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**“For the benefit and in the interests of all countries,
irrespective of their degree of economic or scientific development”**

Highlight lecture by Prof. Armel Kerrest.

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This lecture examines the process of space law as it has developed in the past, and takes a perspective on how it stands to develop over the next seventy years. With much written about commercial space and the increased presence of space in the modern media, space has become closer to the people. It delivers indispensable means for communication, navigation and timing services, and important public services such as weather forecasting. It is also a horizon that is open to further scientific research and exploration. This talk highlights some of the future challenges already under discussion today, such as resources mining, space traffic management, and longer-term missions. It examines these within the light of the legal parameters applicable to commercial space, in the framework of general international law, taking into consideration the former experiences in the law of the High Sea and Antarctica.

Keywords: Space Law, role of the States, General international Law, Space legal framework. Use of Outer Space.

1. Introduction

1.1 First of all, I would like to thank the organisers of this session for having invited me to speak as a keynote speaker. I spoke at a session of IISL at International Astronautical Congress FOR the first time in 1997 in Turin. I made two presentations, one on liability and responsibility under article Six and Seven of the Outer Space Treaty, another one on the Sea Launch program which made possible the launch of a big rocket from the High Sea.

In fact, the first article I published on space law was related to an international cooperation program which was created jointly by the USA, the USSR, Australia and France: the program COSPAS SARSAT. “International Satellite System for Search and Rescue”¹ enables an efficient search and rescue mechanism through the installation of devices by Australia and France on satellites of the USA and the USSR. During the Cold War, for the benefit of all, these four States succeeded in setting a cooperation and in making it work so far properly, efficiently and free of charge for the users.

During our particularly unsafe times, it is useful to keep in mind the necessity to cooperate and to give its full value to the principle of “benefit of all countries”. I am afraid we are very far from that.

1. 2. *The Outer Space Treaty as “Magna Carta” or Constitution of Space Law*

1.2.1 *The nature of Outer Space and its legal effects*

Every field of law depends on the very nature of the domain it is supposed to rule. Outer space is quite specific.

- First of all, it is international. Orbits, celestial bodies are not included in any State’s territorial jurisdiction. Which means that no law is applicable to the territory and that only the personal jurisdiction of the States applies, not their territorial jurisdiction.
- Outer space is non-human friendly, it is a hostile environment for human beings. It lacks air, suffers from dangerous radiations, usually requires a very high speed of traveling etc. These natural conditions have a great impact on its legal status, and on the status of human activities.
- Outer Space, and more precisely orbits, although not only, dominate the Earth and therefore have a major strategic importance.
- Celestial bodies may contain mineral resources, which may be the stake of fierce competition between States or even private companies.

1.2.2 *Magna Carta or Constitution*

The Outer Space treaty is usually called the “Magna Carta of Space Law”. This is a reference to the Charter accepted by John Lackland, the king of England direct heir of the Plantagenet dynasty. Lackland agreed to guarantee some rules of law to his barons. Some of these rules are still applicable. In fact, the comparison would be more relevant with a “Constitution”, since a constitution is closer to modern rules of law. It is clear that as a constitution, the Outer Space Treaty does not precisely rule Outer Space, it only sets principles which may be applicable to Outer Space. For that reason, the

arguments in favour of the invalidation of the treaty for not being adapted to current space activities are not valid.

A comparison with the Law of the Sea may be relevant here. In both cases, a regulation of an international domain is required, but sea activities have taken place for thousands of years. A legal practice has applied, the function of the UN Convention is to codify a long-time practice often accepted as Law. A first convention was adopted in 1958 after a draft established by the International Law Commission. A second text was drafted by the third UN Conference on the Law of the Sea in a more comprehensive way. It includes a long-term discussion of a Provisory Negotiation Text under the exceptional and very efficient chairmanship of H.S. Amerasinghe, delegate and former delegate of Sri Lanka. A very large and rich text came out of this negotiation process. It deals with nearly every issue of the Law of the Sea. The convention signed in Montego Bay on December 10, 1982 and entered into force in November 1994, provides XVII parts, 320 articles, nine annexes, which add up to a text of 176 pages.

