

Session 4

The Adequacy of the Current Legal and Regulatory Framework?

Adequacy of the Current Legal and Regulatory Framework Relating to the Extraction and Appropriation of Natural Resources

by

Stephan Hobe¹

I. Introduction

Dreams about property rights on the Moon are as old as mankind has concrete ideas about the Moon. Of course, the very fact of a flag on the Moon has been discussed for quite some time as well as more recently claims to property rights for land on the Moon which has been sold to customers in the United States and in Europe. And it is well known that the Board of Directors of the International Institute of Space Law has reacted to these claims concerning property rights on the Moon.² Moreover, there are many new plans about going back to the Moon and other celestial bodies and particularly about the taking of property on the celestial bodies.

In the following, the attempt will be made to assess the current legal situation with regard to all kinds of property rights in outer space and on celestial bodies. My specific task thereby is to assess the situation mainly with regard to the legal regime of the Outer Space Treaty of 1967 and not going beyond this Treaty. I will do so with one exception. I will need to include some of the notions of the International Moon Agreement if I come to evaluate certain conceptions of the Outer Space Treaty. Because one thing is sure: the Moon Agreement belongs to the subsequent state practice that is important as a means of interpretation under Art. 31 para. 3 of the Vienna Convention on the Law of Treaties. That brings me to another important preliminary remark:

The situation under the legal regime of the Outer Space Treaty is rather complicated. This may have a lot to do with the fact that when this Treaty was drafted almost 40 years ago, one did not think of concrete uses – all the more by private users –, although, as I have mentioned, some usage regime was always in the minds of the people. I shall therefore analyse the legal regime under the Outer Space Treaty by asking the question whether and to what extent that kind of uses are allowed and where the concrete limits to these uses are. It is thus

¹ Director, Institute of Air and Space Law, University of Cologne.

² Statement by the Board of Directors of the International Institute of Space Law (IISL) on Claims to Property Rights Regarding the Moon and Other Celestial Bodies, http://www.iafastronautics.com/additional%20pages/Statement_Moon.htm (date of access: 14.06.2006).

hoped that this legal assessment will come to rather concrete results that may help the legal community to make a step forward in terms of clarification of the outer space legal regime in general and in particular the Magna Charta of outer space.

And I am of course – as I should mention – extremely pleased to make this presentation in the honour of Mrs. Eilene Galloway, the grand dame of the law of outer space, Honorary Director of the International Institute of Space Law and just an institution in space law who follows the long tradition of space lawyers with a very significant age.

II. The Legal Regime of the Outer Space Treaty with Regard to Property Rights in Outer Space and on the Moon and Other Celestial Bodies

1. The Freedom of Exploration and Use (Art. I para. 2 OST)

First of all, the Outer Space Treaty (OST) in Art. I para. 2 allows all those who are covered by this provision the free exploration and use of outer space and the celestial bodies. Thereby, explicitly states are named and no qualification with regard to “use” is made. In the following, I first want to discuss what can be meant by “use” and then we will ask the question on whether solely states as particularly mentioned in Art. I para. 2 of the Outer Space Treaty or also private actors are entitled to use outer space.

Art. I para. 2 of the Outer Space Treaty specifically refers to the exploration and use of outer space which is free for all states. Exploration thereby means the scientific exploring of different sites or other exploratory activity. Moreover, use means the practical application of the Moon and its resources. In this respect, it is questionable whether also the commercial uses of outer space and the celestial bodies can be covered by Art. I para. 2 of the Outer Space Treaty. Even if commercial use is not covered by this regulation, such non-regulation would be equivalent to the permissibility of such activities within the limits of the Outer Space Treaty (Art. II and Art. I para. 1 OST).³

From the very wording, however, “use” of outer space might also mean the taking of property as a kind of commercial use. It could also encompass the extraction of natural resources, for example stones from the Moon or dust. It is therefore enlightening that, rather than in the part where the permission to certain usages is given in Art. I para. 2 of the Outer Space Treaty, the limitation for this activity is contained in other provisions of the Treaty that will be analysed subsequently. Considering the wording of the provision, use of outer space can encompass the commercial uses, the extraction of resources by states

³ Cf. K.-H. Böckstiegel, Die kommerzielle Nutzung des Weltraums, in: K.-H. Böckstiegel (ed.), Handbuch des Weltraumrechts, 1991, p. 279.

that are explicitly mentioned in Art. I para. 2, and arguably also according to Art. VI OST by private actors. Thus, in sum, states and other actors are allowed to use outer space and celestial bodies commercially, *inter alia* by the extraction of resources.⁴

2. Limitations by Art. II OST

Rather than directly in the provision of the freedoms we find that other provisions set the frame for the use of outer space. This is on the one hand Art. II OST, prohibiting national appropriation, as well as in certain respects Art. I para. 1 OST, asking for any use to be carried out for the benefit and in the interest of all mankind.

2.1. "National Appropriation"

First of all, Art. II of the Outer Space Treaty mentions 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". This is at least an unusual wording. In order to get a concise understanding we start with the wording of "national appropriation". This is indeed not a traditional term because neither the Antarctic Treaty of 1959 which somewhat served as an example for the Outer Space Treaty, nor the Law of the Sea Convention of 1982 use the term "national appropriation". One can certainly say that at a first glance it is not clear what is meant by "national appropriation". Therefore, an interpretation of this wording according to Art. 31 and 32 of the Vienna Convention on the Law of Treaties (VCLT) is required.

a) Ordinary Meaning

According to Art. 31 VCLT one would start with the literal interpretation of the ordinary meaning of "national appropriation". This is characterised by a mysterious mix of a rather private law conception like "appropriation" and a public law conception like "national". Therefore, the second half of the provision may be of explanatory nature regarding the term of national appropriation. Art. II OST further specifies this national appropriation as encompassing "claims of sovereignty, means of use or occupation, or any other means". That is very clearly a prohibition of any taking of land by claims of sovereignty. This is the traditional means reiterated by "occupation", the other title of public international law. Therefore, Art. II prohibits - and this is rather uncontested - any establishment of titles of states with regard to the area of outer space and the celestial bodies, be it by claims of sovereignty or by occupation.⁵

⁴ S. Hobe, Die rechtlichen Rahmenbedingungen der wirtschaftlichen Nutzung des Weltraums, 1992, p. 66.

⁵ K. U. Pritzsche, Natürliche Ressourcen im Weltraum - das Recht ihrer wirtschaftlichen

The “other means” could then arguably be the establishment of private titles through the means of “use” or “any other means”. From the very wording it therefore seems to be at least possible that Art. II OST shall cover as broad as possible public law titles with regard to the area of outer space and particularly of the celestial bodies as well as private law titles. But this remains unclear seen from a perspective of the vague wording of Art. II OST. Therefore, other means of interpretation have to be employed.

b) Circumstances of the Conclusion of the Treaty and Travaux Préparatoires

It is interesting to note that the US and the Soviet proposals⁶ for the Outer Space Treaty were restricted to the national claims of sovereignty. But these proposals, limited to public law titles, were not immediately accepted. The British representative also put forward draft legislation that made specific the principle that sovereignty could not be acquired.⁷ However, this rather narrow wording was not accepted either, which could indicate that the drafters wanted more than just the prohibition of public law titles. Moreover, the Austrian delegate pointed to the fact that the text should regulate not only the exploration of the Moon and other celestial bodies, but also the “use” so that any contradiction between the term “non-appropriation” and “use” could be prevented.⁸ Also, according to the Belgian representative, no one had denied during the negotiations that the term “appropriation” covered both the establishment of sovereignty and the creation of titles to property and private law.⁹ This view was shared by the French representative.¹⁰ On the other hand, the Russian delegate warned that it would be unwise to look too far ahead and establish rules for future situations that could not clearly be foreseen.¹¹

Thus, in sum, the negotiating history is ambiguous.¹² It was clear that the drafters wanted to exclude any title to state appropriation through sovereignty or occupation. But it was unclear whether something more concerning titles in private law should also be prohibited.

Nutzung, 1989, p. 74; F. G. von der Dunk/E. Back-Impallomeni/S. Hobe/R. M. Ramirez de Arellano, *Surreal estate: addressing the issue of ‘Immovable Property Rights on the Moon’*, *Space Policy* 20 (2004) 149 *et seq.* (at p. 152).

⁶ Soviet proposal UN doc. A/AC.105/C.2/E.1, 6 June 1962; UN doc. A/AC.105/C.2/L.6, 16 April 1963.

⁷ UN doc. A/AC.105/C.2/L.6, 16 April 1963.

⁸ Austrian Delegation, UN doc. A/AC.105/C.2/SR 58.

⁹ UN doc. A/AC.105/C.2/SR 71, 4 August 1966.

¹⁰ UN doc. A/C.1/PV.1492, 16 December 1966.

¹¹ UN doc. A/AC.105/C.2/SR 58.

¹² For an account of the negotiating history of Art. II OST see C. Q. Christol, *Article 2 of the Principles Treaty Revisited*, *AASL Vol. IX* (1984) 217 *et seq.*, and E. Brooks, *Control and Use of Planetary Resources*, *Proc. 11th IISL Coll.* 1969, pp. 339 *et seq.*

The very fact that some representatives during the negotiations remarked that one should not anticipate too much of the future development on the one hand, and, on the other hand, that any prohibition of the freedoms to act should be spelled out clearly, so far in my opinion only allows the conclusion that the negotiating history may underline the fact that any private title to property equivalent to national appropriation by means of sovereignty or use should be prohibited. Only such interpretation would adequately take account of the wording of this provision. It must be observed whether such interpretation can be upheld with regard to the context of this provision as a means of interpretation in the sense of Art. 31 para. 2 of the VCLT.

c) Context

Any interpretation of Art. II OST should consider this provision in the context of the freedoms as enshrined in Art. I para. 2 of the Treaty and other possible limitations that could arguably be derived from Art. I para. 1 of the Outer Space Treaty. According to Art. I para. 1 OST, any exploration and use of outer space shall be carried out “for the benefit and in the interest of all countries”. Art. I para. 1 of the Outer Space Treaty as the initial provision of this Treaty has an overriding *leitmotiv* effect. It makes clear that outer space and the celestial bodies are there for the common use by all states and not by specific countries.¹³ Any claim of sovereignty or of occupation by one state would mean a use of this land exclusively for the benefit of this state and thus would be contrary to the common benefit clause.

