

# The Future of sustainable utilization of lunar resources: a new international legal regime?

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The future of Sustainable utilization of resources  
on the moon: a new international regime

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# Introduction

## THE MOON VIS-À-VIS INTERNATIONAL SPACE LAW

During our common progression towards many achievements, scientists and philosophers (Galileo) made essential contributions towards the development of legal production ([progressio iuris](#)).

Nowadays, the International space law regime represents a very important contribution to this continuous development in international law. This body of provisions is actually laid down in the so called "[Corpus Juris Spatialis](#)" ([Outer Space Treaty](#), [Moon Treaty](#), [Agreement on the Rescue of Astronauts](#), [Space Liability Convention](#), [Registration Convention](#)), whose achievements were carried out within a framework of international cooperation among Parties

Moreover, pure scientific research has been playing also an important role, whose efforts and contributions to Mankind were directly received by international space law. A direct link between Science and Law (here to be intended as [scientia iuris](#)) shows accurate evidence of many critical aspects to take into account for the further development of international space law. In this presentation, Science and Law are combined together, trying to give solutions and to stimulate a debate on space exploration issues.

As it, an international dialogue concerning [the sustainable utilization of Moon](#) (and its resources) will ensure the real benefit of All Mankind, by implementing "step-basaltic stones" towards greater space achievements in the nearest future



# Besides the CSJ: International space law and a provisional framework of application

First of all, in order to deal with the international moon legal regime and its main features, a provisional framework of international (space) law (and of the EU) shall be previously taken into consideration, as it follows:

A) [Art. 13, UN Charter](#)-->promoting international cooperation and international law cooperation (UNGA-UNOOSA-Copuos); A/Res/UNGA/1962 (par. XVIII)

B) [A/Res/UNGA/51/122](#)--> Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and int the Interest of All States, Taking into Particular Account the Needs of Developing Countries

C) [Art. 59, UN Charter](#)-->"Creating special agencies"

D) [UNCLOS -UN Convention on the Law of the Sea](#), with particular reference to PART XI, Section 1-5, on cooperation and international regime, protection of the environment and its resources)

E) [The Antarctic Treaty](#) and [the Protocol of Madrid](#)

F) [Art. 180 \(b\) TFEU](#) --> cooperation in space affairs, including third countries and OOI)

G) [Art. 191. 1](#), " prudent and rational utilisation of natural resources" (principle of law, as well a clear reflection of how sustainability shall be intended (see Rio Declaration - Copenhagen - Cop21)



# The Moon Treaty and its provisions

The so called "*Principle of sustainability of resources* " is a relevant issue operating in international (space) law. The *Moon Treaty* (1979), or *Agreement governing the Activities of States on the Moon and Other Celestial Bodies*, recognizes *therein* the purpose of a "rational management" of lunar resources (*art. 7, par.1*), providing *prima facie* the safeguarding of lunar environment

With reference to this very last crucial point, it seems that an adequate level of consensus, granting a more stable legal ground upon a well balanced utilization of natural resources on the Moon, shall be encouraged by international dialogue and cooperation among all States

Thus, the Moon Treaty affirms a primary level of preservation of natural resources, as recalled under the provisions laid down in *Art. 11*:

"the *moon* and its *natural resources* are the *common heritage of mankind*"[..]; as well, "The moon is not subject to national appropriation by *any claim of sovereignty*, by means of use or occupation, or by any other means.." (*par.2*)

... as well, in *Art. 7*:

" The main purposes of the *international regime* to be established shall include:  
a) The orderly and safe development of the natural resources on the Moon; b) the *rational management* of those *resources* ..."



# "The Common Heritage of Mankind": *ius civile*

The utilization of *in situ* lunar resources shall be examined under the application of the principle of *res communis (or communes) omnium*

Firstly, this perspective in law refers about tangible/intangible things (herein to be considered as "natural assets") being legally protected as a principle of *Civil Roman law*. Accordingly, *res communes omnium* are inclusive of all natural elements to be considered as common natural assets by (civil) law.

The nature of this legal structure may be applicable also to deep marine areas on the Earth (see UNCLOS, Part XI) and on Moon ("the lunar *maria*", *infra*), which are not meant to be claimed by the sovereignty of any State.

Secondly, the aforementioned principle is also recalled by the provisions made in the *Outer Space Treaty*: the Moon, as a *Celestial Body*, is not susceptible of being "res" in any kind of commercial transactions (*translatio rei in negotio*). Furthermore, private ownership of lunar lands is also prohibited under the application *ad hoc* of the roman civil principle of *res extra commercium aut patrimonium (art. 11)*. Thus, by taking into account these means, the regime of "common heritage of mankind" does not imply that commercial uses of Outer Space are not allowed, as much we can observe today in our international scenario.



