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A PLACE FOR THE MOON AGREEMENT IN THE GENERAL CONVENTION ON SPACE LAW.

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The 1979 Agreement Governing the Activities of Sates on the Moon and other Celestial Bodies is the somewhat neglected child of space law. The last of the five treaties, it boasts few state parties and such little international acceptance that its provisions (with the exception of those which are mirrored in the 1967 Outer Space Treaty) may not be considered to reflect international law. As a result, the place of the Moon Agreement in a General Convention that seeks to codify existing space law could be questioned. However, considering recent renewed interest in human spaceflight beyond the Earth's orbit and plans to place humans on the Moon and on Mars, the specific regime for human activities on celestial bodes provided for by the Moon Agreement is needed now more than ever. In particular, the Moon Agreement's classification of celestial bodies' natural resources as the common heritage of mankind and the added protection it accords to their environment means that its provisions should be implemented. The General Convention on Space Law should ensure the inclusion of the Moon Agreement, so that human activities on the Moon can develop within a solid legal framework and the space environment may be protected.

INTRODUCTION

"We leave as we come, and God willing, as we shall return - with peace, and in hope for all mankind". These words, spoken by Apollo 17 astronaut, Gene Cernan, on 14 December 1972, are the last words spoken by a human being on the Moon's surface[1]. The Apollo era during which, in the space of three and a half years, 12 men walked upon the surface of celestial body other than the Earth, had come to an end. Thus far only the United States has realised this feat. In the years following the Apollo missions, manned space flights focused on the more attainable, less costly and less dangerous Earth orbital missions, culminating in the construction of the International Space Station and man's quest to walk upon the Moon and even other planets faded from public view. Advancements in robotics technology and development in scientific probes means that that missions such as Mars Express and Mars Orbiter and its rovers Spirit and Opportunity can send information from the Martian surface and orbit and valuable data about its atmosphere and surface geography without the necessity of a human presence thereon. Probes have recently been sent to the Moon, to Saturn and its moon, Titan, to comets and shortly to Venus and Jupiter.

Nonetheless, momentum has been building to send, once again, humans beyond the Earth's orbit. These projects are many and varied. ESA's Aurora project is studying the feasibility and possibility of sending humans to Mars, China's Cheng'e mission, plans to

send a man to the Moon[2] and in January 2004, the President of the United States announced an ambitious plan to send a man to Mars using a lunar base as a launch pad, with lunar missions planned to begin between 2015 and 2020.

Furthermore, the nature of man's activities on the Moon and Mars will be different to and more extensive than those carried out previously within the Apollo missions. While certainly scientific experiments and geology extraction shall again be carried out, the resources of the Moon (which include Helium 3, water ice and minerals[3]) shall be exploited properly for the first time. "The Moon is home to abundant resources. Its soil contains materials that may be harvested and processed into rocket fuel or breathable air"[4] It is the intention of the Americans to use spacecraft "assembled and provisioned"[5] on the Moon to bring about a launch to Mars and a similar extraction and utilisation of natural resources would be necessary for any Mars mission. As minimising the weight and size of any mission is essential, local resources are imperative to the success of missions such as these. The construction of a launcher and any long term stay of astronauts on the lunar or Martian surface also necessitates the construction of a temporary or permanent base of some kind. All of the above have ramifications for both the natural resources and environment of these two bodies.

It is therefore necessary, when considering codification, compilation or completion of the Law of Outer Space into one General Space Convention, which would cover all of man's activities in Outer Space, that this hitherto unwitnessed extent of man's activity outside its own planet which appears to be becoming a reality, be regulated satisfactorily. Existing conventions cover the majority of these activities. These rules will and their place in the general convention be briefly examined, looking specifically at the utilisation of natural resources and the protection of the space environment.

REGULATION OF HUMAN ACTIVITY ON THE MOON.

While the upcoming level of human activity on the Moon and other celestial bodies is unprecedented, the plans it will bring to life have existed since man first contemplated travelling among the stars. Similarly, these activities shall not be taking place in a legal vacuum, as international public law has already provided for certain legal rules which shall apply to any future lunar base or exploitation of natural resources.

The Outer Space Treaty 1967[6] laid down the basic rules for human activities in Outer Space. Importantly, it also provides that international law including, specifically, the U.N. Charter should apply to and in Outer Space[7]. Thus certain terrestrial norms which at first glance would not appear related to space activities are nonetheless highly relevant and binding, for example the dispositions regarding environmental protection, non-proliferation and the use of nuclear sources on the Moon.

