

Rights and Obligations in the International Commons

The Case of Outer Space

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I. Introduction

In my presentation I will give you an overview on obligations in international common spaces, the so called international commons. Thereby this legal analysis will be viewed in the perspective of Space Traffic Management. As shall be mentioned later space traffic management can be seen as the attempt to regard outer space in a holistic perspective – and we will see that the legal structure of outer space as one of the international commons gives very precise guidelines for such a holistic analysis.

According to an IAA study of 2006 Space Traffic Management must be understood as “[...] the set of technical and regulatory provisions for promoting safe access into outer space, operations in outer space and return from outer space to Earth free from physical or radio-frequency interference.”¹ My hypothesis is that the current legal regulation for the exploration and use of the international commons in general and for outer space in particular is relatively well prepared for the new concept of space traffic management.

II. The International Commons – A General Description

Only very few spaces of the earth belong to the international common spaces or the international commons. These are areas of the world that like the High Seas, the Deep Seabed, Antarctica and Outer Space are not subject to sovereignty of states.² Rather, basically through international conventions, those spaces are

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1 C. Joergensen/P. Lála/K.-U. Schrogl (eds.), *Cosmic Study on Space Traffic Management*, International Academy of Astronautics (IAA), 2006, available online at: <https://iaaweb.org/iaa/Studies/spacetraffic.pdf> (last accessed on November 15th 2015).

2 See for a general account on common spaces outside national jurisdiction: R. Wolfrum, “Die Internationalisierung Staatsfreier Räume”, in: *Veröffentlichungen des Max-*

designated as common areas which in principle can be used and explored by all mankind. As has been mentioned If one wishes to make a designation those spaces are more or less subject to an international legal regime, i.e. a specific regime designed and agreed at by the international community. This international legal regime has somehow common characteristics but is by no means the same for all commons. It differs from space to space. Thereby it is crucial whether the legal regime treats all countries in an equal way or grants particular rights and obligations to a specific group of states with regard to specific forms of use of these spaces. In other words: for any possible differentiation it is crucial whether all states (Seabed, High Seas and Outer Space) or only a group of states (Antarctica) must be considered to be the guardians for the international common.

In the following I shall give an overview on such rights and obligations. This highlights the very fact that even in the international commons there is no lawless room. Rather these spaces are characterized through the granting of specific rights and obligations. Thereby the Law of the Sea Convention of 1982/1994,³ the Antarctic Treaty of 1959⁴ with its Additional Protocol on Environmental Protection⁵ of 1991 as well as finally the Outer Space Treaty of 1967⁶ and the Moon Agreement of 1979⁷ – all those Agreements are subject to international common regulation.

To say it again: the granting of rights and obligations is different from treaty to treaty. This becomes clear if one compares the Law of the Sea Convention, the Antarctic Treaty and the Outer Space Treaty. The Law of the Sea Convention as well as the Outer Space Treaty provide for freedom of exploration and commercial use, whereas the Antarctic Treaty does only guarantee freedom of scientific investigation and no commercial freedom. Any exploration and exploitation activity in Antarctica is prohibited by law (Article 7 of the Protocol on Environmental Protection to the Antarctic Treaty). Opposed to that the Law of the Sea Convention in its Articles 2, 56, 77, 81, 116, 137 pa-

Planck-Institut für ausländisches öffentliches Recht und Völkerrecht, Band 85, Berlin/Heidelberg 1984.

