INTERSTELLAR LAW
IUS GENTIUM FOR NEW WORLDS

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To Pedro Duque
The first Spanish astronaut in History

INDEX

INTRODUCTION

1. Extraterrestrial intelligent beings: some conceptual precision and legal implications

The issue of SETI (Searching for Extraterrestrial Intelligent Beings) could be approached from an odd angle, namely, from the extraterrestrial intelligent beings side: Who are those we are trying to get contacted? What is to be established with this unusual approach is to restrict our focus on extraterrestrial organisms which are alive and they are intelligent as well. An organism will be considered as living if it is able to select between several possibilities. It will select in all probability that possibility which is least harmful, as we, human beings usually do. When we talk of living organisms we think of these organisms selecting the alternative that minimizes damage. Does this mean such organisms are intelligent? It will probably does since intelligence or reason might be defined –for the purposes of this study– as the capacity for logical thought and for recognizing the capacity of choosing between two or more possibilities and of self-consciousness.

In order to precise what we call *extraterrestrial intelligent beings*, we can convene –following to Ernst FASAN– that they are living organisms who for themselves are technically and scientifically sufficiently developed in order to be able to create emissions into space[1]. They must be, necessarily, *alive* and *intelligent* beings. That is "having the capacity to select between two or several possibilities, to realize which possibility is least harmful for them and thus, to preserve and to embrace their life, and that of their race as well".[2]

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[1] FASAN, Ernst, "Legal consequences of ETI detection", *Acta Astronautica,* 1998, Vol. 42, No. 10-12, p. 677.

[2] *Ibidem.* Thanks to their intelligence they will have self-consciousness, and that they consciously will know how to apply their scientific discoveries in order to strive for a desired goal.

In addition, one also could conclude, with BAUM, HAQQ-MISRA and DOMAGAL-GOLDMAN, in the advanced nature of extraterrestrial beings, with far more developed than us[3]. As they justify their claim, the reason to believe that extraterrestrial intelligent beings would be more advanced is because humans and human technology are relatively recent phenomena in the history of Earth. We have only had radio communication for about a century, or just a few generations, which suggests that advanced technology can develop quickly compared to evolutionary timescales. Following this reasoning with BAUM and others, it is likely that any existing extraterrestrial intelligent beings has been around much longer than us and has developed far greater technological abilities than we can imagine for ourselves. Even if an extraterrestrial intelligent beings is younger than us, the very ability to contact us would likely imply progress beyond that which our society has obtained.[4]

Although we are focused in this monography in how International Law of Outer Space should regulate the search for extraterrestrial intelligent beings, it should be mentioned at passing that while formal SETI principles have been adopted for the eventuality of detecting intelligent life in our galaxy, no such guidelines exist for the discovery of *non-intelligent extraterrestrial life* within the solar system. Moreover, just as Margaret RACE and Richard RANDOLPH maintained, there is no NASA policy or international protocol for the proper handling of non-intelligent extraterrestrial life *per se*, nor any deliberations currently underway to address the topic.[5] Since a discovery of life in the solar system could occur in widely different locations and ways, it will be important to anticipate what kinds of

[3] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.,* p. 2117.

[4] *Ibídem.* And these authors deduce from their advanced nature: "We are almost guaranteed to lose in a fight between us and them, and there is strong likelihood that such a loss would be so severe that we would cease to survive as a civilization. On the other hand, if ETI decide to use their superior abilities to help us, then, they may be able to help solve many of our problems".

[5] RACE, Margaret S., and RANDOLPH, Richard O., "The need for operating guidelines and a decision framework applicable to the discovery of non-intelligent extraterrestrial life", *Advances in Space Research*, 2002, Vol. 30, No. 6, p. 1585.

operational and long term considerations might be appropriate for the various scenarios. One way to focus the discussion about discovering non-intelligent extraterrestrial life is to consider Mars exploration as a specific example and use the SETI principles as a guiding format.[6] Consequently, it might be a good idea at this stage to read the suggested guidelines for exobiology discovery, these authors propose[7]:

— Cause no harm for planet Earth, its life and its diverse ecosystem

— Respect and do not substantively or irreparably alter the extraterrestrial ecosystem

— Observe "good" science procedures

— Insure the participation of all humankind in the discovery of extraterrestrial life

In further detail, to the light of SETI principles which we will further develop in Chapter Three, a proposal for researching non intelligent life (even non living organisms) could be as follows according to these authors[8]:

1. If evidence of extraterrestrial life is detected, do no harm. Avoid intrusive action until full consultation can be made

2. If presumed evidence of extraterrestrial life is detected, seek to verify and confirm that the life form is truly extraterrestrial

[6] *Ibídem.*

[7] RACE, Margaret S., and RANDOLPH, Richard O., "The need for operating guidelines and a decision framework applicable to the discovery of non-intelligent extraterrestrial life", *op. cit.,* p. 1588.

[8] RACE, Margaret S., and RANDOLPH, Richard O., "The need for operating guidelines and a decision framework applicable to the discovery of non-intelligent extraterrestrial life", *op. cit.,* p. 1589.

3. Prior to public announcement, confirm the discovery by independent observations with research colleagues and institutions elsewhere

4. If the discovery is credible, inform United Nations and appropriate government agencies

5. All data should be made available to the scientific community

6. Protect and Preserve the extraterrestrial life form

7. No further mission or activities prior to international consultation

8. Continue to review and update procedures and policies.

Another convenient precision is that we assume in this monography the idea of extraterrestrial intelligent beings; that is, bearing both conditions, living and intelligent, in any extraterrestrial organism susceptible to contact us. Unfortunately, no general consensus in the scientific community support a hundred per cent our assumption.

As a matter of fact, there are authors, like MORRIS, who try to explain the unsuccessful results up to date in the search for extraterrestrial intelligent beings, considering that the universe we live in, although is not in a strict sense 'virtual', it nevertheless is not at all as we imagine it to be. In his own words: "Rather than proposing a Matrix-like solution to our 'existence', our Universe consists of a series of intersecting orthogonal realities"[9]. Chances of making coincidence of these realities are far from probable.

More interesting is to mention that in September of 2015, the *John Templeton Foundation's Humble Approach Initiative* sponsored in

[9] MORRIS, Simon C., "Three explanations for extraterrestrials: sensible, unlikely, mad", International Journal of Astrobiology, 2016, pp. 1-7, https://doi.org/doi:10.1017/S1473550416000379 In the same way, HAISCH, B., "Is the universe a vast, conscious-created virtual reality simulation?" *Cosmos History*, 2014, Vol. 10, pp. 48–60.

London a 3-day symposium entitled 'Exploring Exoplanets: The Search for Extraterrestrial Life and Post-Biological Intelligence.'[10] As Professor SHOSTAK –one of the Conveners of such a meeting states– most of participants focused on the matter of post-biological intelligence and on the possibility of non-Darwinian evolutionary processes, suggesting a revolution in how we should think about, and search for, extraterrestrial intelligent beings.[11]

In opinion of Professor SHOSTAK, all around the world SETI practitioners assume as a premise that any technically sophisticated species will eventually develop signaling technology, irrespective of their biology or physiognomy. This view may not seem anthropocentric, for it makes no overt assumptions about the biochemistry of extraterrestrials; only that intelligence will arise on at least some worlds with life. However, he holds that "the trajectory of our own technology now suggests that within a century or two of our development of radio transmitters and lasers, we are likely to build machines with artificial, generalized intelligence. We are engineering our successors, and the next intelligent species on Earth is not only certain to dwarf our own cognitive abilities, but will be able to engineer its own, superior descendants by design, rather than counting on uncertain, Darwinian processes. Assuming that something similar happens to other technological societies, then, the implications for SETI are profound."[12]

In the same line of reasoning than SHOSTAK, other participants in the 2015 Symposium on Exoplanets, Extraterrestrial Life and Post-Biological Intelligence, suggested we should think about

[10] The proceedings of that meeting can be consulted as they are available in internet: https://meetings.seti.org/Search_Extraterrestrial_Life_Post_Biological_Intelligence.html Visited the 25 July, 2018.

[11] SHOSTAK, Seth, "Introduction: the true nature of aliens", Symposium entitled 'Exploring Exoplanets: The Search for Extraterrestrial Life and Post-Biological Intelligence', *op. cit.*, at https://meetings.seti.org/Search_Extraterrestrial_Life_Post_Biological_Intelligence.html Visited the 25 July, 2018. It can be also consulted in *International Journal of Astrobiology,* 2017, https://doi.org/10.1017/S1473550416000422

[12] SHOSTAK, Set, "Introduction: the true nature of aliens", *op. cit.*

"extraterrestrial intelligence" instead of "extraterrestrial intelligent beings". It is the case of Steven BENNER who discusses the generalized definition of "life" used by NASA for SETI purposes: "a self-sustaining chemical system capable of Darwinian evolution". This definition would imply –in his opinion– that Darwinism is the only mechanism by which matter can self-organize to give the properties that we value in biology. However, in the view of this author:

> "It is conceivable that we might encounter an entity that has all of the properties that we value in life, including the ability to converse with us, but lacks access to Darwinism, or perhaps lacks a chemical foundation. It would therefore fall outside of this definition-theory. Science fiction offers many of these concepts. But the ability to conceive is weak evidence for existence. In fact, the reason why we do not now change this definition is because we do not believe that such life actually can exist."[13]

As Steven BENNER states, the definition of life as *a self-sustaining chemical system capable of Darwinian evolution* is unsuitable for SETI thanks to intelligence. In his own words:

> "Darwinism requires the death of children simply to maintain the capacity for future evolution. Their death is also required to create the positive adaptations that are required to manage changing environments. However, thanks to our intelligence, humankind is on the verge of escaping Darwinism via germline DNA modification (for example, using CRISPR). If technological advances occur in parallel as intelligent societies advance, any alien species likely to encounter us before we encounter them is likely to have itself escaped Darwinism. Anticipating this, synthetic biology is creating, in the laboratory, alternative systems that might be Lamarckian without needing to be intelligent. At least speculatively,

[13] BENNER, Steven A., "Discussing aliens: Constraints from Chemistry and Darwinism", in the Symposium entitled 'Exploring Exoplanets: The Search for Extraterrestrial Life and Post-Biological Intelligence', *op. cit.*

> unintelligent Lamarckian systems could evolve more rapidly than unintelligent Darwinian systems, precisely because they do not waste resources on dead offspring."[14]

Moreover, authors like Chrisanta FERNANDO has defended the idea of Artificial Intelligence (some kind of post biological intelligence) as the "aliens" who someday will reply our messages for extraterrestrial intelligent life in the Universe. In her opinion, it is a matter of open-ended evolution, that is, where an evolutionary system continues to discover and solve novel interesting problems. Specifically, it is a subfield of artificial life in which computer scientists try to design the initial conditions and dynamical rules of an evolutionary system in a computer such that it will continue indefinitely to produce novel adaptations.[15] Extraterrestrial life could be indeed just an artificial superintelligence, like Susan SCHNEIDER has suggested[16].

Assuming, optimistically, that advanced civilizations are out there, this author wonders herself how might aliens think. In her opinion, in all probability most intelligent alien civilizations may be post biological, being synthetic superintelligences; that is, creatures that are vastly smarter than humans in every respect, scientific reasoning, social skills, and more. Just as this author maintains:

> "Our culture has long depicted aliens as humanoid creatures with small, pointy chins, massive eyes, and large heads, apparently to house brains that are larger than ours. Paradigmatically, they are "little green men." While we are aware that our culture is anthropomorphizing, I imagine that my suggestion that aliens are supercomputers may strike you as far-fetched. So what is my rationale for the view that most

[14] BENNER, Steven A., "Discussing aliens: Constraints from Chemistry and Darwinism", *op. cit.*

[15] FERNANDO, Chrisanta, "Intelligent evolution: an approach to open-ended evolution", in the Symposium entitled 'Exploring Exoplanets: The Search for Extraterrestrial Life and Post-Biological Intelligence', *op. cit.*

[16] SCHNEIDER, Susan, "Superintelligent AI and the Postbiological cosmos approach" in the Symposium entitled 'Exploring Exoplanets: The Search for Extraterrestrial Life and Post-Biological Intelligence', *op. cit.*

> intelligent alien civilizations will have members that possess artificial superintelligence? I offer three observations that, together, motivate this conclusion (…): I have observed that there seems to be a short window from the development of the technology to access the cosmos and the development of postbiological minds and artificial intelligence[17]. I then observe that we are galactic babies: extraterrestrial civilizations are likely to be vastly older than us, and thus they would have already reached not just postbiological life, but superintelligence[18]. Finally, I noted that they would likely have artificial superintelligence, because silicon is a superior medium for superintelligence. From this I conclude that many advanced alien civilizations will be populated by forms with artificial superintelligence."[19]

[17] "The short window observation. Once a society creates the technology that could put them in touch with the cosmos, they are only a few hundred years away from changing their own paradigm from biology to AI. This "short window" makes it more likely that the aliens we encounter would be postbiological." SCHNEIDER, Susan, "Superintelligent AI and the Postbiological cosmos approach." *Op. cit.*

[18] "The greater age of alien civilizations. Proponents of SETI have often concluded that alien civilizations would be much older than our own. If civilizations are millions or billions of years older than us, many would be vastly more intelligent than we are. By our standards, many would be superintelligent. We are galactic babies." SCHNEIDER, Susan, "Superintelligent AI and the Postbiological cosmos approach." *op. cit.*

[19] "It is likely that these synthetic beings will not be biologically-based. Currently, silicon appears to be a better medium for information processing than the brain itself, and future materials may even prove superior to silicon. Neurons reach a peak speed of about 200 Hz, which is seven orders of magnitude slower than current microprocessors. While the brain can compensate for some of this with massive parallelism, features such as "hubs," and so on, crucial mental capacities, such as attention, rely upon serial processing, which is incredibly slow, and has a maximum capacity of about seven manageable chunks. Further, the number of neurons in a human brain is limited by cranial volume and metabolism, but computers can occupy entire buildings or cities, and can even be remotely connected across the globe. Of course, the human brain is far more intelligent than any modern computer. But intelligent machines can in principle be constructed by reverse engineering the brain, and improving upon its algorithms." SCHNEIDER, Susan, "Superintelligent AI and the Postbiological cosmos approach." *op. cit.*

This line of reasoning about artificial extraterrestrial intelligent beings would help to explain why we have been unsuccessful in contacting extraterrestrials up to date. "Would extraterrestrial artificial superintelligence be conscious?" In opinion of Professor SCHNEIDER here is the key question: whether extraterrestrial artificial superintelligence is or is not conscious. However, this author seems convinced that the question of machine consciousness is an open question that cannot be solved today:

> "The science fiction treatment of androids may lead us to believe that machines can feel – for instance, consider the Samantha program in the film *Her*, or consider Asimov's robot stories. But this is just science fiction, and the empirical and philosophical question of whether artificial intelligence can be conscious remains open." [20]

All this may well be true and consequently, as Professor SHOSTAK has maintained in the conclusion of the referred 2015 Symposium on Exoplanets, the Search for Extraterrestrial Life and Post-Biological Intelligence:

> "Whether intelligent machines would have any interest in broadcasting (as opposed to point-to-point telemetry) is impossible to know. One metric for intelligence is the ability to foresee danger and avoid it. The cleverest GAI (Generalized Artificial Intelligence), by this measure, might be less concerned about revealing their presence with easily found signals. They might also wish to communicate with other such machines that are largely outside their light cone, as these would have information that they could not obtain otherwise. These considerations offer a few plausible arguments as to where we should look for GAI. However, they promise little in terms of assuring SETI scientists that such machines would have any motive to make themselves known. In the case of biological beings, we can safely assume

[20] SCHNEIDER, Susan, "Superintelligent AI and the Postbiological cosmos approach", *op. cit.*

> the presence of curiosity, as this trait is necessary to divine the laws of nature and build transmitters we could find. But artificial sentience might not share this type of curiosity. Maybe after solving all the puzzles of science, GAI would be happy to indulge itself with endless entertainments – perhaps with Bostrom-like simulations. If they are capable of self-repair (an assumption in all of the above), then it may be that their primary project is to forestall the heat death of the universe and an end to their own existence."[21]

Our approach to the topic, as we have already stated, is that we will consider only extraterrestrial living organisms which are technically and scientifically sufficiently developed in order to be able to create emissions into space[22]. That is, *alive* and *intelligent* extraterrestrial beings. The fundamental argument for our approach –with all criticism it can deserve– is that this definition is the most convenient for our thesis of an Interstellar Law as a *ius gentium* for new world (in the milky way and far beyond). This is so considering the *ius communicationis* as the basis for such Interstellar Law which assume implicitly the idea of an extraterrestrial intelligent civilization. As we will see in Chapter Four, the basis for such Interstellar Law –as *ius gentium* for new worlds upon the *ius communicationis* of different terrestrial and extraterrestrial civilizations is the natural reason or intelligence of us and them to select between two or several possibilities, to realize which possibility is least harmful for us and for them and thus, to preserve and to embrace our life and their life, and that of our species and their species as well.

2. Different evidences of the existence of extraterrestrial life and its implications for this study

It is often said that the interest in radio searching for evidence of extraterrestrial intelligence begun in 1959, thanks to the work of scientists like COCCONI and MORRISON who pointed out that radio

[21] SHOSTAK, Seth, "Thinking outside the SETI Box", in the Symposium entitled 'Exploring Exoplanets: The Search for Extraterrestrial Life and Post-Biological Intelligence', *op. cit.*

[22] FASAN, Ernst, "Legal consequences of ETI detection", *op. cit.,* p. 677.

astronomy instruments gave us the means to detect radio signals from other civilizations over extremely long distances.[23]

However, it is not an overstatement to recall that by the end of the nineteenth century a prize of 100,000 francs was offered to the first person to make contact with extraterrestrial.[24] Since then and up to present, astrobiological searches for extraterrestrial life has encompassed a broad spectrum of scientific research efforts. In general, this multidisciplinary field seeks evidence of life (not necessarily life itself), searching everywhere we can explore, using different scientific methods. At present, the research and exploration can be viewed in three general categories as it has been suggested by Margaret RACE: 1) "SETI" searches for messages from intelligent extraterrestrial civilizations (sentient beings); 2) exploration for extrasolar and/or habitable planets (planetary locations; possible earth-like: atmosphere, evidences of metabolism), and 3) "exobiology" research and missions within the solar system (microbial? Simple, complex, alive, dead, fossil, artificial extraterrestrial life forms?)[25]

The conclusion to which this classification leads is that each category of extraterrestrial search "looks in different locations, using different scientific instruments and methods and gathers different types of evidence and data. Not only are there significant differences in search methods and locations, it is important to recognize that the nature of presumed extraterrestrial life and the scientific meaning of a discovery are likewise quite distinct."[26]

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[23] COCCONI, G. and MORRISON, P., "Searching for Interstellar Communications", *Nature,* 184, 1959, pp. 844-846.

[24] And the prize specifically excluded contact with Martians – that was considered far too easy! As is commented in REES, Martin J., "Post-human evolution on Earth and beyond", in the Symposium entitled 'Exploring Exoplanets: The Search for Extraterrestrial Life and Post-Biological Intelligence', *op. cit.*, available at https://meetings.seti.org/Search_Extraterrestrial_Life_Post_Biological_Intelligence.html Visited the 25 July, 2018.

[25] RACE, Margaret S., "Communicating about the discovery of extraterritorial life: Different searches, different issues", *Acta Astronautica,* 2008, No. 62, pp. 71-72.

[26] *Ibídem.*

It is impossible to accept the existence of extraterrestrial life without evidences. So, for the purpose of our analysis, a number of different categories of extraterrestrial evidences can be envisaged –according to REIJNEN– depending on four possible scenarios for an eventual contact with extraterrestrial intelligent civilization:

a) electromagnetic radiation received from a non-human source has been identified beyond reasonable doubt as a non-natural, i.e., artificial signal;

b) one or more objects are discovered, either on Earth itself or in its immediate neighborhood, which are identified beyond reasonable doubt as being both artificial and non-human, and which contain no living creatures;

c) the Earth is visited by extraterrestrial spaceships with living beings on board;

d) the Earth receives unmistakable and confirmed evidence of the presence on or near it of an alien intelligence that manifests itself in presently unknown and unforeseeable ways.[27]

One may suppose, following this author's reasoning, that for each of these categories of possible contacts, different relevant evidences can be envisaged[28]:

Considering the case of electromagnetic radiation received from a non-human source, it can happen that the source of the signal evidently is at a distance from the Earth which is at least as great as that of the stars in the solar neighborhood, i.e. of the order of 10 light-years. It should be born in mind that the message has been sent a number of years before its reception which is equal to the source

[27] REIJNEN, G. C., "Basic elements of an international terrestrial reply following the detection of a signal from extraterrestrial intelligence", *Acta Astronautica,* 1990, Vol. 21, No. 2, pp. 144.

[28] *Ibídem*. This distinction is relevant in order to the academic debate we will see in following pages about the pros and cons of sending a message previously and afterwards any contact with extraterrestrial intelligent civilization.

distance expressed in light-years, and that the transmission time for a reply message is equally long; it may also happen, nevertheless, that the source of the signal is located somewhere near or within our solar system. In that case, it seems most likely that this source is a non-human artifact (spacecraft) and that, consequently, we are in the situation described in category b) or c);

If an artificial object has been discovered within our solar system, either by direct verifiable observation or by identifying it as the source of a message, all possible efforts should be made to find out whether it contains a crew of living creatures or not, In case it does, we are in the situation of category c). If there is no evidence whatever that the object contains living creatures, efforts should be made by a competent body to find out whether the object arrived at the solar system on purpose or by accident. Depending on the outcome of these investigations, appropriate steps should be taken as mentioned in "a)".

If the solar system in general or the Earth in particular is visited by extraterrestrial spaceships and if it is evident that living intelligent creatures are on board these spaceships, it seems obvious that it is of vital importance that the behavior of the ships and their inhabitants be closely monitored. Unless it is unmistakably clear that the spaceships are on a hostile mission, every possibility of a hostile action on the part of the Earth should be carefully avoided. Any contact that might be sought by the ship crew should be considered by a competent and responsible international body;

In the final scenario –the Earth receiving unmistakable and confirmed evidence of the presence on or near it of an alien intelligence that manifests itself in presently unknown and unforeseeable ways– the only possibility seems to be to react as seems fit, in the spirit as indicated under "c".

SETI searches seek some electromagnetic transmission that is manifestly artificial. But even if the search succeeded it would still be unlikely that the 'signal' would be a decodable message. In opinion of authors like REES, it would more likely represent a byproduct (or even a malfunction) of some super-complex machine far beyond our comprehension that could trace its lineage back to alien organic beings (which might still exist on their home planet, or might long ago have

died out). Furthermore, according to REES, even if intelligence were widespread in the cosmos, we may only ever recognize a small and atypical fraction of it. In his words:

> "Some 'brains' may package reality in a fashion that we can't conceive. Others could be living contemplative lives, perhaps deep under some planetary ocean, doing nothing to reveal their presence. It makes sense to focus searches first on Earth-like planets orbiting long-lived stars. But science fiction authors remind us that there are more exotic alternatives. In particular, the habit of referring to ET as an 'alien civilization' may be too restrictive. A 'civilization' connotes a society of individuals: in contrast, ET might be a single integrated intelligence. Even if signals were being transmitted, we may not recognize them as artificial because we may not know how to decode them. A radio engineer familiar only with amplitude-modulation might have a hard time decoding modern wireless communications. Indeed, compression techniques aim to make the signal as close to noise as possible – insofar as a signal is predictable, there's scope for more compression.[29]

The focus of the 'Breakthrough Listen' project is on the radio and optical parts of the spectrum. But of course, in our state of ignorance about what might be out there, we should clearly encourage searches in all wavebands (e.g. the X-ray band) and also be alert for artefacts and other evidence of non-natural phenomena.[30] Thus, as Martin REES concludes:

> "The pace of technological advance on Earth is such that post-humans –whether organic, cyborg or entirely inorganic– could emerge within a few centuries (or indeed within a single century). In the billions of years lying ahead, such

[29] REES, Martin J., "Post-human evolution on Earth and beyond", *op. cit.*, available at https://meetings.seti.org/Search_Extraterrestrial_Life_Post_Biological_Intelligence.html Visited the 25 July, 2018.