The Outer Space Treaty is profoundly different. Only a few activities took place in Outer Space in 1963 at the date of the “UN declaration on Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space” adopted by the UN General Assembly on December 13, 1963. Even in 1967 when the Outer Space Treaty was adopted and opened to the States’ signature and ratification thus transforming the most important provisions of the Declaration into Treaty Law, so called “hard law”. For that reason, the Outer Space Treaty is very different from the UN Convention for the Law of the Sea. It is not the codification of rules already applicable to a domain, but a set of proposed principles applicable “de lege ferenda”. The Outer Space Treaty is indeed more like a constitution, a set of principles. There is no point in changing these principles on the grounds that techniques have changed since the sixties. Techniques have changed indeed, activities have increased and evolved. Private actors are now important in Outer Space, but the principles should still apply. Principle of use for the benefit of all countries, the Common Province of Mankind, freedom of exploration and use by all States without discrimination and on the basis of equality. Principle of peaceful use, of non-appropriation, responsibility of States for their “national activities” and liability of the Launching States, etc. These principles are the very basis of Space Law or to be more precise, of the International Law applicable to Outer Space and on celestial

bodies. There is no need to change those principles because of the technical evolution, they may be interpreted and applied despite the fact that the space activities of the sixties are not the activities of the 21st century.

The Constitutions of many States are often rather old. If we consider one of the oldest, the Constitution of the United States, it was adopted in September 1787. Few people in the US want to change the Constitution under the pretext that cars or planes did not exist at the end of the 18th century. Principles still apply. It is the same for Outer Space, the principles set in the Outer Space Treaty can and must be applied for the benefit of all and for supporting a peaceful international society.

1.3. The evolution of International Law including Space Law since the end of the Cold War

1.3.1 Outer Space treaties, a consequence of the Cold War.

If we take a look at the Outer Space treaties, “the five treaties”, we can see that they are connected to the period of the Cold War. The Outer Space treaty in 1967, The Return Agreement in 1968, the Liability Convention in 1972, The Registration Convention in 1975, The Moon agreement in 1979, all of them were adopted by consensus in the COPUOS and at UN General Assembly and open to signature before the fall of the Soviet Union. Since that date, no treaty has been drafted, only a few resolutions by the UN General Assembly. Space Law has suffered from the increasing weakness of the International Law-Making Process which developed at the end of the Cold War. Paradoxically, during the period of the Cold War, the international law-making process was much more efficient than nowadays. Both leading Super Powers have understood the interest of having “hard international law” rules, i.e. treaties and conventions to set a strong compulsory legal order. Both wanted precise rules applicable as limits to the other block. The elaboration of compulsory treaties was seen as indispensable in order to maintain and make acceptable the organisation into blocks of the international community. Each leading space power was in charge of protecting and supporting the rules of international law favourable to status quo and security of their “client States”. At the time, the new independence of many States from former European colonial powers created a competition among Super Powers, giving a possibility to some developing States to use this competition and obtain the right to see their need of development recognised by the international community.

1.3.2. The will of unilateral dominance instead of international cooperation.

When the Soviet Union collapsed, the ruling of the international community was more and more paramount. In the field of mineral resources of the international domain, after having strongly supported the adoption of international treaties such as the Wellington Convention for Antarctica and the Moon Agreement for Outer Space, the winning State refused more and more any real competence to multilateralism and to the UN Organisation. It refused precise and compulsory rules, preferring the adoption, sometimes in a bilateral way, of “memoranda of understanding” at a space agency level or “road maps”, “rules of conducts” at a more international level. The so-called “soft law” being preferred to real law despite its lack of obligations, lack of predictability, lack of protective effect and difficulties of implementation. In some cases, the domestic law of the dominant State replaced international law. Domestic legislation was often given an extra-territorial application; which is a permanent challenge to States sovereignty. In some cases, soft law is certainly useful but it should not take the place of real compulsory and protective rules. It is for instance the case for technical provisions that require evolution and adaptation. In that case, a framework agreement with a real legal value can play a role in order to constitute a strong legal framework for a series of non-binding texts. It is the case for the International Space Station. (Inter-Governmental Agreement 1998)

2. Military activities at a time of increasing international tensions

2.1. The regulation of military activities in Outer Space should be considerably improved.

As we all know, military activities in Outer Space are regulated by general international law including the UN Charter and special provisions in the Outer Space Treaty and the Moon Agreement.