- 3 United Nations Convention on the Law of the Sea, Montego Bay, done 10 December 1982, entered into force 16 November 1994; 1833 UNTS 3 (referred to hereinafter as 'UNCLOS').
- 4 Antarctic Treaty of 1 December 1959, entered into force 23 June 1961 402 U.N.T.S. 71.
- 5 Protocol on Environmental Protection to the Antarctic Treaty, adopted on 4 October 1991, entered into force on 14 January 1998.
- 6 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, open for signatures on 27 January 1967, entered into force on 10 October 1967, 610 U.N.T.S. 205 (referred to hereinafter as 'Outer Space Treaty').
- 7 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, entered into force on 11 July 1984, 1363 U.N.T.S. 3 (referred to hereinafter as 'Moon Agreement').

ra. 3 and the Outer Space Treaty in its Article I provide for freedom of exploration and use. This basically means that activities beyond mere exploration, i.e. (commercial) exploitation are allowed in the High Seas, in the Deep Seabed and in Outer Space. However, all these spaces, the High Seas, the Deep Seabed, and particularly Outer Space and the Celestial Bodies are subject to the fundamental rule of non-appropriation.⁸ The very nature of these spaces is, as mentioned, that they are so-called common spaces.

III. The Distinct Legal Feature of the International Commons

In this respect it is, however, important to distinguish between the appropriation of territory and the appropriation of resources as a consequence of the use of these resources.⁹ All of the international commons have a regime prohibiting the *appropriation of territory* – that's the very essence of their character as common space – no part of the Deep Seabed, or the High Seas, of Outer Space and of the Celestial Bodies may be appropriated and even in Antarctica the respective claims of the specific states are 'frozen'¹⁰ and cannot therefore be effectuated. But – with the exception of Antarctica – none of those spaces especially prohibits the appropriation of resources. Rather, in the Deep Seabed and the High Seas as well as in Outer Space and on Celestial Bodies the use of resources is made subject to a specific legal regime. For this reason we speak of the internationalization of the use of those resources.¹¹

If one wishes to characterize the classic legal feature of the international commons one can observe pretty similar characteristics with regard to the shape of these legal regimes: there are always regulations on exploration, exploitation, military uses and environmental protection.

As mentioned there is always a *territorial* element. All of these spaces are not subject to national appropriation. E.g. the flag on a celestial body as well as on Antarctic ice or on the Deep Seabed are no indication for the international recognition of a territorial gain.

Another element which is contained in all of the legal regimes for the international commons is the *military* element. This is evident for the Antarctic re-

8 Art. II OST, Art. 11 Moon Treaty.

9 All international common spaces make such a distinction. The Antarctic Treaty in Art. IV and the Protocol, the UNCLOS in Art. 137 para. 1 for the Area and its resources and for Outer Space we can see this in Art. II OST for the Area and Art. I for the resources as well as in the Moon Agreement in Art. 11 para. 2 for the area and Art 11 paras. 3, 5, 6 and 7 for the resources.

10 Art. IV para. 2 of the Antarctic Treaty.

11 For different forms of realization of the concept of Common Heritage of Mankind See inter alia S. Hobe, Was bleibt von der gemeinsamen Erbe der Menschheit?, in: K. Dicke, S. Hobe, K.-U. Meyn, A. Peters, E. Riedel, H.-J. Schütz, C. Tietje (eds.): Weltinnenrecht, Liber Amicorum Jost Delbrück, 2005, pp. 329-346.

gion where already according to the Antarctic Treaty no armament may be installed (Art. 1).

Moreover, the Law of the Sea Convention contains provisions that prohibit in times of peace the use of armament on the High Seas and in other parts of the Seas as well as on the Deep Seabed.¹²

The situation in outer space is a bit more complicated. But generally speaking we can distinguish: On the one hand, paragraph 2 of Article IV of the Outer Space Treaty basically prohibits the installation of armaments on celestial bodies. It describes the use of the celestial bodies as “peaceful”.¹³ And this regime is interpreted by the majority of countries in the sense of “non-aggressive”.¹⁴

This allows particularly through the widespread interpretation of Article IV para. 1 of the Outer Space Treaty as prohibiting only the military use of outer space when containing and using a full orbit around the Earth for the use of intercontinental ballistic missiles, a condition of uttermost importance for the dominating superpowers when the Outer Space Treaty was negotiated.¹⁵ They both could still use their ICBMs for their deterrence policy. Today the security situation after the end of the duopole situation (USA-USSR) has become much more complicated. But the interpretation stays the same. So certain military uses, including ASAT testing is still permitted although from a space debris point of view the non-legally binding space debris mitigation guidelines try to limit ASAT testing or even prohibit it.¹⁶ But one must underline: these guidelines are not legally binding and are not meant to be.

