protection of intellectual property rights of activities in outer space and if so, on which basis those rights can be established and

protected. The Outer Space Treaty (OST) determines outer space as a common area free for exploration and use by all states (Art. 1). Moreover it provides that 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 (Art. II OST). Some argued that the protection and enforcement of intellectual property rights in outer space may conflict with the aforementioned principles. However, the Outer Space Treaty also includes by its Article VIII that jurisdiction and control over an object launched into outer space and its personnel remains with the state on whose registry an object launched into outer space is carried. This would lead to the opinion that the territorial jurisdiction of the launching state, which registers the object launched into space object, is permitted to be extended to that object. Along these lines and in the absence of explicit international rules, under a number of international agreements³, registered space objects are treated as quasi territory for the purpose of intellectual property. Apart from this notion of quasi-territorial jurisdiction, there are some who prefer the notion of extra-territorial jurisdiction for objects launched into outer space. They argue that, in analogy with the law of the Sea, the so-called “Flag-state⁴ jurisdiction” allows states to assert extra-territorial jurisdiction over objects launched into outer space and its personnel in an area (outer space) not subject to territorial appropriation. In fact both viewpoints lead to the same consequence, that activities in outer space carried on board of space objects will be governed by the national law regime of the state of registry of the object launched in outer space, which can apply its national intellectual property system. However, this will not solve the problems generated by the application of different national law systems.

THE INTERNATIONAL SPACE STATION

The experience with the International Space Station (ISS) shows the approach taken so far. Confronted with the need to protect intellectual property rights for inventions on board the ISS, the U.S. amended its patent legislation by providing quasi-territorial effect on a space object or component thereof carried on the registry of the U.S., unless otherwise agreed by international agreement⁵. In fact, Title 35 of the US Code, section 105, Inventions in outer space⁶ reads in paragraph a :

Any invention made, used, or sold in outer space on a space object or component thereof under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title, except with respect to any space object or component thereof that is specifically identified and otherwise provided for by an international agreement to which the United States is a party, or with respect to any space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention with Registration of Objects launched into Outer Space.

We see that the U.S., in anticipation of the composition and development of the Space Station, consisting of different elements, which could be registered as different space objects in the registry by the relevant launching state, added the word *component* to the term space object. In accordance with this, Article 21 of the International Governmental Agreement governing cooperation on the International Space Station (IGA) lays down for purposes of intellectual property law, that an activity occurring in or on a Space Station flight element shall be deemed to have occurred only in the territory of that element’s registry. (except that for ESA-registered elements any European Partner State may deem the activity to have occurred in within its territory). In practice, this system, again based on the principle of territoriality, will lead to the application of

different national intellectual property laws in so far as it concerns different elements of the Space Station. This means that one nation's patent laws ends and another's begins from one component/element of the ISS to another. Moreover, there is the problem that the majority of the Partner States of the IGA have not yet adapted their national laws by providing extraterritorial effect on an object or component thereof carried on their registry. This will lead to even more uncertainty.

Another point of discussion lies in the fact that the U.S. extended its extraterritoriality to space objects and components carried on its registry based on its jurisdiction or control. This is not in conformity with Article VIII of the Outer Space Treaty, which speaks of jurisdiction and control. In my opinion, the combination jurisdiction and control signifies an important requirement for a justified use of the application of quasi (or extended) national territoriality in outer space.

THE NEED FOR A NOVEL SYSTEM PROTECTING INTELLECTUAL PROPERTY RIGHTS IN OUTER SPACE

Due to the uncertainties lying in the present status of intellectual property rights of inventions in outer space, which cause hesitation by private parties wanting to invest in new technologies, there is a need for a new regime of patent protection in outer space to be agreed on by space faring nations. Such a regime should cover the whole outer space region including the moon and other celestial bodies. This is of particular importance since according to the Moon Agreement, the moon and other celestial bodies are, according to Article 11, par. 2 thereof, not subject to claims of national sovereignty, by means of use or occupation, or by any other means⁷, which again might lead to a prohibition of territoriality as a basis for intellectual property rights. Such an opinion to prohibit the extension of state territoriality to the

moon and other celestial bodies in light of the provisions of the Moon Agreement is even stronger than a similar opinion in relation to the Outer Space Treaty. This is because the Outer Space Treaty also includes, apart from the similar Article II (non-appropriation principle), Article VIII which does leave room for extending the terrestrial jurisdiction and control of the launching state who registers the object launched into outer space. Whilst by applying the Outer Space Treaty for space objects launched into outer space, state territoriality might also be applicable to those objects launched into outer space which have reached the moon or other celestial bodies, such applicability might be obstructed not only by referring to Article 11, par. 2 of the Moon Agreement but also by arguing that the Moon Agreement should be seen as a *lex specialis* in relation to the Outer Space Treaty, providing a specific legal regime for the moon and other celestial bodies. Also, the specific references in the Moon Agreement in relation to the exploitation of natural resources of the moon and the provision that States Parties should establish an international regime to exploit its natural resources⁸ provide little or no room for claims based on territoriality. However, such an international regime could probably provide a basis for a novel kind of property rights including intellectual property rights based on an international agreement, which take due care of the interests of investors combined with the interests of mankind at large in the exploitation of the natural resources of the moon and other celestial bodies⁹.