Therefore, the function of Art. II OST becomes clear in the context with other provisions: Whereas Art. I para. 1 OST looks for a qualitative apportionment of uses of outer space such as to allow any state the possible use and a possible benefit from such use by other states, Art. II shall back this possibility by the mere fact of prohibiting that any title to property renders a common use or a common benefit of the use virtually impossible.

d) Object and Purpose

From the previous considerations follows also the clear object and purpose of Art. II OST as a final means of treaty interpretation. This provision shall prevent any exclusive claim to outer space or to celestial bodies in order to allow the use of such areas as *res communes*.¹⁴ Such are areas available for inclusive uses rather than exclusive uses.¹⁵ This overriding importance of Art. II OST is fulfilled if one can interpret all the various means as possible means for the acquisition of titles

¹³ N. Jasentulyana, Article I of the Outer Space Treaty Revisited, 17 J. Sp. L (1989) 129.

¹⁴ C. Q. Christol, Article 2 of the Principles Treaty Revisited, AASL Vol. IX (1984) 217.

¹⁵ C. Q. Christol, Article 2 of the Principles Treaty Revisited, AASL Vol. IX (1984) 217.

to territory. Any opposing view in the literature, e.g. by *Brooks*, who wants to include the taking of resources in the prohibition as well,¹⁶ is not convincing. It has no support in the text of Art. II OST that refers only to the territorial right. Thus it is more or less a matter of Art. I para. 1 OST to limit possible uses in order to qualitatively allow all states to benefit therefrom.¹⁷

e) Subsequent State Practice

As already mentioned it is also of relevance, particularly in view of the fact that the Outer Space Treaty will turn 40 years in a few months, what states have officially been doing meanwhile. Here, on the one hand, we have the very interesting negotiating history and the final wording of the Moon Agreement of 1979, 12 years after the adoption of the Outer Space Treaty.¹⁸ Moreover there is the United Nations Convention on the Law of the Sea of 1982, declaring the area of the deep seabed and its resources the common heritage of mankind, and finally the Space Benefits Declaration of the United Nations General Assembly of 1996. One must again highlight the importance of these three developments as means of interpretation in the form of the subsequent state practice according to Art. 31 para. 3 of the Vienna Convention on the Law of Treaties. Reference is made to these agreements because, apart from the uncontested commercial uses of outer space (e.g. by satellites), no specific state practice of such commercial uses with regard to celestial bodies does exist by now.

aa) Art. 11 para. 3 of the Moon Agreement

Art. 11 para. 3 of the Moon Agreement certainly belongs to the most dubious provisions of the entire space legislation. Nevertheless, our task is limited to only attempting an interpretation of the respective Outer Space Treaty in the light of a subsequent state practice as made evident in the Moon Agreement. One can state that Art. 11 para. 2 of the Moon Agreement equals Art. II of the Outer Space Treaty in that once more in a territorial perspective the national appropriation by any claims of sovereignty, by means of use or occupation, or by any other means is prohibited. It is again indicative of the territorial nature of such claims if one compares this provision with the other paragraphs of Art. 11 of the Moon Agreement. In its para. 3 the Moon Agreement makes it clear that neither the surface nor the subsurface of the Moon “nor any part thereof or natural resources in place shall become property of any state or intergovernmental or non-governmental organisation or natural person”. Again, the Moon Agreement highlights that these areas and their natural resources – before being removed – cannot be made public or private property by the claim of titles. Insofar, it

¹⁶ E. Brooks, Control and Use of Planetary Resources, Proc. 11th IISL Coll. 1969, pp. 341, 342.

¹⁷ S. Hobe, Die rechtlichen Rahmenbedingungen der wirtschaftlichen Nutzung des Weltraums, 1992, p. 83.

¹⁸ See for a recent analysis R. Jakhu, Twenty Years of the Moon Agreement. Space Law Challenges for Returning to the Moon, ZLW 2005, p. 243.

reflects what Art. 11 para. 2 of the Moon Agreement as well as Art. II of the Outer Space Treaty did mention. Already the very wording indicates the different treatment of natural resources “in place” that are still part of the area and such resources being removed from the area which as a consequence can become subject to public or private titles to property.

These provisions also suffice to argue that any removal of resources from the Moon or other celestial bodies may make them subject to the usage regime, the structure of which is indicated in Art. 11 para. 7 of the Moon Agreement. If still in 1979 the Moon Agreement called for the establishment of an international regime in terms of the exploitation of natural resources, this is clearly indicative of the fact that at that time, state parties were convinced that at least no such prohibition was already incorporated in the 1967 Outer Space Treaty. Rather the details should only be negotiated against the background of the basic structure as enshrined in Art. 11 para. 7 of the Moon Agreement at later times. One also thinks of the discussion in 1979 on the establishment of a possible moratorium on the use of resources until the implementation of the international regime was set up.¹⁹ Around a decade after the conclusion of the Outer Space Treaty, the question of a possible moratorium was thus discussed. This is clearly a further indication of the fact that no such moratorium or any equivalent consequence was previously considered to be incorporated in the Outer Space Treaty.

bb) Articles 136 and 137 of the LOS Convention

Furthermore, it is necessary to make one more systematic remark with regard to the parallel concept of common heritage of mankind as enclosed in Articles 136 and 137 of the United Nations Convention on the Law of the Sea of 1982. The Convention distinguishes between resources in the deep seabed, the area (in situ), and removed resources as the so called minerals (Art. 133 LOSC). Art. 137 para. 2 LOSC declares resources not being subject to alienation and minerals only in accordance with Part XI of the LOSC. Here again, the dichotomy of a prohibition of any foundation of territorial title to the “area” (of the deep seabed) and a detailed provision on the exploitation mechanisms of such resources was typical for the conception of the Law of the Sea Convention.²⁰

cc) Space Benefits Declaration of the UNGA

¹⁹ T. Gangale, *The Moon Agreement Revisited*, September 2006, <http://pweb.jps.net/~gangale/opsa/spaceEx/MoonAgreementRevisited.htm> (date of access: 14.06.2006).

²⁰ A. Kerrest, *Exploitation of the Resources of the High Sea and Antarctica: Lessons for the Moon?*, Proc. 47th IISL Coll. 2004, p. 530. See also for an overall account of today’s importance of the concept of the common heritage of mankind S. Hobe, *Was bleibt vom gemeinsamen Erbe der Menschheit?*, in: K. Dicke et al. (eds.), *Weltinnenrecht, Liber Amicorum Jost Delbrück*, 2005, p. 329.

Finally, one should take into account the Space Benefits Declaration of the United Nations General Assembly of 1996.²¹ This is insofar of extremely high importance since after many years as an agenda item of the United Nations Legal Subcommittee, this Declaration can be regarded more or less as an authoritative interpretation of Art. I para. 1 of the Outer Space Treaty.²² The Declaration elaborates on Art. I para. 1 of the Outer Space Treaty, but makes no statement whatsoever as to the question of a possible prohibition of the appropriation of natural resources.

Thus, as a result, one can clearly see that Art. II of the Outer Space Treaty explicitly and implicitly prohibits only the acquisition of territorial property rights, be they founded in public law (national appropriation) or in private law (by means of use or any other means). Both acquisitions of such titles are considered as being against the very spirit of the Outer Space Treaty, which is to immediately hinder the use of outer space and other celestial bodies by all states irrespective of their degree of scientific and economic development. No mentioning is made to the question of the extraction of natural resources which means that such use is allowed under the Outer Space Treaty. The only question in this respect remains the division of the benefits derived from those resources which is regulated by Art. I para. 1 of the Outer Space Treaty. And here the Space Benefits Declaration authoritatively grants freedom to states to determine the specific aspects of international cooperation in order to pursue this aim.

2.2. In How Far is Private Appropriation Prohibited by Art. II OST?

Already from the very wording of Art. II OST, it had become clear that certain means equivalent to the acquisition of sovereignty are considered to be private means of the acquisition of territorial titles. This view is supported by Art. VI of the Outer Space Treaty according to which activities can also be carried out by non-governmental entities that must be continuously supervised and authorised by the state party. As regards property rights, this becomes clear because any acquisition of property rights derives its authority by a state act that, for example, establishes a register for property rights with regard to territory. Thus, Art. VI of the OST explicitly includes non-governmental entities. On the other hand, more recently an attempt to a reinterpretation has been made because the Chinese text of Art. II OST – being equally authentic according to Art. XVII OST as well as according to Art. 33 of the Vienna Convention of the Law of Treaties – differs

²¹ Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of all States, Taking into Particular Account the Needs of Developing Countries, UNGA res. 51/122 of 13 December 1996.

²² On the declaration see M. Benkö/K.-U. Schrogl, The 1996 UN-Declaration on “Space Benefits” Ending the North-South Debate on Space Cooperation, Proc. 39th IISL Coll. 1996, p. 183.; for an account see also S. Hobe, Was bleibt vom gemeinsamen Erbe der Menschheit, in: Liber Amicorum Jost Delbrück, 2005, p. 338 et seq.

from the English, French, Russian, and Spanish versions in that it provides that outer space, including the Moon and other celestial bodies, cannot be appropriated “through the state by asserting sovereignty, use, occupation or any other means”.²³ In other words, it is asserted that because the Chinese text would prohibit only the appropriation by the state and not by private entities, the term “national appropriation” would only mean appropriation by or for the state itself. This arguably would allow the acquisition of private titles to territory on celestial bodies.