[30] REES, Martin J., "Post-human evolution on Earth and beyond", *op. cit.*

> entities, continuing to evolve not through natural selection but on the (far faster) timescale of technological evolution could spread through the cosmos (in a manner whose details we manifestly cannot even conceive). If advanced life had emerged on other planets, and followed a similar evolutionary track to what has happened on Earth, then the era of 'organic' intelligence will be a thin sliver of time compared to the far longer post-human era dominated by 'machines'. This suggests that, if SETI succeeded, the most likely source of any artificial emissions would be unlikely to come from anything resembling the 'organic' civilization that prevails on Earth."[31]

Consequently, there cannot be any doubt, considering SETI (search for extraterrestrial intelligent beings) and METI (sending a message to an extraterrestrial civilization after having been contacted by them or in their reply to our search), that we face a multi-face issue demanding a multilateral approach. As far as we are concerned in this monography, we will self-restrain to the juridical aspects.

The thesis we defend here is that communication with extraterrestrial intelligent beings should be considered a matter of interest by the International Law of Outer Space. This should be so not only due to the fact that neither in the Declarations of the United Nations nor in the different treaties on outer space elaborated up to date, an express limitation has been included to the scope of application of International Law to these specific activities in the space (and the general rule is that everything which is not prohibited is allowed). It must be taken for granted, in particular, that communication with extraterrestrial civilization cannot be considered an internal matter of each State (regulated by domestic norms), but an issue for general concern of the international community of States (as expression of an *ius communicationis* of the mankind).

[31] REES, Martin J., "Post-human evolution on Earth and beyond", *op. cit.* See also: SIVARAM C., ARUN Kenath and KIREN, O. V., "Alternative standard frequencies for interstellar communication", *International Journal of Astrobiology,* 2017, https://doi.org/10.1017/S1473550417000350

From this premise, in following Chapters we need to focus our attention to the question regarding the existing debate about the current legal regime for Outer Space –created during the extinct Cold War– in order to see whether such regime would be valid for managing communication with extraterrestrial civilization as expression of an *ius communicationis* of humankind. After an analysis in Chapter 2 on the permanencies and changes in the International Law of Outer Space for XXI Century, we defend in Chapters 3 and 4 what is our proposal for an Interstellar Law, as *ius gentium* for new worlds based in the classic Works of the School of Salamanca (Vitoria, Suárez) updated to present.

In this proposal of Interstellar Law we assume a strategy to short and long term for the eventual discover of an extraterrestrial intelligent civilization which enter in contact with Earth. From the outset, we assume the necessity to enforce as legally binding those Declarations of *soft law* concerning activities following the detection of extraterrestrial intelligence and concerning the sending of communication to an extraterrestrial intelligence. Considering the different possible options for this purpose-namely, a multilateral agreement legally binding for all States representing the whole international community- our preference is a Declaration adopted by consensus in the General Assembly of United Nations as a starting point for a process of progressive crystallization as customary law of the basis for such Interstellar Law.

As far as the long term strategy is concerned, in addition a new topic could be included in the agenda of the International Law Commission: what principles of General International Law are applicable to the exploration of Outer Space and, especially, to communication with extraterrestrial intelligent beings. The COPOUS[32] should become an Independent Organization of the UNOOSA[33], as the UNCTAD[34] once was. Its founding treaty must include

[32] COPOUS is the Committee on the Peaceful Uses of Outer Space (http://www.unoosa.org/oosa/en/ourwork/copuos/current.html)

[33] UNOOSA is the United Nations Office for Outer Space Affairs (http://www.unoosa.org/oosa/en/aboutus/index.html)

[34] UNCTAD is United Nations Conference on Trade and Development, a permanent intergovernmental body established by the United Nations General Assembly in 1964. Its headquarters are located in Geneva, Switzerland, and it has offices in New

(...)

representatives of governments, companies and individuals (scientific community) as foreseen in the founding Treaty of the International Labor Organization created in 1919. This forum –in collaboration with existing bodies currently occupied with Outer Space– could be the more suitable for developing the *ius communicationis* of the humankind. Thus, the Interstellar Law we propose, looking back to the Spanish classical school of International Law, can be seen as *ius gentium* for new worlds.

York and Addis Ababa. UNCTAD is part of the UN Secretariat and although it reports to the UN General Assembly and the Economic and Social Council, it has its own membership, leadership, and budget. (http://unctad.org/en/Pages/aboutus.aspx)

CHAPTER ONE. THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENT BEINGS

1. The Post Copernicus Revolution

A useful starting point for this study is remembering that one of the most common questions human beings have posed themselves, across cultures since the beginning of time, has been whether they are alone in the Universe. And if not, who are the others and where are their homelands? Furthermore, is it possible that *these others* could contact us (or they have already contacted us) with or without our knowledge? Nowadays everyone agrees that the investigations loading to a possible answer to these questions can be divided in two parts, the one preceding the other, as REIJNEN has pointed out: a scientific part and a philosophical one. The order of the division is based on the assumption that the first contact with extraterrestrial intelligent beings will most probably take place through advanced scientific instruments. In our opinion, it is only after a possible contact with extraterrestrial intelligent beings has been established that philosophical, social and legal implications may play a role.[35] It is not an overstatement to say we face the post Copernicus revolution: similarly the Earth was probed not to be the center of the universe, the human beings are not central in essence.[36]

Science is making enormous strides today and fictional Literature is benefiting in the exploitation of new stories for an audience and readers increasingly interested in these issues. As a matter of example, one can consider with GANGALE, the dramatic television series *Star*

[35] REIJNEN, G. C., "Basic elements of an international terrestrial reply following the detection of a signal from extraterrestrial intelligence", *op. cit.,* p. 143.

[36] PINOTTI, R., "Contact: releasing the news", *Acta Astronautica*, 1990, Vol. 21, p. 109.

Trek: The New Generation. In one of its episodes titled "The Measure of a Man", the question under exam is whether an android has the same rights of legal personality as any organic sentient being (and for the purposes of our study, the question is extensible to any extraterrestrial intelligent being). Summing up his case for the android Data, starship Captain Jean-Luc Picard declared to the judge:

> "The decision you reach today will determine how we will regard this creation of our genius. It will reveal the kind of a people we are, what he is destined to be. It will reach far beyond this courtroom and this one android. It could significantly redefine the boundaries of personal liberty and freedom, expanding them for some, savagely curtailing them for others. Are you prepared to condemn him and all who come after him to servitude and slavery? Your honor, Starfleet was founded to seek out new life. Well, there it sits… waiting. You wanted a chance to make law, well here it is. Make it a good one."[37]

As Thomas GANGALE concludes from this example, "so the stage is set, not for a futuristic, cosmic morality play, but for a serious inquiry into what moral and legal principles we will carry into the future and into the cosmos."[38]

Extraterrestrial life and intelligence have always been fascinating topics on the speculative fringe of science. But in the last decade or two, serious advances on several fronts have generated wider interest in these subjects, especially in four areas highlighted by Martin REES:

i. The discovery and study of exoplanets began only 20 years ago. It is now one of the most vibrant frontiers of science. Data are accumulating at an accelerating rate; we

[37] GANGALE, Thomas, *The Development of Outer Space. Sovereignty and Property Rights in International Space Law,* Praeger, Santa Barbara, 2009, p. xiii. See further on this topic: WRIGHT, Jason T. and OMAN-REAGAN, Michael P., "Visions of human futures in Space and SETI", *International Journal of Astrobiology*, 2018, Vol. 17, No. 2, pp. 177-188.

[38] *Ibídem.*

can confidently assert that there are billions of Earth-like planets in our Galaxy; it is not premature to seek evidence that some have biospheres

ii. There has been substantial recent progress in understanding the origin of life. It's been clear for decades that the transition from complex chemistry to the first entities that could be described as 'living' poses one of the crucial problems in the whole of science. But until recently, people shied away from it, regarding it as neither timely nor tractable. In contrast, numerous distinguished scientists are now committed to this challenge.

iii. Advances in computational power and robotics have led to growing interest in the possibility that 'artificial intelligence' (AI) could in the coming decades achieve (and exceed) human capabilities over a wider range of conceptual and physical tasks. This has stimulated discussions of the nature of consciousness (is it an 'emergent' property or something more special?), and further speculation by ethicists and philosophers on what forms of inorganic intelligence might be created by us – or might already exist in the cosmos – and how humans might relate to them.

iv. In the coming years there will be expanded and better-resourced efforts to search for ET; these will focus wider interest on the subject and thereby generate new ideas.[39]

The search for intelligent extraterrestrial life (SETI)[40] is officially started 1 February, 1985. Chances of discovering something are similar to those of being discovered by extraterrestrial intelligent beings, that is, very low due to technical limitation of communication via electromagnetic radiation and the obstacle of not sharing an "interstellar language". One of the problems such a searching poses is that communication via electromagnetic radiation is limited by the time

[39] REES, Martin J., "Post-human evolution on Earth and beyond", *op. cit.*

[40] https://www.seti.org/ Last visited 1st August 2018.

required for a signal to reach its destination, even if travelling at the light speed, considering the astronomical distances where communication with extraterrestrial intelligent beings could occur. As a matter of fact, they could have detected our early signals sent decades ago without us realizing it. Furthermore, even a superficial look at this issue reveals, according to Seth BAUM and others that "our option for communication via electromagnetic radiation may be a complete waste of time and resources if extraterrestrial intelligent beings do not use it and instead, they prefer –because they have discovered– a different and more efficient way of communicating at astronomical distances."[41] As far as the need for an interstellar language, authors coincide in the fact that even if humanity can successfully exchange signals with extraterrestrial intelligent beings, there is no guarantee that the information will be successfully communicated, because "in order for information to be exchanged, it is also necessary that humans and extraterrestrial intelligent beings understand the contents of each other messages.[42] However, there is a maxim to recall: "Absence of evidence isn't evidence of absence".[43]

We must raise the question of the huge increase in telecommunications satellites is also threatening the future of radio astronomy. These satellite transponders broadcast signals millions of time stronger that the faint cosmic whispers received by radio telescopes. To put into context the difference in magnitude, the International Academy of Astronauts (IAA) points out that if a single mobile phone were placed on the Moon, it would be among the four brightest sources in the radio sky. The strength of the transmissions currently being sent by communications satellites is such that

[41] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity?" *op. cit.,* p. 2116.

[42] *Ibídem*. As these authors think, "our extreme ignorance about the nature of any ETI means that we cannot rule out the possibility that we will fail or at least severely struggle to exchange information with them."

[43] REES, Martin J., "Post-human evolution on Earth and beyond", *op. cit.*

"spillover" into adjacent frequency band is inevitable and growing enormously.[44]

Among the solutions that have been put forward, the most interesting from a legal standpoint is the introduction of a system of "radio quiet zones" (RQZs). The RQZs would be designated areas of the Earth where satellite communications signals would be kept to tolerable levels, compatible with radio astronomy observations. Such an approach would require a large amount of international cooperation and regulation, quite possibly involving the drafting of a new treaty or protocol. The International Telecommunication Union at present lacks the jurisdiction to implement such a proposal.[45]

Scientific exploration has always been of importance to space exploration, and space law contains specific reference to the need of science, most notably through Article 1 of the Outer Space Treaty[46]. However, legal developments in years will be critical for the future of astronomy and basic space science. With the increasing commercialization of the space industry, the interests of space scientists will require protection through legal instruments. Their

[44] SWAMINATHAN, Sriram, "Making space law relevant to basic space science in the commercial space age", *Space Policy,* 2005, Vol. 21, p. 261.

[45] SWAMINATHAN, Sriram, "Making space law relevant to basic space science in the commercial space age", *op. cit.,* p. 261.

[46] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, signed at Washington, London and Moscow, January 27, 1967: Article 1. "The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind. Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all states without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies. *There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and states shall facilitate and encourage international co-operation in such investigation.*" (Cursive is added)

interests are to a certain extent incompatible with those of commercial space enterprises.[47]

One cannot let pass without commenting that a simple private researcher at home, with low-cost electronical systems might well send and receive messages into and from outer space, furthermore, huge private enterprises. It would not be an exaggeration to say, as Patricia STERNS recalls, that "the temptation to reply a message received from an extraterrestrial intelligent being may be too great to resist. The prospects of engaging in a dialog with intelligent beings from another part of the universe are too fantastic to dismiss. At the very least, sufficiently sophisticated broadcast equipment is available to various groups and individuals to enable them to send messages, even if such activities are conducted clandestinely or contrary to local laws and regulations."[48] One of the main features of the problem is that States could not ban physically nor legally such actions, even though Resolutions adopted by the General Assembly of United Nation as regards activities in outer space by non-governmental entities. It is the case, for example, of Resolution 68/74, adopted by the General Assembly of United Nations on 11 December 2013, where it can be read:

> "Observing that, in view of the increasing participation of non-governmental entities in space activities, appropriate action at the national level is needed, in particular with respect to the authorization and supervision of non-governmental space activities."[49]

[47] SWAMINATHAN, Sriram, "Making space law relevant to basic space science in the commercial space age", *op. cit.,* p. 265.

[48] STERNS, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *Acta Astronautica,* 2000, Vol. 46, No. 10-12, p. 762. For such reason, this author concluded "Thus, to avoid renegade reaction, an international agreement or treaty should include appropriate provisions by which a global response can be formulated."

[49] Resolution 68/74, adopted by the General Assembly of United Nations on 11 December 2013, 5th Paragraph, Preamble.

See also the 9th Paragraph in the Preamble of the same Resolution where a clear reference to subordination of private entities to International Law through domestic dispositions is included:

> "Recognizing the different approaches taken by States in dealing with various aspects of national space activities, namely by means of unified acts or a combination of natural legal instruments, and noting that States, having adapted their national legal frameworks according to their specific needs and practical considerations and that national legal requirements depend to a high degree on the range of space activities conducted and the level of involvement of non-governmental entities (…) *3. Space activities should require authorization by a competent national authority… 4. The conditions for authorization should be consistent with the international obligations of States, in particular under the United Nations treaties on outer space, and with other relevant instruments*, and may reflect the national security and foreign policy interests of States." (Cursive is added)

So, why States still seem reluctant to regulate SETI and METI in benefit of mankind? Over and above all these considerations, it remains true that as soon the door would be open to entities which are not States for playing a role in this exotic area of International law of space, the next step would be they questioning the States' reasons for preventing these non-governmental entities from participating in other areas of interest in the outer space, namely the exploration and exploitation of its resources. It follows from this reasoning that searching extraterrestrial intelligent beings is not being duly considered under International Law of Outer Space for political reasons which are external the own idea of contacting extraterrestrial civilizations on behalf of humankind.

It is often said that SETI needs to be examined in the light of the idea that extraterrestrial intelligence implies the notion of a civilization. See, at this regard, Principle I of the draft *Declaration of principles*

concerning the sending of communication[50], which refers to "extraterrestrial civilizations" instead of "extraterrestrial intelligence"- and, consequently, considers relations as "a new dimension for human relations."[51] In this monography we are only going to tackle extraterrestrial intelligent beings in the grade of extraterrestrial civilization ready to contact or being contacted by other civilizations in the universe, like the human beings as species.

To start with, we should consider that, following to BAUM, HAQQ-MISRA and GOLDMAN, at present is not possible to deny the possibilities for one or more extraterrestrial intelligent life exists in the Milky Way. Similarly, no one can dismiss any future possibility of detecting, of communicating or of contacting them somehow.[52] However, at the same time, as we engage in outer space communications, it is open to question whether, by passively listening or actively transmitting, "we must remain mindful of the tremendous challenges we face when attempting to comprehend forms of intelligence that evolved independently in potentially quite different environment from our own, and with whom we are constrained to communicate through electromagnetic radiation at interstellar distance and not by direct contact."[53]

This assumption we share in this study is important for developing the thesis we defend here of considering SETI (searching for extraterrestrial intelligent beings) and METI (sending messages to extraterrestrial intelligent beings) as *ius communicationis* of humankind to be regulated by a new paradigm of International Law of Outer Space (Interstellar Law we develop in Chapter Four).

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[50] Disponible en http://www.coseti.org/setiprot.htm Visited 1st August 2018.

[51] COCCA, Aldo Armando, "Legal science as catalyzer of SETI Science, Engineering and Operations", *Acta Astronautica,* 1998, Vol. 42, No. 10-12, p. 671.

[52] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? A scenario analysis", *op. cit.,* p. 2114.

[53] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *Acta Astronautica,* 2011, Vol. 68, p. 513.

We live in a world in which History provides numerous examples of unexpected discoveries made by single individuals provoking an unmeasurable advance for humankind (think of Newton's apple). Astronomers around the world were astonished in 2016 as a consequence of the revelation of a Russian radio telescope having detected a strong signal of unknown origin, coming from the direction of the star HD164595, a sun-like star in Hercules constellation. Although it was originally detected in May 2015, Russian researchers first report about such signal was not until August 2016 (more than a year afterwards). Such a signal's strength was consistent with something extraterrestrial, although many researchers hesitated to put any weight on that discovery, mainly due to the fact that this strong signal could not be replicated in the above forty scans that passed over that star. Furthermore, the signal's frequency was the same band as that allocated to Russian military use and this State later recognized the signal having been originated from one of his secret military satellite not yet registered into the catalog of celestial bodies.[54]

Agreeing with Melissa KEECH, the 2016 signal incident is a good example with some important lessons to extract from it: "While Russia's discovery seems to be of terrestrial origin, researchers like the SETI Institute and astronomers across the globe continue to scan the skies for signs of life. Should these signals become verified in the future, it seems *space law* should expand to include *Interstellar Law*. As our technology advances, our law should be prepared to respond to the new scientific findings."[55]

2. The efforts of searching extraterrestrial intelligent beings

As it has already commented, in 1959, Giuseppe COCCONI and Philip MORRISON, noting the existence of powerful radio telescopes, proposed that a search be made at frequencies near the hydrogen line

[54] KEECH, Melissa, "Strong signals from space: what does it mean for international law", *The Georgetown Law Technology Review*, Fall, 2016, Vol. 1, Issue 1, pp. 188-189.

[55] KEECH, Melissa, "Strong signals from space: what does it mean for international law", *op. cit.*, p. 191.

(21 centimeters)[56]. One year later, another radio astronomer, Frank DRAKE, carried out the first search using a radio telescope. Since then, many other searches –all of them unsuccessful– have been carried out.

The signal we detect could range from a simple carrier wave conveying little information to a message rich in information. The signal could have been transmitted to attract the attention of other civilizations, or we might "overhear" internal communications of the other civilization. In either case, we would know for the first time that we are not alone.

The Institute for Searching Intelligent Extraterrestrial Life (SETI)[57], operating in California (U.S.A.) is searching for signals of extraterrestrial life since 1 February, 1985. Chances of discovering something are similar to those of being discovered by extraterrestrial intelligent beings, that is, very low due to technical limitation of communication via electromagnetic radiation and the obstacle of not sharing an "interstellar language". The search of extraterrestrial intelligence using electromagnetic waves is mostly conducted at frequencies between 1400 and 1700 MHz, corresponding –as we have just said– to wave-lengths between 21 and 18 cm, the so called "water hole". The reason why such a frequency is the most convenient for searching extraterrestrial intelligent beings, as Ben REIJNEN recalls, is due to the fact that in the frequency band between 1400 and 1700 MHz the background noise level reaches a minimum. In this sense, the "water hole" is as unique to SETI as is, mutatis mutandis, the geostationary orbit for telecommunication purposes.[58]

As far the former, communication via electromagnetic radiation is limited by the time required for a signal to reach its destination, even if travelling at the light speed, considering the astronomical distances

[56] COCCONI, G. and MORRISON, P., "Searching for Interstellar Communications", *op. cit.,* pp. 844-846.

[57] https://www.seti.org/ Last visited 1st August 2018.

[58] REIJNEN, Bess, "The Nations United in the scientific and political debate of the search for extraterrestrial intelligence (SETI)", *Acta Astronautica,* 1998, Vol. 42, No. 10-12, p. 667.

where communication with extraterrestrial intelligent beings could occur. In fact, they could have detected our early signals sent decades ago without us realizing it. Furthermore, our option for communication via electromagnetic radiation may be a complete waste of time and resources if extraterrestrial intelligent beings do not use it and instead, they prefer –because they have discovered– a different and more efficient- way of communicating at astronomical distances.[59] As far as the need for an interstellar language, authors coincide in the fact that even if humanity can successfully exchange signals with extraterrestrial intelligent beings, there is no guarantee that the information will be successfully communicated, because "in order for information to be exchanged, it is also necessary that humans and extraterrestrial intelligent beings understand the contents of each other messages.[60]

Even though there are some technical challenges for SETI, there is a widespread attitude nowadays that communicating with extraterrestrial intelligent beings is only a matter of time. For this event being accelerated, some authors do research in the application of information theory to animal communication systems with the goal of developing additional detectors and estimators for possible extraterrestrial intelligent signals. Regardless of the species, for intelligence (i.e. complex knowledge) to be transmitted certain rules of information theory must still be obeyed.[61]

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[59] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.,* p. 2116.

[60] *Ibídem.* As these authors think, "our extreme ignorance about the nature of any ETI means that we cannot rule out the possibility that we will fail or at least severely struggle to exchange information with them."

[61] DOYLE, Laurance *et al.*, "Information theory, animal communication, and the search for extraterrestrial intelligence", *Acta Astronautica,* 2011, No. 68, pp. 406-417, at p. 406. These researchers share the common belief that the study of non-human communication systems in our planet (e.g. complex marine mammal species like bottlenose dolphins and humpback whales) may contribute to the detection of extraterrestrial intelligence by providing quantitative general measures of communicative complexity. They are convinced that: "Studying the complex communication systems of other intelligent species on our own planet may also be

(...)

It is interesting to note how any signal detected on Earth can immediately reveal two key facts, the direction from which it arrives and the frequency at which it was broadcasted. Furthermore, the strength of the arriving signal and its detailed characteristics will tell us much about the technological capabilities of the broadcasters, and the frequency dispersion caused by its passage through interstellar space will provide a good indication of the distance it has travelled. Thus, even before the message content can be determined, we shall be in possession of facts sufficient to allow a reply to be sent with a high probability of detection (always assuming the sending civilization lasts long enough to keep listening for replies.[62] And it is not only a matter of Governments alone.

While the scientific and technological sophistication of these searches has grown in recent years, the central strategy of extraterrestrial intelligent beings remains to listen. However, proposals also have been made to send our own signals in the hope that they will be detected by another civilization and will generate a response.

We must not lose sight of the fact that communications implies active (sending METI) and passive (listening signals from ETI) and replying (answering eventual METI), any of these dimension posing a debate and challenges for International Law of Space which can be summarized in allowing, banning or regulating each phase of that communication with extraterrestrial intelligent beings. Increases in SETI efforts have, quite understandably, not been matched by a corresponding attentiveness to the message(s) that might be broadcast from Earth once the reception of an extraterrestrial signal has been confirmed. As Donald GOLDSMITH has maintained, this might be taken to represent i) a lack of confidence that SETI will succeed, ii) a lack of interest in two-way communication, given the long travel time for messages, or iii) a conservative approach to the issue, one that finds

one of the best ways to deprovincialize our thinking about extraterrestrial communication systems in general."

[62] GOLDSMITH, Donald, "Who will speak for Earth? Possible structures for shaping a response to a signal detected from an extraterrestrial civilization", *Acta Astronautica*, 1990, Vol. 21, No. 2, p. 149.

no need to determine the content of a reply until we have a confirmed signal.[63]

At the end of the day, it must be acknowledged that there are no guidelines for preparing a message to extraterrestrial intelligent beings (METI) specifically before detection. METI attempts to date have occurred without significant international consultation, using different encoding schemes, some of which are not likely to be intelligible to any watchers. It would be impossible to enforce a ban on any and all transmissions into space, but any large-scale efforts at METI would be responsible for how they represent humanity to any watchers. For this reason, some authors like Jacob HAQQ-MISRA have emphasized the convenience for developing a METI protocol "to facilitate transmission strategy and standardize message composition. In practice, the decision to engage in large-scale METI may rest upon wealthy individuals or corporations with the motivation to pay for the power and technology." [64]

To make some reservations to that proposal, other authors like Douglas VACOCH has commented that:

> "While there are certainly benefits of sending a message about which there is a broad-based consensus, achieving absolute unanimity about message form and content could also be constraining and inhibiting to a fruitful exchange between human and extraterrestrial civilizations. Instead, a message that emphasizes differences of opinion –both about the appropriate content domains and the specific accounts that are given in each of these domains– could enrich and actually better reflect the nature of human understanding at this point in our development as a civilization."[65]

[63] GOLDSMITH, Donald, "Who will speak for Earth? Possible structures for shaping a response to a signal detected from an extraterrestrial civilization", *op. cit.,* p. 149.