The Outer Space Treaty also included *inter alia* the following fundamental principles for human activities in Space including the Moon and other celestial bodies:

- Exploration and use of Outer Space including the Moon and other Celestial bodies shall be carried out for the benefit and in the interest of all countries and shall be the "province of all mankind".[8]

- 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[9].

- 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[10].

- There shall be freedom of access to all celestial bodies and to Outer Space and they shall be free for exploration[11].

- There shall be freedom of scientific investigation[12].

-The Moon and celestial bodies shall be used for exclusively peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited[13].

- States shall pursue studies of Outer Space and conduct exploration so as to avoid its harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. States shall undertake appropriate international consultations before proceeding with any activity or experiment which could cause potential harmful interference with the activities of other states[14].

- All stations, installations, equipment and space vehicles on the Moon and other celestial bodies shall be open to representatives of other states on a reciprocal basis[15].

The Outer Space Treaty also provides for the liability regime to govern all space activities and states' control over and responsibility for non-governmental actions in Space[16].

The Outer Space Treaty has been ratified by 97 states including all spacefaring nations. It provides a legal basis for lunar activities through guaranteeing free access, freedom of scientific exploration, providing for bases to be built on the moon, prohibiting military activities but allowing flexibility regarding the participation of military personal in peaceful activities and also guarantees a minimum safeguarding of the environment and consultation regarding potential harm caused thereto[17].

The Moon Agreement 1979.

However, after the first man walked on the Moon it was felt that an additional convention was required to further regulate human activities, on the Moon specifically but on other celestial bodies as well[18]. The Moon Agreement was the fruit of long, hard negotiations within the United Nations and the final draft of the Agreement has been unfortunately not as well received as the other Space Treaties. This Agreement mirrored a lot of the provisions in the Outer Space Treaty as well as expanding on certain dispositions therein. However, its principle aim, in the midst of the cold war, was to prevent the Moon becoming an area of international conflict[19], and not to regulate day to day scientific activities on the Moon. Nonetheless, the Moon Agreement still provides a solid legal framework, more detailed than that found in the Outer Space Treaty.

In addition to the above-cited provisions of the Outer Space Treaty which appear in almost the same form in the Moon Agreement, three further major changes are added in the Moon Agreement. Firstly, the establishment of lunar bases, the use of the Moon[20] as a launch site[21] and a notification process regarding the location an establishment of such bases within the UN is provided for. The second addition is the declaration in Art. 11.1 that the Moon and its natural resources are the common heritage of mankind and thirdly there is

additional protection accorded to the lunar environment in Art. 6. It is these two latter aspects which will be examined in this paper.

The Moon Agreement has to date been ratified by 10 states (an eleventh, Belgium, is in the final stages of ratification and accession) and signed by 5 others[22]. Neither the United States, China nor Russia signed the Treaty. Indeed international acceptance of the Treaty has been so weak that in the opinion of most jurists, the norms enshrined in the Moon Agreement which were not hitherto included in the Outer Space Treaty fail to attain the force of customary international law[23]. Thus the provisions of the Moon Agreement to be discussed in this paper, remain at this time only in force and binding by and between the ten states who have completed the ratification of the Treaty[24], which it ought to be noted do not have human spaceflight capabilities. It is this lack of acceptance and the renounciation of the Agreement by the major spacefaring nations which gives rise to doubt as to its inclusion in a codifying General Space Law Convention.

THE COMMON HERITAGE OF MANKIND PRINCIPLE.

Article 11.1 of the Moon Agreement states "The Moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this Agreement, in particular in paragraph 5 of this article." The common heritage of mankind doctrine first appears in the draft law of the sea conventions, negotiations on which were occurring within the international community at the same time as the draft Moon Agreement. Finally Art 126 of the United Nations Convention on the Law of the Sea similarly declares the deep sea bed and its resources to be the common heritage of mankind[25]. This is a somewhat nebulous term and has been the subject of much academic debate. It is generally felt to include the concept of non-appropriation of a common resource and the equitable distribution of profits derived therefrom among mankind as a whole.

However in Article 11.1 Moon Agreement the bald declaration is not left standing alone. Common Heritage of Mankind while not defined is nonetheless said to find its expression in the rest of the Agreement and in particular in Art. 11.5.