It has already been mentioned that the acquisition of private property requires a state regulatory framework that governs these activities. Moreover, at the time of the conclusion of the Outer Space Treaty, private parties involved in space activities were deemed to be subsumed entirely under the relevant state’s international responsibility. Any prohibition of public appropriation would therefore include the prohibition of private appropriation. Thus, the absence of any reference to private appropriation in Art. II was just one manifestation of the absence of references to private parties, not an exception to the general rule.²⁴ And in general, one must highlight that if the system of reference for the acquisition of private titles is missing through the prohibition addressed to states, then any permission of private territorial titles makes no sense or is, in other words, irrelevant. Thus, in the interpretation given states as well as individuals cannot acquire territorial titles to property.

3. Limitation of Uses by Art. I para. 1 OST

Considering further limitations of the freedom of use of outer space and the celestial bodies by Art. I para. 1 of the Outer Space Treaty, most of the difficulties arise because the wording is rather vague. As we have seen concerning the taking of resources, Art. I para. 1 of the Outer Space Treaty can be the only possible source for a reallocation of benefits derived from the commercial exploitation that is so far permitted. Art. II OST itself does prohibit only the acquisition of territorial titles. One can just highlight in rather broad terms that Art. I para. 1 OST prohibits any use of outer space that makes it impossible to regard outer space as the common province of all mankind. Again, looking at the common heritage conception as enshrined in Art. 11 of the Moon Agreement, one can see that the eventual sharing of resources or of the benefits derived from those resources is an aim of the establishment of a legal regime for the

²³ R.J. Lee/F.K. Eylward, Art. II of the Outer Space Treaty and Human Presence on Celestial Bodies: Prohibition of State Sovereignty, Exclusive Property Rights, or Both?, IAC-05-E6.2.02, p.2; on the question of property in Moon samples, see C.W. Jenks, Property in Moon Samples, in: Proceedings IISL Colloquium 1969, p. 148.

²⁴ F. G. von der Dunk/É. Back-Impallomeni/S. Hobe/R. M. Ramirez de Arellano, Surreal estate: addressing the issue of ‘Immovable Property Rights on the Moon’, Space Policy 20 (2004) 149 *et seq.* (153); L. I. Tennen, Commentary on Emerging System of Property Rights in Outer Space, United Nations/Republic of Korea Workshop on Space Law, 2004, pp. 67 *et seq.* (p. 68).

exploitation of outer space and the celestial bodies. Such a legal regime does not exist yet. What is clear from the framework for such a regime as contained in Art. 11 para. 7 of the Moon Agreement is that by no means the acquisition of resources is prohibited. Rather, this Article is concerned with ensuring that the international community profits from the taking of the resources from outer space and the celestial bodies.

Thus, before making some overall concluding remarks, we can state that the freedom of economic exploitation of outer space and the celestial bodies is limited on the one hand by a prohibition of the acquisition of territorial titles for states and private individuals and, on the other hand, by a not very explicit conception of exploiting such resources for the benefit of all mankind. The details of such uses still have to be worked out. Before such details have been worked out, this limitation is of rather literal than of practical character.

III. Concluding Remarks

After this investigation into the provisions relevant to (economic) uses of outer space and the celestial bodies, the following concluding remarks can be made:

1. Art. II of the Outer Space Treaty prohibits the appropriation of areas of outer space and on celestial bodies by states.
2. This prohibition of the appropriation by states extends, through Art. VI of the Outer Space Treaty, also to private nationals; the object and purpose of these two prohibitions is the safeguarding of the use of outer space for all states through the prohibition of exclusive uses of the territory.
3. Art. II of the Outer Space Treaty does not prohibit the extraction and the appropriation of natural resources.
4. There is, however, some limitation as to the exclusiveness of such use of resources hinted to in Art. I para. 1 of the Outer Space Treaty. This provision looks for the preservation of outer space and the celestial bodies for the common benefit of all mankind. That can be safeguarded by the establishment of a respective legal regime that makes more explicit the philosophical ideas behind Art. I para. 1 of the Outer Space Treaty of outer space and the celestial bodies as the province of all mankind. Such is envisaged by Art. 11 para. 7 of the Moon Agreement, but has not been concretised so far.
5. In other words: The present legal regime of the Outer Space Treaty does not prohibit the extraction and appropriation of natural resources. The respective regime for the sharing of the benefits derived from these resources has not yet been established so that true limitations for the extraction and appropriation of natural resources cannot be seen by now.
6. The taking of the responsibility of states according to Art. VI and IX of the Outer Space Treaty may safeguard a certain control by the state vis-à-vis

private economic activities. It is thus in the interest of the state to establish a respective legal regime through its national legislation.

7. In the light of the ambiguous wording of Art. II and Art. I para. 1 of the Outer Space Treaty, it seems to be highly recommendable to come up with some clarifications. This could be done in the form of an elaboration of the international legal regime necessary for the implementation of Art. 11 para. 7 of the Moon Agreement. Here is still an unfulfilled task that could also eventually lead to a greater acceptance of this almost (only 12 ratifications after 27 years) unaccepted international agreement. In this respect, important modifications to the original conception of the common heritage of mankind as envisaged in the 1982 Law of the Sea Conference through the Implementing Agreement of 1994 could be an important example. It could make evident that the exploitation of natural resources also in outer space and on the celestial bodies could be framed against the background of the liberal world trade order on the one hand, without on the other hand totally forgetting and neglecting that outer space and the celestial bodies are the province and the heritage of the entire mankind. ILA Resolution 1/2002 of New Delhi could give an important indication in that it declares that the common heritage of mankind concept was regarded as not being contradictory to economic uses of outer space and the celestial bodies.
8. Alternatively and following its more recent practice with regard to space legislation, the United Nations General Assembly could adopt a resolution that would highlight the legal framework for (economic) uses of the outer space and the celestial bodies by giving an authoritative interpretation of Arts. I para. 1, II and VI of the Outer Space Treaty.

The Adequacy of the Current Legal and Regulatory Framework Regarding Commercial Activities in Outer Space – A Developing Country Perspective

Comments on Professor Stefan Hobe's paper
by
Peter Martinez and Justine White (NRF and WITS, South Africa)

Introduction:

We are grateful to the organisers of this international conference taking place at McGill for inviting us to participate and to make some comments in response to Professor Hobe's excellent paper on The Adequacy of the Current Legal and Regulatory Framework Relating to the Extraction and Appropriation of Natural Resources.

In our view, outer space is a frontier in much the same way as high mountains, the polar regions and the deep sea were to generations past... frontiers to be first explored and then utilised and, ultimately, settled. The space agencies of the United States, Japan, India and Europe have developed plans to send human and robotic missions to the Moon sometime in the next decade, and even to establish in due course a sustained human presence on the Moon. To sustain a human presence on any celestial body will require the utilisation of *in-situ* resources. Thus it seems that the exploration and settlement of the Moon will inevitably be followed by exploitation of the Moon's resources, if only to sustain a human presence. However, the settlement of the Moon will transform it from an object of scientific study, to a place where humans pursue their livelihoods, which may involve commercial exploitation of the Moon's mineral and other resources.

We are well in the utilisation phase – space applications are used the world over daily. Space is now “part of the plumbing” of modern life and the activities in space are being carried out by a range of actors: states through governmental space programs, research organisations and, often, private commercial companies. The important issue that arises when we consider this, is how are these myriad space activities being regulated in law?

There are two schools of thought regarding the purpose of a regulatory environment to govern human activities on the Moon. One school takes an essentially scientific view of the Moon, maintaining that it has a fragile environment that should be protected and maintained for the benefit of all. In this view, the purpose of regulation should be to preserve the Moon for peaceful and scientific use and to protect it from exploitation. The second school of

thought views the Moon as a future theatre of human endeavour and advocates an enabling regulatory environment to promote the commercial development of lunar infrastructure and commercial exploitation of the Moon. Advocates of this view regard regulation as necessary to maintain peace, order and stability, all necessary conditions for the development and exploitation of the Moon.

The Outer Space Treaty (1967) and the Moon Agreement (1979) do not satisfy the needs of either of the above schools. This raises a more general issue that the space arena is advancing at an accelerating rate, with more players entering space, and new ways of utilising space that were not seriously contemplated when the early space legislation was drafted. In our view, the current legal framework deals well with States' exploratory activities in outer space. Unfortunately, as we have seen, current space use goes far beyond these. The time has come therefore to develop legal rules necessary to regulate the commercial utilisation of outer space resources by private actors. In this paper, we offer a developing country perspective on these issues and pose some questions for future consideration.

Current state of International Space Law

A growing number of countries (five at present)¹ have expressed intentions of developing missions to explore the Moon in the coming decades. Some of these exploratory missions will require utilisation of lunar resources. There is also a growing interest in the potential for commercially viable extraction of lunar resources, for use on the Moon, in space or on Earth. These developments have given rise to calls from various quarters for the elaboration of a legal regime to govern such activities. In some cases, new international treaties have been called for. However the situation at the Committee on Peaceful Uses of Outer Space (COPUOS) belies this. We are of the view that there is clearly a reducing appetite for the creation of new International Space Law Treaties.

In contrast with the first years of the existence, which gave rise to the passage of five international treaties² on outer space issues between 1967 and 1979, since 1979 it seems that the international community is far more comfortable with passing resolutions on outer space matters³ rather than engaging in treaty making. The agendas of the two subcommittees of COPUOS illustrate this

¹ The USA, Europe (through ESA), Japan, India and China.

² These being: the Outer Space Treaty, the Rescue Agreement, the Liability Convention, the Registration Convention and the Moon Agreement.

³ These being: the Principles Governing Activities of States, Principles on International Direct Television Broadcasting, Principles Relating to Remote Sensing, Principles Relevant to the Use of Nuclear Power and the Declaration on International Cooperation in the Exploration and Use of Outer Space.

problem clearly. The agenda of the Scientific and Technical Subcommittee is growing, with more agenda items. At the same time the agenda of the Legal Subcommittee has remained, by comparison, rather limited. This trend can also be seen in the way in which the international community is not able to take binding multilateral action in respect of the pressing (and growing) problem of space debris. Major space powers, unable to reach agreement on the issue, are advocating the voluntary adoption of debris mitigation guidelines proposed by COPUOS, rather than pursuing binding legal guidelines to this problem.