A point is sometimes left aside when military activities in Outer Space are concerned. General international law, including the UN charter, applies to Outer Space like elsewhere, as mentioned in article III of the Treaty (for instance, the interdiction of the use of force in article 2/4 of the Charter).

2.2. Since the beginning of the space era military activities, have been conducted in Outer Space. The definition of the word “peaceful” in the preamble is usually considered as “non aggressive “. Some brilliant and optimistic authors such as late Professor Bin Cheng support a more stringent meaning, considering peaceful as “non-military”, but we must accept the fact that the purposes of the drafters of the text were not so ambitious.

Article IV of the Outer Space Treaty makes an important distinction depending on the area where the activity takes place. “In orbit around the Earth” the only limitation outside the usual interdiction of aggression of article 2/4 of the UN Charter, is the prohibition to “place into orbits” “any object carrying nuclear weapons or any kind of weapons of mass destruction”. This limitation gives way to many military activities if they are not intended to have a massive effect. The destruction of satellites in orbit, the use of arms against the terrestrial territory of a State, even the installation of military bases etc. are not expressly prohibited as long as they are not considered as aggressive.

It should be necessary to envisage some “hard law” to prevent the arm race in Outer Space. Of course, it is a very sensitive issue, but when some powerful States join to propose to draft a treaty, it may be interesting to enter into discussion instead of refusing as a matter of principle. Of course, it should be necessary to set in place a real and efficient way to control the implementation of such a treaty but it may be a positive point to take “their word for it”.

For some years, especially since the end of the Cold War? the agreements of limitation to arm race have been unilaterally suppressed, as if they were no longer necessary. In fact, they are necessary. Within the international community, no State can impose its will unilaterally without taking into consideration the will and interests of others even if at that moment it seems to be more powerful.

3. Space law as a necessary framework for human activities in Outer Space

3.1. Space debris and space traffic management is a good example of the necessity to set international rules, but international cooperation within the UN COPUOS stays at a very low level. This UN body, which decides by consensus, cannot play the important role it should play. The example of attempts to rule space debris shows the current difficulties to obtain a consensus. It is only possible to adopt some very general principles not recognised as binding and not precise enough to help determining a faulty behaviour in case of an accident. This would be useful if the accepted rules were précised enough to qualify the behaviour of the operator.

2.2. The increasing of space activities, especially commercial and private one increases the necessity of the elaboration of accepted international rules. The adoption of domestic laws cannot substitute to internationally accepted rules. In principle, they apply only domestically. These domestic rules are at risk to be challenged and in any case this behaviour raises the anger and resentment which may increase the risk of international conflicts.

3. Installation of bases on the Moon and other celestial bodies, the lessons from Antarctica

3.1. The installation of bases by States on territories which are not under the territorial jurisdiction of a State is nothing new since it is already a current practice in the High Sea and in Antarctica. The legal status of Antarctica is more complex than in Outer Space. In Antarctica there is no recognised principle of non-appropriation. Some States are claiming a part of the territory on the basis of their discovery, occupation or geographic proximity (the UK, Australia, New Zealand, Norway, France, Argentina and Chile). Some States are not claiming and are refusing the claims but consider to have a base for a claim: the USA, the USSR/Russia. The others are not claiming and also refusing to recognise the claims. Article IV of the Washington 1959 Antarctic Treaty succeeds in making possible a cooperation between all of them, a difficult task. It freezes the claims, blocks any other claim and makes possible the installation of bases without any permission by the claimant States. Fortunately, we do not have such a problem on celestial bodies where the non-appropriation principle is until now recognized by all States at least as a principle.