[64] HAQQ-MISRA, Jacob *et al.,* "The benefits and harm of transmitting into space", *Space Policy,* 2013, Vol. 29, p. 47.

[65] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 514.

The objection to this argument could be that if a message is restricted to only the content about which there is universal consensus, the resulting message would provide a very impoverished –and perhaps brief– representation of human concerns.[66] Other factor that should be taken into account is that, even if we were to achieve widespread consensus about any messages we transmit, it is by no means certain that an extraterrestrial interlocutor would automatically assume that a message from Earth was sent on behalf of all humankind. Furthermore, although we commonly imagine that an advanced extraterrestrial intelligence will have a unified civilization, perhaps they would be familiar with diverse cultures because such are represented on their own worlds.[67]

3. Some possible scenarios after the SETI being successful or we being contacted by extraterrestrial civilizations

Considering the challenges ahead of searching for extraterrestrial intelligent beings, it is to be noted that extraterrestrial intelligence implies the notion of a civilization –see Principle I of the draft Declaration of principles concerning the sending of communication, which refers to "extraterrestrial civilizations" instead of "extraterrestrial intelligence"– and, consequently, relations, "a new dimension for human relations."[68]

Several years ago, the SETI Committee of the International Academy of Astronauts began discussing the question of what Humankind should do after detection. The discussions led to the formulation of a "Declaration of Principles Concerning Activities Following the Detection of Extraterrestrial Intelligence". This document, which was intended for voluntary agreement among researchers, has been endorsed by some international space and

[66] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 515.

[67] *Ibídem.*

[68] COCCA, Aldo Armando, "Legal science as catalyzer of SETI Science, Engineering and Operations", *op. cit.,* p. 671.

astronomy organizations[69]. While most of the principles in the Declaration deal with the dissemination of knowledge of the discovery, one principle deals with the question of sending a communication in response to the discovery.

The consequences of discovering extraterrestrial intelligent civilizations can usefully be divided into near term and long term. The first refer to those months and years immediately after the event, and the second to the indefinite future. Some short term questions (what do you do after detecting a signal?) have been considered and have already led to the SETI "post-detection protocols". It is interesting to note with BILLINGHAM, that, in comparative terms, little attention has been paid to the longer term questions which deal in a broad way with the effects the discovery will have on the future of our own civilization.[70]

This author seems totally convincing when he argues that, nevertheless the detection of extraterrestrial intelligence could take many forms, being unpredictable the exact scenario of such detection, the same questions would arise: Should the human species send a message to the extraterrestrial civilization? Who decides? Are there reasons why Humankind should not reply? Who decides? If we decide to reply, what should be said? Again, who decides?[71] These questions lead top others. Should humanity respond as a unit, rather than as separate nations and organizations? Should we attempt to design a generic response, or await the circumstances of the detection before drafting a more specific response? Can we design a reply without a signal to analyze? Moreover, BILLINGHAM's opinion is that a transmission from them that we detect could vary all the way from a continuous wave carrier signal to a very complex message. So, in his own words:

[69] Namely the International Academy of Astronautics (IAA), a non-governmental organization founded in 1960 and recognized by the United Nations. Its URL is https://www.iaaweb.org/

[70] BILLINGHAM, J., "Cultural aspects of the search for extraterrestrial intelligence", *Acta Astronautica,* 1998, Vol. 42, No. 10-12, p. 711.

[71] BILLINGHAM, J., "Cultural aspects of the search for extraterrestrial intelligence", *op. cit.*, p. 716.

> "The decision as to whether or not to reply and the decision on the content of our message will depend to a considerable degree on the nature of their signal. It might be argued that it is fruitless at this time to even think about the content of our message in view of this unknown. However, it might be useful to assume, for example, that their signal has no message but is indisputably generated by a radio transmitter. What would we do if we detected their interplanetary radar?"[72]

It is not an overstatement to say that most authors dealing with issues concerning pre and post detection of extraterrestrial intelligent beings self-restraint themselves under anthropocentric basis, to consider only its impact on the human beings, not on the extraterrestrial, even if some of them feel strongly that consideration of impacts to nonhumans represent an important area for future work.[73]

It is commonly assumed that a "standard galactic protocol" for information exchange should recognize our asymmetrical listen-only strategy as a consequence of our asymmetrical position amongst galactic civilizations. In short, the most advanced civilizations as having the role of transmitting and the less advanced civilization bearing the burden of listening.[74] What is not so clear, however, is whether the advanced civilizations will feel the responsibility to take on this burden. After all, as Douglas VACOCH reminds:

> "We see cases on our planet of cultures that provides benefits for individuals within their own culture, but they do not place much emphasis on providing for the well-being for individuals in other cultures. Perhaps this assumption really reflects our ethical assumption that if a civilization has the

[72] *Ibídem.*

[73] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.,* p. 2127.

[74] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 516.

> resources to transmit messages for our benefit, it should transmit messages."[75]

Thus, the first major argument we must confront, according to VACOCH –whether extraterrestrials will feel themselves bound by comparable ethical guidelines– is that we have no direct knowledge of such putative beings. From the perspective of an extraterrestrial's ethical system, perhaps it is the younger civilization –which arguably has the most to gain from an interstellar exchange– who should be expected to take on the burden of transmitting. Rather than benevolent transmitting, more advanced civilizations may instead be selective in deciding to whom they will reply. It is unlikely that a young civilization may have a galactic right to intercept transmissions from other civilizations simply by virtue of its youth. Moreover, there is a chance that such a young civilization may need to earn the knowledge that other civilization exist by first showing that they are willing to transmit message of their own.[76]

It is a fact that cannot be ignored –as many authors have considered– that humankind might benefit from joining a "Galactic Club" of other civilizations. Nevertheless, few of these authors have suggested that humankind should be expected to pay dues to join, or that we should consider the needs and interest of other members of the club. The result of our uncertainty about extraterrestrial motivations and "galactic protocols" for first contact will be that passive searchers may be met with silence, even if the galaxy is teeming with intelligent life capable of communicating at interstellar distances.[77]

It is as well to remind ourselves that the most optimistic scenario after successful contact with extraterrestrial intelligent beings would be that of benefits for humankind, even if –like some authors have for granted– "we receive no more than a simple greeting or passive artifact

[75] *Ibídem.*

[76] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 516.

[77] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 518.

from a distant extraterrestrial intelligent civilization, it will at least tell us that human-like technology to broadcast across space have been invented elsewhere. Advanced extraterrestrial intelligent beings may have little or no interest in a society as primitive as Earth, but if they do knowledge our presence and initiate communication then even this knowledge will benefit humanity."[78] Thus, departing from the mere detection, the next step would be cooperation if conditions for communication among us and them are granted. In fact, this implies simultaneously two things: the "usefulness of extraterrestrial intelligent knowledge, combined with the willingness of extraterrestrial intelligent beings to employ it on our behalf." [79]

Another way of looking at this question is to consider, as a second possible scenario after contacting extraterrestrial intelligent beings, that fact as being neutral for us in two ways: absolutely no impact at all, which could only be possible if they are those contacting us and, afterwards, remaining invisible to us, or having impact which is neutral, that is not interfering in a positive or negative way.[80] Finally, a different facet of contacting extraterrestrial intelligent beings for humankind would obviously be the harm for human beings.

In order to understand this third possible scenario, one can follow authors like BAUM, HAQQ-MISRA and DOMAGAL-GOODMAN, who distinguish between three different kind of harmful scenarios to humanity: the first one involves hostile, selfish extraterrestrial intelligent beings that attack us to maximize their own success. The second possible harmful scenario is that where unintentional damage is caused by extraterrestrial intelligent beings, bringing humankind some kind of physical hazard, such as a disease or an invasive species.[81]

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[78] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? A scenario analysis", *op. cit.,* p. 2119.

[79] *Ibidem.*

[80] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.,* p. 2120.

[81] *Ibídem.*

The third scenario involves extraterrestrial intelligent beings that are in no way selfish but instead follow some sort of universalist ethical framework. In that case, an attack from extraterrestrial intelligent beings would be motivated by a universalist desire to make the galaxy a better place. Ironically, these authors consider this late scenario the most plausible when they suggest being cautious when sending messages to space:

> "The possibility of harmful contact with extraterrestrial intelligent beings suggests that we may use some caution for METI. Given that we have already altered our environment in ways that may viewed as unethical by universalist extraterrestrial intelligent beings, it may be prudent to avoid sending any message that shows evidence of our negative environmental impact. The chemical composition of Earth's atmosphere over recent time may be a poor choice for a message because it would show a rapid accumulation of carbon dioxide from human activity. Likewise, any message that indicates a widespread loss of biodiversity or rapid rates of expansion may be dangerous if received by such universalist extraterrestrial intelligent beings. On the other hand, advanced extraterrestrial intelligent beings may already know about our rapid environmental impact by listening to leaked electromagnetic signals or observing changes in Earth's spectral signature. In this case, it might be prudent for any message we send to avoid denying our environmental impact so as to avoid the extraterrestrial intelligent beings catching us in a lie." [82]

The most relevant conclusion one can make up from this open scenarios, as BAUM, HAQQ-MISRA and DOMAGAL-GOLDMAN assert, is that "extraterrestrial intelligent beings contact could proceed in a wide range of ways. It is inappropriate and inadequate to blindly

[82] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.,* p. 2124.

assume that one specific scenario would result from contact. Until such contact occurs, we simply do not know what would happen." [83]

4. The SETI and METI as *ius communicationis* of the humankind

Professor Mireille COUSTON has analyzed different opinions on the content of the wording "for the benefit and the Interest of all" and found three general kinds of duties:

— The duty of not misusing outer space resources, in order not to harm the space activities of other countries;

— The duty of not developing outer space activities to the detriment of other countries;

— The duty of not using outer space only for the benefit of space powers and also of behaving with responsibility vis-à-vis the other members of the international community. [84]

In a strict sense, States are the ones which according to the OST exercise the right of exploration and use of outer space. However, where the beneficiaries of these rights are concerned, there is no doubt that they are the whole of mankind[85]. Consequently, we consider that a realistic and honest vision of those activities, should harmoniously combine three essential pillars: the interest of States that have openly advanced in space race, those of the States which have not achieved this and those of mankind, considered as a whole, where all meet again and blend in an inevitable conjunction. [86]

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[83] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.,* p. 2126.

[84] COUSTOM, Mireille, *Droit spatial économique. Régimes applicable à l'exploitation de l'espasce,* Sides, Paris, 1994, p. 30, Cited in MONSERRAT FILHO, José, "Private, state and international public interests in space law", *Space Policy,* 1996, Vol. 12, No. 1, p. 64.

[85] GAGGERO, Eduardo D., "New roles in space for the 21st century: a Uruguayan view", *Space Policy,* 2003, Vol. 19, p. 206.

[86] GAGGERO, Eduardo D., "New roles in space for the 21st century: a Uruguayan view", *op. cit.,* p. 207.

Technically, nothing prevents us from considering humankind as subject of law. International Law is a set of legal norms binding sovereign States and other entities whose international legal personality has been given or recognized by treaties or by customary law. We consider that the creation of an international organization to manage outer space affairs is of fundamental importance, as it will raise the legal objections against giving personality to an ideal entity.[87]

Some author has clearly seen the *ius communicationis* of humankind in the same sense we defend in Chapter three. Eduardo GAGGERO, for example, establishes a set of twelve Tables of the Rights of Mankind concerning the Outer Space. Among the XII Tables of the Rights of Mankind, (in p. 209) he mentions: "V. The right to communicate": 1. As a fundamental right of the human person and a universal social need, the right to communicate is the basis of reciprocal knowledge for frank cooperation leading to joint action and consolidating the legal concept of Mankind. 2. Mankind has rights which cannot be exercised by men or peoples *per se* to search, answer, establish and maintain an extraterrestrial communication, as well as to begin and maintain relationships with other human civilizations in the cosmos.[88]

The key distinction between use and exploration of Outer Space we makes as a pillar for our analysis in Chapter three not always seems clear for authors. In this sense, Jacques ARNAUD, for example, seems to go in opposite direction to this distinction when he wonders:

> "What does province of all mankind means? When France had a royal family, the term apanage referred to the share of the royal kingdom granted to the younger sons of the royal family in compensation from their exclusion from the throne. Since then, the term has become more generalized, meaning property, inheritance. It retains a notion of elitism. It is worth looking at the notion of apanage in terms of space law. On

[87] *Ibídem.*

[88] GAGGERO, Eduardo D., "New roles in space for the 21st century: a Uruguayan view", *op. cit.,* p. 209.

> the one hand, it offers mankind a rightful position: neither that of domination (man is not the ruler of the universe), not that of submission (man has some, limited, control and a real responsibility). On the other hand, mankind is not initially assigned a territory, but a mission to exploit and use this outer space, for its own benefit and for the benefit of future generations. Appointed representatives of mankind, astronauts have the sole mission of implementing this apanage, not only for the good and for the benefit of space powers, but for the whole of humanity. Are astronauts really perceived as having been sent by mankind?"[89]

In the same line or reasoning authors like Wu XIAODAN recalls, a related issue of the non-appropriation principle is exploitation of outer space resource. Considering the very general terms included in the Outer Space Treaty about legal status of the moon (the "province of all mankind", "not subject to national appropriation by any mean", one has to choose between two opposite interpretation: "banning exploitation activities" or "permitting extracting natural resources by taking into account the equal rights and corresponding interests of other States, such as not exhausting them."[90] Not having been established the respective regime for extracting and sharing benefit derived from lunar exploitation, States' practice would show the valid interpretation.

There are authors who recognizing the *ius communicationis* of humankind, they prefer not exercise it *ad cautelam*. It is the case, for example, of Professor VACOCH:

[89] ARNOULD, Jacques, "The explorer's complex", *Space Policy,* 2014, Vol. 30, pp. 186-187. According to this author, rather than complaining about the persistence of nationalisms and idiosyncrasies regarding space, would it not be better to acknowledge that the missions of these astronauts and their witnesses have clearly contributed to humanity's renewed awareness of and relationship with Earth?

[90] XIAODAN, Wu, "China's Lunar Exploration and Utilization: Positive Energy for International Law or Not?" *Anuario Mexicano de Derecho Internacional,* 2015, Vol. XV, pp. 149-150.

> "The usual assumption in SETI circles is that extraterrestrial we hope to encounter via interstellar Communication will have more experience and superior capabilities tan we do. On purely statistical grounds, we assume that if extraterrestrial make contact with us, they will also have already made contact with other civilizations. And in the course of multiple such encounters, they should have developed methods for communicating in maximally intelligible ways with whatever kind of rudimentary intelligence receives their electromagnetic signals. Having never made contact with an extraterrestrial intelligence before, we are lacking in this experience. Thus, it seems reasonable to place the communicative burden on the more advanced civilization, in this case, the extraterrestrial." [91]

The problem here is that we do not know about aliens' intention towards us: positive, neutral or harmful. So, VACOCH suggests we should better adopt a passive role in communication; that is, as being communicated:

> "If we have sufficient faith in the communicative abilities of such advances extraterrestrials, then we need do nothing more than wait for their signal to come in. Any message encoded in the signal should be easily decoded, and although the message may not begin with a series of prime numbers or a primer of arithmetic, the intent of the extraterrestrial sending it should be obvious in the form and content of the message. But if there remains any doubt about our ability to understand the message sent by an intelligent species that evolved in a different environment, and which whom we have no possibility of direct contact, then we should also remain open to receiving assistance from extraterrestrials in

[91] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 517.

> the opposite direction: their decoding and interpreting our messages."[92]

Considering the uncertainties about intentions of extraterrestrial intelligent beings and admitting the open scenario would result from any contact, it is understandable that in the current stage of our knowledge, some authors have recommended prudence in our search for intelligent extraterrestrial intelligent life and in any message we can send prior or posterior any eventual contact. Thus, it is recommended that messages to extraterrestrial should be written cautiously, not providing information about our biology, for example, which could be used against us by malicious extraterrestrial intelligent beings.[93] In particular, as Professor Michael MICHAUD has suggested, humankind should avoid giving the impression of being a rapidly expansive civilization which could make us to appear like a threat to any extraterrestrial intelligent beings.[94] In the end, I agree with Professor MICHAUD when he states that "sending deliberate communications to another intelligent species would mean conducting relations with that species. It would be a form of diplomacy."[95] So, this author coincides with those who call for adopting a precautionary approach: "Given our lack of evidence, we might best adopt a precautionary principle: Don't call attention to ourselves until we learn more about alien capabilities and intentions."[96]

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[92] *Ibídem*. Adding at this regards: "The more fundamental question of which basic search strategy we should use –actively transmitting, passively listening or both– remains unanswered. In the same way that we would expect an advanced extraterrestrial to be more capable of creating intelligible messages than we are, we should also expect them to be superior at decoding and interpreting messages from other civilizations than we are." *Op. cit.*, p. 518.

[93] *Ibídem*. Thus, it would be preferable to limit initial messages to mathematical discourse for security purposes until having had a better idea of the type of ETI we are dealing with.

[94] *Ibídem*.

[95] MICHAUD, Michael, "SETI and Diplomacy: Progress in the Search for Extraterrestrial Life", *ASP Conference Series,* 1995, Vol. 74, p. 554.

[96] MICHAUD, Michael, "If contact occurs, who speak for Earth? *Foreign Service Journal,* 2001, April, pp. 23-27, at p. 25.

At present, it is generally accepted the San Marino Scale for quantifying potential hazard of deliberate transmissions from Earth. The San Marino scale seeks to bring objectivity to the reciprocal enterprise – that of human civilization sending transmissions that could be found by extraterrestrial civilizations (METI). The San Marino Scale was first proposed in 2005 and was adopted by the International Academy of Astronauts' SETI Permanent Study Group in September 2007.[97]

It is a fact that cannot be ignored that chances of contact or of being contacted by extraterrestrial intelligent beings are really low. However, those chances are real. So, everything leads to the same conclusion: What is the plan? Who will speak on behalf of Earth? How it will be done? What subjects will be including in these talks? From the point of view of International Law the interest goes further: We should investigate whether extraterrestrial intelligent beings might be legal subjects, such as we humans and our nations are, and which kind of sociological and legal situations might arise if we answer this question.[98]

Up to present, States and International Organizations, namely the United Nations, has not seemed very compelled to find out an answer for these and other connected questions. Only the International Academy of Astronauts[99] has envisaged a *reply protocol.* Such measures consist of two Declarations: *Declaration of principles concerning activities following the detection of extraterrestrial intelligence* (extraterrestrial intelligent beings)[100] and the *Draft Declaration of principles concerning the sending of*

[97] See: ALMAR, I., PAULSHUCH, H., "The San Marino Scale: a new analytical tool for assessing transmission risk". *Acta Astronautica.* 2007, Vol. 60, pp. 57–59.

[98] FASAN, Ernst, "Discovery of ETI: Terrestrial and Extraterrestrial Legal Implications", *op. cit.,* p. 131.

[99] The International Academy of Astronautics (IAA) is a no governmental organization founded in 1960 and recognized by the United Nations. Since its origin, IAA has brought together the world's foremost experts (1216) in the disciplines of astronautics on a regular basis to recognize the accomplishments of their peers, to explore and discuss cutting edge issues in space research and technology, and to provide direction and guidance in the non-military uses of space and the ongoing exploration of the solar system. Its URL is https://www.iaaweb.org/

[100] Available in https://www.seti.org/protocols-eti-signal-detection Last visited 1st August 2018.

Communication to extraterrestrial intelligent beings[101]. We will go back to them in extent in Chapter Three.

It is true that some internationalists may consider it is a case of science fiction. Furthermore, an overview in the table of International Academy of Astronauts (IAA) study groups (Lunar Farside; Satellite Aerosols; Comparative Climatology; Cube-Sats; Global Earthquake; Space Weather; Planetary Protection; Spaceflight Deconditioning; Medical Support; Immersion Model; Astronauts' Health; Emergency Astronauts; Career Dose; Radioactive Waste; Next Generation; Space Elevator; Manned Spacecrafts; Mineral Resources; Utilization of the Moon; Strategy of Low Cost; Strategy Collision; Compatibility; IGMASS; SGEI; Micro Satellites; Space Systems; Developing Countries; Space Information; Small Satellites Formations; Aerospace Trajectories; Post-Mission Disposal; Debris; Exploration Strategies; Critical Infrastructures; Traffic Management; Legal & Policy SREU; Space Debris; STEM / STEAM) evidences that even inside this Non-Government Organization the communication with extraterrestrial intelligence is not a topic deserving high attention at the end of the day[102]. In the final analysis, this might be logical, because they are scientists no policy makers. As LYALL explains, by way of these couples of Declarations, the international scientific community has established its position and it is now time for including the contact with extraterrestrial intelligent life as a domain of interest in the International Space Law, as is has already defended by some authors[103].

What we are mainly concerned here is, as Professor KOPAL stated:

> "The task of elaborating special principles and norms to govern relations between the international community of our

[101] Available in http://www.coseti.org/setiprot.htm Last visited 1st August 2018.

[102] Contrary to the attention paid to this issue in the last decade of Century XX. For having certainty of this statement it is only needed the date of bibliography in the end of this study, with most of doctrinal references having got published in that decade.

[103] LYALL, Francis, "Communications with extraterrestrial intelligence: a new dimension of Space Law", *Acta Astronautica,* 2000, Vol. 46, No. 10-12, p. 751.

> own planet and other intelligent communities in the universe, if and when they are discovered and the relations with them established, would require adding a new dimension to the law of outer space."[104]

Consequently, it would not be too difficult to make out a convincing case for United Nations as the most competent center for developing an appropriate legal basis for such interstellar communication, considering –with Professor KOPAL– the fact that in the last century this Organization became a center for harmonization of States policies as regards the outer space[105]. In his opinion:

> "The question, however, is when and under what heading should such a consideration start and in this respect, a prudent approach is advisable. While it may be admitted that the present legal basis of space activities remain rather general in many respects, it would not be wise to request an immediate consideration of a special regulation governing the extraterrestrial intelligent beings activities. The problem seems far from being ripe for an early initiation of this step. The consideration of a legislative process can only be started when the boundary between possibilities and well-established realities has been crossed."[106]

The argument of professor KOPAL seems very cogent. I agree with him in the need for including the communication with extraterrestrial intelligent beings as a part of International Law of

[104] KOPAL, Vladimir, "International Law implications of the detection of extraterrestrial intelligent signals", *Acta Astronautica,* 1990, Vol. 21, No. 2, p. 125.

[105] KOPAL, Vladimir, "International Law implications of the detection of extraterrestrial intelligent signals", *op. cit.*, p. 124. Without needing structural changes, because, the issues of ETI might be brought to the attention of the United Nations –according to Professor KOPAL's proposal– through the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space (COPOUS) depending of the General Assembly of United Nations, and in the reports of individual States on their space activities which are submitted from time to time to the COPOUS.

[106] *Ibídem.*

Space. I disagree, nevertheless, in the timing for such action. In my opinion it must be from now on. We should not wait until evidences of intelligent extraterrestrials life emerge; otherwise, the contribution International Law might bring about could be precarious and insufficient for such event.

Following the logical reasoning of Ernst FASAN, whatever their main characteristics might be (mortal or immortal; one individual only or several of them, single intelligences or group intelligence), extraterrestrial intelligent beings will have some kind of development thanks to the fact that, somehow, they would have learnt to cooperate among themselves[107]. However, no cooperation is possible without some kind of communication and this means they behave in some predictable way. Thus, FASAN asserts that extraterrestrial intelligent beings –those who answered our call or directly found us in their own search for extraterrestrial intelligent beings, communicate among themselves according to some rules of behavior, which are –both in a philosophical and technical sense– rules of law. Therefore, extraterrestrial intelligent beings will have legal rules of behavior and that means a kind of cooperation, at least along the lines of such rules. no cooperation is possible without some kind of communication Rules of cooperation necessarily giving both rights and duties, maybe only rights to some and duties only to others, but rights and duties nevertheless.[108]

In the end of this Chapter, one idea is evident: the compass of the new dimension of space law involving searching for extraterrestrial intelligent beings is considerable. It ranges from questions of frequency protection (namely, the protection from interference of the most appropriate radio-frequencies for satellite uses) to the mechanism for dealing with the detection of extraterrestrial intelligent beings should that occur.[109] So, we may conclude it is time to identify the search for

[107] FASAN, Ernst, "Legal Consequences of ETI detection", *op. cit.,* p. 678.