We also see that a number of national space agencies prefer to cast their international obligations in a bilateral form rather than engaging in treaty-making which have international obligations. Similarly in their relationships/assistance programmes with space active/aspirational developing countries, many developed countries prefer bilateral arrangements.

We need an international legal regime that can respond appropriately to beneficial new trends that impact on the use of outer space. In the post-Cold War era, the general international economic trend is towards the liberalisation and deregulation of markets. As we have set out above, the space arena now has many more players than it did in the 1960s, including large commercial interests. This is so despite the significant barriers to entry to commercial space activities, including high costs and high risk propositions. This means that for commercial operators, investment horizons are long term. While commercial operators want legal certainty in order to protect their long term investments in outer space activities, they will obviously resist legal frameworks which they consider to be a barrier to their activities.

Issues to be Addressed in International Space Law to Provide a Regulatory Framework that Encourages Responsible Commercial Uses of Outer Space

We set out below a number of issues, questions and suggestions that we believe require to be addressed in order to develop the International Space Law Regime such that it does encourage responsible commercial uses of outer space resources.

- Clarify/define key terms:
First, we are of the view that there are a number of key concepts in the International Space Law regime that need to be clarified. We agree with the crucial point that one ought to be wary of reviewing the provisions of the Outer Space Treaty for fear of undermining the key principles of the laws of outer space which have developed into *jus cogens* over time. We say however that what is needed is far more clarity on what is meant by certain of the provisions in the Outer Space Treaty and in other International Space Law Treaties, in order to give legal certainty to private

actors and thereby encouraging investment and research in outer space. One example of required clarity would be the differentiation between “use” and “appropriation”. Article 2 of the Outer Space Treaty states that: “Outer space, the Moon and other celestial bodies is not subject to national appropriation by claims of sovereignty, by means of use or occupation or by any other means.” Clearly this prohibition does not mean that because states cannot proclaim sovereignty, they (or their private entities) cannot use the resources on those bodies. Indeed such use is clearly provided for in Article 1 of the Outer Space Treaty. One of the constraints on “use” is that it not amount to “appropriation”, as this is prohibited under Article 2. The key question then to determine is: when does “use” become “appropriation”? We can envisage a situation where a resource that is finite (a rare mineral for example, found in a single region on a celestial body) and is being mined or otherwise extracted in such a manner that it is likely that the celestial body will be entirely denuded of it. Surely this would amount to appropriation? Similarly, does the requirement of “benefit sharing” in Article 1 of the Outer Space Treaty, cover every type of “exploration” (for example, prospecting) and every type of “use” (for example, high resolution remote sensing, communications)? Current practise clearly shows that in fact this is not the case.

- Address weaknesses in the Moon Agreement:

Linked to this, we think it imperative to address some of the weaknesses in the Moon Agreement which was finalised at a time when there were no plans by the major space-faring powers for an imminent return to the Moon and prior to the advent of significant private sector developments in the space arena apart from satellite communications. Only twelve states have ratified this treaty⁴ – none of which is a major space power. Thus of the 191 United Nations member states, fewer than 10% have demonstrated any formal support for the Moon Agreement. We think it significant that the Moon Agreement is also the last treaty to have been made by the United Nations on international space affairs since 1979. Over time it has become clear that the Moon Agreement lacks the support of not only developed countries and space faring nations but also of developing countries too. Why is this the case? Again, we are of the view that this is due to the interpretational difficulties of vague wording used in the Moon Agreement.

It seems that the major sticking points that mitigate against broad international support for the Moon Agreement relate to two key issues: the Common Heritage of Mankind and the Benefit Sharing provisions.⁵ It seems clear that the inclusion of these concepts was motivated by an

⁴ An additional four countries have signed the Moon Agreement, including India and France.

⁵ See Article 11(1) and 11(7)(d) of the Moon Agreement.

intention to promote the interests of those countries who are not capable of extracting or otherwise making use of outer space resources. However, the application of these concepts would be an impediment to the commercialisation and indeed to investment in outer space activities because of the lack of clarity as to what these terms mean. When does “benefit sharing” commence and indeed how does one define “equitable sharing” given the enormous barriers to entry and huge start-up costs involved in commercial space activities? Clearly these terms require definitional clarity to bring about the necessary legal certainty to encourage commercial outer space activities. This is particularly so given the trend toward bilateral legal agreements between states discussed above.

- Develop national space legislation:

We believe that the development of national legal frameworks for space activities is essential. An important mechanism for encouraging the development of international norms and standards for engaging in space activities is the development of domestic space legislation. Article 6 of the Outer Space Treaty assigns to states the responsibility of the conduct of national activities in outer space, including the Moon and other celestial bodies. Clearly this has direct relevance to the conduct of commercial space activities by private actors and Article 6 effectively requires states to develop national legislation to regulate the activities of their national entities (both natural and juristic) in space. Yet most countries (including some working actively on missions to the Moon) have not adopted national space legislation. We are of the view that COPUOS should encourage all countries to develop national space legislation in order to ensure the following benefits: it enables countries to engage with global space developments and activities, to consider what their respective obligations and rights are with regard to space activities (something of considerable benefit particularly for developing countries) and it encourages the development of international “best practise” benchmarks which will form the basis for international consensus regarding the commercial use of outer space resources. South Africa for example has 13 year old national space legislation which has a focus on arms non-proliferation. This is currently being overhauled through a policy evaluation and development process and it is likely that the licensing and regulation of activities by commercial actors will be given much higher priority.

With the recent rise of non-state actors in space activities, we are of the view that there is a danger of powerful and wealthy commercial interests being able to exploit weak states with little or no space regulatory capacity, as “flags of convenience”. If such states are willing to allow themselves to

be used as “launching states” yet have no capacity to require adequate insurance to protect themselves from liability claims or to monitor environmental concerns such as contamination or space debris, this could pose problems for the international community because such states may not be able to meet their “state liability” obligations as laid down in the Liability Convention and in the Outer Space Treaty, in respect of such commercial ventures should damage be caused thereby. Again the risks of this could be greatly reduced by encouraging the passage of effective national laws on outer space matters.

- Tackle the space divide:

We think it important that the international community engages creatively in the “space divides” that exist between countries. This divide does not cut cleanly along the traditional developed/developing country axis. There are a number of developing countries which are space-faring nations – China and India are but two obvious examples. There are other less obvious examples: Nigeria, South Africa and Brazil for instance. Similarly there are developed countries which are not space-faring nations – Norway and Italy, for example. With regard to space activities, there is a continuum of “development” with States having a wide range of capabilities and aspirations and we note that the one of the effects of the non-appropriation principle in the Outer Space Treaty⁶ and the Moon Agreement⁷ is that non-space-faring countries will be able to explore and use outer space resources when they eventually get there. Developing countries see the use of space technology as one way of addressing their development needs and to leapfrog certain stages of development, including in respect of communications, meteorological matters etc. However, it does not follow that demands for, for example, “profit sharing” among all countries of commercial space activities are reasonable or justifiable, even under the provisions of the Moon Agreement. In our view the Common Heritage of Mankind and benefit sharing provisions in the Moon Agreement were adopted to protect the perceived rights and interests of developing countries, yet we believe that the end result may be exactly the opposite. In our view demands for profit sharing “among all countries” are simply unreasonable and will lead to lack of investment in space. The more investment in space worldwide, the more downstream benefits will accrue to *all* countries, including the developing countries. In our view a far more effective way of promoting the interests of developing or space-aspirational countries is to build capacity in these countries to utilise space technology and to develop their own indigenous programmes. Note that with respect to regional or international

⁶ Article II.

⁷ Article Article 11(2).

programmes – these can be developed on a collaborative basis. India, China and Brazil provide excellent examples of what can be accomplished by a country that makes a conscious decision to enter the global space arena.

- Develop framework for appropriate benefit sharing:

We think it critical that an international framework for regulating “benefit sharing” be developed, including with participation by developing countries. There is no doubt that as we stand now, developing countries must have access to space technology for development. Space-derived geo-spatial information, satellite communications and satellite-based positioning and navigation are indispensable for developing countries, and contribute to economic and social development, safety and security. The same cannot be said for access to, for example, the Moon’s resources. To date, nothing has been identified on the Moon that is crucial for the development of any developing country. In our view there needs to be a greater acknowledgement of how the “benefit sharing” referred to in Article 1 of the Outer Space Treaty have occurred. These include: lunar samples exhibited/donated to many countries, the distribution of public outreach and educational material, the allocation of frequencies to all countries for satellite broadcasting and telecommunications services, allocation of Geostationary slots on a “first come, first served” basis, scientific and Earth observation data being made available to many space missions by numerous space agencies, the United Nations Programme on Space Applications which was developed to implement the benefits of space exploration and use in all countries and the use of space-derived data for disaster management. There have also been a number of successful examples of benefit sharing from a commercial basis such as INTELSAT, EUMETSAT and EUTELSAT.

- International legal regime to encourage investment in space exploration and use:

We think it critical that the next phase of international rule-making on outer space activities ensures that investment in space exploration and use is encouraged. We think it likely that it will be far easier to achieve an international legal regime for exploration (including the use of *in situ* space resources needed to support exploration) than a regime for commercial utilisation of resources. In our view, although parallels are often drawn between the legal regimes that apply to outer space and to the deep sea bed, it would be counter-productive to pursue a model based on the regime established under Part XI of the Convention on the Law of the Sea (including the establishment of the International Seabed Authority etc). We are concerned that such a model would discourage investment

and innovation due to its overly restrictive benefit sharing provisions. The important issue is to ensure that the exploration and potential development of the Moon should be conducted for peaceful purposes and in the interests of all countries, as enshrined in the Outer Space Treaty. Therefore some mechanism to enable this sharing will have to be devised, It will be important to involve persons from developing countries in the elaboration of an international legal regime for outer space use and in the operation of the entity that would be created or charged with implementing this regime. Whether this regime is the one envisaged in Article 11(5) of the Moon Agreement, or a special protocol or another instrument is to be decided. In this regard it may be worth considering is an approach similar to that used for the allocations of frequencies and orbital slots by the International Telecommunications Union.