A SPACE PATENT TREATY

A new regime of patent rights and the protection thereof in the whole outer space region should emanate from a uniform patent law system¹⁰. Such a system has already been suggested in the form of a Space Patent Treaty¹¹. This would create a single system to apply to outer space including the moon and other celestial

bodies applicable to all States Parties. This would signify a system not based on the principle of territoriality, but rather on the environment of space as a region beyond the limits of states and their national competencies and laws. For instance, the earlier mentioned amendment of U.S. patent law provides for itself to be superseded by a novel international Space Patent Treaty¹². Also, other states¹³ could follow this example in order to facilitate a broadly based Space Patent Treaty which would establish a new regime of patent protection in outer space. This regime should, following the leading concept governing outer space as geographically separate from earthbound nations, be applicable on all inventions occurring in outer space. Hence through a single patent law system, space patents would be the only recognised patents in outer space. A Space Patent Office should be created to examine applications and issue patents in outer space¹⁴. Such a system would avoid many conflicts and uncertainties inherent of the current (quasi) territorial system.

SCOPE

As for the scope of the Space Patents Treaty it could follow the delimitation of outer space from airspace by applying to the geographical area above the limit of 100 km above the sea level of the earth. A space patent would grant the owner being a citizen of a signatory state a period of protection on all use of the invention in outer space including the right to transfer, sell or license. Apart from the extraterrestrial protection of the invention made in outer space it could be possible to provide the space patent holder with a separate right of protection to use its invention for application on earth. Filing a space patent could entail a general right of protection against all the contracting states, their nationals and residents. At present within the framework of the IGA of the ISS an invention in outer space does not impact the ownership of the

invention nor does it preclude the right to file for a patent in multiple countries. Only the country of the inventor ship will be determined by the ownership and registry of the Space Station's element in which the invention has taken place¹⁵. This approach could pave the way towards the general acceptance of a Space Patent Treaty providing for the filing for a space patent through a unique international filing procedure and prosecution phase by a Space Patent Office. This would stimulate incentives to create new inventions in outer space by saving costs for patent protection in multiple countries. The institution of a Space Patent Office would preferably be created under the auspices of the United Nations through the works of the Committee on the Peaceful Uses of Outer Space and its legal Sub-Committee in cooperation with the World Intellectual Property Organisation (WIPO).

PROBLEM AREAS

Areas where controversies might arise are first of all the choice between the first to file and the first to invent systems. Experience in the negotiations at the World Intellectual Property Organisation (WIPO) on a Substantive Patent Law Treaty (SPLT)¹⁶ showed U.S. insistence to grant patents on the basis of invention date rather than filing date, although within the U.S. large corporations are generally prepared to change the system in exchange for the advantages that worldwide harmonisation would bring them. Another issue related to the first to invent system, the grace period during which information can be circulated between the invention and the filing date without invalidating the patent claim, will raise even more resistance to be relinquished by the U.S., as experienced during the negotiations on the SPLT. When the U.S. would eventually give up on the first-to-invent system, it would probably insist on keeping at least the grace period, which most other countries seem prepared to accept¹⁷. Another problem lies in the field of the invention secrecy laws of the

existing different patent law systems in the world. However, regarding the aspect of secrecy laws it has been already agreed in the IGA of the ISS that it restricts the operation of Partner States' respective invention secrecy laws. This flows from the fact that an invention occurring on a specific element of the International Space Station does not effect its ownership. The inventor is still free to apply for a patent in a state of his/her choice. Hence restrictions based on invention secrecy laws may not be invoked to prevent a non-national to apply for a patent in a Partner State other than the State with territorial jurisdiction, as long as that Partner State has a patent protection regime¹⁸. However, a uniform patent law system should still have to solve the problems encountered by the existence of invention secrecy laws in many countries preventing to file a patent application in particular on national security grounds.