3.2. Nevertheless, the current situation in Antarctica shows that when there is good will, a spirit of cooperation, an attention to scientific activities and a preoccupation it may enable an efficient and peaceful legal framework and practice. (78 bases, 44 open also in winter).

3.3. On the Moon and on other celestial bodies including Mars, it is quite legal for States to install bases like in Antarctica. There is no prohibition to do so, thus it is accepted. No safety zone has been created so far around the bases in Antarctica. Instead, Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMA) are being created by international cooperation. They are not linked with State's bases but used to protect some areas. Like in Antarctica, on the Moon, because of article II of the Outer Space Treaty the installation of bases cannot conduct to an appropriation of the territory. That is the reason why when a State decides to unilaterally create "safety zones"- which are more "exclusion zones"- on the Moon, it clearly violates article II of the treaty. Moreover, despite the title used in the so-called "Artemis Accord", this claim will considerably increase the risks of conflicts between the State(s) which are claiming these zones and those space faring States who refuse them.

3.4. Military activities are forbidden even if the use of military personnel or equipment for non-military activities is permitted. Article XII of OST gives way to any State Party to the treaty to visit any station, installation, equipment or space vehicle on the Moon.

"Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may be taken to assure safety and to avoid interference with normal operations in the facility to be visited."

3.5. There is no special consideration or right for private persons to build bases on the Moon. There is no interdiction as far as article VI of the OST is applied i.e. this installation and the activities are conducted after an authorisation and under a permanent supervision by the State of nationality of the physical or legal persons conducting this "National Activity".

4. Exploitation of the mineral resources of celestial bodies, lessons from the law of the High Sea

4.1. The High Sea and Outer Space have a lot in common. Both are spaces which are not under the territorial jurisdiction of any State. In both spaces, it does not mean that no jurisdiction applies but that only personal jurisdiction does.

4.2. The example of the High Sea has often been used. Some commentators make a comparison between halieutic resources of the High Sea and mineral resources of celestial bodies. They pretend to recognise a "res nullius" nature to both. This not acceptable for two reasons.

4.2.1. The first is methodological. When a comparison is made, it must be made between two comparable items. In the case of the High Sea, mineral resources are efficiently and thoroughly considered by international law. They constitute the very important Part XI of the Montego Bay Convention and the agreement accepted in New York in 1994. If a comparison is made, it must be made between mineral resources in both spaces. It is definitely bad faith to try to avoid comparing mineral resources in both spaces and to leave aside the High Sea mineral resources to try to compare outer Space resources with halieutic resources which are profoundly different.

4.2.2. The other reason is more technical. Fishes and mineral resources are quite different by nature. Fishes reproduce, mineral resources do not. The halieutic resource as a whole is common and thus "res communis". Since they reproduce, fishes are "res nullius". As far as the resource itself is not destroyed by overfishing, fishes may be appropriated but the resource as a whole is still common. It is absolutely not the case for mineral resources. If it is appropriated, the community is impoverished.

4.2.3. When mineral resources were discovered on the Seabed, in order to maintain the character of common

resources, a consequence of the nature of High Sea which is common, it became necessary to find a legal solution to enable its exploitation. The solution was to declare these resources “Common Heritage of Mankind” and to create a cooperation and an international body to manage the exploitation for the benefit of all. It was the Seabed Authority, an international body under the Montego Bay Convention and the 1994 agreement.²

4.2.4. Part XI of the Montego Bay Convention appears largely unacceptable for developed countries which were asked to bear the heaviest financial and technical burden of the endeavour without having a real and clear perspective of the possible financial return of these mining activities. After the adoption of the text of the convention itself, discussions were engaged within the UN and gave way to the “Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982”³. One of the major changes to the Convention was related to the role and composition of the Council. A very complex mechanism was created after strong discussions between developed and developing countries. Finally, a complex compromise was adopted. The role of the Council was increased compared to the role of the General Assembly where the rule “one State one vote” applies without taking into consideration each State’s involvement.⁴ A complex voting procedure is set by article 56. Two Chambers were created, one for developing countries one for developed ones. For substantial matters, a vote of two-third majority of members present and voting including the positive vote of the two Chambers, making sure that the developed States would never be in a position to have to accept a decision taken by the a majority of developing States. Despite these difficult discussions, when political struggle calmed down, when it appeared that it would not be so easy to exploit the so desired resources, this complex voting procedure turned into a decision by consensus which is currently used.