- Encourage international cooperation:

In respect of a legal regime to cover both commercial exploration and commercial use, we believe it important to build in as much international cooperation as possible and to include commercial partners in joint ventures as early as possible. This international co-operation can include joint ventures, “space partner” programmes etc. The extremely costly nature of lunar and planetary exploration will require broad international participation. Most of the expenditure will be on the ground, on Earth, and not in space, and much of the investment will remain on the ground inside people’s heads. There are many ways to participate in this grandest of human ventures in ways that do not require the construction and operation of space hardware. Examples of this are the development and validation of technologies for exploration and *in situ* resource utilisation, analogue test sites, and so on. These possibilities provide an opportunity for *interested* developing countries to contribute to (and share the cost) of lunar and planetary exploration. The door to participation is open. The agencies involved in these programmes are in the main open to international collaboration. This would require that developing countries be more proactive in making known their interests and capacities and they should demonstrate commitment through sustained space-related programmes. On the other hand, this would also require leading space-faring nations to continue to ensure opportunities for participation by smaller and new players as the number of competent partner countries increases to take up available “space partner” opportunities.

- Reinvigorate COPUOS:

In our view, there is an opportunity for the role of COPUOS as an international forum for law-making to be strengthened. This is because the increasing utilisation of space will inevitably create new problems and

challenges which will require legal solutions in order to avoid conflict and lawlessness in outer space. One of the challenges currently facing COPUOS is the poor attendance record by some member States, particularly among the developing countries. Such poor attendance may be the result of a lack of capacity within those countries to engage purposefully with the agenda items in COPUOS and the newly-appointed Chairperson of COPUOS has identified this as an issue that should receive attention in the coming sessions of the Committee.

Conclusion:

In these brief comments we have tried to identify eight key issues or questions, particularly from a developing country perspective, that we think need to be considered and borne in mind when developing the next phase of the International Space Law regime, which, in our view, must be developed with the express intention of encouraging commercial exploration and use of outer space resources for the benefit of all countries.

Outer space resources on the Moon, Mars and other celestial bodies: adequacy of the current international legal regime

A (point form) commentary upon the paper of Professor S. Hobe

By

Prof. dr. P.P.C. Haanappel

1. The Outer Space Treaty 1967 (OST) is not clear on private ownership rights on celestial bodies and on the exploitation of natural resources on such bodies. Basically, most of the Treaty was written with only States in mind, rather than natural or legal persons, and amongst the key words in Article 1 are “exploration and use”. Exploration does not equal exploitation, although it perhaps includes experimental exploitation. It does not seem logical to include “exploitation” in “use”, if exploration is mentioned separately. Slowly, however, the opinion took hold that “use” may include commercial use and this is confirmed in the UN Declaration of 1996 on International Cooperation in the Exploration and Use of Outer Space.
2. In 1967, it was not generally foreseen how important Article VI of the Treaty would become: the activities of non-governmental entities in outer space, including the Moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. Perhaps, however, it is too often forgotten that activities of non-governmental entities in outer space are not *necessarily* of a commercial nature.
3. As a matter of logical and systematic interpretation it can be argued that what is not allowed for a State, is *a fortiori* not allowed for a natural or legal person (see Haanappel, *The Law and Policy of Air Space and Outer Space*, KLI, 2003). This should, for instance, be kept in mind with respect to the so-called “samples’ provision in Article VI (2) of the Moon Treaty.
4. When the Moon Treaty was adopted in 1979, it reflected in part the current, generally accepted legal thinking at the time, and this particularly in those provisions of the Treaty that were written as being declaratory of the law rather than as creating rights and obligations between States Parties. Amongst them are paragraphs 1, 2, 3 and 8 of Article XI of the Moon Treaty (see Haanappel on Article XI of the Moon Treaty, in the

Proceedings of the IISL Colloquium, Tokyo, 1980). This still seems to be the law today, especially as far as paragraph 3 is concerned.

5. Paragraph 1 of Article XI introduces the notion of common heritage of mankind (CHM), called a “principle” in Article XVIII. CHM goes beyond the “province of all mankind” of the OST, which is basically a summing up of Article I (1) OST. CHM was first used in the UN in 1970, in the law of the seas, and is thus posterior to the OST. One of the basic difficulties with the principle of CHM is that, since its use in the seventies and eighties, it has lost broad scale political support.
6. Whereas paragraph 2 of Article XI of the Moon Treaty merely reiterates Article 2 of the OST, paragraph 3 of Article XI confirms a point on which there had hitherto been some doubt, namely that there are no private or public ownership or property rights on the Moon and other celestial bodies. This is still the law today, it is submitted. However, it says nothing about the removal, the extraction of natural resources.
7. Here, paragraph 8, referring to the purposes of a future international CHM regime and to the “samples provision” of Article VI is relevant. Basically, States are expected to take the not yet existing, future international regime into consideration where and when they are dealing with the natural resources of the Moon and of other celestial bodies. This, of course, is difficult for nations that have never espoused CHM or have turned away from it, like the United States.
8. From a declaration by the US delegation to the UN in 1979 (Mr Neil Hosenball) it becomes clear that it was not the intention of the Americans to consider that the Moon Treaty contains a moratorium on exploitation of lunar resources. Real commercial exploitation, however, would trigger the obligation of Contracting Parties, and at that time the US still intended to sign, to establish an international regime to govern exploitation.
9. **Conclusion 1** and this for all States, whether or not Parties to the Moon Treaty: there are no private or public ownership or property rights on the Moon and other celestial bodies.
10. **Conclusion 2** and this for States, not Parties to the Moon Treaty: extraction of resources from the Moon and other celestial bodies is probably allowed, but Articles I (1) and VI OST apply. Exploitation or extraction of resources may, in addition, not lead to a situation that free access to all areas of celestial bodies would thereby be impeded under Article I (2) of the OST.

11. **General conclusion:** there is enough legal uncertainty to say that the legal regime for lunar and other outer space resources is inadequate. Therefore:

(a) perhaps a Protocol to or an Implementing Agreement for the Moon Treaty is required to satisfy the needs of nations not or no longer accepting the principle of CHM; and

(b) short of that, an authoritative interpretation by the UN of the relevant international legal instruments would seem highly desirable.

Comments on the issue of “Adequacy of the Current Legal and Regulatory Framework Relating to the Extraction and Appropriation of Natural Resources of the Moon”

By

Vladimir Kopal

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My task, as I understand it, is to comment the discussion paper on the above subject presented by Professor Stephan Hobe, Director of the Institute of Air and Space Law, University of Koln, Germany. I consider his paper as a thoughtful basis for our discussion. It is possible to agree with many of his ideas and observations brought to our attention.

At the same time, I intend to convey to this workshop some views, which more or less differ from those included in the discussion paper. In the first part of my contribution, I intend to offer a number of comments on Professor Hobe’s paper. Then, I would like to briefly summarize my own position relating to the question of this session, which I already explained earlier in a number of papers published particularly in some past IISL Proceedings of the Colloquia on the Law of Outer Space, and also in the Proceedings of United Nations Workshops held under the scope, of the UN Programme on Space Applications.

I agree with the main approach of Professor Hobe that he concentrated his analysis on the 1967 Outer Space Treaty (OST), but at the same time, he did not omit the existence of the 1979 Moon Agreement (MA). It is clear that the MA should have been a continuation of the 1967 basic space law instrument. The MA elaborated the legal status of the Moon, the foundations of which were laid down in the OST, and further regulated the expected activities on and relating to this and eventually other celestial bodies. The main principles governing the legal regime of outer space in general and also those relating to the Moon and other celestial bodies, however, were already enshrined in the 1967 OST.

By a set of principles the OST regulated “the exploration and use” of outer space, including the Moon and other celestial bodies as the author of the discussion paper recalls in the heading of Section 1, Chapter II of his paper. In the following text, though, he speaks only about the term “use” and in its interpretation he goes, in my opinion, too far. It is hard to agree with him that “use” of outer space might also mean the taking of property as well as any kind of “commercial use” and that “states and other actors are allowed to use outer space and celestial bodies commercially, *inter alia*, by the extraction of resources”. It is certainly

possible to expect that extraction of resources will become usual for the purposes of exploration of the Moon and other celestial bodies, for construction of stations and the permanent presence of man in this environment. It is also possible to imagine that the extraction of natural resources for commercial purposes will become a reality in a more or less distant future. But then, it will no longer be “the exploration and use” of outer space and celestial bodies, but the exploitation of their resources the regulation of which should be agreed upon by a new legal instrument.

I have some reservations to Professor Hobe's observation that neither the 1959 Antarctic Treaty, nor the 1982 UN Convention on the Law of the Sea use the term “national appropriation”. As far as the Antarctic Treaty is concerned, it is not possible to neglect the specific historical development and the political situation relating to Antarctica, which differed from those relating to outer space. In the Antarctic Treaty a compromise solution has frozen the so called sector claims of some states and also any new claims of this kind to be raised during the validity of the Treaty. The application of this specific solution in the 1959 Treaty, however, has been de facto meaning the same as the prohibition of national appropriation as enshrined in Article II of the OST.

Neither the same reference to the Law of the Sea in the discussion paper is valid. Firstly, Article 89 of the 1982 UN Convention declares in relation to the high seas that “no state may validly purport to subject any part of the high seas to its sovereignty”. Secondly, the ban of national appropriation has been enshrined in para. 1 of Art. 137 of the Convention with regard to the Area of the seabed and ocean floor and the subsoil thereof, beyond the limits of national jurisdiction. It is true that the term “national appropriation” is not used in the language of this provision, but it is abundantly clear that just this provision deals with this issue.