# *In situ* resources (ISRU)

During the last years, the European Space Agency (ESA) has been welcoming a dedicated strategy for a sustainable exploration of Celestial bodies (i.e FPA, framework of partnership agreement). This may also rely on direct scientific research on the Moon, by establishing there a international permanent mission under the provisions of the Treaties (*inter alia*, art. 9 par.1, Moon Treaty) and in compliance with the principles of space law. On the other side, applied scientific research on molecular and chemical compounds may also provide a supply to cost-effective space missions from and to the Moon

In the recent past, one of the largest *maria* on the lunar surface, the Oceanus Procellarium, has been receiving the attention by the international scientific community upon plausible future establishment of *in situ* activities (depending on *prior* cost benefits analysis). The underneath of this part of the Moon is very rich in potassium, thorium (TH90) and also conserves a wide basin of regolith-implanted hydrogen

For these related reasons, lunar resources may grant advancement and boost innovation througout many different strategic economic sectors. Recently, the Dubai Declaration (2016) have already welcomed the crucial role of Outer Space as sustainable pattern for global economy. As it, this main process may also be complying *ipso facto* with the application of the provisions laid down in international space law (*id est*, the Moon Treaty and its further law perspectives)



## **A new international legal regime for the Moon (?)**

### **The Additional Protocol to the Moon Treaty**

States shall take into account the possibility of undertaking concret steps towards a new international diplomatic dialogue in space, with particular reference to the (possible) establishment of an [Additional Protocol to the Moon Treaty](#) concerning the utilization of *in situ* resources (and the protection of lunar environment)

The legal *ratio* for a new ausplicable pattern of law (Additional Protocol to the Moon Treaty?) may be also provided, or be found, by other provisions already laid down into international agreements. In particular, a detailed vision of an *Additional protocol concerning lunar natural resources* may take also into account of provisions establishing advanced scientific modelling of assessment; or, by other means, any other beneficial tools having regards with the safeguarding of the environmental equilibrium on the Moon (*supra*).

In addition, we may either recall here a logical use of [analogia legis](#) as a crucial hermeneutical tool of law: whether, or not, a future establishment of further provisions may be achieved by terms of negotiation, this could arguably find some similarities to [Articles VII-VIII of the Protocol to the Antarctic Treaty \(Madrid, 1991\)](#). Both articles seems to provide a "completion strategy" with a certain detailed regulatory framework to the Lunar international regime. In particular, *Article VII* states that "*any activity relating to mineral resources, other than scientific research, shall be prohibited*" ; as well, *Article VIII (Environmental impact assessment)*: "*Proposed activities referred to in paragraph 2 below shall be subject to the procedures set out (in Annex I) for prior assessment of the impacts of those activities on the Antarctic environment or on dependent or associated ecosystems according to whether those activities are identified as having: (a) less than a minor or transitory impact; (b) a minor or transitory impact; or (c) more than a minor or transitory impact.*

*ad abundantiam...*

"Where activities are planned jointly by more than one Party, the Parties involved shall nominate one of their number to coordinate the implementation of the environmental impact assessment procedures set out (in Annex I)..." (principle of international cooperation, par. 4)



## (2) The Promotion of an International Lunar Authority (?)

Certain opportunities of *progressio iuris* towards the promotion concerning "a new legal background on the Moon" shall also bear in mind the strengthening of institutional and juridical *building* in international space law and affairs. Perhaps, this process could be implemented by a reasonable creation of "new subsidiary/special bodies to the UNOOSA" (see [Space2030 Agenda, A/AC.105/C.2/2019/CRP.10 - Zero Draft](#)): that is, as much we could try to imagine it, an "*International Lunar Authority*" (?) achieving a leap forward towards a more complete and grounded lunar regulatory and institutional framework.

*Arguably*, a general hypothesis in relation to the creation of such "special body" should also be analysed as a possible solution for this context. With reference to its internal organization, it may also be composed by:

a) A Joint internal *Assembly of State Parties*, adopting Resolutions *ad hoc*, as well any multilateral initiatives of cooperation, or any activities on the Moon, *whereas* the implementation of (scientific) programs are been carried out by All Members under the provisions of the (new) *Corpus Iuris Lunar*

b) a *Lunar Dispute settlement body*, acting upon its *Regulatory Rule of Procedure*, for any substantial infringement of international space law, relating to environmental (and commercial) matters on the Moon.

Moreover, the Lunar DSB may play as a preliminary level of competence for any controversy arising among Parties upon the application of the *Corpus Iuris Lunar* (Moon Treaty, Additional Protocol, or by other means of international space law



# Conclusions

*"Here men from the planet Earth first set foot on the Moon July 1969, A.D. We came in peace for all mankind..."*

Since the very first step on the Moon, we have been driving our greater attention towards future developments in technology, to the pursue of a new brilliant season in outer space activities.

Despite the international community is already concerned about many ongoing critical issues, it is still significant to keep a clear direction through engaging with an international dialogue on developmental paths in international space law.

The manifestation of the so called *progressio iuris* could be either achieved through certain advancements in international space law: after the establishment of a Moon Treaty in the past, some other issues deriving from its application may give the chance for an overall relaunch of the *Corpus Juris Spatialis (CSJ)*.