[108] *Ibidem.*

[109] LYALL, Francis, "Communications with extraterrestrial intelligence: a new dimension of Space Law", *op. cit.* p. 752.

extraterrestrial intelligence as a category within space law.[110] Moreover, as we consider –and we will see it in Chapters Three and Four– that the SETI and METI should be seen as exercise of an *ius communicationis* of humankind. In the words of a reputed author in this field, Thomas GANGALE:

> "What challenges actually await us in outer space are far beyond what we can imagine, even now, more than half a century into the Space Age, for in that time, except for nine sprints to the Moon and back, crews have streaked across the skies just a few hundred kilometers above the heads of the Earthbound. This is to interplanetary spacefaring what coastal canoe fishing is to the intercontinental shipping. The challenges that await us are not technological alone (…) We will live close to the edge of extinction out there, but learning to survive on those other worlds will bring our species closer to immortality. Americans, Asians, Australians, Europeans – all of us. (…) And we will need to make new law for all the things that we discover to be human, including those new things that we may fashion from our ingenuity and those new things that we will discover within ourselves. Let us make it a good one."[111]

In my opinion, there are some cogent questions to be answered sooner than later: is the search for extraterrestrial intelligent beings a domain to be considered by International Law of Outer Space? Considering an affirmative answer to this question, attention deserving from International Law should be at two level: at the short time (any question related to the fact of sending messages and eventually answering any signal detected) and at the long time. Here, the issues at stake are rather far complex: What are the legal basis (meta rules, principles and substantive norms) we can identify as valid for any intelligent form of life in the Universe? What kind of procedural legal

[110] LYALL, Francis, "Communications with extraterrestrial intelligence: a new dimension of Space Law", *op. cit.*, p. 751.

[111] GANGALE, Thomas, *The Development of Outer Space. Sovereignty and Property Rights in International Space Law, op. cit.,* pp. xiii-xiv.

norms –that is, rules of cooperation with extraterrestrial intelligent beings– we might have? In short, how can we communicate them and cooperate with or, eventually fight them? Moreover, which is the legal framework for providing answers to these and connected questions? Would it be the current International Law of Outer Space the best juridical framework? Or, should we consider the convenience of thinking about a new paradigm of International Law of Outer Space –an Interstellar Law– as an *ius gentium* for new worlds, in a similar way the Classic Spanish School of International Law refunded the Law of Christianity after the discovering of America? These are the core questions to be dealt with in the study we develop in following pages.

CHAPTER TWO.
FROM THE INTERNATIONAL LAW OF OUTER SPACE TO INTERSTELLAR LAW

We have started our analysis with an introduction where some conceptual precisions about extraterrestrial intelligent beings (living and intelligent as far as to amount a civilization) and its legal relevance were made. We also have presented the state of Art as regards the different scenarios scientists consider can provide evidences of the existence of extraterrestrial life and its implications for this study: a) electromagnetic radiation received from a non-human source which is identified beyond reasonable doubt as a non-natural; b) one or more objects having been discovered, either on Earth itself or in its immediate neighborhood, which are identified beyond reasonable doubt as being both artificial and non-human, and which contain no living creatures; c) the Earth being visited by extraterrestrial spaceships with living beings on board; and d) the Earth receiving unmistakable and confirmed evidence of the presence on or near it of an alien intelligence that manifests itself in presently unknown and unforeseeable ways.

In previous Chapter we have presented what it has been called the Post Copernicus Revolution, in the sense that similarly the Earth was probed not to be the center of the universe, the human beings are not central in essence. We has examined the current efforts of searching extraterrestrial intelligent beings (SETI) and considered a doctrinal debate about some possible scenarios after the SETI being successful or we being contacted by extraterrestrial civilizations. Assuming a scenario more optimistic than pessimistic –and admitting there is no scientific data supporting such a personal feeling– we concluded Chapter One with the proposal of including the communication with extraterrestrial intelligent civilizations (SETI and METI) under regulation of International Law of Outer Space –something not done up to date– as an exercise of an *ius communicationis*

of humankind; we also launched the question whether the current International Law of Outer Space would be the best juridical framework for a regulation of such *ius communicationis* or, on the contrary, we should consider the convenience of assuming a new paradigm of International Law of Outer Space –an Interstellar Law– as an *ius gentium* for new worlds.

In the following pages, our intention is to present the existing debate about a new regime for the Outer Space (motivated for economic reason mainly) and the permanencies and changes in this period of transition. Namely, we will refer the surrendering notions of mankind and shared benefits of Outer Space. After a brief exam of the current academic discussion on the advantages and disadvantages of any international regulation of communication with extraterrestrial civilization, we will provide our reasons for International Law of Outer Space regulating SETI and METI.

1. The current debate about a new regime for the Outer Space

By way of introduction, we can say that we are witnessing a new era of commercial expansion into Outer Space, including new profit-making opportunities and increased quality of life inherent in its expansion. What we are mainly concerned with here is that this scenario is beginning to reveal the inadequacy of earlier space law. That is, that set of Treaties and Resolutions created and developed in the context of the United Nations in the period of "Cold War", mainly devoted to security issues of Great Powers.

In effect, the golden age of space exploration was a product of the Cold War. Space was simply another front in that war.[112] As Thomas GANGALE has pointed out, beginning in the early 1950s, the United States desired Outer Space to be internationally recognized as a commons. This was long before it became apparent that the Soviet Union had an initial advantage in space launch capability and might be the first to develop the capability of reaching other planets. At this time, the United States viewed Outer Space in terms of its own

[112] GANGALE, Thomas, *The Development of Outer Space. Sovereignty and Property Rights in International Space Law, op. cit.,* p. 1.

security. In the late 1940's it was already clear that satellites would have military utility, especially for reconnaissance.[113]

Such International Law of Outer Space –once the Cold War is over, and the pressing forces of economic globalization have overpass the ideological differences among nations–, is not any longer peacefully considered as appropriate to deal with the new problems being generated by space commerce. Space, once considered an arena for global cooperation among governments is now rapidly becoming an environment for international entrepreneurial competition. In the words of Kim RATHMAN, space commercialization and its technologies are constructing an interdependent "earth-space economy" that has begun to force changes not only in the old (and rather exclusive) rules of the game, but in the ethical and legal principles needed to guide appropriate conduct relative to commercial space endeavors.[114]

It is as well to remind ourselves that the five multilateral space treaties elaborated within the COPOUS[115] were largely formulated in the "Cold War" era, when only a small number of countries have space-faring capability. Just as MASSON-ZWAAN and FREELAND, the treaties are to be admired by their simple yet comprehensive coverage of potential human involvement in the realm of Outer Space. However, these treaties could not fully anticipate the extent to which humankind would one day engage in commercial space tourism activities.[116] Thus, even though the treaties keep their relevance even after several decades, the existing international legal regime is not able

[113] GANGALE, Thomas, *The Development of Outer Space. Sovereignty and Property Rights in International Space Law, op. cit.,* p. 11.

[114] RATHMAN, Kim Alaine, "Outer space commercialization and its ethical challenges to international law and policy", *Technology in Society,* 1999, Vol. 21, p. 136.

[115] See Resolution 1348 (XIII), adopted by the General Assembly of United Nations on 13 December 1958, establishing an *ad hoc* Committee on the Peaceful Uses of Outer Space. And Resolution 1472 (XIV), adopted by the General Assembly of United Nations on 12 December 1959, establishing a Committee on the Peaceful Uses of Outer Space.

[116] MASSON-ZWAAN, Tanja, FREELAND, Steven, "Between heaven and earth: The legal challenges of human space travel", *Acta Astronautica,* 2010, No. 66, p. 1598.

to accommodate the remarkable technological and commercial progress associated with space activities. It needs to be supplemented with additional and more specific rules to be added.[117]

As Professor DE FARAMINÁN GILBERT has resumed, since Outer Space is a relatively recent field of research, the law of space has undergone far-reaching transformations in a short lapse of time:

> "A start was made by defining the fundamental principles which should govern the space age in binding treaties. Thereafter laws were needed to regulate human activities in outer space. In other words, a body of law has been adopted to regulate space activities. These provisions are beginning to move away from the strict domain of international law and international organizations to incorporate contract law now that space activities are being pursued by public or private corporations. Because of the technical difficulty of space activities, as operations with an objective risk, requiring the participation of industries, with the support of the States and national and international agencies, the framework of the United Nations in which the law of space began to take shape has now become too narrow. All these bodies have broadened the domain of law and pointed to the need to develop more specific legal provisions which, without calling into question the progress of fundamental international law, nevertheless oblige us to draw up a body of space law governing telecommunications, contracts, data obtained by remote detection and intellectual property rights."[118]

A claim for a new regime for regulating Outer Space is closely to a question: which is the prevalent principle in such new regime

[117] *Ibídem.*

[118] DE FARAMIÑAN GILBERT, Juan Manuel, "Promotion of space law with a view to better protection of intellectual property and respect for human rights", in Report of the COMEST Sub-Commission on "The Ethics of Outer Space", UNESCO, 10-11 July 2000, p. 36. Available at http://unesdoc.unesco.org/images/0012/001220/122048E.pdf Visited 5 August 2018.

proposed: cooperation or competition? What is best for humankind? One example is enough to illustrate the complexity of the current situation. While NASA is claiming to seek international partners in costly, long-term exploration initiatives, it continues to insist on being in charge. As Linda BILLINGS points out, NASA's traditional partners do not appear inclined to accept such terms, and existing and prospecting partners, such as China, are building stand-alone programs or building alliances with spacefaring nations other than the U.S.A.[119]

It should be mentioned in passing that "cooperation" might has some detractors among developing nations even if they do not openly support the privatization of outer space. The reason for this, as Linda BILLINGS states[120], is that the vision of a human future in space is predominantly Western; that is, a vision resting on the assumption that Western nations will be first to establish a permanent human presence in this Solar System and, consequently, to define the legal, ethical and cultural boundaries of space-based society. Nevertheless, in the United Nations Educational, Scientific and Cultural Organization's (UNESCO) World Commission on the Ethics of Science and Technology (COMEST), such a Western vision does not seen as evident according to the policy documents approved in 2000[121] and in 2004[122].

In the UNESCO document "The Ethics of Outer Space" approved in July of 2000, there were presented the basis for a code of

[119] BILLINGS, Linda, "How shall we live in space? Culture, law and ethics in spacefaring society", *Space Policy*, 2006, Vol. 22, p. 251.

[120] BILLINGS, Linda, "How shall we live in space? Culture, law and ethics in spacefaring society", *Space Policy*, 2006, Vol. 22, p. 251.

[121] UNESCO, Report of the COMEST Sub-Commission on "The Ethics of Outer Space", UNESCO, 10-11 July 2000, Paris. Available at http://unesdoc.unesco.org/images/0012/001220/122048E.pdf Last visited 1st August 2000.

[122] UNESCO, Legal and ethical framework for astronauts on spaces sojourns: proceedings, Paris, 29 October 2004; UNESCO, The ethics of outer space: policy document, 2004, available at http://unesdoc.unesco.org/images/0013/001397/139752m.pdf Last visited 1st August 2018.

conduct in Outer Space really representing an integrated worldwide vision, overcoming the critics of Western approaches to it. After having affirmed the need for an ethic to apply to space policies[123] In this sense, three Principles were recalled as recognized by all States:

— non-appropriation of space;

— freedom of access;

— seeking benefits for all humankind[124].

And Actions required by these principles, *inter alia*, would be:

1. Space must be regarded as the common heritage of all humankind and not as a mere "appendage"; space must remain in the service of all humankind.

2. Space must be regarded as a "scientific territory".

3. Freedom of access to space must be assured: quite apart from access as such to outer space, the question of access to space resources arises. To the extent that space is seen as the shared heritage of humankind, legal procedures must be defined to permit the processing, in the medium to long term, of data obtained by the use of space technologies and the discovery of

[123] "Applied to space policy, the specific features of the ethical approach reside in the fact that it establishes a relationship between human beings, the planet Earth and the entire Universe (…) Ethical reflection must come before law and not the reverse, but a synergetic approach is indispensable in so far as ethics must take into consideration the already established law and in so far as law must be based on ethical rules. Ethical reflection must precede and guide the definition of national space policies. By assuring an equitable balance between ethical concerns and political decisions, the conditions can be created for prior consultation founded on dialogue with a view to enabling all the parties involved to subscribe to the recommendations emerging from the process of ethical reflection. The main aim of this approach is to safeguard a long-term vision for the sustainable development of space activities." P. 14, epigraph 28 of the cited document.

[124] Epigraph 29, p. 15 of the cited document.

> potential resources bound up with the specific nature of space objects and/or that of the different planets.[125]

Interestingly, it was proposed a new institutional framework for challenges Outer Space is posing in late times (an International High Authority for the use of Outer Space)[126]. Another issue deserving attention in this privileged forum of UNESCO is that it was paid attention to the question of searching for forms of life in the Universe[127]. Thus, in my personal opinion, it is not defendable the statement that SETI and METI is not of interest of the international community of States. Rather, it would suggest that it is not of interest in those international bodies mainly controlled by Western States (COPOUS in the UNOOSA).

The debate is still present with cultural and ideological connotations showing the breach still remaining among the North and the South. According to authors like RATHMAN, an international space regime would need to[128]:

> — design membership and committee procedures that ensure the equitable participation of all nations needing or desiring space technologies for peaceful uses;

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[125] *Ibídem.*

[126] "Having regard to the specific dimension created by the special features of outer space, international organizations must be encouraged to reflect on the creation of an International High Authority for the use of outer space for the benefit of humankind, based on the model of the authority for the sea and ocean beds, but taking account also of the rules laid down in the Antarctic Treaty. Such an authority will have to define what constitutes scientific knowledge, requiring total freedom of information exchange, and what falls within the domain of industrial development for the purpose of commercial exploitation by ensuring mutual and reciprocal benefits in the service of all humankind." P. 18, epigraph 30 in the cited document.

[127] "The problem of the search for forms of life comparable to, or different from, those existing on Earth must be considered. Appropriate measures must be taken to administer the return on Earth of samples taken from other planets (especially Mars)." P. 18, epigraph 29, point 9.

[128] RATHMAN, Kim Alaine, "Outer space commercialization and its ethical challenges to international law and policy", *Technology in Society,* 1999, Vol. 21, p. 161.

— enable communication between concerned nations, intergovernmental organizations and private entities;

— encourage international cooperation and joint ventures in the development of space technologies and programs;

— implement a broad range of policies and programs aimed at promoting the capability of all nations in the research and development of space technology to ensure equitable participation, global economy stability, and a decent standard of living for all people, and

— develop a fair and feasible mechanism for the allocation and distribution of outer space resources and technologies, including an international code of ethics for the transfer of technologies by multinational corporations to Third World nations.

Consequently, in opinion of RATHMAN, membership and participation in these international legal regimes should not be based on a type of weighted vote related to capital investment, as suggested by First World policy makers; rather, on the formula found in the Common Heritage principle, where a nation's percentage of contribution to space activities and the needs that developing countries have related to building capacities in space technologies are both taken into consideration, The rights and duties of membership in this organization also should be jointly developed and clearly stated in order to establish and concretize the obligations that exist between government and private entities concerning the commercial development of outer space resources.[129]

In order to understand the conflicting claims among developed and developing nations it is essential to consider the different cultural values of First and Third World nations. These differences can briefly

[129] RATHMAN, Kim Alaine, "Outer space commercialization and its ethical challenges to international law and policy", *op. cit.,* p. 161.

be described according to MASSON-ZWAAN and MORO-AGUILAR[130]:

— Third World demands for equitable sharing and access to a common resource versus First World arguments for efficient usage that may restrict access to the most qualified developers but will eventually bring greater benefits to everyone;

— First World support of private property rights versus Third World needs-based arguments for the equitable sharing of goods and services to meet the social needs of their populations;

— Third World demands for sovereignty and privacy rights in relation to the access and transmission of important business information and resources data versus First World rights claims for freedom of information; and

— First World concerns for national security in relation to space technology transfers and their misuse versus Third World desires for greater autonomy, both technically and economically, with the participation rights such economy engenders in the global community.

In order to overlap these differences and inspired by *TWAIL* (Third World Approach to International Law)[131], the *CAIL* (or Cosmopolitan Approaches to International Law) is focused on the understanding that we should regard our deliberations as, first and foremost, deliberations about human problems of people in particular concrete situations, not problems growing out of a national identity that is altogether unlike that of others (the starting point is the core philosophical Kantian concept of cosmopolitism like "universal

[130] MASSON-ZWAAN, Tanja, MORO-AGUILAR, Rafael, LENTSCH, Aron, "The future regulation of suborbital flight in Europe", *Space Policy,* 2014, Vol. 30, pp. 75-82.

[131] See: MUTUA, Makau and ANGHIE, Antony, "What Is TWAIL?" *Proceedings of the Annual Meeting (American Society of International Law)*. Vol. 94, 2000, pp. 31-40.

hospitality").[132] From these Cosmopolitan Approaches to International Law, analyzing the space policies, some important considerations are to be made, following to AGANABA-JEANTY:

— It is fundamental to focus on the ability to conceptualize first before looking for technology solutions otherwise technological projects will fail and appear as white elephant projects;

— There must be a willingness to "pay to play" at certain times because essentially space is a business/industry/sector where profit is an objective. There is no free lunch and reciprocal benefits are the primary type of benefits that can be shared;

— Small players could first focus on developing niche strategies and technologies because "space" is a small and competitive sector and the average population will not understand "big" space projects in a challenging financial environment;

— There must be recognition that space is not longer just a domain for government activity. There must be a multiplicity and diversity of actors ready, willing and enabled to engage. This includes encouraging grassroots initiatives and ensuring that, for emerging nations, the immediate focus should be on investing in knowledge generation in the enabling technologies;

— Perseverance is required because success in the space endeavours is a long term investment.[133]

[132] AGANABA-JEANTY, Timiebi, "Introducing the Cosmopolitan Approaches to International Law (CAIL) lens to analyze governance issues as they affect emerging and aspirant space actors", *Space Policy,* 2016, Vol. 37, p. 8.

[133] AGANABA-JEANTY, Timiebi, "Introducing the Cosmopolitan Approaches to International Law (CAIL) lens to analyze governance issues as they affect emerging and aspirant space actors", *op. cit.,* p. 11.

It must be admitted, following to Wu XIAODAM, that there are some pressing issues demanding consideration in the current International Law of Space: the necessity to fill in the loopholes of the current legal regimen as regard the peaceful use of outer space, the moon and other celestial bodies closely connected to the question concerning the exploitation of the moon and other celestial bodies[134]; and the pollution of outer space and of celestial bodies and their orbits[135]. Each of these issues concerning Outer Space seems strong enough to challenge the international community for decades of negotiation aiming consensus in solutions proposed. So, why should we waste energy and time proposing a new field of concern under International Law of Space? Why communication with extraterrestrial intelligent beings would deserve attention and regulation from international community?

In this transitional period of International Law of Outer Space we are passing by, there are also complex ethical questions relevant to the direction of future developments of International (and national)

[134] XIAODAN, Wu, "China's Lunar Exploration and Utilization: Positive Energy for International Law or Not?" *Op. cit.,* p. 151. This author criticizes how existing space law treaties are inadequate to prevent the weaponization of outer space. Furthermore, the intention of the Outer Space Treaty to keep space free of weapons of mass destruction is handicapped by the treaty not defining these weapons. On 14 December 2013, China landed a lunar rover on the moon and a human lunar landing might be possible for this State between 2025 and 2030. China has not signed the Moon Agreement –although it has ratified the Outer Space Treaty, the Rescue Agreement, the Liability Convention and the Registration Convention–. Thus, "there is a fear that China's lunar exploration and utilization would intensify the trend of outer space militarization. Particularly, the U.S. perceives that its military is facing challenges and threats from the development of China's space capabilities and there is an urgent need to ensure that China will not pose a challenge to U.S. national security." *Ibidem,* p. 142.

[135] XIAODAN, Wu, "China's Lunar Exploration and Utilization: Positive Energy for International Law or Not?" *Op. cit.,* p. 153. As this author asserts: "The deterioration of the outer space environment, especially the increase of space debris, has been recognized as a major threat to the ongoing expansion of human activities in outer space. Nowadays, there is a universal consensus among space operators that irresponsible behavior in outer space can have negative implications for all space users and lunar exploration and utilization must be environmentally sustainable." *Ibidem,* p. 144.

Space Law, particularly as they apply to space tourism (or, in my opinion, any private activity in outer space): what types of space tourism "activities" are "appropriate"? Should there be any restriction on the nature of these activities to preserve the "integrity" of Outer Space? On what basis, if any, should these restrictions be determined? Would it be acceptable, for example, to allow advertising billboards to be constructed, or casinos or even brothels to be established on the moon to cater to space tourists? As the capability of space-related technology advances, these qualitative questions must also be addressed in order to priories those activities the most closely accord with the overall goals associated with humankind's ongoing endeavors in space.[136]

I feel most strongly that it is not a single nation (namely U.S.A. or China) pushing to change "the rules of the game"; it is a worldwide rethinking about national strategies for future use of Outer Space. I would even go as far as to say that, even the European Union's *Draft Code of Conduct for Outer Space Activities*[137], European countries may be facing in the next years the same decision that the US Government had to make years ago when in 2004 enacted the Commercial Space Launch Amendment Act. The future legal framework in Europe for suborbital activities should assure the safety of flights, regulate consequences of accidents and damage, yet avoid over-regulation in order not to end what has barely begun, the emergence o what could become a new industry benefiting the EU and its citizens.[138]

[136] MASSON-ZWAAN, Tanja, FREELAND, Steven, "Between heaven and earth: The legal challenges of human space travel", *Acta Astronautica,* 2010, No. 66, pp. 1605-1606.

[137] Endorsed by the Council of European Union in its conclusions of 3 December 2008, and later confirmed a revised version on 27 September 2010. Available at http://www.consilium.europa.eu/uedocs/cmsUpload/st14455.en10.pdf For a critical analysis of this typical soft law instrument, see: TRONCHETTI, Fabio, "Preventing the weaponization of outer space: Is a Chinese-Russian-European common approach possible?" *Space Policy,* 2011, Vol. 27, pp. 81-88.

[138] MASSON-ZWAAN, Tanja, MORO-AGUILAR, Rafael, LENTSCH, Aron, "The future regulation of suborbital flight in Europe", *op. cit.,* p. 76.

Everyone would agree that, in order to preserve an European Union common market, it would be desirable that some level of uniformity exists among the rules in the different European countries. However, the Lisbon Treaty that entered into force in 2009 declares that the European Union is not to undertake harmonization of the space laws and regulations of the Member States (art. 189 TFUE).[139]

2. The notions of mankind and shared benefits of Outer Space in a new regulatory context from international to national approaches to Outer Space

As it certainly can be claimed that Outer Space activities have moved from exploration to commercial utilization, and as the economic benefits of space have become more clearly recognized, it is quite true that the number of nations desiring to participate in these activities and benefits has grown, substantially increasing conflict and competition among them.[140]

One of the main features of SETI, looking for evidences via electromagnetic radiation, is being affected by this situation. There are voices claiming for a different redistribution of radio-spectrum according to free-market criteria, instead of other considerations –like scientific purposes of nations– as it is at present. One of this voices is that of Peter HULSROJ. In his opinion, when one compares the way radio-spectrum is assigned domestically and internationally there is often a fundamental and striking difference. In the domestic arena radio-spectrum is often assigned by auction, but internationally registration occurs based on first come, first served. The rationale for domestic auctions, apart from the obvious fiscal interest of a government, has been stated to be that only by letting the market indicate the relative value of a given frequency to the different users, and by letting the user who value the frequency the most win it, will

[139] MASSON-ZWAAN, Tanja, MORO-AGUILAR, Rafael, LENTSCH, Aron, "The future regulation of suborbital flight in Europe", *op. cit.,* p. 77.