Apart from an international agreement to create a uniform patent law system, it is necessary to establish an international enforcement body, such as an international board of arbitration or an international court. According to Smith¹⁹ this might be a gigantic undertaking, but this is surely more modest than attempting to harmonise the disparate national laws which exist. Apart from the above mentioned problems there remain other issues to be dealt with. In the first place harmonisation is needed on the subject matter that is eligible for patent protection²⁰. Also other requirements for patentability should be harmonised. Whilst the U.S. requires that an invention should be new, useful and unobvious, other nations require that the invention should be novel, manifesting an inventive step and involve industrial applicability.

In particular the novelty requirement can differ among the various countries of the world by applying a more or less stricter standard for prior art, an instrument that can be used to demonstrate what inventions have been invented before and

that effects the novelty requirement. The difference between obviousness and inventive step, as a requirement for novelty, can also lead to a differentiation of patentability. Furthermore, the "best mode" requirement applied for instance by the U.S.²¹ is not been followed by most other countries. Another more general issue to be tackled, which also arose in relation to the ISS²², is the situation that an invention is not entirely made in outer space (respectively on board the ISS) but partially on earth.

CONCLUSION

For more than a hundred years many efforts have been made in trying to harmonise patent laws worldwide. For eight years negotiations have taken place on a world patent system through a Substantive Patent Law Treaty with the aim to remove most of the remaining national flexibility in patent systems and pave the way for a future world patent granted directly by the World Property Organisation (WIPO), for inventions made on earth. In spite of the fact that this process of harmonisation appears to be slow and cumbersome, this should not prevent us from stressing the need for a uniform patent law system for invention made in outer space. Apart from the fact that such a system would advance the commercial uses of outer space, since it would stimulate the industry to invest in the development of space technology and products, it might also accelerate the process of further harmonisation of patent law for terrestrial inventions, finally leading to a uniform and transparent patent law system for inventions made by men on earth as well as in outer space.

¹ WIPO 2004, See Space 2030, Tackling Society's Challenges, p.181-182, OECD 2005, ISBN 92-64-00832-2

² i.a. The Patent Cooperation Treaty (PCT) and the WTO's Agreement in Trade Related Aspects of Intellectual Property Rights (TRIP's Agreement)

³ i.a. the International Government Agreement on the International Space Station (IGA)

⁴ The concept of Flag-State jurisdiction was developed in relation to the res communis of the High Seas, where the nationality of the ship "provides a necessary criterion ... in locations ... where the territorial criterion is inappropriate.

⁵ See also below note 8

⁶ Added Nov. 15, 1990, U.S. Public Law 101-580, sec 1(a), Stat. 2863

⁷ The 1979 Agreement Governing the Moon and Other celestial Bodies has been ratified by 13 countries. However none of which has the means to go to the moon.

⁸ Article 11 par 5

⁹ See also H.L. van Traa-Engelman, Clearness regarding Property Rights on the Moon and Other Celestial bodies, Proceedings 39th IISL Colloquium, Beijing, AIAA 1996

¹⁰ See also B.L. Smith, Société de Services en Propriété Industrielle, Paris, An industry Perspective on Space-Related Intellectual Property Rights.

¹¹ See Space Patents: Intellectual Property in Outer Space, presented at the 8th Mars Society Convention by Bryan E. Ericson and Gary.C. Fisher, August 12, 2005

¹² The U.S. amended its patent legislation by providing quasi-territorial effect on a space object or component thereof carried on the registry of the U.S., *unless otherwise agreed by international agreement*

¹³ In particular those states parties to the IGA ISS

¹⁴ See supra note 7

¹⁵ Article 21 of the IGA of the ISS

¹⁶ On June 1, 2000 in Geneva a Patent Law Treaty (PLT) was concluded. However the PLT is only concerned with patent formalities, providing speedier and less costly formalities. As of April 2008 the PTL has 18 contracting states, while 59 states and the European Patent Organisation have signed the Treaty.

¹⁷ One global patent system? WIPO's Substantive Patent Law Treaty, October 2003-GRAIN

¹⁸ Ibidem Article 21(3). See Also Sriram Swaminathan, University of Melbourne, The Applicability of Space Law Principles to basic space science: An update, Paper selected from workshops organized by the United nations Office for Outer Space Affairs, within the Programme on Space Applications in 2004.

¹⁹ Ibidem note 9

²⁰ For example, unlike the U.S., some countries do not allow patent protection for pharmaceutical inventions. See Michael D. Kaminski, Patent

harmonization, International efforts are gradually unifying the world's patent laws.

²¹ U.S. patent protection requires adequate disclosure to the public including a written description of the invention, an enabling disclosure, and the best mode of carrying out the invention. See 35 U.S. Code par. 112

²² Working Group on Space Stations, Project 2001, Legal Framework for the Commercial Use of Outer Space, International Institute of Air and Space Law of the University of Cologne.