As it, the safeguarding of lunar resources shows also a major evidence about this main legal feature in outer space; as well, it brings us towards our international core values resumed in the *Preamble to the Charter of United Nations*.

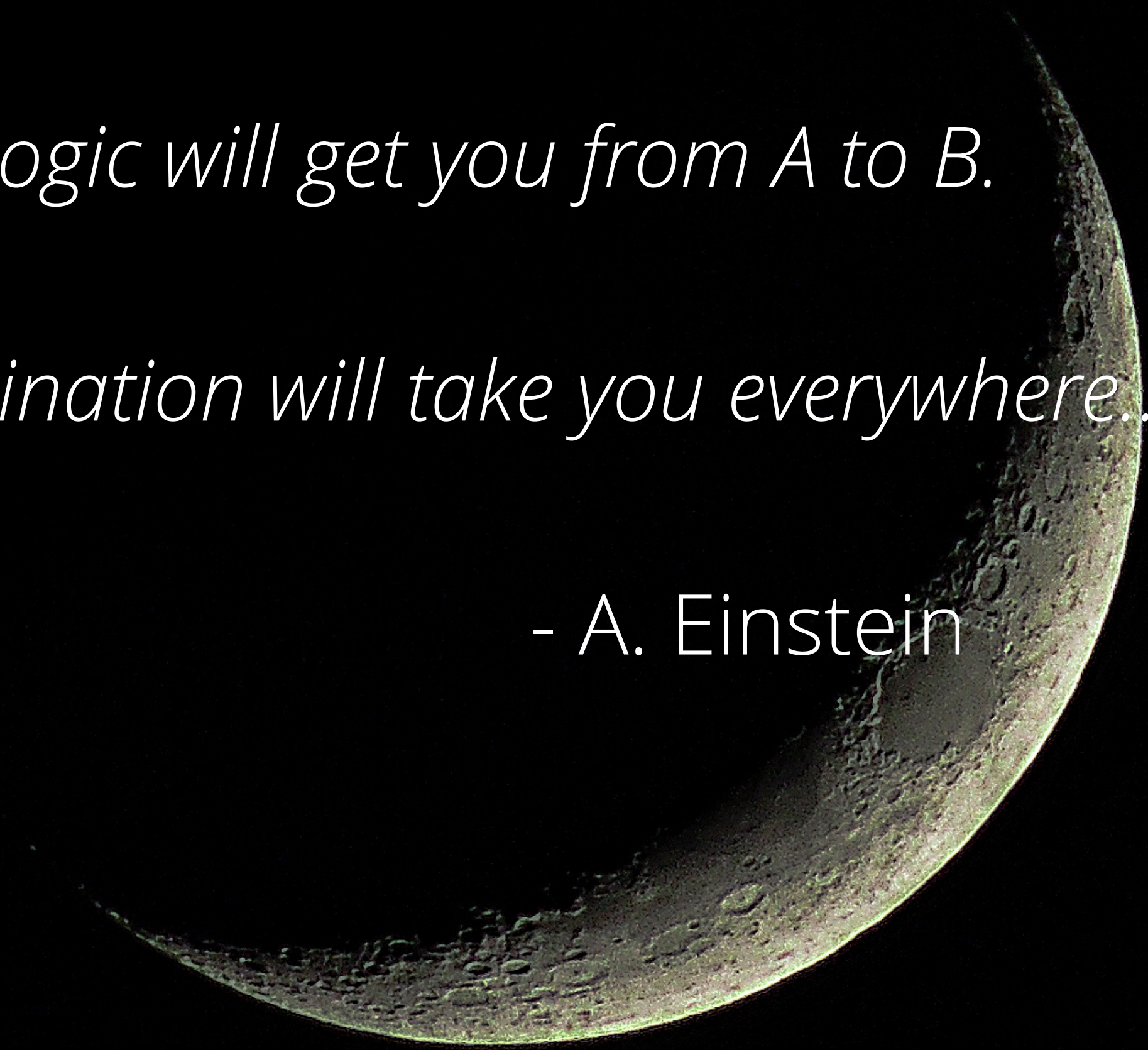
Thus, a sustainable utilization of natural assets on the Moon will also provide for the benefit of Mankind living on planet Earth. Under the terms of peaceful uses and the rule of clear norms, future circumstances on the Moon shall give response to incoming joint initiatives of space exploration being lead by the international community

In conclusion, a general upgrade of the *Lunar framework of law* may also grant a positive application of legal structures governing the exploitation of resources, as well any space activities concerning the Moon; on the other hand, it may either create innovative instruments to decide whenever any controversy among Parties (both private and Public) may arise upon the application of international law of the Moon ("*Corpus Juris Lunar*is").



*"Logic will get you from A to B.  
Imagination will take you everywhere..."*

- A. Einstein





# References:

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## WEBSITES:

Treaties and documents on international space law

[www.unoosa.org/oosa/en/ourwork/spacelaw/index](http://www.unoosa.org/oosa/en/ourwork/spacelaw/index)

[www.esa.int](http://www.esa.int)