[140] RATHMAN, Kim Alaine, "Outer space commercialization and its ethical challenges to international law and policy", *op. cit.,* pp. 138-139.

the community have an effective utilization of a scarce resource.[141] If one extends the discussion of value-judgement to cover all use of orbit positions and radio spectrum and not only the priority for community use, then it would be very coherent to basically rely on the market (and auction) mechanism to stablish the most rational use of orbit positions and radio-spectrum, which were not already reserved for priority community use.[142]

As Peter HULSROJ states, we are still stuck with the equivalents of the law of the fastest draw, namely the principles of free use and of first come, first served. Such laws may be inevitable in frontier conditions (space in the sixties was a new frontier) but they are wholly inappropriate when the frequency of human interaction increases and social structures must develop.[143]

The referred example of radio-spectrum assignation is just the edge of an iceberg. As Professor LAFFERRANDERIE has described it:

> "There also appears to be a willingness to discuss new space law, along the lines of the new economy, with its commercialization and privatization (the big watch-words), the management of natural disasters (at a time when the Earth is warming up, thanks in particular to carbon dioxide emissions produced by our industrial civilization), the marked economy with competition and rivalry in the area of launch services among others… There is also the matter of asteroids (should be 'shift' the Earth is a present-day Archimedes is discovered in time?), cyberspace and the use of satellites by the new Big Brothers (the Echelon Programme, for example) where, in spite of laws and declarations, there is a risk of citizen's fundamental rights being flouted. To leave the best

[141] HULSROJ, Peter, "Beyond global: the international imperative of space", *Space Policy,* 2002, Vol. 18, p. 111.

[142] *Ibídem.*

[143] HULSROJ, Peter, "Beyond global: the international imperative of space", *op. cit.,* p. 115.

> until last: space tourism –what a luxury for those who will be able to afford to stay in these playgrounds in space (on a planet or orbiting station) –or the launching of ashes into space, turning it into the Earth's dustbin. For how longer will humans be able to gaze at the stars and dream on in their 'ET' shelters?"[144]

We can see then, that ultimately it is easy to find opposite proposals, for less international regulation of outer space, that is, by redressing competence to national legislations, and in the contrary direction, the urgent call to "entrench" the regulation of human activities in space as Professor LAFFERRANDERIE holds: "To entrench space law therefore means to gather together all the relevant Agreements, Principles, Resolutions, precepts and dicta irrespective of the location of the activities, in this case, outer space, thus creating a space law 'Bible'. These guiding Principles and texts could be contained, if a text is needed, in a new universal Charter endorsed by the UN General Assembly, in liaison with UNESCO, ITU, The Council of Europe, etc, and recognized by the various national parliaments."[145]

According to Philip DE MAN, the regulatory move towards national legislation raises specific issues for the interpretation of multilateral treaties that codify universal principles applicable to all States and whose foundation is the freedom to use an inclusive environment without national appropriation.[146] This is the case when the applicable multilateral treaties (a) have been concluded a long time ago; (b) contain general and ambiguously phrased provisions that require subsequent agreement and practice for their clarification; (c)

[144] LAFFERRANDERIE, G., "How to 'entrech' the regulation of human activities in space", *Space Policy,* 2001, Vol. 17, p. 78. As this author recognizes, these are only the "open space law". It would still consider the "confidencial space law" on military utilization.

[145] LAFFERRANDERIE, G., "How to 'entrech' the regulation of human activities in space", *op. cit.,* p. 80.

[146] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *Space Policy*, 2017, Vol. 42, p. 92.

concern pioneering activities performed by or under control and supervision of a limited number of States; and (d) provide no apparent incentive among governments to pursue further action at the multilateral level.[147]

Professor DE MAN goes as far as to say that:

> "The United Nations space law regime is characterized by a limited set of principles of inclusive, equal use that nonetheless appear to grant enforceable rights of protected use only to those States that are factually capable of implementing their freedom to engage in spacefaring activities. In this context, it is understandable that technologically advanced States are turning their space law making efforts to a national interpretation of the existing principles of international space law. Indeed, prominent spacefaring States are increasingly resorting to the adoption of domestic legislation that implements their international obligations according to an interpretation that best serves their own interests. This approach is obviously preferred over protracted multilateral negotiation processes that, apart from being cumbersome, risk upsetting the basic balance of the existing space law regime that favors spacefaring States in the first place."[148]

The most notorious example of domestic space Legislation whose very adoption, if emulated in subsequent practice of other States, may well affect the interpretation of a fundamental principle of international space law, is the 2015 US Commercial Space Launch Competitiveness Act[149]. In the outer space there is a set of rules which, being unopposed and indeed universally accepted, may be deemed to

[147] *Ibídem.*

[148] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *op. cit.*, p. 93.

[149] H.R. 2262-114th Congress (2015-2016), introduced by Rep. Kevin McCarthy. Https://congress.gov/bill/114th-congress/house-bill/2262/text

have become part of customary law.[150] Clearly, States did not go beyond the concept of *res communis omnium*. Except for the ban on orbiting weapons of mass destruction and damaging the environment, outer space was subjected to a legal regime akin to that of the high seas.[151]

It seems clear that the notion that the exploration and use of Outer Space is the 'province of all mankind' is an emphatic proposition which should not lead one to believe that Outer Space is subject to the legal regime of the 'common heritage of mankind'. Indeed, as Professor Antonio CASSESE has maintained, States exploring and using the area in question are under no specific obligations to carry out these activities in the interest of all mankind. And it is well known that major Powers are using Outer Space primarily, if not exclusively, in their own interest (except, of course, for certain obligations of co-operation undertaken by treaties with a few other countries).[152]

We must not lose sight of the fact- following to Professor DE FARAMIÑÁN GILBERT, that space is a *res communis omnium* and that the 1967 Space Treaty already stated that "the exploration and use of space are the privilege of all humankind". In fact, the recognition of the interests of humankind in an international text is the confirmation of an important legal step, as are the sublimation of the notion of the "shared heritage of humankind" and the principle of the non-appropriation of space and celestial bodies by the States. Therefore, the exploration and use of outer space must not give rise to a claim to exercise sovereign rights, as is the case on Earth, which gives space a much more altruistic definition in the sense of working for the benefit of humankind.[153]

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[150] CASSESE, Antonio, *International Law,* 2nd ed., Oxford University Press, 2005, Oxford, p. 95.

[151] *Ibídem.*

[152] CASSESE, Antonio, *International Law, op. cit.,* p. 96.

[153] DE FARAMIÑAN GILBERT, Juan Manuel, "Promotion of space law with a view to better protection of intellectual property and respect for human rights", in Report of the COMEST Sub-Commission on "The Ethics of Outer space", UNESCO, 10-

(...)

In effect, see the 1979 Treaty on the Moon and Other Celestial Bodies, the provisions of which have to a large extent become customary law. This Treaty provides that all substances originating in the moon and other celestial bodies are to be regarded as natural resources belonging to the common heritage of mankind (art. 4.1 and 11.1)[154]. In the event the treaty only commanded unanimous support, after initial strong opposition from some major Powers, because the crucial point concerning the concept of common heritage, namely the question of how to share the benefits deriving from the exploitation of resources in outer space, was left unresolved.[155]

It can indeed be proved from the specific case of fishing rights in international waters (outside of exclusive economic zones), that the principle that *res communis* means that all have an equal right to exploit the natural resources of the commons, but not a right to share equally in what is exploited. The right to fish in international waters was unrestricted as long as this natural resource was considered unlimited; however, the need arose for an international regime to provide for the rational management of what came to be viewed as a limited resource (1958 Convention on Fishing and Conservation of Living Resources of the High Seas). The same process of co-sovereignty, in opinion of some authors, will unfold on the celestial bodies.[156]

11 July 2000, pp. 38-39. Available at http://unesdoc.unesco.org/images/0012/001220/122048E.pdf Visited 5 August 2018.

154 "The exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development. Due regard shall be paid to interests of present and future generations as well to the need to promote higher standards of living conditions of economic and social progress and development in accordance with the Charter of the United Nations." "The moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this Agreement, in particular in paragraph 5 of this article."

155 CASSESE, Antonio, *International Law, op. cit.,* p. 96.

156 SEARA VÁZQUEZ, Modesto, *Cosmic International Law*, Wayne State University Press, Detroit, 1965, p. 116. GANGALE, Thomas, *The Development of Outer Space. Sovereignty and Property Rights in International Space Law, op. cit.,* p. 15.

As soon as technological progress makes exploitation of celestial bodies possible (starting with the Moon), all the States will pretend to exercise their co-sovereignty which, in practice will suppose the situation of privilege for the most developed States, with a situation close to anarchy as to regards the distribution among those developed States of closed zones for occupation. To avoid it, occupation should be vested in a moral entity like United Nations that represents all nations[157].

Edythe WEEKS seems totally convincing when she states that the global general public does not seem to be concerned about outer space development. Only a few people are aware of the new space activities and newly emerging industries. So how can everyone benefit even the space and its resources having been described as belonging to "the province of mankind" (article I of Outer Space Treaty)? [158] So, as this author states, the point is not only that since the New Vision for U.S. Space Exploration Policy in 2004, initiative are being encouraged including advanced transportation systems; private spacecraft; developments commercial space habitats; space stations; space settlements, commercial bear-Earth asteroids; commercial spaceport construction; interstellar-interplanetary. International telecommunications and space exploration missions to near-Earth asteroids, the Moon, Mars and Mar's two moons, Phobos and Deimos.[159]

The main feature of the problem, in her opinion, is that legal loopholes are being created to allow the hyper-privatization of publicly owned space resources. These resources include space technology,

[157] JENKS, Wilfred, *The Common Law of Mankind,* Praeger, 1962, New York, p. 398. As SEARA VÁZQUEZ suggests, it could be the UN SCOPUS. SEARA VÁZQUEZ, Modesto, *Cosmic International Law*, *op. cit.,* p. 222.

[158] WEEKS, Edythe, *Outer space development. International Relations and space law,* Cambridge Scholars Publishing, Cambridge, 2012, p. 6.

[159] WEEKS, Edythe, *Outer space development. International Relations and space law, op. cit.*, p. 2.

space research and development assets, the natural resources which are abundant in space, and outer space territory itself.[160]

It must be granted that Space Law does not grant rights and obligations directly to individuals. When the latter participate, they do so within the principle of national activity, under the responsibility of their own states.[161] Even though, it follows from the reasoning of Edythe WEEKS that the actions taken today are distinct from those taken in past International Law of Space in different ways: (a) a myriad of new space laws and policies have been created in rapid successions for the encouragement of private-sector participation in a newly proponed free-market approach to Outer Spacer development; (2) high-profile business moguls are taking highly publicized actions to create a new image in the public mind of Outer Space as a place for joyrides and thrill-seeking, and as an untapped territory with unlimited potential for wealth creation that can benefit everyone; (3) actions are being undertaken to popularize private, for-profit space travel at the cultural level; (4) private actors such as new space entrepreneurs along with established space corporations have been taking bold new types of actions to get government to approve the development of Outer Space for private-actor profit; (5) private-sector entrepreneurs, corporations, and space organizations have started to combine their efforts, and in recent years these space groups, organizations, corporations and individuals have been organizing into coalitions who then take political action such as advocating the need for U.S. Congress to draft bills and pass laws that contain a free-market theme to promote the further commercialization and privatization of Outer Space.[162]

[160] WEEKS, Edythe, *Outer space development. International Relations and space law, op. cit.*, p. 102.

[161] GAGGERO, Eduardo D., "New roles in space for the 21st century: a Uruguayan view", *op. cit.,* p. 203.

[162] WEEKS, Edythe, *Outer space development. International Relations and space law, op. cit.,* p. 145.

3. An academic debate on international regulation of communication with extraterrestrial civilizations

Not all authors consider convenient to regulate communication with extraterrestrial intelligent beings. Professor Douglas VACOCH, for instance, argues that:

> "One of the challenges of adopting legal precedents as a foundation for exchanges with extraterrestrial intelligence is that law is most informative when there is already a well-established relationship between the actors whose relationship is in question. That is, before we know what the appropriate legal relationship between two entities should be, we typically know that both entities actually exist, and we have an existing relationship of some sort between these two entities. Simply acquiring a signal from another civilization, or sending a signal to another civilization, is insufficient to establish a relationship. Instead, both parties must be doing something to make contact with the other before they can be said to have a legal relationship."[163]

Other authors, like Michel MICHAUD proposed an Agreement on the Sending of Communications to Extraterrestrial Intelligence with some inner contradictions and many questions unresolved.[164] Thus, for instance, if "communication with extraterrestrial intelligence will be undertaken on behalf of all mankind, rather than specific nations, groups, or individuals" (principle 1) What is the purpose of principle 4: "An international group including representation from all interested nations will be formed to deal with the question of whether such a communication should be sent and, if so, what its content should be"? I think it would be more appropriate to conduct such consultation in the United Nations, namely in the COPOUS.

[163] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 514.

[164] MICHAUD, Michael, "Detection of ETI –an international agreement", *Space Policy*, 1989, Vol. 5, Iss. 2, p. 106.

In my opinion, another illogical idea in the Professor MICHAUD's proposal concern to the role of Security Council of United Nations. Supposedly, this main executive organ in United Nations is limited in its action under principle 7 "In the event that extraterrestrials civilizations appear to pose a threat to human health, well-being or peace, no nation shall act without consulting the Security Council of the United Nations". It is forgotten the power the Security Council remains to judge by itself any situation as a threat to international peace and security.

That is, its competence would start from the very first moment the communication with extraterrestrial –actively by sending messages or passively, by listening possible signals of intelligence from outer space– is envisaged or conducted. In this proposed agreement is a little bit confusing the role of no state actors. In principle 2 it is said: "Nations, organizations, and individuals will not unilaterally send communication to extraterrestrial intelligence until appropriate international consultations have taken place" Does this principle mean that they are call to be signatories of such proposed Agreement? If no –supposing this is a classical international agreement among States– it is proposed that any State exercising its territorial jurisdiction should ban any interstellar communication from people under their jurisdiction? What would happen if these physical or juridical people are out of their jurisdiction, high sea or Outer Space? Finally, are the twelve principles enounced in principle 5 as compulsory for being observed in any communication to extraterrestrial intelligence on behalf of all mankind? These twelve principles are: a) Respect for the value of life and intelligence; b) Respect for the value of diversity, including respect for different customs, habits, languages, creeds and religions, approaches to social organization and styles of life; c) Respect for the territory and property of others; d) Recognition of the will to live; e) Recognition of the need for living space; f) Fair play, justice and mercy; g) Reciprocity and *quid pro quo;* h) Non-violation of others; i) Truthfulness and non-deception; j) Peaceful and friendly welcome; k) Cooperation; l) Respect for knowledge, curiosity and learning.

Authors like Patricia STERNS adopt a pragmatic approach to the third question –the reply to ETI signals– when she says that "The nature of detection will have a direct impact on the substance of the response. An electromagnetic signal, for example, could be merely a

call, devoid of any substantive information itself. Alternatively, the signal could be intended to attract the attention to another intelligent life form, and possibly even be directed to Earth. A detected signal also could be our serendipitous reception of an internal communication of another civilization, or communication between two other intelligent life forms on different planets. Each circumstance would be unique, and the corresponding response would need to be unique. Furthermore, a premediated contact may require a more rapid reply than a stray contact." [165]

The idea is the following one: once accepted the communication with ETI be part of International Law of Space, and noting there is no specific dispositions directly addressing this question, could be possible to apply analogously some principles of International Law of Space to the search and contact with ETI? (This would be one question); would be sufficient with this imaginative solution or, on the contrary, it would be needed to discover specific meta norms and norms for such eventuality? (second question).

As is has been observed by Ernst FASAN, lawmakers of the *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies* clearly foresaw that extraterrestrial life might exist and might be dangerous to human life, and on the other hand that phenomena of extraterrestrial life might be worth preserving.[166] See in this sense, Article IV.1): "The exploration and use of the Moon shall be province of all mankind and shall be carried out for the benefit and the interest of all countries, irrespective of their degree of economic or scientific development. Due regard shall be paid to the interests of present and future generations as well as to the need to promote higher standards of living conditions of economic and social progress and development

[165] STERNS, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *op. cit.,* p. 761.

[166] FASAN, Ernst, "Discovery of ETI: Terrestrial and Extraterrestrial Legal Implications", *Acta Astronautica,* 1990, Vol. 21, No. 2, p. 133.

in accordance with the Charter of the United Nations"; Article V. 3)[167]; Article VII.1)[168]; Article VII. 3)[169].

Consequently, in support of our argument could be mentioned, following to Patricia STERNS that "the obligation to disclose the discovery of organic life found on the Moon or elsewhere, such as provided in the Moon Treaty, should be clarified and strengthened by the conclusion of a treaty expressly requiring the public release and disclosure of both the fact and content of a detected signal or other discovery of ETI within a specified period of time following verification. The agreement also should provide for the international protection of the electromagnetic frequency on which an extraterrestrial signal is transmitted to protect and preserve the frequency band for further search and research.[170]

4. Reasons for International Law of Outer Space regulating SETI and METI

As Professor CASSESE has defended, every legal system undergoes constant change, for law must steadily adjust itself to new realities. In the international community two different patterns in law, one traditional, the other modern, live side by side. We can call the

[167] "In carrying out activities under this Agreement, States Parties shall promptly inform the Secretary General, as well as the public and the international scientific community, of any phenomena they discover in Outer Space, including the Moon, which should endanger human life or health, as well as of any indication of organic life".

[168] "States Parties shall also take measures to prevent harmfully affecting the environment of the Earth through the introduction of extraterrestrial matter or otherwise".

[169] "States Parties shall report to other States Parties and to the Secretary General concerning areas of the Moon having special scientific interest in order that, without prejudice to the rights of other States Parties, consideration may be given to the designation of such areas as international scientific preserves for which special protective arrangements are to be agreed in consultation with the competent organs of the United Nations".

[170] STERNS, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *op. cit.,* pp. 759-760.

traditional model "Grotian" and the new one "Kantian". Under the former model the international community is based on a "statist" vision of international relations; it is characterized by co-operation and regulated intercourse among sovereign States, each pursuing its own interests. In contrast, the more modern "Kantian" paradigm is based on a universalist or cosmopolitan outlook, which see at work in international politics a potential community of mankind[171].

My view is that, four general principles of International Law of Space –which are to be considered consuetudinary rules binding *erga omnes*– can be identified in the treaties, declarations and resolutions adopted in the framework of the United Nations, for the purposes of our research[172]:

a) The *cosmic commons* and the subsequent principle of *no national appropriation*

The former is so recognized in Principles 1 and 2 of the Declaration of Legal Principles[173]; Article I of the Outer Space Treaty[174]; in Article 4.1 of the Moon Agreement[175]. Interestingly, in the

[171] CASSESE, Antonio, *International Law, op. cit.,* p. 21.

[172] Following to Professor Vladimir KOPAL when he concludes, having analyzed the 1967 Outer Space treaty and other space law instruments in the light of extraterrestrial communications, that "at least some of these principles and norms provide guidelines that are applicable to those activities, though the directives given by them have been spelled out in rather general terms." KOPAL, Vladimir, "International Law implications of the detection of extraterrestrial intelligent signals", *op. cit.*, p. 123. In the same opinion: KEECH, Melissa, "Strong signals from space: what does it mean for international law", *op. cit.*, p. 191.

[173] Declaration of Legal Principles Governing the Activities of States in the Exploration and uses of Outer Space, Res 1962 (XVIII), December 13, 1963. Principle 1. "The exploration and use of outer space shall be carried on for the benefit and in the interest of all mankind". Principle 2. "Outer space and celestial bodies are free for exploration and use by all States on a basis of equality and in accordance with international law"

[174] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, 27 January 1967, 610 UNTS 205, (entered into force on 10 October, 1967) (Outer Space treaty). Article I. "The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interest of all countries,

(...)

Moon Agreement celestial bodies are to be considered "provinces of all mankind", following the example of the Moon; even more, the "interest of present and future generations" is explicitly recognized in this Agreement; the latter –no national appropriation–, is recognized in Paragraph A (1) b) of the Resolution on International Cooperation[176]; in Principle 3 of the Declaration of Legal Principles[177]; in Article II of the Outer Space Treaty[178], and in Article 11.2 of the Moon Agreement[179].

b) The *permissibility for States and for entities different than States to carry on activities in Outer Space* as a consequence of

irrespective of their degree of economic or scientific development, and shall be the province of all mankind. Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies."

175 Agreement Governing the Activities of States on the Moon and other Celestial Bodies (Moon Agreement), 18 December 1979 (entered into force 11 July 1984). Article 4.1. "The exploration and use of the moon shall be the province of all mankind and shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development. Due regard shall be paid to interests of present and future generations as well as to the need to promote higher standards of living conditions of economic and social progress and development in accordance with the Charter of the United Nations."

176 Resolution on International Cooperation in the Peaceful Uses of Outer Space. Res 1721 B (XVI), December 20, 1961. Paragraph A (1) b): "Outer space and celestial bodies are free for exploration and use by all States in conformity with international law and are not subject to national appropriation."

177 Declaration of Legal Principles Governing the Activities of States in the Exploration and uses of Outer Space, Res 1962 (XVIII), *op. cit.,* Principle 3. "Outer space and celestial bodies are not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."

178 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, *op. cit.,* Article II. "Outer space, including the moon and the other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."

179 Agreement Governing the Activities of States on the Moon and other Celestial Bodies, *op. cit.,* Article 11.2. "The moon is not subject to national appropriation by any claim of sovereignty, by means of use or occupation, or by any other means."

declaring the international responsibility for activities in Outer Space whether carried on by governmental agencies or by non-governmental entities

See Principle 5 of the Declaration of Legal Principles[180]; article VI of the Outer Space Treaty[181], and Article 14.1 of the Moon Agreement[182]. Note that according to such dispositions such no governmental entities are under direct control and supervision by the "State concerned" (identified in the Moon Agreement as the State under its jurisdiction such entities are).

[180] Declaration of Legal Principles Governing the Activities of States in the Exploration and uses of Outer Space, Res 1962 (XVIII), *op. cit.,* Principle 5. "States bear international responsibility for national activities in outer space, whether carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the principles set forth in the present Declaration. The activities of no governmental entities in outer space *shall require authorization and continuing supervision by the State concerned*. When activities are carried on in outer space by an international organization, responsibility for compliance with the principles set forth in this Declaration shall be borne by the international organization and by the States participating in it." (Emphasis added)

[181] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, *op. cit.,* Article VI. "States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the provisions set forth in the present Treaty. The activities of no governmental entities in outer space, including the moon and other celestial bodies, *shall require authorization and continuing supervision by the State concerned.* When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne by the international organization and by the States participating in it." (Emphasis added)

[182] Agreement Governing the Activities of States on the Moon and other Celestial Bodies, *op. cit.,* Article 14.1. "States Parties to this Agreement shall bear international responsibility for national activities on the moon, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the provisions of this Agreement. *States Parties shall ensure that no governmental entities under their jurisdiction shall engage in activities on the moon only under the authority and continuing supervision of the appropriate State Party.* " (Emphasis added)"

International Responsibility for activities in Outer Space is clearly established both, for activities in Outer Space independently whether they were carried on by governmental agencies or no governmental entities, in Principle 5 of the Declaration of Legal Principles, in Article VI of the Outer Space Treaty and in Article 14.1 of the Moon Agreement.

c) The *freedom of scientific investigation and exploration* of Outer Space without discrimination of any kind in accordance with International Law (exclusively for peaceful purposes in the case of the Moon) *and a correlative duty of informing United Nations* (through its General Secretary) on such activities

As it is recognized in Articles I and V of the Outer Space Treaty *in fine*[183]; in Articles 6.1 and 11.4 of the Moon Agreement[184] and in Paragraph A (1) b) of the Resolution on International Cooperation[185]. The duty of informing the General Secretary of United Nations is

[183] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, *op. cit.,* Article I. "…There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international cooperation in such investigation." Article V. "…States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary General of the United Nations of any phenomena they discover in outer space, including the moon and other celestial bodies, which could constitute a danger to the life or health of astronauts."

[184] Agreement Governing the Activities of States on the Moon and other Celestial Bodies, *op. cit.,* Article 6.1. "There shall be freedom of scientific investigation on the moon by all States Parties without discrimination of any kind, on the basis of equality and in accordance with international law." Article 11.4. "States Parties have the right to exploration and use of the moon without discrimination of any kind, on the basis of equality and in accordance with international law and the provisions of this Agreement."

[185] Resolution on International Cooperation in the Peaceful Uses of Outer Space, *op. cit.*, Paragraph A (1) b) "Outer space and celestial bodies are free for exploration and use by all States in conformity with international law and are not subject to national appropriation."

explicit in Article XI of the Outer Space Treaty[186], in Article 5.1 of the Moon Agreement[187] and in Paragraph B (1) and (2) of the Resolution on International Cooperation[188]. It is also indirectly proclaimed in Principle 4 of the Declaration on Legal Principles[189].