As to the meaning of the prohibition of national appropriation, Professor Hobe rightly considers “as rather uncontested” the prohibition of “any establishment of titles of states with regard to the area of outer space and particularly the celestial bodies, be it by claims of sovereignty or by occupation”. He admits that through the means of “use” or “any other means” “it therefore seems to be at least possible that Art. II OST shall cover as broad as possible public law titles with regard to the areas of outer space and particularly of the celestial bodies as well as private law titles.” But he adds that “this remains unclear seen from a perspective of the vague wording of Art. II OST. Therefore other means of interpretation have to be employed.”

In my opinion, Art. II of the OST must be interpreted on the basis of its exact wording which reads: “Outer space, including the Moon and other celestial

bodies, is not subject to national appropriation by claims of sovereignty, by means of use or occupation, or by any other means." The term "national appropriation" appeared for the first time in the UN General Assembly resolution 1721 /XVI/ A adopted in 1961. Its ban was included in the 1963 Declaration of Principles and transferred therefrom to the 1967 OST without any change, and must be understood in harmony with Art. VI of the OST. This principle established international responsibility of states for national space activities, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions of the OST. It is not possible to admit a different interpretation of the same adjective "national" in different provisions of one legal instrument, unless such a difference be clearly defined in the text of the treaty concerned. Therefore, the prohibition of national appropriation relates to national activities, be they conducted by states, their governmental agencies, or non-governmental entities of any kind of their nationality.

In his discussion paper Professor Hobe correctly refers to the subsequent state practice. But, in addition to the conclusions of three legal instruments he mentions - the 1979 MA, the 1982 Sea Law Convention and the 1996 Benefits Declaration - it may be still more convincing to refer to the up-to-date practice of exploration and use of the Moon and outer space itself. This practice has been in substance in harmony with the provisions of the 1961 OST and, surprisingly, also with the provisions of the 1919 MA, particularly with those of para.2 of Art. 6 and para. 3 of Art. 11, though such practice has been performed by states which have not become parties to the MA. On the other hand, Professor Hobe's preferences to para. 1 of Art. I of the OST and the 1996 Space Benefits Declaration as the only provisions that might raise the question whether the extraction of natural resources be allowed or not, are too restrictive in my opinion. Moreover, the 1996 Declaration relates explicitly only to international cooperation in the exploration and use of outer space, not to the issue of regulating the exploitation of space natural resources.

In the interpretation of Art. VI of the OST, Professor Hobe observed, in the original version of his paper, that the Chinese version of this principle differs from its English, French and Spanish versions. It could be mentioned that also the Russian version of this principle is an equivalent of the three versions he recalled. Therefore, four identical versions thus stand against one text which limits the prohibition of "national appropriation" by asserting sovereignty, use, occupation or other means to that effected "through the state". It might be observed in this connection that such disagreements between two or more authentic texts of one treaty provisions appear quite often. Disagreements and disputes arising from such situations must be settled by agreements of the parties concerned or by decisions of the courts and other competent bodies.

According to Art. 31 of the 1969 Vienna Convention on the Law of Treaties, treaties shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose. Certainly, the other provisions of the same treaty, such as Art. VI of the OST, as already mentioned in relation to the term “national appropriation”, must be taken into account for a right interpretation of Art. II. And according to para. 4 of Art. 33 of the Vienna Convention, when a comparison of the authentic texts discloses a difference on meaning which could not be removed, the meaning which best reconciles the texts, having regard to the object and purpose of the treaty, shall be adopted. The fact that from among five authentic versions four versions prevail has a certain significance, the more so if they include the languages which were mostly used in negotiations of the OST, particularly in informal consultations.

As to the concluding remarks of Professor Hobe, I agree with his view as expressed in remark 4, namely that “Art. I, para. 1 of the OST looks for the preservation of outer space and the celestial bodies for the common benefit of all mankind”. And as he adds “that can be safeguarded by the establishment of a respective legal regime that makes more explicit the philosophical ideas behind Art. I, para. 1 of the OST...” The following remark, number 5, should then rather read: The present legal regime of the OST does not regulate the extraction of natural resources and the respective regime for the sharing of the benefits derived from these resources has not been established yet. And remark 6 should be completed by a sentence that “states bear international responsibility for it in accordance with Art. VI of the OST.”

As to concluding remark 8, I doubt whether the UN General Assembly could give an authoritative interpretation of Articles I, para. 1, II and VI of the OST. During the discussions on the concept of the “launching State” in the COPUOS and its Legal Subcommittee, there was an opposition against this kind of competence to be entrusted to the UN General Assembly. It was argued that such an interpretation could be made only by the States Parties to the treaty. The General Assembly, however, may initiate further legislative actions and support and contribute to such efforts by its recommendations.

In the conclusion of my comments, I would like to offer my own brief reply to the questions discussed at this session.

The 1967 OST enshrined the principles governing the exploration and use of outer space, including the Moon and other celestial bodies. The up-to-date practice of states and international organizations in these activities has been effected within the limits of exploration and use and will probably remain within such limits still for many year ahead. This is also evident from many relevant

documents, assessments and political statements. The basic space legal instrument, the 1967 OST did not regulate the status of space natural resources and the exploitation thereof by their extraction and alienation for commercial purposes. For in 1967, such an attempt was probably considered as premature and the political interests of space powers in an early agreement on the then actual problems prevailed.

International Law, however, is not a static system, it has a developing character which is still more valid for international space law. This is evident from the whole up-to-date space legislation, particularly from the efforts to elaborate the principles of the OST relating to the Moon and other celestial bodies by the conclusion of the 1979 MA. This particular instrument restated and confirmed the relevant principles of the OST, completed them in some aspects and tried to strengthen them. In the central problem, which was dividing the negotiating states, particularly the technologically advanced powers on the one hand and the developing countries on the other hand, the drafters of the MA succeeded in reaching a compromise. Therefore, the final text of the MA was endorsed in the COPUOS and adopted in the UN General Assembly by consensus.

In the MA, the principle of Common Heritage of Mankind was declared in relation to the Moon and its natural resources. However, this principle shall apply only in the limits of the provisions of the Agreement. The MA included a commitment of the States Parties to establish an international regime, including appropriate procedures, to govern the exploitation of natural resources of the Moon - and only the exploitation, not the exploration and use thereof - as such exploitation is about to become feasible. This commitment should be implemented by a review conference convened at the request of one third of the States Parties to the MA and with the concurrence of the majority thereof.

In addition to the general commitment, which has the character of a *pactum de contrahendo*, the MA enumerated a number of main purposes of the international regime to be established. Three of these purposes - 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 these resources - seem to be undisputable. The fourth purpose an equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs 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 was the result of an important compromise, which was regarded at that time as balanced by all states participating in the negotiations. In any way, this was just a formulation of the purposes of the future regime, not the establishment of precise legally binding rules to govern this subject.

All these reasons speak in favour of the conclusion that the MA as a whole, including its solutions of the main problems, can be assessed still today as a useful legal instrument, which does not hinder further development of activities and international cooperation in the peaceful exploration and use of the Moon and eventually other celestial bodies, be they conducted by states, governmental agencies or non-governmental entities. Neither does it impede future efforts to reach generally acceptable solutions of those aspects which still remained unresolved or will arise in the course of the progress of space activities.

Comments on the Discussion Paper, “Adequacy of the Current Legal and Regulatory Framework Relating to the Extraction and Appropriation of Natural Resources”

By

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I would like to begin by acknowledging Eilene Galloway, the woman and space law luminary to whom this conference is dedicated. Her work served the world and her Nation and helped them both through a dangerous time. On a very personal level, Mrs. Galloway’s work, and her presence as a role model, helped make my career possible. Therefore it is with much affection and enormous respect that I join my colleagues in dedicating this conference to her.

I would also like to acknowledge and thank Prof. Stephan Hobe for his very thoughtful and thought-provoking discussion paper, upon which I have been invited to make some comments.

Prohibition of Appropriation by States Extends to Private Nationals

The discussion paper asserts in absolute terms that the prohibition of appropriation by States extends to private nationals.¹ A review of the relevant literature yields no absolute conclusion regarding this assertion. There are differing views held by some very respectable observers who consider it possible for an “individual or a private association or an international organization [to] lawfully appropriate any part of outer space, including the Moon and other celestial bodies”.² Moreover, these same observers appear to have expressed

¹ Prof. Stephan Hobe, *Adequacy of the Current Legal and Regulatory Framework Relating to the Extraction and Appropriation of Natural Resources* pg. 9, concluding remark 2. “This prohibition of the appropriation by states extends, through Art. VI of the Outer Space Treaty, also to private nationals.”

² Stephen Gorove, *Interpreting Article II of the Outer Space Treaty*, 37 *FORDHAM L. REV.* 349, 351 (1969).

... the [Outer Space] Treaty in its present form appears to contain no prohibition regarding individual appropriation or acquisition by a private association or an international organization....Thus, at present, an individual acting on his own behalf or on behalf of another individual or a private association or an international organization could lawfully appropriate any part of outer space, including the Moon and other celestial bodies.... the establishment of a permanent settlement or the carrying out of commercial activities by nationals of a country on a celestial body may constitute national appropriation if the activities take place under the supreme authority (sovereignty) of the state. Short of this, if the state wields no exclusive authority or jurisdiction in relation to the area in question, the answer would seem to be in the negative, unless the nationals

changing views over time,³ leave further room for analytical variables,⁴ and suggest different future outcomes, depending on the circumstances.⁵ The view that private appropriation is permissible has been acknowledged to have “many followers” although generally less accepted.⁶ Additionally, earlier studies by the International Institute of Space Law (IISL) regarding “interdiction of ‘private appropriation’ ” are inconclusive.