4.3.1. In order to avoid an increasing risk of international conflict for mineral resources of the celestial bodies, it should be better to try to find an acceptable international legal framework instead of establishing domestic legislation and de facto situations. It will take long before real space mining takes place. I wonder whether some States are currently pushing for claims and appropriation despite the fact that it will take decades before any mining will be effective. We have time to sit and cooperate in the elaboration of a clear, protective and accepted international legal framework. The will of a State to try to impose its own rules constitutes a threat of conflicts. It is amazing to see that this State was at the origin of the Moon agreement. Things have changed a lot since the end of the Cold War.

4.3.2. Another reason to question the real purpose of the current claims comes from the fact that new rules are not urgently needed. The current provisions of article 6/2 of the Moon agreement already makes possible most of the projected activities.

“In carrying out scientific investigations and in furtherance of the provisions of this Agreement, the States Parties shall have the right to collect on and remove from the Moon samples of its mineral and other substances. Such samples shall main at the disposal of those States Parties which caused them to be collected and may be used by them for scientific purposes. States Parties shall have regard to the desirability of making a portion of such samples available to other interested States Parties and the international scientific community for scientific investigation. States Parties may in the course of scientific investigations also use mineral and other substances of the Moon in quantities appropriate for the support of their missions. States Parties agree on the desirability of exchanging scientific and other personnel on expeditions to or installations on the Moon to the greatest extent”

Since, according to the current projects, serving space exploration is the main purpose of space mining, it would be sufficient to use these provisions and to wait for the adoption of an internationally accepted legal status. The fact that some among the people involved refuse this solution shows that what is looked for is purely appropriation of space resources and subsequently of the celestial bodies themselves despite their declarations and the interdiction clearly set by article II of the Outer Space Treaty.

4.3.2. The drafting of the moon agreement was strongly supported by the US delegation in the COPUOS. It was before the end of the Cold War. During the discussions within the COPUOS, Mr Hosenball, the US delegate, clearly indicated the decisive role played by his delegation for the drafting of the text of the Agreement and especially for the adoption of the principle of Common Heritage of Mankind⁵: *“the common heritage of mankind, was initially suggested by Argentina but was formally proposed by my delegation in 1972”* We are far from that⁵

4.3.3. After the end of the Cold War, in a way which may be compared to the use of notion of “alternative facts” or at least very “dynamic” and oriented interpretation, some US lawyers and some others, supported an amazing interpretation of the provisions of article II of the treaty. This interpretation does not care of the obligation of good faith and reference to the aim and purposes of Treaty. A difference is made between appropriation of the territory and appropriation of their resources. This very astonishing interpretation which has no precedent in any

field of law seems to open the way to many new space activities. For that reason, it was accepted by many. It does not change the fact that if a State agrees to give permission to a company to exploit the resources of the Moon, it plays the role of a sovereign State on the celestial body. This is contrary to Outer Space principles especially article II of the Treaty. This evidence was recognised by the Luxembourgian Conseil d'Etat in its advice on the proposed Luxembourgian law on space activities.⁶ In fact, the problem is not only that some are going to appropriate a resource which is and should remain common but, if we extend this kind of claims to other countries, it will necessarily lead to conflicts. To take the example of moon resources, some places seem to be more fruitful than others. What will happen if two or more States claiming the same resources and give to their private companies a permission to mine it?

In the case of asteroids, it would be even more difficult to mine it because of the lack of gravity, the only solution would be to capture it, which is obviously contrary to article II of the treaty.