[186] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, *op. cit.,* Article XI. "In order to promote international cooperation in the peaceful exploration and use of outer space, States Parties to the Treaty conducting activities in outer space, including the moon and other celestial bodies, agree to inform the Secretary General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities. On receiving the said information, the Secretary General of the United Nations should be prepared to disseminate it immediately and effectively."

[187] Agreement Governing the Activities of States on the Moon and other Celestial Bodies, *op. cit.,* Article 5.1 "States Parties shall inform the Secretary General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of their activities concerned with the exploration and use of the moon. Information on the time, purposes, locations, orbital parameters and duration shall be given in respect of each mission to the moon as soon as possible after launching, while information on the results of each mission, including scientific results, shall be furnished upon completion of the mission, In the case of a mission lasting more than sixty days, information on conduct of the mission including any scientific results, shall be given periodically, at thirty-day intervals. For missions lasting more than six months, only significant additions to such information need to be reported thereafter."

[188] Resolution on International Cooperation in the Peaceful Uses of Outer Space, *op. cit.*, Paragraph B (1) and (2). "The General Assembly, Believing that the United Nations should provide a focal point for international cooperation in the peaceful exploration and use of outer space, 1. Calls upon States launching objects into orbit or beyond to furnish information promptly to the Committee on the peaceful Uses of Outer Space, through the Secretary General, for the registration of launchings; 2. Request the Secretary General to maintain a public registry of the information furnished in accordance with paragraph 1 bove;"

[189] Declaration of Legal Principles Governing the Activities of States in the Exploration and uses of Outer Space, Res 1962 (XVIII), *op. cit.,* Principle 4. "The activities of States in the exploration and use of outer space shall be carried on in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding."

d) The Principle of *International Cooperation among participants in activities in Outer Space*

Apart from deserving one of the first Declarations produced by the General Assembly of United Nations concerning the Outer Space –Resolution on International Cooperation, 20 December, 1961[190]– this legal principle is also recognized in Principles 6 and 9 of the Declaration of Legal Principles[191]; in Articles V and IX of the Outer Space Treaty[192], and in Article 4.2 of the Moon Agreement[193].

[190] Resolution on International Cooperation in the Peaceful Uses of Outer Space. Res 1721 B (XVI) *op. cit.*

[191] Declaration of Legal Principles Governing the Activities of States in the Exploration and uses of Outer Space, Res 1962 (XVIII), *op. cit.,* Principle 6. "In the exploration and use of outer space, States shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space with due regard for the corresponding interests of other States." Principle 9. "States shall regard astronauts as envoys of mankind in outer space, and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of a foreign State or on the high seas. Astronauts who make such a landing shall be safely and promptly returned to the State of registry of their space vehicle."

[192] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, *op. cit.,* Article V. "States shall regard astronauts as envoys of mankind in outer space, and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. Astronauts who make such a landing shall be safely and promptly returned to the State of registry of their space vehicle. In carrying on activities in outer space and on celestial bodies, these astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties." Article IX "In the exploration and use of outer space, including the moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty."

[193] Agreement Governing the Activities of States on the Moon and other Celestial Bodies, *op. cit.,* Article 4.2. "States Parties shall be guided by the principle of cooperation and mutual assistance in all their activities concerning the exploration and use of the moon. International cooperation in pursuance of this Agreement should be as wide as possible and may take place on a multilateral basis, on a bilateral basis or through international intergovernmental organizations."

No legal instruments referring to communication with extraterrestrial intelligent beings can be found in the whole International Law of Outer Space. As we commented in Chapter One, there is only "soft law" Declarations (the so called *Declaration of Principles concerning activities following the detection of extraterrestrial intelligence*[194] and the *Draft Declaration of principles concerning the sending of communication to extraterrestrial intelligent beings*[195].

A summary of key points of the Declaration of Principles Concerning Activities Following the Detection of Extraterrestrial Intelligence[196] is as follows:

1. If an alleged signal is detected, the author of the discover should seek to verify the source as extraterrestrial;

2. Prior to public announcement, confirm the discovery by independent observations with research colleagues at other sites;

3. If the signal is credible, inform UN and appropriate government and professional bodies, allowing the discoverer to inform observers throughout the world;

4. Confirmed detection should be announced promptly, openly and widely via scientific and public media channels, with the privilege of announcement reserved for discoverer;

5. All data necessary for confirmation of detection should be made available to the scientific community;

6. Discovery should be confirmed and monitored and with data recorded and stored permanently;

[194] Available in https://www.seti.org/protocols-eti-signal-detection

[195] Available in https://www.coseti.org/setiprot.htm

[196] RACE, Margaret S., and RANDOLPH, Richard O., "The need for operating guidelines and a decision framework applicable to the discovery of non-intelligent extraterrestrial life", *op. cit.,* p. 1584.

7. 7. If detection is in the form of electromagnetic signals, protect the appropriate frequencies through international agreement;

8. No response to the signal without consultation. Details of consultation to be developed;

9. Continue to review procedures and revise as appropriate.

In a similar way, we can summarize the *Draft Declaration of Principles concerning the sending of a communication to extraterrestrial intelligent beings (ETI)* as follows:

1. Sending messages to extraterrestrial civilizations is a matter to be considered together by States and other entities (even those which are not governmental), not unilaterally.

2. To this aim, consultations on whether a message is to be sent and on its eventual content must be result of cooperation among all interested parties. In particular, scientific community should be included in these deliberations.

3. Any decision should be achieved by consensus and, for this purposes, the General Assembly of the United Nations is thought to be the most convenient forum as being representative of the whole community of States.

4. The decision finally adopted will be on behalf of the humankind rather than of individual States.

5. Even though these principles, it is assumed that some reluctant States may unilaterally decide to communicate without consultations. In that case, the rest of States should not cooperate with them in their attempts to communicate with an extraterrestrial intelligence that do not conform the principles in this Declaration.

It is interesting to note that the Principles included in both Declarations reproduced in Annex at the end of this monography, in their current form offer a set of operational guidelines for

disseminating information about the detection of extraterrestrial intelligent beings upon initial discovery, but deliberately side-step any detailed recommendations for the long term. Instead they have adopted a policy of "consultation" prior to sending a response to any signal. The intent of this consultation is to involve a range of governments, agencies and peoples in discussions and ensure broad consideration for all humankind. The principles are intended to be flexible and adaptable by including a provision for revision and refinement as more information becomes available.[197]

The Declaration of Principles Concerning Activities Following the Detection of Extraterrestrial Intelligence has been approved by most of the relevant international groupings, such as the Board of Trustees of the International Academy of Astronautis (IAA) and the Board of Directors of the International Institute of Space Law (IISL), by the Committee on Space Research (COSPAR), by Commission 51 of the International Astronomical Union, by Commission J of the Union Radio Scientifique Internationale, and by the International Astronautical Federation (IAF).[198]

It is not binding in law. At most, it is a Declaration which various influential bodies and certain individuals have indicated they will be abide by. But if they do not, there is no other mechanism than the disciplinary mechanisms of scientific institutions. Should be altered? Should steps be taken to make it over into law? On one view such step is unnecessary. The Declarations can work. But the problem of law is rarely the law-abiding. Would a proper legally binding statement help curb those who would not be inclined to comply with what amounts to a "gentleman's agreement"? Pragmatically, anyone could agree with authors like Francis LYALL when says that not everyone would obey

[197] RACE, Margaret S., and RANDOLPH, Richard O., "The need for operating guidelines and a decision framework applicable to the discovery of non-intelligent extraterrestrial life", *op. cit.,* p. 1584.

[198] LYALL, Francis, "SETI and the law: what if the search succeeds?" *Space Policy*, 1998, Vol. 14, p. 76.

even a law, but principles expressed in a form of greater legal authority than at present might just reduce the number of the recalcitrant.[199]

The key point still remains, in my opinion in making legally binding the Declarations for SETI and METI (including a possible reply from Earth after an eventual contact). We will develop this topic in next Chapter. The first step would be to re-work the language of the Declarations. As they stand they are not well-adapted for incorporation into any of the present mechanisms through which they might be given legal status. When that is being done it might also be advantageous to fuse the two documents, so that both "Detection" and "Reply" are dealt with together and have the same standing. Ideally, another entry in the catalogue of the United Nation Space Treaties would be the best. Such a treaty should also expressly require States to make compliance with the principles of the Declarations part of their licensing and supervision of space activities within their several territories as part of their supervisory duties already existing under art. 6 of the Outer Space Treaty of 1967.

Unfortunately not all States take the 1967 duty seriously, and it may help once more to underline the obligations laid on States by Space law.[200] If such a route were thought desirable, the place to start would be in COPOUS. The Foreign Offices and Chancelleries of the world are not likely to take the initiative of convening a conference on a SETI treaty themselves. They have other things to keep them busy. As COPOUS has a good track record. One can look to the useful effect that has been obtained in Space Law by the various declarations of principle which have been adopted without vote or unanimously by the General Assembly of the UN on the recommendation of COPOUS. But the nature of the adoption would be crucial. The Declaration on principles regarding direct satellite broadcasting of 1982 (GA Res. 27/92) shows in this sense that the effect of non-unanimous declarations is much impaired, not to say, destroyed.[201]

[199] LYALL, Francis, "SETI and the law: what if the search succeeds?" *Op. cit.,* p. 77.

[200] LYALL, Francis, "SETI and the law: what if the search succeeds?" *Op. cit.,* p. 77.

[201] *Ibídem.*

As it has already referred in Chapter One, a simple private researcher at home, with low-cost electronical systems might well send and receive messages into and from outer space, furthermore, huge private enterprises. The result of this will be, as Patricia STERNS recalls, that "the temptation to reply a message received from an ETI may be too great to resist. The prospects of engaging in a dialog with intelligent beings from another part of the universe are too fantastic to dismiss. At the very least, sufficiently sophisticated broadcast equipment is available to various groups and individuals to enable them to send messages, even if such activities are conducted clandestinely or contrary to local laws and regulations."[202] It would be naïve to suppose that States could ban physically nor legally such actions. So, considering about the reasons for them still refusing regulate SETI and METI in the benefit of mankind, even a superficial look at their reasons reveals their fear to open the door to other entities than States and International Organizations in any area of International Law of Outer Space. This is so, even if we are talking about such an exotic field like that of contacting extraterrestrial intelligent beings. They might be avoiding a scenario where these entities would question the reason for States preventing non-governmental entities from participating in other areas of interest in the Outer Space, namely the exploration and exploitation of its resources.

In the final analysis however, as Patricia STERNS points out, even though the Declaration of Principles Concerning Activities Following the Detection of Extraterrestrial Intelligence mandates the dissemination of information about detection of an extraterrestrial intelligent beings, States might wish avoiding compliance with this Declaration for different reasons: selfishness –the potential for military, commercial or political advantage by the use of information in

[202] STERNS, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *op. cit.,* pp. 762. For such reason, this author concluded "Thus, to avoid renegade reaction, an international agreement or treaty should include appropriate provisions by which a global response can be formulated."

a confirmed signal– or pursuit of general interest –namely, for fear of triggering widespread panic–.[203]

[203] STERNS, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *op. cit.,* pp. 759-760.

CHAPTER THREE. THE FUNDAMENTALS OF INTERSTELLAR LAW

As we have seen in previous Chapters, the thesis we defend is that the communication with extraterrestrial intelligent beings (SETI and METI) must be part of International Law of Outer Space, particularly in a current situation of globalization where the increasing presence of non-governmental entities carrying out activities in Outer Space is as disturbing as the voices of States willing to start the economic exploitation of the Moon and other celestial bodies for their own and exclusive benefit and interest. It is a fact out of discussion that the classical International Law of Outer Space is challenged on many sides. In this period of transition still open, we consider the regulation of the communication with extraterrestrial civilizations must be object of attention by International Law of Outer Space in two folds: on the one hand, thinking in the short time, it must be achieved a binding detection protocol (sending messages and eventually answering any signal we can receive). This is the content of the current Chapter.

At this strict regard, there cannot be any doubt that the detection of extraterrestrial intelligence could take many forms, and the exact scenario of such detection might be unpredictable. In many potential scenarios –at least four credible scenarios were presented in introduction to this study–, however, it is evident that the same questions would arise. Should the human species send a message to the extraterrestrial civilization? Who decides? Are there reasons why Humankind should not reply? Who decides? If we decide to reply, what should be said? Again, who decides? [204] These questions lead top others according to BILLINGHAM: Should humanity respond as a unit, rather than as separate nations and organizations? Should we attempt

[204] BILLINGHAM, J., "Cultural aspects of the search for extraterrestrial intelligence", *op. cit.,* p. 716.

to design a generic response, or await the circumstances of the detection before drafting a more specific response? Can we design a reply without a signal to analyze?

At the end of the day, it must be acknowledged that a transmission from extraterrestrial intelligent beings that we detect could vary all the way from a continuous wave carrier signal to a very complex message. So the decision as to whether or not to reply and the decision on the content of our message would finally depend to a considerable degree on the nature of their signal. Consequently, just as this author argues, it is fruitless at this time to even think about the content of our message in view of this unknown.[205]

On the other hand, another question that can also be raised is that we would also need a long time strategy. That is, some kind of protocol of communication –including the content– considering such communication as a kind of diplomacy towards any extraterrestrial civilization. This will be object of our attention in Chapter Four, where we will develop our thesis of the convenience of Interstellar Law as *ius gentium* for new worlds. Although some dispositions of existing International Law of Outer Space can indirectly be applied to regulate both dimensions of Earth's strategy facing a discover of extraterrestrial civilizations, my view is that a new paradigm of Law is needed. Not only, as it is obvious, considering that some of the norms regulating the outer space we have approved on Earth during more than fifty years cannot be expendable to extraterrestrials civilizations. We need a new paradigm of International Law of Outer Space especially due to the fact that existing set of norms integrating the current International Law of Outer Space was thought by Governments to regulate relations among Governments. It is obvious, from the analysis developed in previous Chapter Two that not any longer can be assumed such State-to-State approach to SETI and METI. That is the reason for us launching the proposal of an *Interstellar Law* as an *ius gentium* for new worlds upon the basis of the exercise of *ius communicationis* of the humankind which is implicit in the principle of customary law of free

[205] *Ibídem.* However, it might be useful to assume, following his reasoning, for example, that their signal has no message but is indisputably generated by a radio transmitter. What would we do if we detected their interplanetary radar?

exploration of the Outer Space. In the following pages we will start with presenting a personal theory of General International Law (a kinetic theory of Post-contemporaneous International Law as geometry in motion) in order to understand that changes affecting the international order in the last decades also has incidence in its subject matters, like the exploration and use of Outer Space. Afterwards, we will examine the traditional approach of States facing spaces on Earth which are out of their jurisdiction (like the seabed) and we will try to justify that the "res communis" model (which in practice implies "first come, first served") is not valid for communicating with extraterrestrial civilizations. Thus, the humankind is entitled to use of Outer Space and in this case, it would be acceptable the *ius occupationis* by any State as it has happened on Earth with spaces *res communis omnium*.

However, the exploration of Outer Space on behalf of the humankind –including the *ius communicationis*– would not resist its unilateral exercise by a single State considering that discovering and interacting with an extraterrestrial civilization would amount an issue of general concern for the international community of States as a whole, and for the human beings as a species as well. Consequently, we defend that considering SETI and METI as an exercise of *ius communicationis* of humankind demands us preventing from unilateralism of States in contacting extraterrestrial civilizations. Cooperation among governmental and non-governmental actors for a successful response of humankind face to face a discovering of extraterrestrial intelligent life, in the framework of United Nations according to International Law is our proposal in this Chapter Three.

1. A kinetic theory of International Law as a General Legal Framework for Interstellar Law

The relevance of this epigraph is clear: If we have accepted since the very beginning of this monography that International Law of Outer Space must be considered a branch of General International Law, and considering as well that SETI and METI should be included as domains regulated under the legal framework of International Law of Outer Space, the inevitable conclusion, therefore is that we must see whether or not the features of General International Law existing in the time when the main body of International Law of Outer Space, are remaining or have been replaced by a new paradigm of international

order after the implosion of the Soviet Union and the coming of globalization in the 90s. If we accept international order has changed in the last decades, then, it must be for granted that it would have influenced a new model of International Law of Outer Space (Interstellar Law).

For pedagogical purposes and in the line developed by Professors SÁENZ DE SANTAMARÍA[206] and CASANOVAS Y LA ROSA[207], it is possible to present the current international social environment as a three-sided polyhedron representing, each one of them, a part of the reality that it coexists with the other two remaining: the faces of the classic international society, of the contemporary international society and of the incipient world community. The relationship established between the three planes of perception of the present international reality is dynamic[208] insofar as there is an incessant interaction between these three paradigms, as a consequence of the reciprocal influences of the factors that, following the Professors RODRÍGUEZ CARRIÓN and CARRILLO SALCEDO, are shapers of contemporary

[206] When she points out the existence of three differentiated normative structures in the international order, respectively, to regulate relations of coexistence between sovereign States; the cooperative relations that the States maintain for the achievement of common objectives; and finally, the structure that is a consequence of the relations between the States derived from the obligations that international law imposes on them to safeguard the essential interests of the community as a whole and certain rights that are attributed to the human person and to the peoples. ANDRÉS SÁENZ DE SANTAMARÍA, Paz, *Sistema de Derecho Internacional Público*, 4th ed., Civitas, 2016. Madrid, p. 30.

[207] When describing the complexity of international society alluding to a triple relational, institutional and community structure. CASANOVAS Y LA ROSA, Oriol and RODRIGO, Ángel, *Compendio de Derecho internacional público,* 6th ed., Tecnos, 2017, Madrid, pp. 35 to 37.

[208] Like a geometrical figure in motion. See: GARCÍA SAN JOSÉ, Daniel, "Una teoría cinética del Derecho internacional postcontemporáneo: geometría en movimiento", in *Estados y organizaciones internacionales ante las nuevas crisis globales,* MARTÍN Y PÉREZ DE NANCLARES, J. (Coord.), Iustel, Madrid, 2010, pp. 493-502.

international society: institutionalization, humanization, universality, inequality of States and globalization[209].

Thus, a first plane of this imaginary polyhedron would reflect a model of *classical international society*, characterized by the disunity of its components, the States, which establish among themselves, merely, relations of coexistence and juxtaposition and in which the individual interests of the States individually defended by these. Second, another plane of the polyhedron that represents the current international social environment would correspond to a model of *contemporary international community*, which shows a union in the diversity of its members, States and with them, the International Organizations, through the common defense of individual interests thanks to the establishment of cooperative relations, or through the combination in a same level of value –derived from the international subjectivity that both share, States and International Organizations–, of the joint defense of particular interests with interests general.

Third, finally, the last of the planes of this geometric figure is that of the *global community*. Taking the States and International Organizations as the central pillars of this international community, but including the active presence of international actors such as NGOs and transnational corporations, the "global" adjective aims to reflect the bonds of solidarity that these establish with each other and that are direct consequence of the relations of interdependence that unite them: in terms of the problems and their possible solutions[210]. Relationships of interdependence in which the obligations of integral structure, that is, obligations *erga omnes* "that have been created for the protection of values and general interests of the entire international community and

[209] RODRÍGUEZ CARRIÓN, Alejandro, *Lecciones de Derecho Internacional Público*, 6th ed., Tecnos, Madrid, 2006, pp. 48 and ff. CARRILLO SALCEDO, Juan Antonio, *El Derecho internacional en perspectiva histórica*, Tecnos. Madrid, 1991, pp. 152 and ff.

[210] See GARCÍA SAN JOSÉ, Daniel, *Derecho internacional postcontemporáneo,* Tirant lo blanch, 2008, Valencia, pp. 108-124.

are due for each and every one of the States to the entire international community as a whole. "[211]

That is why we speak, in connection with this third plane, of a responsible sovereignty or, in the terms coined by Professor FERNÁNDEZ SÁNCHEZ, of a "virtuous sovereignty" in the face of the monarchical and even imperial derives of sovereignty polyhedral in recent times, more evident in the other two planes of said polyhedron[212]. A model of responsible sovereignty that offers some internal contradictions, as professors ALCAIDE FERNÁNDEZ and RODRIGO have pointed out, in the sense that normative developments in defense of the general interest are not accompanied by similar progress at the institutional level[213], despite the fact that Institutionalized media, represented in International Organizations, continue to be the best option for the responsible management of general interests. This world community would be characterized by the aspiration of its members to make the general interests prevail over the particulars of each of them and common to all or a large part of them.

As Professor RODRÍGUEZ CARRIÓN has pointed out in this regard, more and more, certain issues are conceived on a planetary scale and it is widely recognized that the global nature of some problems prevents their solution on a strictly state basis, for which "logic is imposed that states must subordinate the attainment of their own state objectives to the attainment of general interests or, what is

[211] CASANOVAS Y LA ROSA, Oriol and RODRIGO, Ángel, *Compendio de Derecho internacional público, op. cit.,* p. 50.

[212] FERNÁNDEZ SÁNCHEZ, Pablo Antonio, "La soberanía poliédrica", in *Soberanía del Estado y Derecho Internacional. Homenaje al Profesor Juan Antonio Carrillo Salcedo*, SALINAS DE FRÍAS A. and VARGAS GÓMEZ-URRUTIA, M. (Coords.), Sevilla, 2005, Vol. 1, pp. 589, 617-618.

[213] ALCAIDE FERNÁNDEZ, Joaquín, "Orden público y Derecho internacional: ¿desarrollo normativo y déficit institucional?", en *Soberanía del Estado y Derecho Internacional. Homenaje al Profesor Juan Antonio Carrillo Salcedo*, *op. cit.*, pp. 107 and 115. RODRIGO, Ángel, "Entre Westfalia y worldfalia: la comunidad internacional como comunidad social, política y jurídica", in GARCÍA SEGURA, C. (Dir.), *La tensión cosmopolita*, Tecnos, 2016, Madrid, pp. 55-56.

the same, that an international society of subordination must emerge."[214]

Consequently, in this third level, it is also more evident that in the other two levels the generation, application and demand of responsibility for breach of some sectors of International Law of great importance for the collective interests of the international community, following a model of collective guardianship[215] in which States and international organizations co-act with international actors. Again, the dissonance between the normative and institutional developments that have been achieved in this third scenario shows a gap between the norm, the method of controlling compliance and the imposition of pertinent sanctions.[216]

Precisely because the current international social environment is characterized by having these three different, even antagonistic, planes it is possible to identify in the international normative order a part of hard law, either of nature or character voluntarist (*ius dispositivum*) –most of the international norms that arise in a context of juxtaposition and cooperation–, or of an imperative nature (*jus cogens*) –the minority of norms–, whose obligation for States outside their consent is established on the basis of relations of interdependence in close connection with the structural principles of the international order[217]. It is, as Professor GUTIÉRREZ ESPADA has said, the

[214] RODRÍGUEZ CARRIÓN, Alejandro, "El nuevo Derecho internacional: la cuestión de la autodeterminación y la cuestión de la injerencia", in *Transformaciones del Derecho de la Mundialización,* Consejo General del Poder Judicial, Madrid, 1999, p. 163.

[215] ANDRÉS SÁENZ DE SANTAMARÍA, Paz, *Sistema de Derecho Internacional, op. cit.,* p. 33.

[216] PASTOR RIDRUEJO, José Antonio, "Editorial. El Derecho internacional en los albores del siglo XXI: luces y sombras", *Revista Española de Derecho Internacional,* 2017, vol. 69, No. 1, p. 16. This author cites as unfortunately well-known examples the very serious and massive crimes of all kinds perpetrated by the so-called Islamic State –and according to independent observers–, by the other parties to the conflict, without being subjected to the coercive action of the international community.

[217] ANDRÉS SÁENZ DE SANTAMARÍA, Paz, *Sistema de Derecho Internacional, op. cit.,* p. 24. As this author points out, "in them lies, therefore, the core of the ius cogens norms of international law", *op. cit.*, p. 26. On the relevance of these constitutional principles in the identification of ius cogens norms, see: CARRILLO SALCEDO,

(...)

expression of international legal conscience and the beacon that should guide any action of the subjects of International Law and the interpretation of its norms[218].