There is a third element allowing or respecting partially or totally the *exploitation* of the resources in situ. In the commons we find different types of legal regulation: a total prohibition of commercial exploitation in Antarctica with the Additional Protocol to the Antarctic Treaty of 1991¹⁷ on the one hand, and the general permission of economic exploitation of the High Seas and the Deep Seabed in the UNCLOS. Outer Space does not know yet any specific regulation in that the taking of territory is prohibited but no explicit regula-

12 UNCLOS Art. 146, 301.

13 On the different military doctrines of States for the use of outer space, See Schrogl/Neumann, Article IV OST, in Hobe/Schmidt-Tedd/Schrogl (eds.), Cologne Commentary on Space Law Vol. 1 (2009), p. 90 et seq.

14 On the US doctrine, See: the White House, National Space Policy of the United States 3 (2010), available at www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf (last accessed on Nov. 15th 2015).

15 See for an illustration W. McDougall, *The Heaven and the Earth: A Political History of the Space Age*, New York 1985.

16 See Guideline 4 of the – however legally unbinding – UNCOUOS Space Debris Mitigation Guidelines, endorsed with GA Resolution 62/117 of 22 December 2007.

17 See Art. 7 of the Protocol, ‘Any activity related to mineral resources, other than scientific research, shall be prohibited’.

tion of the exploitation is made – article 11 of the Moon Agreement contains only rudimentary regulation and postpones this regulation to a date “when commercial exploitation of the Moon and other celestial bodies becomes feasible”.¹⁸ Until such legal regime has been agreed at, however, the Moon Agreement prohibits the taking of resources according to Art. 11 para. 3 Moon Agreement.

As already mentioned there is a specific legal regime for using the mineral resources of the Deep Seabed that are considered to be the common heritage of mankind.¹⁹ In outer space the situation is similar but not equivalent. Exploration and use of outer space is free subject to the clause that they are no national appropriation and that they are the province of all mankind.²⁰ This limitation of the freedom of exploration and use is currently interpreted in a way that outer space legislation prohibits the exclusive use in a sense that not all the benefits may exclusively benefit the exploring and exploiting state. But it must still be worked out how – the Moon Agreement in its Article 11 para. 5 asks for the elaboration of such a specific legal regime for use.

Generally there is also an *environmental element* of different dimensions. Protection of the marine environment is foreseen in the UNCLOS 1982/94²¹ in the sense that resource mining must not damage the ecological balance as well as fuel spilling in the sea or, as another ecological impediment to exploitation, the eradication of species through fishing must be avoided, the Protocol of 1991 to the Antarctic Treaty prohibits almost any form of commercial exploitation for reasons of environmental safety (see Art. 7 of the Additional Protocol of 1991)²² and space legislation still provides a rather broad, and not very specific kind of regulation generally asking for the taking of care in Art. IX of the Outer Space Treaty²³ and a bit more specific in Articles 4 and 7 of the Moon Agreement.²⁴ Moreover, Article III of the Outer Space Treaty allows to have recourse to general international environmental law where one can find some fundamental duties for the preservation of the environmental balance of outer space. This general regulation has meanwhile however been confined by some, however legally non-binding – requirements of the use on nuclear power on board of a satellite²⁵ and for the mitigation of space debris.²⁶

18 Art. 11 para. 5 Moon Agreement.

19 Art. 136 UNCLOS.

20 Art. II OST.

21 *Supra* note 3.

22 *Supra* note 5.