The aspects of the Agreement which may be considered to enshrine the notion of common heritage of mankind include: Art 11.2 which prohibits the appropriation of the Moon in the same manner as Art. II of the Outer Space Treaty; but also Art. 11.3. ,which expressly prohibits any part of the Moon including its resources becoming the property of any state or organisation of any kind. This is significant as this clause, when read in association with Art 6.2. which grants the possibility of removing samples from the Moon in order to facilitate scientific study, removes the doubt which had previously existed regarding property rights in Moon samples. Samples removed for scientific study do not become the property of the state in possession thereof, though the samples may be at their disposal. Similarly and by logical extension, it is extremely difficult to argue under the Moon Agreement that any resources removed or otherwise exploited may become the property of the exploiting state.

Unfortunately, the Moon Agreement fails to take the final step in establishing a functional system to manage this common heritage of mankind. Under the Law of the Sea Convention, the Sea bed Authority was created to manage and control the

exploitation of the resources of the deep sea bed for the benefit of mankind. The Moon Agreement did not make this final step - and indeed recognised that both politically and technologically the time was not ripe for the establishment of such an organ. Art 11.5. states that: "States Parties to this Agreement hereby undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the Moon as such exploitation is about to become feasible.". Furthermore this regime should enable

- the orderly and safe development of the natural resources of the Moon;
- the rational management of those resources;
- the expansion of opportunities in the use of those resources; and
- an equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the Moon, shall be given special consideration[26].

It is clear that the drafters left the larger questions regarding the definition, competence and form of this international regime to be discussed another day. The terms cited above are but general, even sweeping guidelines and hopes, leaving any definite ambit undecided.

This aspect of the Moon Agreement has been criticises. The United States for example considered that this principle could restrict future activities by them on the Moon, and the common heritage of mankind principle is that most cited as grounds for their refusal to sign or ratify the Agreement. However, the common heritage of mankind principle enunciated in the Agreement is not there to restrict development and scientific discovery on the Moon. It is clearly stated that the principle is to be read in harmony with the rest of the agreement which protects and clarifies states rights regarding scientific study and the construction of lunar bases. In this author's opinion, the common heritage of mankind principle does not prevent the human activities currently planned for the Moon. Nor does it take away any previous rights which states possessed, in particular the notion of non-appropriation and the declaration of the Moon as res communis existed under the outer Space treaty which the main space faring states did not refuse to accept. Art. 11 of the Moon Agreement provides clarification to existing principles and highlights the way forward to positive exploitation of the Moons resources. It does not enforce a particular type of future regime, leaving that as a matter to be debated another day. Whether that day has perhaps now arisen is however a separate question.

PROTECTION OF THE LUNAR ENVIRONMENT

The international community, recognising the inadequate nature of the rules of the Outer Space treaty dealing with environmental protection, sought to correct the problem when preparing for the adoption of the Moon Agreement[27]. Environmental problems associated with the exploitation of lunar resources include damage caused to the surface by the extraction of resources - for example, removal of Helium 3 deposits will probably involve a process similar to terrestrial strip-mining; the preservation of non-renewable resources - for example ice at the Moon's poles, and possible contamination by items brought to the Moon. The latter is especially true as nearly all plans for lunar occupancy by man involve

the use of some form of nuclear generator to provide energy to the base.

Art 7 of the Agreement goes further than its Outer Space Treaty counterpart [28] by providing "In exploring and using the Moon, States Parties shall take measures to prevent the disruption of the existing balance of its environment, whether by introducing adverse changes in that environment, by its harmful contamination through the introduction of extra-environmental matter or otherwise." This article has been criticised as lacking in definition. However the last two words in this article are the most significant. The "or otherwise" means that in fact the parties are under an obligation to take measures to prevent all disruption of the existing balance of the lunar environment.

Art. 7.3 provides for certain areas of scientific interest to be accorded additional protection. Art. 4 also draw attention to the needs and interests of future generations in the exploitation of the Moon. The Moon is a rare resource. It is the Earth's only natural satellite and its geology may be able to tell us a lot about the solar system and the environment. It may provide the Earth with valuable minerals and a platform from which to explore the rest of the solar system. It is a historic site, where man first walked on another celestial body. If certain entrepreneurs realise their dreams it may even become a top tourist destination. Its unique environment ought to be preserved and human activity on the moon ought to take this into account. Surely by placing minimum restraints on states operating on the Moon to ensure the protection of the environment, the Moon Agreement takes a positive step towards ensuring the optimal benefit for all from the Moon?