Alongside this part of International Law, another part of semi-hard law can be seen which includes, as Professor PASTOR RIDRUEJO points out, "MOU's or non-normative agreements, frequent even on relevant issues, generators of moral and political obligations and that are usually observed "[219]; the Draft International Code of Conduct for activities in outer space[220], in the opinion of Professor GUTIÉRREZ ESPADA[221], or as Professor MÁRQUEZ CARRASCO points out, the corporate social responsibility rules frameworks of transnational corporations with increasing support for standards international legal frameworks on human rights, the environment and anti-corruption[222]. It also includes the new

Juan Antonio, *Soberanía de los Estados y Derechos Humanos en Derecho internacional contemporáneo,* 2nd ed., Tecnos, Madrid, 2001*,* pp. 142 and ff. Such principles would be, in the opinion of this author "the axioms or ethical postulates that should inspire the entire legal order, either because the Law refers to them as a term or canon of aspiration or because they are an integral part of the order." *Ibídem*, p. 147.

218 GUTIÉRREZ ESPADA, Cesáreo and CERVELL, María José, *El Derecho Internacional en la encrucijada,* 3rd ed., Trotta, 2012, p. 33.

219 PASTOR RIDRUEJO, José Antonio, "Editorial. El Derecho internacional en los albores del siglo XXI: luces y sombras", *op. cit.,* p. 14.

220 Draft International Code of Conduct for Outer Space Activities, 3rd version, adopted by the Council of the European Union on 16 September, 2013. Revised Text from 31 March, 2014; Available at https://eeas.europa.eu/sites/eeas/files/space_code_conduct_draft_vers_31_march_2014_en.pdf Visited 11 November, 2017.

221 GUTIÉRREZ ESPADA, Cesáreo, "El Derecho del Espacio en un mundo global: del tratado de desarme de Rusia y China al Código de Conducta sobre las actividades espaciales de la UE", in *La Unión Europea como actor global de las Relaciones Internacionales. Retos y problemas seleccionados,* GUTIÉRREZ ESPADA, C. and CERVELL HORTAL, María José. (Dirs.), Tirant lo Blanch, Valencia, 2016, pp. 427-465.

222 MÁRQUEZ CARRASCO, Carmen, "El Plan Nacional de España sobre empresas y derechos humanos y la implementación de los pilares proteger, respetar y remediar oportunidades y desafíos", in *España y la implementación de los Principios Rectores de las Naciones Unidas sobre empresas y derechos humanos: oportunidades y desafíos, op. cit.,* (Márquez Carrasco, C., Dir.), Huygens Editorial, Barcelona, 2014, p. 30.

nomogenetic mechanisms, in particular, regarding the protection of the environment on a global scale, in which complex cooperative strategies based on a multilevel system or interrelated legal orders involving both states and actors which are not States[223].

Finally, in the international legal order is also seen the existence of a soft law that has more *lege ferenda* than *lex data*, to be constituted by a set of programmatic rules mostly referring to general interests of Humanity, and whose binding nature for States is intended on a basis of solidarity. It is from this prism that International Law can be seen "as a right for pessimists, obsessed only by the distance between reality and the ideal, or a right for optimists who positively value the existence of the ideal in itself."[224] In words of Professor CARRILLO SALCEDO, with whom I fully agree:

> "The dimensions of solidarity that the notion of community contains seem utopian and naive words in the face of the harsh reality of a convulsive world that seems to have no score (...) and in front of those who oppose the positivity of this civilizing notion, and even derisively They dismiss as naive those who defend it, I think it is necessary to remember that a certain utopian dimension is inherent to the internationalist when he understands his work as a work in favor of the creation of peace conditions."[225]

[223] GARCÍA SAN JOSÉ, Daniel, "La elaboración del Derecho internacional más allá del consentimiento estatal: la emergente legalidad internacional de base consensual", *Anuario Español de Derecho Internacional,* Vol. XXIV, 2008, pp. 128 and ff. RODRIGO, Ángel and ABEGÓN, M., "El concepto y efectos de los tratados de protección de intereses generales de la comunidad internacional", *Revista Española de Derecho Internacional,* 2017, vol. 69, No. 1, p. 190. GARCÍA SEGURA, Caterina, "La *mirada cosmopolita* como requisito político y social para la provisión de los bienes públicos globales", *Anuario de la Facultad de Derecho de la Universidad Autónoma de Madrid,* 2012, No. 16, pp. 55-74.

[224] LIROLA DELGADO, Isabel and MARTÍN MARTÍNEZ, Magdalena, *La Corte Penal Internacional,* Ariel, Barcelona, 2001, p. 1.

[225] CARRILLO SALCEDO, Juan Antonio, "La noción de comunidad internacional, factor de innovación en el Derecho internacional", in *Innovación y conocimiento,*

(...)

A process started years ago, demonstrates a paradigm of a global community that claims a model of International Law integrated by the set of obligations assumed by subjects and international actors by virtue of their consent or outside of it. It is, in effect, a paradigm of post-contemporary International Law[226] that, in accordance with the universal values expressed in the Charter of the United Nations, aims to regulate the relations of cooperation and interdependence of international actors (not only States but respecting their role principal) that integrate this incipient global community, to preserve the common good of the community as a whole, through responsible, and therefore solidary, management of the competences recognized to each member of the same, in a special way, sovereign competences of the States.

The State's consensual base as a source of international obligations more and more seems to be considered not only from an individual perspective –as it has been traditionally– but also on a consensual collective basis, against global threats that are of general interest rather than of interest common. That is, in the face of issues that have greater relevance for the International Community of States as a whole than for the States that make up such an International Community[227].

The legitimacy of this new global normative order, still in formation, is based on the perception of global threats as matters of general interest of the International Community of States as a whole and on a collective consensual basis that would prevail on the individual consensual basis. This would be possible by transferring to the scope of the Interstellar Law, the inferred principles of

SOBRINO HEREDIA, J. M. and PUREZA, J. M. (Dirs.), Marcial Pons, 2010, Madrid, p. 27.

226 GARCÍA SAN JOSÉ, Daniel, *El Derecho Internacional Postcontemporáneo, op. cit.*

227 See GARCÍA SAN JOSÉ, Daniel, "La elaboración del Derecho internacional más allá del consentimiento estatal: la emergente legalidad internacional de base consensual", in *Anuario Español de Derecho Internacional,* Vol. XXIV, 2008, págs. 107-139.

International Law such as the principle of necessity in connection with environmental security[228].

For years now, I have defended the thesis that when facing global threats such as climate change it can only be adopted multilateral approaches, then the unilateral position of a single State or of a small group of States cannot be an obstacle to the solution[229]. This implied the emergence in International Environmental Law of the principle of necessity in connection with environmental security as a principle inferred at the same level as other principles of International Law[230] which although it was closely linked to the precautionary principle –another well-known principle in International Environmental Law–, it was preferable to that for three reasons:

— first, the principle of necessity linked to environmental security would call for a multilateral approach while the precautionary principle is normally invoked from a unilateral position;

[228] See in this regard the considerations made on this principle by the International Court of Justice in its judgment of September 25, 1997, ICJ Reports 1997, paragraphs 49 to 59, in the case concerning the Gabčikovo-Nagymaros Project (Hungary / Slovakia). Although in its ruling of March 31, 2014, in the Whaling in the Antarctic case (Australia v. Japan: New Zealand intervening), there is no express mention of this principle, the way in which the Court enters to assess the dispute between the Parties applying the meaning and scope of the phrase "for purposes of scientific research" as a standard for the review of obligations in Article VIII, paragraph 1 of the ICRW, the object and purpose of that Treaty –a matter of general interest for generations present and future– in my opinion it is more a confirmation than a discrepancy with this principle. *Vid.* Paras 44-47, 56-58 and 67-69 of the judgment.

[229] In other words, their unilateral position cannot remain relevant in this issue. GARCÍA SAN JOSÉ, Daniel, "El principio de necesidad ligado a la seguridad medioambiental como instrumento idóneo para reforzar la acción internacional, normativa e institucional, en materia de cambio climático", in GILES CARNERO, R. (Coord.): *Cambio Climático, Energía y Derecho Internacional: Perspectivas de Futuro,* Thomson Reuter Aranzadi, Cizur Menor, 2012, pp. 79-90, in p. 81.

[230] In the sense developed by judge Cançado Trindade en his Separate Opinion in the *Case concerning Pulp Mills on the River Uruguay (Argentina/Uruguay),* judgment of 20 April, 2010, *ICJ Reports* 2010.

— Secondly, the precautionary principle is used as a preventive reaction to harm when a threat is detected and there is not a sufficient scientific basis, while the principle of necessity, being closely linked to safety considerations, would suggest a broader approach, that is, not only as a reaction but as a strategy seen as a *continuum*: before, during and after the concrete threat is perceived.

— Finally, the principle of necessity connected with environmental security should be established on the basis of a new reading of sovereignty in a functional sense, by virtue of which, rights are taken into consideration but especially the duties of States vis-à-vis others States, their own citizens and the International Community[231].

Consequently, in the same way that the principle of necessity linked to environmental security against the precautionary principle as a new and emerging general principle of international law can and is, in fact, being considered as the cornerstone of an international *corpus iuris* –still in formation– from which binding legal obligations for States are derived, regardless of any conventional link in connection with the two main axes –mitigation and adaptation– in which the international community currently works in the fight against climate change, I think that in the new Interstellar Law, still in the process of formation, this meta principle of necessity would be useful to facilitate the recognition and respect of *jus cogens* norms in relation to a possible contact with intelligent extraterrestrial life.

Even though in International Space Law, as a weak point of this argument, it remains that, beforehand, the question of how to distinguish a real situation that requires a multilateral approach from a

[231] In this sense, while the precautionary principle could be seen as a barrier of a State against the rest of the world, the principle of necessity should be considered, rather, as the bridge that links that State with the International Community in which it is integrated. GARCÍA SAN JOSÉ, Daniel, "El principio de necesidad ligado a la seguridad medioambiental como instrumento idóneo para reforzar la acción internacional, normativa e institucional, en materia de cambio climático", *op. cit.,* p. 82.

situation that some claim to consider as such, must be resolved, it seems out of all discussion, that in case of contacting or being contacted by extraterrestrial intelligent life, we would be in an assumption that claim the application of the principle of necessity in the sense stated above. Perhaps never before has there been an issue that affects humanity like this. It has been done in recent years - if the visual metaphor is allowed - on the basis of a highway with multiple exits - each one representing a probability of certain dangerous events materializing for people and different ecosystems. A caravan of vehicles with a common destination circulates along this highway, but unfortunately, each driver drives according to a different road map. The foreseeable consequence is that - assuming that all of them share the desire to reach their goal in the easiest and fastest way possible - the way to achieve this end depends on the interpretation that each one makes of the road map that he handles.

This metaphor shows that it would not be so much a matter of good or bad faith of each driver of a vehicle, State, as of the need to have a road guide common to all of them. This instrument in the incipient Interstellar Law, still in formation, is contributed, in my opinion, by the scientific community.

2. Law to conquer (*ius occupationis*) and law to communicate (*ius communicationis)* in the use and exploration of Outer Space

Having presented our conception of current General International Law in previous epigraph, it is now time to discuss whether SETI and METI can be considered as part of a plan for conquering new worlds (and their extraterrestrial inhabitants) as it happened, *mutatis mutandis*, in the Berlin Congo Conference of 1884-1885, or whether we should better consider it in a different way. The thesis we defend is that after the discovering of extraterrestrial intelligent beings, it would not be too difficult to make out a convincing case for defending it as an *ius gentium* for new worlds of humankind, by looking back to classics Francisco de Vitoria and Francisco Suárez, both eminently representing the Spanish School of International Law in the XVI and XVII.

We may agree that the consequences of the discovery can usefully be divided into near term and long term. The first ones refer to

those months and years immediately after the event, and the second ones deal with an indefinite future. Some short term questions (what do you do after detecting a signal?) have been considered and have already led to the SETI "post-detection protocols", briefly presented in Chapter One. Comparatively, in both documents little attention has been paid to the longer term questions which deal in a broad way with the effects the discovery will have on the future of our own civilization.[232] Hence, it is our interest for them in Chapter Four.

As Professor Antonio CASSESE states, since the Berlin Congo Conference of 1884-1885, the distribution of space among members of the world community has been inspired by aggressive individualism and a laissez-faire attitude: whoever had the physical means of acquiring and effectively controlling a portion of territory on land was legitimized to claim sovereign rights over it. As a consequence, the more powerful –military and economically– a State, the greater was its chance of acquiring a bigger territory.[233]

The only exception to this partition was the high seas, which –since the seventeenth century was subject to the principle that they were a thing belonging to everybody (*res communis omnium*): every State could sail its ships or use the high seas resources as it pleased, as long as it did not hamper their free use by other States. However, as this author recalls, the fact that the high seas were considered a "common good" should not lead us to believe that this legal regime was motivated by solidarity. Had a State, or group of States, proved strong enough to claim and enforce the exclusive right to use that are or large portions thereof, it would have had no hesitation in depriving other members of the international community of access thereto. Furthermore, the *res communis* concept means –in the view of this author– that every State is authorized to use a certain good for its own purposes and its own interest. It is not a community-oriented concept; it is geared to self-interest.[234]

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[232] BILLINGHAM, J., "Cultural aspects of the search for extraterrestrial intelligence", *Acta Astronautica,* 1998, Vol. 42, No. 10-12, p. 711.

[233] CASSESE, Antonio, *Public International Law, op. cit.,* p. 81.

[234] CASSESE, Antonio, *Public International Law, op. cit.,* p. 82.

The process of assumption of the concept of common heritage of mankind is well known as Professor CASSESE resumes it as follows: As early as 1967 the Maltese Ambassador Arvid PARDO launched the notion of the common heritage of mankind in the General Assembly of United Nations. He noted that new technology as well as fresh developments in oceanographic sciences, were making it possible for mankind to benefit from the immense wealth existing on the seabed and the ocean floor beyond national jurisdictions. In his view, there were two alternative courses of action. The first was to allow a competitive scramble for sovereign rights over the land underlying the world's seas and oceans, surpassing in magnitude and in its implications XIX century's colonial scramble for territory in Asia and Africa; one of the consequences would be both a dramatic increase of the arms race and increasing world tension; in addition, the strong would get stronger, the rich richer, and among the rich themselves there would arise an increasing an insuperable differentiation between two or three and the remainders. The other alternative was to stablish an international legal regime to ensure that the seabed and the ocean floor were exploited solely for peaceful purposes and for the benefit of mankind as a whole. Thus the concept of "common heritage of mankind" as a general standard for the exploitation of new natural resources, was delineated, incorporating five main elements: the absence of a right of appropriation; the duty to exploit the resources in the interest of mankind in such a way as to benefit all, including developing countries; the obligation to explore and exploit for peaceful purposes only; the duty to pay due regard to scientific research; and finally, the duty duly to protect the environment.[235]

Pardo's ideas were to a large extent taken up in the 1982 Convention on the law of the Sea, (Arts. 136, 137, 141-5). The crucial point was how the resources of the "Area" would be exploited. An organization, the International Sea-Bed Authority, was provided for. It was to consist of an Assembly, made up of all contracting parties, and a Council, consisting of 36 States selected in accordance with special criteria. The activities of exploration and exploitation were to be carried out either by the Enterprise (an organ of the Authority also

[235] CASSESE, Antonio, *Public International Law, op. cit.,* p. 92.

charged with transporting, processing and marketing the minerals recovered from the Area), or by States parties, State enterprises, or natural and juridical persons having the nationality of, or being controlled by, a State party. When entities other than the enterprise carried out the various activities, they could do so only after receiving an authorization for production from the Authority. Each are for which an entity might apply was to be divided into two parts: one to be exploited by the applicants, the other by the Enterprise. As for the modalities for sharing the financial or other economic benefits, under article 160 the question was left to the Assembly for future decision. It was only provided that the sharing should be 'equitable' and that one ought to take into account 'the interest and needs of developing States and people who has not attained full independence or other self-government status.[236]

It is a notorious fact that industrialized countries, led by the USA, the UK and Japan, firmly opposed the new concepts and this opposition prevented the Convention from entering into force. A breakthrough occurred in 1994, when States reached agreement on a text designed to review part XI of the Convention (on the Area). Thanks to this revision, an increasing number of States ratified the Convention, which entered into force in 1994.[237] Thus, although the notion of the common heritage of mankind has not been scuttled, in practice all its major implications for developing countries, with regard

[236] *Ibídem.*

[237] CASSESE, Antonio, *Public International Law, op. cit.,* p. 94. The agreement adopted in 1994 hinged on the following points: (i) The Authority should be set up gradually, and its costs for member States will be kept at a minimum. (ii) There was no longer an obligation for States to finance the Enterprise (previously it had been provided that States parties were to grant the Enterprise long-term, interest-free loans designed to cover 50 per cent of the cost of exploring and exploiting a site in the Area, or treating and marketing the minerals retrieved, besides covering the initial administration expenses). (iii) The Enterprise was subject to market forces; both its funding and its operations are subject to cost-effectiveness criteria. (iv) In conformity with a new voting system, the Authority's Council could no longer impose its decisions on matters that States (in particular, industrialized States) deem contrary to their interests. (v) There was no longer an obligation to transfer technology to the Enterprise or to those developing countries which apply for a contract.

to seabed resources, have been watered down to such an extent that one may well wonder when and how this bold concept will be translated into reality, even assuming the resources do exist.[238]

All this may be true, as Professor CASSESE explains. However, it seems clear to us that when we refer to SETI and METI we are not talking about *use of Outer Space* but we refer to *exploration of Outer Space*, a part of which would be contacting with extraterrestrial intelligent civilizations (*ius communicationis*). That is, the interpretation as regards *common goods* and spaces *res communis omnium* Professor CASSESE was commenting would not be valid for exploration of universe –without physical occupation– including contact with extraterrestrial intelligent civilizations.

Even though the existing differences among the nations in the planet Earth, it is evident that the notion of humankind –crystalized as customary law in the International Law of Outer Space– claims as regards *ius communicationis* with extraterrestrial intelligent beings a different interpretation that the principle "first come, first served" applicable for the use of the Outer Space, the Moon and other Celestial Bodies, as it has happened in the spaces *res communis omnium* here on Earth. Exploration and use of Outer Space are different but related areas of concern for the international community of States. There cannot be any doubt that this distinction has been present in the States participating in the law-making of International Law of Outer Space since its very beginning, as the Treaties and Resolutions adopted by the General Assembly of United Nations evidence.

The Outer Space Treaty makes it clear that the Moon is the "province of all mankind", with the latter ordinarily understood to exclude State or private appropriation of any portion of its surface. However, there are indeterminacies in the Treaty and in space law generally over the issue of appropriation. These indeterminacies might permit a close approximation to a property claim or some manners of "quasi-property". The recently revealed highly inhomogeneous distribution of lunar resources changes the context of these issues. We illustrate this altered situation by considering the Peaks of Eternal

[238] *Ibídem.*

Light. They occupy about one square kilometer of the lunar surface. We consider a thought experiment in which a Solar telescope is placed on one of the Peaks of Eternal Light at the lunar South pole for scientific research, its operation would require non-disturbance, and hence that the Peak remain unvisited by others, effectively establishing a claim of protective exclusion and de facto appropriation. Such a telescope would be relatively easy to emplace with today's technology and so poses a near-term property issue on the Moon.[239]

Is it better to draft new rules within the existing legal regime, or will it be necessary to create an entirely new regime? Is maximum efficiency and flexibility achieved by allowing different standards to apply as changes in legal status occur among international, national, state or local, and private or public entities? Should there be more specific laws crafted for narrow situations, or is reliance on case-by-case interpretation of existing law sufficient? Can a particular legal goal be achieved by adding a protocol to a treaty, rather than attempting to amend the treaty language? How do nations who are signatories to major space law treaties enforce their treaty obligations on private sector commercial activities? As Carol CARNETT suggests, problems have arisen already because there is no complete code or law beyond the obligations of the signatories, and no obligations or rights have been created for non-participants.[240]

The answers to these and many other questions involve the problem of balancing competing interests with the necessity of maintaining order, while placing as few restrictions as possible on important matters such as information exchange or adequate safety measures. Proponents of both approaches do support the idea that existing space law should provide at least some of the basis for efforts of modification or expansion. At the same time, they recognize that these laws have begun to evolve in two directions, one derived from

[239] ELVIS, Martin, MILLIGAN, Tony and KROLIKOWSKI, Alianna, "The peaks of eternal light: A near-term property issue on the moon", *Space Policy,* 2016, Vol. 38, p. 30.

[240] CARNETT, Carol L., "Sketches in space law", *Space Policy,* 1993, p. 163.

public international law, and the other stemming from commercial law.[241]

3. SETI and METI as *ius communicationis* of humankind: preventing unilateralism of States

When speaking of astronauts as "envoys of mankind" there immediately raises the question: "envoys to whom?" This notion also indicates a special coherence between the members of mankind toward Outer space and its (possible) inhabitants.[242]

One of the first ideas to bear in mind and which can be extracted from the *Declaration of principles concerning activities following the detection of extraterrestrial intelligence* (ETI)[243], according to its preamble, is that the search for extraterrestrial intelligent beings is to be considered an integral part of space exploration and it must be undertaken for peaceful purposes and for the common interest of all mankind. This idea is fully consistent with the general principles enounced in the Resolutions adopted by the Committee on the Peaceful Uses of Outer Space (COPOUS) and endorsed by the General Assembly, during half a century. See, at this regards:

First principle: The Right of any State to explore the Universe (it must be read as *ius communicationis*): "Reaffirming *the right of all countries to explore and use outer space* in accordance with International Law."[244] (Cursive is added)

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241 CARNETT, Carol L., "Sketches in space law", *op. cit.,* p. 163.

242 FASAN, Ernst, "Discovery of ETI: Terrestrial and Extraterrestrial Legal Implications", *op. cit.,* p. 132.

243 Available in https://www.seti.org/protocols-eti-signal-detection Last visited 8th August 2018.

244 R. 68/50, adopted by the General Assembly of United Nations on 5 December, 2013, 3rd paragraph of its Preamble; R. 69/38, adopted by the General Assembly of United Nations on 2 December, 2014, 3rd paragraph of its Preamble; R. 70/53, adopted by the General Assembly of United Nations on 7 December, 2015, 3rd paragraph of its Preamble; R. 69/38, adopted by the General Assembly of United Nations on 2 December, 2014, 3rd paragraph of its Preamble.

Second principle: According to International Law and under the Framework of United Nations: "*Reaffirming the common interest of mankind in furthering the exploration and use of outer space* for special purposes and in continuing effort to extend to interested States the benefits derived therefrom, as well as the importance of international co-operation in this field, *for which the United Nations should continue to provide a focal point.*" (Cursive is added)[245]

"Emphasizing the significant progress in the development of space science and technology and their applications that has enabled humans to explore the universe, and the extraordinary achievements made over the past 50 years in space exploration efforts, including deepening the understanding of the planetary system and the Sun and the Earth itself, in the use of space science and technology for the benefits of all humankind and in the development of the international legal regime governing space activities, and *recognizing in that regard the unique platform at the global level for international cooperation in space activities represented by the Committee on the Peaceful Uses of Outer Space* and its Subsidiary bodies and assisted by the Office of the Outer Space Affairs of the Secretariat." (Cursive is added)[246]

"Reaffirming the importance of international co-operation in developing the rule of law, including the relevant norms of space law and their important role in international cooperation for the exploration and use of outer space for peaceful purposes, and for the widest possible adherence to international treaties that promote the peaceful uses of outer space in order to meet emerging new challenges, especially for developing countries"[247]

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[245] R. 32/196, adopted by the General Assembly of United Nations on 20 December, 1977, 3rd paragraph of its preamble.

[246] R. 69/85, adopted by the General Assembly of United Nations on 5 December, 2014, 2nd paragraph of its preamble; R. 70/82, adopted by the General Assembly of United Nations on 9 December, 2015, 2nd paragraph of Preamble; R. 71/90, adopted by the General Assembly of United Nations on 6 December, 2016, 2nd paragraph of Preamble; R. 72/77, adopted by the General Assembly of United Nations on 7 December, 2017, 2nd paragraph of Preamble:

[247] Persistently repeated in many resolutions adopted by the General Assembly of United Nations: R. 48/39, adopted on 10 December 1993, 3rd paragraph of

(...)