23 S. Marchisio, Art. IX OST, in: Hobe/Schmidt-Tedd/Schrogl (eds.), Cologne Commentary on Space Law Vol. 1 (2009), marginal notes 23-27, p. 175.

24 See Hobe/Tronchetti, Art. 4 Moon Agreement), pp. 364-368 and S. Freeland, Art. 7 Moon Agreement, pp. 372-377 in: Hobe/Schmidt-Tedd/Schrogl (eds.), Cologne Commentary on Space Law Vol. 2 (2013).

25 Principles Relevant to the Use of Nuclear Power Sources in Outer Space, adopted with UN GA Resolution 47/68 of 14 December 1992.

IV. The Legal Regime of Outer Space: Is It Ready for STM?

Coming now exclusively to the status of legislation for outer space, I would first like to underline that the legal regime is in fact making outer space a common space. Article II of the Outer Space Treaty prohibits any appropriation of areas in outer space. That means that no area on celestial bodies can be appropriated. But this does not necessarily mean that it is prohibited to appropriate resources. The Outer Space Treaty as well as the Moon Agreement each possess a distinct legal order for a particular regulation for the exploitation activities. This order is different from the rather strict rules on the non-appropriation of territory as contained in Article II of the Outer Space Treaty and Art. 11 para. 2 of the Moon Agreement.²⁷ Art. 11 para. 7 of the Moon Agreement calls for the adoption of a legal regime for the exploitation of the resources of celestial bodies “as soon as this exploitation is considered to be feasible”.

If one wants thus to characterize the legal regime for outer space one can make the following remarks:

- a) There is freedom of exploration and use as well as of scientific investigation of outer space which may in principle guarantee the transfer of space objects into, from and through outer space for scientific and commercial purposes.
- b) There is an absolute prohibition of any appropriation of territory.
- c) The activities in outer space must be peaceful, e.g. at least non-aggressive.²⁸
- d) Activities must be undertaken in accordance with international environmental regulations, ie particular care must be taken in case of using nuclear power on board of a satellite and the uttermost must be undertaken for the mitigation of space debris in the process of the design and fabrication of a space object.
- e) Moreover with regard to the use of telecommunication satellites it is guaranteed through the supervisory legal regime of the International Telecommunication Union that all uses are undertaken free of interference with other possible uses – this is kind of a due regard – consideration that pays respect to possible other users.²⁹
- f) Transparency with regard to activities in Outer Space is aimed at through a system of registration provided for in the Registration Convention of

26 UNCOPUOS Space Debris Mitigation Guidelines, adopted with GA Resolution 62/117 of 22 December 2007.

27 On the non-appropriation principle See: S. Freeland/R. Jakhu, Article II Outer Space Treaty, in: Hobe/Schmidt-Tedd/Schrogl (eds.), Cologne Commentary on Space Law, Vol. 1 (2009), pp. 50-55.

28 *Supra* note 14.

29 See, for example, Art. 15 of the ITU Radio Regulations 2012.

1975.³⁰ In principle launching states are requested to furnish information to the Secretary General of the United Nations under Article IV of the Registration Convention and shall help to identify space objects and their missions with regard to the nodal period, apogee and perigee as well as to the function of the object and also concerning such objects that are no longer in orbit. Moreover the – however legally unbinding – Registration Resolution of 2007³¹ is an attempt to sharpen a bit the all to loose obligations which are considerably diluted already in the text of the Registration Convention.

- g) Finally, space activities shall be “the province of mankind”;³² this is complemented by the characterization of the resources as “the common heritage of mankind”.³³ In other words: outer space legislation allows for the exploration and even commercial use under specific conditions which are however not clearly spelled out.

This basic description shall now allow for an account how many of the legal requirements for an STM regime are met in current outer space legislation.

What consequences can be drawn from this legal situation?