In order to focus the attention on the need for a legal regime in 1960 the International Institute of Space Law established a working group to study and make proposals for the legal status of celestial bodies. After study it reported in 1964 that celestial bodies “or regions of them shall not be subject to national or private appropriation”. In its 1966 report the working group urged the interdiction of “private appropriation.” It was also suggested that nongovernmental entities “may explore and use” celestial bodies with the permission of the parent state. The Institute did not record an approval of the working groups proposals.⁷

Nonetheless, there are other respectable observers that are of the view “that an individual, private association or international organization may lawfully appropriate any part of outer space...goes too far [and that]...[t]he only interpretation consistent with the [Outer Space] treaty’s [sic] purposes of assuring freedom of use, and use in common interest, is that the prohibition on appropriation applies to all entities, and not solely to nations”.⁸ Additionally, a recent trend in the international space law community and legal proceedings in a prominent space-faring nation has emerged that tends to support the discussion paper’s assertion that the prohibition of appropriation by States extends to private nationals. This trend includes a recent statement by the IISL Board of Directors⁹; emerging academic opinion¹⁰; a U.S. Federal Court addressing a

also use their individual appropriations as cover-ups for their state's activities”

Id.

³ STEPHEN GOROVE, *DEVELOPMENTS IN SPACE LAW: ISSUES AND POLICIES* 25 (Springer-Verlag New York, LLC., 1991).

“As to the mere occupation of an area by a settlement or otherwise, the Moon Agreement in line with the Outer Space Treaty makes it clear that there could be no occupation if it amounted to ‘national appropriation’ or the exercise of property rights in relation to such an area.” *Id.*

⁴ *Id.* “The two crucial prerequisites in the determination of a possible violations would be the question of the exercise of exclusive dominion and control over the area and the sense of permanence with which such control is exercised.”

⁵ *Id.* See, for example, Dr. Gorove’s discussion on settlements in free space, not on celestial bodies.

⁶ Carl Q. Christol, *Article 2 of the 1967 Principles Treaty Revisited*, 9 *ANNALS OF AIR AND SPACE L.* 217, at 243 (1984).

⁷ Carl Q. Christol, *The 1979 Moon Agreement: Where Is It Today?* 27 *J. SPACE L.* 1, at 2-3 (1999).

⁸ Milton L. Smith, *The Commercial Exploitation of Mineral resources in Outer Space*, in *SPACE LAW: VIEWS OF THE FUTURE*, 47 (Tanja L. Zwann, ed., 1988).

⁹ Statement by the Board of Directors of the International Institute of Space Law (IISL) on Claims to Property Rights Regarding the Moon and Other Celestial Bodies [hereinafter IISL Board], available at http://www.iafastro-iisl.com/additional%20pages/Statement_Moon.htm (last visited

private “claim” to an asteroid¹¹; analysis and conclusions of the issue in the legal literature¹²; and, expert discussion of the subject in an expert forum.¹³

The IISL Board of Directors’ state that, “the activities of non-governmental entities (private parties) are national activities. The prohibition of national appropriation by Article II thus includes appropriation by non-governmental entities (i.e. private entities whether individuals or corporations) since that would be a national activity”.¹⁴

A U.S. Federal Court dismissed a case in which the plaintiff asserted his “property claim” to an asteroid. It was dismissed because the plaintiff failed to state a cause of action and the court “found the...property claims deficient”.¹⁵

Article 9 of the California Commercial Code [upon which the Plaintiff relied to “file” his “security interest”] sets forth a procedure for the regulation of security interests in property, it does not create a property interest in an asteroid. The Archimedes Institute registration on which he relies disclaims any authority to confer title or rights to property on its registrants. All the website does is create a registry. *There is absolutely no legal basis for asserting that such a registry creates a property interest in the asteroid...*[and that] neither the failure to [sic] the United States to ratify the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, commonly referred to as the Moon Treaty, nor the United States' ratification in 1967 of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, commonly referred to as the Outer Space Treaty, created any rights in Nemitz to appropriate private property

July 4, 2006).

¹⁰ F.G. von der Dunk, E. Back-Impallomeni, S. Hobe and R.M.Ramirez de Arellano, *Viewpoint: Surreal Estate: Addressing the Issue of “Immovable Property Rights on the Moon”*, 20 SPACE POL’Y 149 – 156 (2004).

¹¹ Gregory William Nemitz, v. National Aeronautics And Space Administration, No. 04-16223, 2004 WL 3167042, (9th Cir. Apr. 26, 2004).

¹² Robert Kelly, Note, *Nemitz v. United States, A Case of First Impression: Appropriation, Private Property Rights and Space Law Before the Federal Courts of the United States*, 30(2) J. SPACE L. 297 (2004).

¹³ IASL – IISL International and Interdisciplinary Workshop on Policy and Law Relating to Outer Space Resources: the Example of the Moon, Mars and Other Celestial Bodies, Montreal, Canada, June 28-30, 2006. In fact, it was some of the views expressed by some of the experts at this workshop that helped shape this revised version of this author’s comments.

¹⁴ IISL Board, *supra* note 9.

¹⁵ Kelly, *supra* note 12, at 299. Nemitz is an unpublished disposition or order. *See, Nemitz, supra* note 11. Therefore, under 9th Circuit Court rules, it is only binding precedent for specific purposes. However, as the first and only case of its kind in the entire U.S. Federal Court system, it may have significant weight in the future as a case of first impression and deserves consideration for analytical purposes. Moreover, although the formal reason the case was dismissed is the failure of the pleading to state a legal claim upon which relief can be granted, the Court did address the sufficiency *vel non* of the property claim methods and legal arguments employed by the plaintiff and found them deficient.

rights on asteroids. Nemitz has thus failed to assert a cognizable cause of action against the Federal Defendants.¹⁶

The most compelling aspect of the recent trend that tends to support the discussion paper's assertion that prohibition of appropriation by States extends to private nationals is the position that "if private actors were allowed to appropriate lunar and celestial property, then it would allow States to circumvent their treaty obligations merely by delegating authority to act in otherwise unauthorized manners to non-state actors."¹⁷

Application of the Paper's Assertion to Other Juridical Persons

The discussion paper addresses the adequacy of the current legal and regulatory framework relating to the extraction and appropriation of natural resources and focuses on the status of private nationals. The adequacy of a legal and regulatory framework ought be assessed in terms of all of the juridical persons governed by it. Therefore, if "private title...equivalent to national appropriation...should be prohibited"¹⁸ so too should those claims made by "juridical persons, other than States—and in particular international intergovernmental organizations..."¹⁹ It was "the basic expectations of the negotiators...that there should not be exclusive claims by all natural or juridical persons...Thus, although the principal concern was with national appropriation there was a strong feeling that appropriation was to be avoided by any and all potential claimants, including international organizations"²⁰ "[T]he prohibition on appropriation applies to all entities..."²¹

This is a particularly relevant issue because not all States define "commercial" the same way. Some define "commercial" by who conducts an activity, that is, a private entity; others, by whether or not an activity generates revenue, without regard to whether the entity is private or public, and accepting that a public entity may engage in commercial activities. Additionally, the concepts of "public" and "private" in common law and civil law systems have important differences. These differences deserve careful consideration in light of the increasing hybridization of many space activities.²² "[L]aws formulated in an era when the word 'privatization' had not even been coined cannot but contain

¹⁶ *Nemitz, supra* note 11 (emphasis added).

¹⁷ Kelly, *supra* note 12, at 309.

¹⁸ Hobe, *supra* note 1, at 4.

¹⁹ Christol, *Article 2 of the 1967 Principles Treaty Revisited, supra* note 6, at 221.

²⁰ *Id.* at 226.

²¹ Smith, *supra* note 8, at 47.

²² Joanne Irene Gabrynowicz, *Expanding Global Remote Sensing Services: Three Fundamental Considerations*, in PROCEEDINGS OF THE WORKSHOP ON SPACE LAW IN THE TWENTY-FIRST CENTURY, 97, at 99 (1999). Peter de Selding, *Germany Forms Public-Private Partnership for Military Satcom*, Space News, July 10, 2006, at 1.

potential problems caused by the increasing commercialization of outer space.”²³

Do States Parties to the Outer Space Treaty Have a Duty to Ensure that Claims to Property Rights on the Moon and Other Celestial Bodies Have No Legal Significance or Recognized Legal Effect in their Legal Systems?

There are significant opposing authoritative views regarding this issue. The IISL Board of Directors statement answers the question in the affirmative.²⁴ However, J.E.S. Fawcett states that ownership of equipment and facilities permitted by the Moon Agreement²⁵ “suggests that ownership of mineral resources displaced on, or removed from, the Moon may be established extraterritorially under the internal law of the State involved.”²⁶ The discussion paper appears to be more in alignment with the Fawcett view in that it asserts that “[r]esponsibility of states according to Art. VI and IX of the Outer Space treaty [*sic*] may safeguard a certain control by the state vis-à-vis private economic activities. It is thus in the interest of the state to establish a respective legal regime through its national legislation.”²⁷

Interpretation of the Outer Space Treaty

Both the Antarctic Treaty and the Law of the Sea Convention address the governance of global commons. Space is a global commons. Therefore these treaties are available to discern the meaning of “national appropriation” as used in the Outer Space Treaty. Important observers are often guided by both of these treaties in their own interpretative work.²⁸

A U.N. General Assembly Resolution

The discussion paper asserts that, “the United Nations General Assembly could adopt a resolution that would highlight the legal framework for (economic) uses.”²⁹ This author is of the very strong view that this is an academic proposal that declines to take into account the reality of the geopolitical landscape in the post-Cold War era. Any such attempt can open the entire legal regime for space.³⁰ Many treasured provisions—freedom of access for all states; the

²³ NANDASIRI JASENTULIYANA, *INTERNATIONAL SPACE LAW AND THE UNITED NATIONS* 304 (Kluwer Law International, 1999).

²⁴ IISL Board, *supra* note 9.

²⁵ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, art. 12(1), Dec. 5, 1979, 18 ILM 1434, 1363 UNTS 3.

²⁶ J.E.S. FAWCETT, *OUTER SPACE: NEW CHALLENGES TO LAW AND POLICY* 14 (Oxford University Press 1984).