5. Conclusions

My conclusions are the fruit of nearly fifty years of teaching International Law. They are not very optimistic.

¹ The secretary of the program was first located in London at Inmarsat, then moved to Montreal where it is still located 1250 Boulevard René Lévesque Ouest suite 4215 Montréal, Québec H3B 4W8 Canada

² Arvid Pardo's speech, UNGA 22nd session, 1 November 1967, Agenda Item 92, full text available at : http://www.un.org/depts/los/convention_agreements/texts/pardo_ga1967.pdf

³Text of the 1994 agreement:
https://treaties.un.org/Pages/ViewDetails.aspx?data-src-1669746830190=IND&mtdsg_no=XXI-6a&chapter=21&clang=_en

⁴ Elections of Council members for 4 years. Rule 84:
The Council shall consist of 36 members of the Authority elected by the Assembly in the following order:
(a) *Four members from importer and consumer States including the USA and the USSR*
(b) *Four members from the investors*
(c) *Four members from States exporting the minerals which should be extracted (including at least two developing States)*
(d) *Six members from among developing States Parties, representing special interests. (large populations, land-locked, island States)*
(e) *Eighteen members elected according to the principle of ensuring an equitable geographical distribution of seats in the Council as a whole.*

It is always difficult to predict the future. Having a look at the past may help. To me, the future seems rather cloudy. The aggression of Russia against its neighbour and brother country is of course a major concern. Instead of supporting international discussions and cooperation so necessary in our current world, it reinforces the will of dominance of each block. Europe is dismantled, it will only be the theatre of a play played by others. Democracies or plutocracies have showed that they may be as aggressive as authoritarian regimes.

The worst is never certain. We may dream that, aware of the urgent necessity, Humanity will find a way to take care about our Earth, and of our mutual security without having to wait for a new World War which would be even much more destructive than the First and the Second.

When they drafted the Outer space Treaty, our predecessors put forward the necessity to use Outer Space "for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development". Let us believe that it may at least be the reality and not only some kind of United Nations forgotten dream.

⁵ Mr. Hosenball delegate of the USA. COPUOS New York 3 July 1979 (AC105 PV 203 E .pdf at page 23): « *Article XI of the draft moon agreement, which declares that celestial bodies other than the earth, and the natural resources of such celestial bodies, are the common heritage of mankind, was initially suggested by Argentina but was formally proposed by my delegation in 1972. It makes clear that the parties to the agreement undertake, as the exploitation of the natural resources of the celestial bodies other than the earth is about to become feasible, to convene a conference to negotiate an international regime to govern the exploitation of those mineral and other substantive resources which may be found on the surface of a celestial body* »

⁶ Conseil d'Etat n°51.987 n° de dossier parlementaire 7093 Avis du Conseil d'Etat du 7 avril 2017 : « *Dans le même ordre d'idées, comment protéger les zones sur lesquelles ces exploitants procèdent à l'extraction de ressources de l'espace extra-atmosphérique ? Une telle protection pourrait déboucher sur une sorte de revendication de souveraineté pourtant interdite par le Traité sur l'Espace et violer l'article I de ce Traité qui dispose, dans son alinéa 2, que « l'espace extra-atmosphérique, y compris la Lune et les autres corps célestes, peut être exploré et utilisé librement par tous les États sans aucune discrimination, dans des conditions d'égalité et conformément au droit international, toutes les régions des corps célestes devant être librement accessibles. »*

(In English: In the same vein, how can we protect the zones on which those exploiters decide to extract extra-terrestrial resources? Such a protection would lead to some sort of a sovereignty claim which is nevertheless officially prohibited by the Outer Space Treaty. Furthermore, it *would violate article I of the treaty which stipulates in paragraph two that extra-atmospheric*

space, including the Moon and other celestial bodies can be explored and used freely by all States without any discrimination under equal conditions and in accordance with International Law (all the regions of celestial bodies being freely accessible). (translation by the author)
<https://conseil-etat.public.lu/dam-assets/fr/avis/2017/07042017/51987.pdf>