CONCLUSION.

The Moon Agreement was concluded at a time when, by the drafters' own admission, the exploitation of the Moon's resources was not yet likely, due to the technology in existence and the prohibitive cost for such ventures for private entities[29]. It specifically allowed for the constitution of an international body to govern these resources and their exploitation when the time was ripe. Considering the declared plans of the space-faring nations, with human spaceflight capabilities, it is clear that the time for such action is now. However, politically the decisions regarding the constitution of this new body will take time and negotiation. In the meantime, the General Convention should embrace other concepts enshrined in the Moon Agreement and ensure the protection of the celestial bodies humankind will soon be visiting.

References:

"30 Years since last men on moon", John Bisney, CNN, 13 December 2002, (www.cnn.com/2002/TECH/space/12/11/apollo17.anniversary/index.html - last visited 22 September 2004)

[2] "China Sets Sights on Moon Mission", CNN, 03 March 2003, *Ibid.*

[3] K. Cramer, "The Lunar Users Union - An Organisation to grant land use rights on the Moon in accordance with the Outer Space Treaty", IISL.97.4.13.

[4] George W. Bush, Remarks on U.S.Space Policy, Speech delivered at N.A.S.A Headquarters, Washington D.C., 14 January 2004. (www.whitehouse.gov/news/releases/2004/01.html. last visited 22 September 2004)

[5] Ibid

[6] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, 27 January 1967, 610 U.N.T.S. 205, 18 U.S.T. 2410, T.I.A.S. No. 6347, 6 I.L.M. 386 [hereinafter *Outer Space Treaty*] (entered into force on 10 October 1967)

[7] Art. III.

[8] Art. I, §1

[9] Art. II.

[10] Art. VIII

[11] Art. I § 2

[12] Art I $ 3

[13] Art. IV.

[14] Art IX.

[15] Art. XII

[16] Art. VI, VII.

[17] In addition to the Outer Space Treaty it must be borne in mind that the other of the "Big Four" space treaties, the Rescue Agreement, the Liability Convention and the Registration Convetion also contain binding norms regarding human activities on other celestial bodies. See: *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched Into Outer Space*, 22 April 1968, 672 U.N.T.S. 119, 19 U.S.T. 7570, T.I.A.S. No. 6599, 7 I.L.M. 151 [hereinafter *Rescue Agreement*] (entered into force 3 December 1968); *Convention on the International Liability for Damage Caused by Space Objects*, 29 March 1972, 961 U.N.T.S. 187, 24 U.S.T. 2389, T.I.A.S. No. 7762 [hereinafter *Liability Convention*] (entered into force on 1 September 1972); *Convention on Registration of Objects Launched Into Outer Space*, 14 January 1975, 1023 U.N.T.S. 15, 28 U.S.T. 695, T.I.A.S. No. 8480, 14 I.L.M. 43 [hereinafter *Registration Convention*] (entered into force on 15 September 1976).

[18] For an assessment of the development of the Moon Agreement, see "Conditions Essential for the Peaceful Uses of Outer Space - the moon Treaty", N. Jasentuliyana, Paper presented at the Symposium co-sponsored by the United Nations University and the International Institute of Space Law, Peace Palace, the Hague, 12-15 March 1984. and L. Peyrefitte, Droit de l'Espace, Dalloz, Paris, 1993, at 171 ff.

[19] See Preamble to the Agreement.

[20] Which for the purposes of the Agreement also includes other celestial bodies apart from the Earth. Art. 1 Moon Agreement.
[21] Art. 8 Moon Agreement.
[22] Status in January 2004.
[23] L. Peyrefitte, *Supra Note18,* at 196 ff.
[24] According to the principle of *pacta sunt servanda*, c.f. Art. 26 Vienna Convention on the law of Treaties 1969.
[25] See Mani, V.S., *The Common Heritage of Mankind: Implications for the Legal Status of Property Rights on the Moon and Celestial Bodies,* IISL-96-IISL.1.04.
[26] Article 11.7 Moon Agreement.
[27] Matte N., Environmental Implications and Responsibilities in the Use of Outer Space, XIV Annals of Air and Space Law 1989, 419- 447, at 430.
[28] i.e. Art IX Outer Space Treaty
[29] Despite wild speculation in the media, it is unlikely that commercial exploitation of resources on other celestial bodies than the Earth could be considered imminent as it remains too expensive.