²⁷ Hobe, *supra* note 1, at 9.

²⁸ Christol, *Article 2 of the 1967 Principles Treaty Revisited*, *supra* note 6, at 285.

²⁹ Hobe, *supra* note 1, at 9.

³⁰ Joanne Irene Gabrynowicz, *Space Law: Its Cold War Origins and Challenges in the Era of Globalization*, 37 SUFFOLK U. L. REV. 1041, 1053 (2004).

prohibition of nuclear weapons and weapons of mass destruction; limiting military activity to peaceful and scientific purposes; even nonappropriation of space by States – would be opened. This is a case of be careful of what you wish for. The provisions contained in the Outer Space Treaty are politically unachievable today, the most important of which is the Treaty's total ban on nuclear weapons and weapons of mass destruction in space.

Current events include rapidly developing situations in the constantly shifting geopolitical landscape that provide evidence that the nuclear regime is under stress. Developed and developing nations are realigning regarding what are considered permissible nuclear activities.³¹ Ostensibly controlled nuclear access is now emerging in tandem with nonproliferation. The long-standing dichotomy between nuclear capable/developed nations and the non-nuclear capable/developing nations is shifting; as is the dichotomy between developed nation/spacefarer and developing nation/nospacefarer.³² Nuclear and space activities are being rearranged. In light of the changes in the terrestrial nuclear regime, it is not at all clear that the Outer Space Treaty's nuclear weapons ban in space would survive a revision conference.³³

Conclusion

The discussion paper asserts that, "[t]he respective regime for the sharing of the benefits derived from [space] resources has not yet been established so the true limitations for the extraction and appropriation of natural resources cannot be seen by now." This author agrees. Therefore, I would like to end my comments with a quote by an astute observer of legal systems, Alexis de Tocqueville: "The greatest object of the legislators in the democracies must be to create common affairs that will force man to establish contact with each other. What can society mean for beings who think, except the communication and

³¹ *US and India Seal Nuclear Accord*, BBC NEWS, Mar. 2, 2006, http://news.bbc.co.uk/2/hi/south_asia/4764826.stm (last visited July 12, 2006); *Australia, China Sign Nuclear Deal*, NEWS.COM.AU, Apr. 4, 2006, http://www.sptimes.ru/index.php?action_id=2&story_id=17238 (last visited July 12, 2006); Press Release, Security Council, In Presidential Statement, Underlines Importance Of Iran's Re-Establishing Full, Sustained Suspension of Uranium-Enrichment Activities, Calls on Iran to Take Steps Required by IAEA Board of Governors, Requests Report from IAEA Director General in 30 Days, U.N. Doc. SC/8679 (Mar. 29, 2006), available at <http://www.un.org/News/Press/docs/2006/sc8679.doc.htm>.

³² Joanne, Irene Gabrynowicz, *Comments on the Discussion Paper, Space Law and Remote Sensing Activities*, U.N. Office of Outer Space Affairs [UNOOSA], Workshop on Space Law Disseminating and Developing International and National Space Law: The Latin America and Caribbean Perspective, U.N. Doc. ST/SPACE/28 (Nov. 2004) available at <http://www.unoosa.org/oosa/en/SpaceLaw/workshops/index.html>.

³³ Joanne Irene Gabrynowicz, *The Outer Space Treaty and Enhancing Space Security*, Presented to United Nations Institute for Disarmament Research (UNIDIR) Building the Architecture for Sustainable Space Security Conference Council Chamber, Palais des Nations, Geneva, March 31, 2006 (forthcoming 2006 by UNIDIR).

relation of minds and hearts?"³⁴ The legislators of the Outer Space Treaty have given the space law community and the community of Nations many opportunities to do just this. The history of space law is a history of compromise beneficial to all of humanity. There is reason to be optimistic that the spirit of compromise will continue in the common affair of the use of the Moon for the benefit and in the interests of all countries, and, as de Tocqueville observed, it will require establishing contact with one another, to communicate with minds and heart.

³⁴ ALEXIS DE TOCQUEVILLE, 1 *DEMOCRACY IN AMERICA*, at iii, (eds. J.P. Mayer and Max Lerner 1991) (1835).

Rapporteur's Notes for Session 4

By
Jonathan F Galloway
(Professor Emeritus, Lake Forrest College, USA)

In this lively session, Stephan Hobe presented a paper entitled "Adequacy of the Current Legal and Regulatory Framework Relating to the Extraction and Appropriation of Natural Resources." He examined various ways to interpret legal language in the 1967 Outer Space Treaty (OST) concerning the extraction and appropriation of natural resources. His main pathway to interpretation involves using the Vienna Convention on the Law of Treaties.

Hobe explained that the negotiating history of the OST was unambiguous concerning public titles to the area. They are prohibited; but the issue of private titles is ambiguous. Given Article VI of the Treaty which mandates that states must supervise the activities of non-governmental entities under their jurisdiction and given Vienna Convention guidelines vis-a-vis consistency, private territorial titles must also be illegal. In this connection, Prof. Hobe elaborated on the very important distinction between inclusive and exclusive use of outer space and celestial bodies.

Hobe then looked at state practice over the last 40 years in order to explicate the question on whether natural resources could be extracted.

In examining the Moon Agreement(1979), the Law of the Sea Convention (1982) and the UN General Assembly's Space Benefits Declaration(1996), he posited that this history gives us an interpretation of Article I of the OST vis-a-vis the extraction of natural resources.

Such activity is allowed but it must be supervised by states and resources can only be taken for the benefit of all mankind.

Prof. Hobe's conclusions pointed the way to further matters of interpretation including the controversial principle of the Common Heritage of Mankind (CHM). It is clear from the 1994 changes to the Law of the Sea Convention that CHM does not prohibit the commercial use of the seabed, but the whole matter vis-a-vis the Moon and other celestial bodies requires further authoritative interpretations of Articles I, II & VI of the 1967 Treaty by the General Assembly.

There were five commentaries on Stephan Hobe's paper. The first was by Ambassador Thomas Graham who made these points: 1) the OST should not be opened for amendment or additional protocols because, in the current political climate, this could very well lead to retrogression in the law of outer space; 2)

there is need for a new legal regime for commercial activities in outer space and this regime should be established before - not after such enterprises begin, especially as

3) the Moon Agreement has been virtually rejected by the international community as it has received ratification by only twelve states; and

4) we live in very dangerous times and should continually emphasize international cooperation, particularly by negotiating a security regime for outer space.

The second commentary was made by Dr. Peter Martinez and Justine White. They gave the perspective of a developing country, and they pointed out, *inter alia*, that developing countries should not stand alone but should cooperate with each other to develop outer space programs as India and Brazil have done. Further, modernizing states should be suspicious of private corporations subverting their sovereignty through various stratagems.

Peter Haanappel made 11 points including, most importantly, that the CHM is a principle - not a regime, a point Eilene Galloway has also made. He also indicated that states can change their minds over time on what this principle means. In any event, just because some parts of the Moon Agreement may be controversial, that does not mean that the whole treaty should be scrapped. That would be throwing out the baby with the bath water.

Prof. Vladimir Kopal made a number of comments on Stephan Hobe's paper. While agreeing in principle with several of his ideas and conclusions, he disagreed with his interpretation of the term "use" of outer space as also meaning the taking of property as well as any kind of commercial use including extraction of resources. In Kopal's opinion, the regulation of such activities should be agreed upon by a new legal instrument in the future. He then commented the interpretation of Article II of OST and emphasized that this principle must be read in conjunction with Article VI, which defines what is meant by the adjective "national" that is used in both these Articles. Therefore, the prohibition of national appropriation as spelled out in Article II relates to any kind of national activities, be they conducted by states, their governmental agencies, or by non-governmental entities i.e. by private persons. He also observed that the present practice of exploration and use of the Moon and other celestial bodies has been in harmony with the 1967 OST, and also with the 1979 Moon Agreement. The basic space legal instrument, the 1967 OST, did not regulate the status of natural resources and the exploitation thereof by their extraction and alienation for commercial purposes. Neither the 1979 Moon Agreement brought a full regulation of that issue. It only declared the principles of CHM in relation to the Moon and its natural resources, to be applied in the limits of its provisions. However, a commitment of its States Parties was enshrined to establish an

international regime to govern the exploitation of the natural resources of the Moon "as such exploitation is about to become feasible". The Moon Agreement itself did not provide any precise legal rules regulating such activities and was limited to establishing only a number of purposes for the future regime. The Moon Agreement, which was adopted in 1979 by UN General Assembly by consensus, can be considered still today as a useful instrument, which does not hinder the development of activities relating to the Moon and eventually other celestial bodies. Neither does it impede further discussions and efforts to generally acceptable conclusions on those aspects which still remained unresolved.

The last commentator was Prof. Joanne Gabrynowicz. She agrees with Kopal that the OST is still vital law. It applied during the Cold War and it equally applies now in the age of globalization. She also reinforced the point that the OST should not be opened for amendment given the perilous political climate of the times. It would be impossible to achieve the provisions in the OST today. She also emphasized that it is beyond dispute that States cannot appropriate territory in outer space. She also said that the trend is a growing consensus to apply the same prohibitions to private citizens, corporations, and intergovernmental organizations. In this connection, she pointed to a recent case in a U.S. Federal District Court. The court dismissed a case in which the plaintiff asserted a "property claim" to an asteroid. The court found the property claim deficient, and there was no legal basis for asserting that a registry creates a property interest in an asteroid. Gabrynowicz also highlighted the distinction that several other commentators made, i.e., between exclusive and inclusive uses of space resources. Lastly, she referred to deTocqueville's advice that we communicate about these great issues of our time with both our hearts and our minds.

There was time for only one question. Prof. Jakhu brought up the telling point that the distinction between spacefaring and non-spacefaring nations is not very helpful because so many so-called non-spacefaring nations are in fact involved in many international space projects as well as being states parties to space treaties.