Space traffic management is considered to be an approach to realize safety and security in outer space. It looks at outer space as a holistic concept. Space must be viewed as one unit allowing for the transportation of humans, goods and cargo into space, through space and from space, considering thereby global security concerns as well as the security concerns of specific countries and enabling to a sustainable use in the sense of the pristine environment of outer space and on celestial bodies shall be preserved for the use of future generations. STM thus needs transportation rules, safety rules, rules that provide for transparency concerning the existing use of specific orbits, an authority for the implementation of these rules and collision avoidance rules. We will finally look in how far there are already such rules or at least a legal regime directed to the promotion of such rules.

What can be seen from our considerations in the previous section already by now is that the use of the international commons in general and the use of outer space in particular provide a kind of legal regulation that addresses these main concerns of the future.

1. Outer space is a medium that allows for transportation as a specific use of outer space “as a province of all mankind”. Thus the transport into

30 Convention on Registration of Objects Launched into Outer Space, entered into force on 15 September 1976, 1023 U.N.T.S. 15.

31 GA Resolution 61/101 from 17 December 2007 on “Recommendations on enhancing the practice of States and intergovernmental organizations in registering space objects”.

32 Art. I para. 1 OST.

33 Art. 11 para. 1 Moon Agreement.

and from outer space and the presence in outer space are covered by a regime of freedom but this freedom may be used in a responsible way taking into account the interest of other states. This sense of responsibility is expressed in a threefold legal way: Resources in outer space can be used in a way that is also beneficial to humankind – but so far there is no strict limitation to the use of these resources and it remains to be seen whether in the future such limitations will be contained in specific legal regimes. Moreover the use must be peaceful and with due regard to ecological and user interests of others.

2. Outer space may thus be used only for peaceful purposes. Thereby it is clear that none of the celestial bodies including asteroids may be used for the placement of arms. It seems also to be clear that other security concerns are taking care of the space legislation as explained above.
3. Moreover outer space can only be used in an ecologically responsible way. This is probably the area which is mostly left open for future discussion. The rather broad current legislation in the Outer Space Treaty and the Moon Agreement has been enriched through nonbinding normative pieces in the form of a UNGA resolution on the Use of Nuclear Power Sources and the Space Debris Mitigation Guidelines which were endorsed by the UN General Assembly calling each for a responsible use of outer space. So any transportation into, from and through outer space shall be undertaken with what in the language of aviation law would be called safe vehicles, i.e. under close observation of the safety concerns. Current safety regulation is good but not yet enough: it is questionable whether the rules on the registration of space objects, in particular those which demand the transmission of orbital parameters to the UN Secretary General are sufficient in order to safeguard the possibility of transparency with regard to space objects, in respect of the exact location and approximate duration of the mission. Compared to Air Traffic Control, the necessary constant tracking and readjustment through airspace from the Earth as a legal requirement for the conduct of space objects is still at the beginning. And most importantly: the entire obligation insofar weakened in that it is made practically a decision at the discretion of the launching state when it will furnish what kind of information. With all this justified criticism it should however not be forgotten that with regard to the use of certain telecommunication satellites the legal element of due regard to the interests of other users is already introduced into the legal regime for the use of outer space.
4. Finally, as to the form of use of non-living resources in outer space as one possible activity of the future other important questions must still be answered. Shall it in the future be permitted to use non-living, e.g. mineral resources of the celestial bodies, perhaps combined with very strict accompanying environmental duties? Or will mankind follow the concept

of Antarctica and claim for a preservation of the resources of outer space in the future? This is the case for an international legal regime for the exploitation of such resources on celestial bodies that Art. 11 of the Moon Agreement anticipates.

V. Conclusion

We can see that the currently existing legal framework for human activities into and in outer space is relatively well equipped and thus fits well into the concept of space traffic management. One can even go so far to say that this legislation anticipates more or less this concept and thus asks for its realization rather sooner than later. This will, however, demand still a lot of work to be done, thereby requiring an active role of the United Nations in general and of its Committee on the Peaceful Uses of Outer Space – with its Legal and Scientific Subcommittees – in particular.