"International co-operation should be conducted in the modes that are considered more effective and appropriate by the countries concerned, including, *inter alia*, governmental and non-governmental; commercial and non-commercial; global, multilateral, regional or bilateral; and international co-operation among countries in all levels of development."[248]

"Deeply convinced of the common interest of mankind in promoting and expanding the exploration and use of outer space, as the province of all mankind, for peaceful purposes and in continuing efforts to extend to all States the benefits derived therefrom, and also of *the importance of international co-operation in this field, for which the United Nations should continue to provide a focal point…"*[249] (Cursive is added)

Preamble; R. 49/34, adopted on 9 December 1994, 3rd paragraph of Preamble; R. 50/27, adopted on 6 December 1995, 2nd paragraph of Preamble; R. 51/123, adopted on 13 December 1996, 3rd paragraph of Preamble; R. 52/56, adopted on 10 December 1997, 3rd paragraph of Preamble; R. 53/45, adopted on 3 December 1998, 3rd paragraph of Preamble; R. 54/67, adopted on 6 December 1999, 3rd paragraph of Preamble; R. 55/122, adopted on 8 December 2000, 3rd paragraph of Preamble; R. 56/51, adopted on 10 December 2001, 3rd paragraph of Preamble; R. 57/116, adopted on 10 December 2002, 3rd paragraph of Preamble; R. 58/89, adopted on 9 December 2003, 3rd paragraph of Preamble; R. 59/116, adopted on 10 December 2004, 3rd paragraph of Preamble; R. 60/99, adopted on 8 December 2005, 3rd paragraph of Preamble; R. 61/111, adopted on 14 December 2006, 3rd paragraph of Preamble; R. 62/127, adopted on 22 December 2007, 4th paragraph of Preamble; R. 63/90, adopted on 5 December 2008, 3rd paragraph of Preamble; R. 65/97, adopted on 10 December 2010, 3rd paragraph of Preamble; R. 64/86, adopted on 10 December 2009, 3rd paragraph of Preamble; R. 66/71, adopted on 9 December 2011, 4th paragraph of Preamble; R. 67/113, adopted on 18 December 2012, 4th paragraph of Preamble; R. 68/75, adopted on 11 December 2013, 4th paragraph of Preamble; R. 69/85, adopted on 5 December 2014, 4th paragraph of Preamble.

248 *Declaration on international cooperation in the exploration and use of outer space for the benefit and the interest of all States, taking into particular account the needs of developing countries*, Annex to R. 51/122, adopted by the General Assembly of United Nations on 13 December, 1996, Point 4.

249 It has persistently repeated in many resolutions adopted by the General Assembly of United Nations: R. 48/39, adopted on 10 December 1993, 2nd paragraph of Preamble; R. 49/34, adopted on 9 December 1994, 2nd paragraph of Preamble; R. 50/27, adopted on 6 December 1995, 2nd paragraph of Preamble; R. 51/123,

(...)

Which is also extensible to non-governmental actor in the exploration and use of Outer Space: "Observing that, in view of the increasing participation of non-governmental entities in space activities, appropriate action at the national level is needed, in particular with respect to the authorization and supervision of non-governmental space activities."[250]

Third principle: for the common interest of all mankind (*ius gentium* for new worlds): in the early resolutions, like R. 1348 (XIII), adopted by the General Assembly on 13 December 1958, establishing an *ad hoc* Committee on the Peaceful Uses of Outer Space and R. 1472 (XIV), adopted by the General Assembly on 12 December 1959,

adopted on 13 December 1996, 2nd paragraph of Preamble; R. 52/56, adopted on 10 December 1997, 2nd paragraph of Preamble; R. 53/45, adopted on 3 December 1998, 2nd paragraph of Preamble; R. 54/67, adopted on 6 December 1999, 2nd paragraph of Preamble; R. 55/122, adopted on 8 December 2000, 2nd paragraph of Preamble; R. 56/51, adopted on 10 December 2001, 2nd paragraph of Preamble; R. 57/116, adopted on 10 December 2002, 2nd paragraph of Preamble; R. 58/89, adopted on 9 December 2003, 2nd paragraph of Preamble; R. 59/116, adopted on 10 December 2004, 2nd paragraph of Preamble; R. 60/99, adopted on 8 December 2005, 2nd paragraph of Preamble; R. 61/111, adopted on 14 December 2006, 2nd paragraph of Preamble; R. 62/127, adopted on 22 December 2007, 3rd paragraph of Preamble; R. 63/90, adopted on 5 December 2008, 2nd paragraph of Preamble; R. 65/97, adopted on 10 December 2010, 2nd paragraph of Preamble; R. 64/86, adopted on 10 December 2009, 2nd paragraph of Preamble; R. 66/71, adopted on 9 December 2011, 3rd paragraph of Preamble; R. 67/113, adopted on 18 December 2012, 3rd paragraph of Preamble; R. 68/75, adopted on 11 December 2013, 3rd paragraph of Preamble; R. 69/85, adopted on 5 December 2014, 3rd paragraph of Preamble.

[250] R. 68/74, adopted by the General Assembly of United Nations on 11 December 2013, 5th Paragraph, Preamble. See also its 9th Paragraph in its Preamble: "Recognizing the different approaches taken by States in dealing with various aspects of national space activities, namely by means of unified acts or a combination of natural legal instruments, and noting that States, having adapted their national legal frameworks according to their specific needs and practical considerations and that national legal requirements depend to a high degree on the range of space activities conducted and the level of involvement of non-governmental entities (…) 3. Space activities should require authorization by a competent national authority… 4. The conditions for authorization should be consistent with the international obligations of States, in particular under the United Nations treaties on outer space, and with other relevant instruments, and may reflect the national security and foreign policy interests of States."

establishing a Committee on the Peaceful Uses of Outer Space, have in common its 1st and 2nd paragraphs in their preambles:

"Recognizing the common interest of mankind in outer space and recognizing that it is the common aim that outer space should be used for peaceful purposes only"

"*Believing that the exploration and use of outer space should be only for the betterment of mankind and to the benefit of States* irrespective of the stage of their economic or scientific development" (Cursive is added)

Both paragraphs have been repeated in other Resolutions: R. 1962 (XVIII), adopted by the General Assembly on 13 December 1963, which includes in annex the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, paragraphs 2nd and 3rd of its preamble; R. 2779 (XXVI), 4th paragraph of Preamble: "Bearing in mind the interest of all mankind in the exploration and utilization of the Moon exclusively for peaceful purposes and in preventing the Moon from becoming a scene of international conflict."

An since then, constantly repeated: "Recognizing *the common interest of all mankind in the exploration* and use of outer space for peaceful purposes" "*Reaffirming the will of all States that the exploration* and use of outer space, including the Moon and other Celestial Bodies shall be for peaceful purposes, *shall be carried out for the benefit and in the interest of all countries*, irrespective of their degree of economic or scientific development, *and shall be the province of all mankind*."[251] (The cursive is added).

[251] These sentences have been reiterated in several resolutions adopted later by the General Assembly of United Nations: R. 49/74, adopted by the General Assembly on 15 December 1994, 1st and 2nd paragraphs of its Preamble; R. 50/59, adopted by the General Assembly on 12 December 1995, 1st and 2nd paragraphs of its Preamble; R. 51/44, adopted by the General Assembly on 10 December 1996, 1st and 2nd paragraphs of its Preamble; R. 52/37, adopted by the General Assembly on 9 December 1997, 1st and 2nd paragraphs of its Preamble; R. 53/76, adopted by the General Assembly on 4 December 1998, 1st and 2nd paragraphs of its Preamble; R. 54/53, adopted by the General Assembly on 1 December 1999, 1st and 2nd paragraphs of its Preamble; R. 55/32, adopted by the General Assembly on 20

(...)

The second idea to be extracted is that the search for extraterrestrial intelligent beings may (and indeed it should) be governed by International Law of Outer Space. Namely, it is indicated expressly in its preamble the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, which commits States Parties to that Treaty "to inform the Secretary General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results" of their space exploration activities (Article XI).

One of the core principles –of customary law– this Treaty recalls is the principle of peaceful cooperation among nations in the exploration and use of Outer Space. Consequently, it can be asserted that the search for extraterrestrial intelligent beings must be carried out according to it. This idea is important because the *Declaration of principles concerning activities following the detection of extraterrestrial intelligence* is centered in stablishing principles for disseminating information about the detection of extraterrestrial intelligent beings. Many questions are not dealt with, such as for instance, the academic debate about the pros and cons of SETI and METI. Even that, it must be positively considered as a starting point for further legal developments (as we will analyze in Chapter Four).

The first principle states that any individual, public or private research institution or governmental agency that believes it has detected a signal from or other evidence of extraterrestrial intelligence (*the discover*) should seek to verify it before making public announcement. Interestingly, here there is an obligation not restrained

November 2000, 1st and 2nd paragraphs of its Preamble; R. 56/23, adopted by the General Assembly on 29 November 2001, 1st and 2nd paragraphs of its Preamble; R. 57/57, adopted by the General Assembly on 22 November 2001, 1st and 2nd paragraphs of its Preamble; R. 58/36, adopted by the General Assembly on 8 December 2003, 1st and 2nd paragraphs of its Preamble; R. 59/65, adopted by the General Assembly on 3 December 2004, 1st and 2nd paragraphs of its Preamble; R. 60/54, adopted by the General Assembly on 8 December 2005, 1st and 2nd paragraphs of its Preamble; R. 61/58, adopted by the General Assembly on 6 December 2006, 1st and 2nd paragraphs of its Preamble; and in R. 62/20, adopted by the General Assembly on 5 December 2007, 1st and 2nd paragraphs of its Preamble.

to States and International Organizations, but generally covering any possible author of such discover, no matter its public or private, intergovernmental or non-governmental nature. This is a good reason for considering inappropriate the current International Law of Outer Space –as we can see in Chapter Two, mainly addressed to States– for encompassing the SETI an METI. It would also explain our preference for an Interstellar Law from a kinetic theory of International Law.

As a clear manifestation of the principle of peaceful cooperation among participants in the exploration of Outer Space, principle 2 of the Declaration states that prior to making a public announcement that evidence of extraterrestrial intelligence has been detected, the discoverer should promptly inform all other observers or research organizations that are parties to this declaration, so that those other parties may seek to confirm the discovery by independent observations at other sites and so that a network can be established to enable continuous monitoring of the signal or phenomenon. The discoverer should inform his/her or its relevant national authorities. This is also a very interesting principle because it shows a mix of reality and illusion. Reality, firstly, because the use of conditional "Should" and the word "promptly" makes clear that there are cases where intentionally secrecy is preferred. The 2016 example referred in Chapter One is a clear example of this. Illusion, secondly, because hardly anyone can imagine that any searcher for extraterrestrial intelligence operating under the jurisdiction of one State can be free as to decide to or not inform relevant national authorities.

Principle 3 suggest the idea of the existence of an obligation *erga omnes inter partes* (the duty to inform about any credible evidence of extraterrestrial intelligence to other parties to this declaration) and reinforce the idea of international cooperation when it states that the discover should communicate observers throughout the world[252]

[252] Because of their demonstrated interest in and expertise concerning the question of the existence of ETI, the discover should simultaneously inform the following international institutions of the discover and should provide them with all pertinent data and recorded information concerning the evidence: the ITU, the Committee of Space Research of the International Council of Scientific Unions, the International Astronautical Federation, the IAA, the IISL, Commission 51 of the International Astronomical Union and Commission J of the International Radio Science Union.

through the central Bureau for Astronomical Telegrams of the International Astronomical Union, and particularly the Secretary General of the United Nations should be informed in accordance with Article XI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and other Bodies.

Cooperation implies the duty of transparency, according to principles 4 to 6.[253] And explicitly international agreement is needed –according to principle 7– to protect the appropriate frequencies by exercising procedures available through the International Telecommunication Union.[254] Furthermore, the principle of cooperation become a somehow norm of *ius cogens* when principle 8 declares that "No response to a signal or other evidence of ETI should be sent until appropriate international consultations have taken place. The procedures for such consultations will be the subject of a separate agreement, declaration or arrangement." As it was predictable, drafters of this Declaration were conscious that here they faced a real problem to be resolved in another complementary instrument, preferably of binding nature: any answer from Earth to any eventual extraterrestrial civilization is a matter of general interest, affecting the whole community of States, not to one or group of States. So, who decides to

[253] Principle 4. A confirmed detection of ETI should be disseminated promptly, openly and widely through scientific channels and public media, observing the procedure in this declaration. The discover should have the privilege of making the first public announcement. Principle 5. All data necessary for confirmation of detection should be made available to the international scientific community through publications, meetings, conferences and other appropriate means. Principle 6.The discovery should be confirmed and monitored and any data bearing on the evidence of ETI should be recorded and stored permanently to the greatest extent feasible and practicable, in a form that will make it available for further analysis and interpretation. These recordings should be made available to the international institutions listed above and to members of the scientific community for further objective analysis and interpretation.

[254] At this regards, immediate notice should be sent to the Secretary General of the ITU in Geneva, who may include a request to minimize transmissions on the relevant frequencies in the Weekly Circular. The Secretariat, in conjunction with advice of the Union's Administrative Council, should explore the feasibility and utility of convening an Extraordinary Administrative Radio Conference to deal with the matter, subject to the opinions of the member Administrations of the ITU.

do or not to do a response? Who agree about the content of any eventual response, among many other questions deliberately left open in this soft law instrument?

The second non-binding instrument prepared for the eventuality of extraterrestrial intelligent civilization having contacted us is the so called *Draft Declaration of principles concerning the sending of communication to ETI*[255]. Similarly to the *Declaration of principles concerning activities following the detection of extraterrestrial intelligence,* we face an example of soft law, prepared by a non-governmental entity, which is addressed to States, International Organizations and other entities interested in the search for extraterrestrial intelligence. In general terms, the starting point is the acknowledged of the possibility of such discover and the potentially profound importance of such a discovery for Humankind. It is also assumed that the question of whether and how Humankind should send a communication to extraterrestrial intelligence cannot be an issue to be decided individually by one or a group of States, but by the community of States as a whole acting according to an orderly process.

From these premises, ten principles are presented which can be summarized as follows: International consultations should be initiated to consider the question of sending communications to extraterrestrial civilizations (principle one). Note here that it is preventing any State or non-governmental entity from acting unilaterally and the fact, we have analyzed in the introduction to this monography that any possible evidence of extraterrestrial intelligence would imply the idea of a civilization.

The principle of cooperation among States is implicitly reaffirmed in Principle second when it is stated that consultations on whether a message should be sent, and its content, should take place within the Committee on the Peaceful Uses of Outer Space of the United Nations and within other governmental and non-governmental organizations, and should accommodate participation by qualified, interested groups that can contribute constructively to these consultations. As the sending of a communication to extraterrestrial intelligence could lead to an exchange of communications separated by

[255] Disponible en http://www.coseti.org/setiprot.htm

many years, consideration should be given to a long-term institutional framework for such communications. (Principle seventh)

Note here the idea, already manifested in the *Declaration of principles concerning activities following the detection of extraterrestrial intelligence,* that the *ius communicationis* is not any longer restricted to the control of States but it is open to other entities participating in the exploration of Outer Space. This is particularly necessary as regards the international scientific community, for which the last two principles are devoted: In their deliberations on these questions, States participating in this Declaration and United Nations bodies should draw on the expertise of scientists, scholars, and other persons with relevant knowledge. (Principle ninth). Should a decision be made to send a communication, the encoding and transmission of the message should be assigned to scientists and engineers specializing in the technologies required. (Principle tenth)

As a consequence of the principle of cooperation, in a final and procedural sense, consensus is the unique possible mean for achieving an agreement about any possible message to extraterrestrial civilization (principle third). Although is understandable that the Draft Declaration consider in Principle fourth the General Assembly of the United Nations as the best organ representing the whole community of States for approval any declaration in this sense under article 11 of the United Nations Charter[256], in my opinion it would have been more realistic to

[256] "1. The General Assembly may consider the general principles of cooperation in the maintenance of international peace and security, including the principles governing disarmament and the regulation of armaments, and make recommendations with regard to such principles to the Members or to the Security Council or to both. 2. The General Assembly may discuss any questions relating to the maintenance of international peace and security brought before it by any Member of the United Nations, or by the Security Council, or by a state which is not a Member of the United Nations in accordance with Article 35, paragraph 2, and, except as provided in Article 12, may make recommendations with regard to any such questions to the state or states concerned or to the Security Council or to both. Any such question on which action is necessary shall be referred to the Security Council by the General Assembly either before or after discussion. 3. The General Assembly may call the attention of the Security Council to situations which are likely to endanger international peace and security. 4. The powers of the General Assembly set forth in this Article shall not limit the general scope of Article 10."

have also mentioned the Security Council of this International Organization, considering its powers over any other organs in the Organization when he deals with international peace and security (article 12 of the UN Charter)[257]. It would be naïve to think the Security Council will avoid considering that a METI to extraterrestrial civilization is not a situation compromising the international peace and security.

Principle Fifth is not completely enforcing a response from the humankind due to the use of should instead of shall (more imperative) when states that: "If a decision is made to send a message to extraterrestrial intelligence, it should be sent on behalf of all Humankind, rather than from individual States." Supposedly, it is accepting that the Great Powers like U.S.A., Russia or China, all of them in space race could be tented to unilaterally send a national response to extraterrestrial civilization. This would have been avoided if the Security Council –which all of them are permanent members– would have the final say in this question, making *de iure* what it is already *de facto*. In any case, it is also included –in some contradictory way, in my opinion, in the Draft Declaration that: "No communication to extraterrestrial intelligence should be sent by any State until appropriate international consultations have taken place. States should not cooperate with attempts to communicate with extraterrestrial intelligence that do not conform to the principles in this Declaration." (Principle eighth)

The duty to not cooperate resembles the general obligation imposed to States to not cooperate with States authors of great breaches of international obligations, according to the 2001 *Draft articles on Responsibility of States for Internationally Wrongful Acts*, Article 41.

[257] "1. While the Security Council is exercising in respect of any dispute or situation the functions assigned to it in the present Charter, the General Assembly shall not make any recommendation with regard to that dispute or situation unless the Security Council so requests. 2. The Secretary-General, with the consent of the Security Council, shall notify the General Assembly at each session of any matters relative to the maintenance of international peace and security which are being dealt with by the Security Council and shall similarly notify the General Assembly, or the Members of the United Nations if the General Assembly is not in session, immediately the Security Council ceases to deal with such matters."

Particular consequences of a serious breach of an obligation under this chapter: "1. States shall cooperate to bring to an end through lawful means any serious breach within the meaning of article 40. 2. No State shall recognize as lawful a situation created by a serious breach within the meaning of article 40, nor render aid or assistance in maintaining that situation. 3. This article is without prejudice to the other consequences referred to in this Part and to such further consequences that a breach to which this chapter applies may entail under international law."[258]

Again, the principle of transparency is present when it is established in principle sixth that the content of any message should reflect a careful concern for the broad interests and well-being of Humanity, and should be made available to the public in advance of transmission. It is a mystery to reveal the intention of drafters when they talk about the "broad interests and well-being of Humanity", but it probably has used the same language present in the COPOUS Declarations concerning the exploration and use of Outer Space in benefit of developed and developing nations.

The need for assuming the difference between use and exploration of Outer Space in order to accept the later as expression of *ius communicationis* of the humankind –in order to avoid unilateralism of a State or a group of States– can be illustrated with the following example: The Convention on Registration of Objects launched into Outer Space, adopted by consensus by the United Nations General Assembly as Resolution 3235 (XXIX) on 12 November 1974, includes the obligation to stablish national registry of space objects, to register domestically and to inform the UN Secretary General of the establishment of such a registry (Article II).[259]

[258] Text adopted by the International Law Commission at its fifty-third session, in 2001, and submitted to the General Assembly as a part of the Commission's report covering the work of that session (A/56/10). The report, which also contains commentaries on the draft articles, appears in the Yearbook of the International Law Commission, 2001, vol. II, Part Two.

[259] JAKHU, Ram S., JASANI, Bhupendra, and MCDOWELL, Jonathan C., "Critical issues related to registration of space objects and transparency of space activities", *Acta Astronautica,* 2018, No. 143, p. 409.

From the wording of Article III.1 and 2, the function or responsibility of the UN Secretary-General appears simply to maintain (create and update) an international register of space objects by recording the information as furnished by the notifying State(s) in accordance with article IV. In addition, the Secretary-General is required to ensure "full and open access to the information in this Register". These functions seem to be purely administrative and bureaucratic in nature and scope, and do not suggest any discretionary authority of the United Nations to examine the accuracy or question the inaccuracy of the information supplied by the State Parties to the Registration Convention.[260]

Article IV.1, the core of the registration Convention also includes the phrase "as soon as practicable". If a satellite is registered at all, this is usually done within one to two years of launch, although some 140 have been registered after ten years of longer delay. Many of these late registrations have occurred since around 2003, following successful efforts by the United Nations and Member States to improve the process.[261]

The required information needs to be submitted only *post facto* but "as soon as practicable" which appears to be different from the requirement under Resolution 1721 B (XVI). Under the Resolution, information should be "promptly" communicated to the UN (para. 1). Some States have used the wording "as soon as practicable" to delay the communication by years. The wording "as soon as practicable" appears to be based on the communication and monitoring technologies as well as administrative procedures of the 1970s. Given the enormous expansion of and profound increase in the efficiency of technologies and procedures in the 21st Century, this wording should be understood to mean either "promptly" or "as soon as possible". The traditional understanding of "as soon as practicable" will create

[260] JAKHU, Ram S., JASANI, Bhupendra, and MCDOWELL, Jonathan C., "Critical issues related to registration of space objects and transparency of space activities", *op. cit.,* p. 412.

[261] JAKHU, Ram S., JASANI, Bhupendra, and MCDOWELL, Jonathan C., "Critical issues related to registration of space objects and transparency of space activities", *op. cit.,* p. 409.

problems in the case of registering small satellites, especially those that will be in the orbit for a very limited period of time.[262]

However, the weight of public opinion (both within and outside of international official for a, and in particular the possibility of being "named and shamed" particularly through some publicly available information provided by a neutral and international verification system, acts as a good deterrent against violations of, as well encourage compliance with, the Convention.

There is no provision in the Registration Convention for settling registration-related disputes. Even so, several generally available peaceful means for dispute resolutions can be relied upon. One of the recent space related dispute settlement mechanism is the Optional Rule for Arbitration of Disputes relating to Outer Space Activities adopted in 2011 by the Permanent Court to Arbitration base in The Hague.[263]

Considering all these elements: the precarious position of United Nations (represented by its Secretary-General); the indetermination of some key articles ("as soon as practicable" in Article IV.1); the precarious mechanism of sanctions ("mobilization of shame"), and the inexistence of any settled mechanism for resolution of disputes among the States parties, one may suppose that an eventual treaty codifying the Declaration and Draft Declaration for SETI and METI, would not imply a real solution to the question. At least, it would lead –considering the referred example of the Convention on Registration of Objects Launched into Outer Space– to create an atmosphere of international transparency in the use of space, with a good faith effort on the part of most actors to provide relevant information. However, as many authors recognize, "ambiguities in the requirements and the

[262] JAKHU, Ram S,. JASANI, Bhupendra, and MCDOWELL, Jonathan C., "Critical issues related to registration of space objects and transparency of space activities", *Acta Astronautica,* 2018, No. 143, p. 409.

[263] JAKHU, Ram S., JASANI, Bhupendra, and MCDOWELL, Jonathan C., "Critical issues related to registration of space objects and transparency of space activities", *op. cit.,* p. 412. See also: TRONCHETTI, Fabio, "The PCA Rules for dispute settlement in outer space: A significant step forward", *Space Policy,* 2013, vol. 29, pp. 181-189.

fact that the Convention does not contain any provision to verify the compliance of the States Parties with the provisions of the Convention, nor imposes sanctions on the violation of its provision." [264]

4. Cooperation among actors for a successful response of the humankind facing the discovery of extraterrestrial civilizations

It has been hardly defended that we have to develop International Space Law further. We have to develop the 1967 Outer Space Treaty further. We have to develop new treaties, not only declarations. We cannot permit the prevalence of the facts over the agreements, the unilateral decisions over the multilateral ones. We have to face the lack of global space policy and specific international norms and institutions. We have to mobilize the social, political and juridical resources all over the world to struggle for an outer space order based effectively on the interest and values of all mankind.[265]

Emerging space nations should not resist the idea of "soft law" complementing the space law regime. Indeed, an effective method for promoting international cooperation may be the cooperative development of such statements, instruments, declarations and codes of conduct by emerging space nations in relation to space law and space governance.[266]

Following here to MONSERRAT FILHO, it is clear that in the letter and spirit of the Outer Space Treaty, there can be no doubt that the principle of international public interest was adopted at its highest level by space law. A this point, Space Law overtook International Law. This is a paradoxical situation: planet Earth, where Space Law was

[264] JAKHU, Ram S., JASANI, Bhupendra, and MCDOWELL, Jonathan C., "Critical issues related to registration of space objects and transparency of space activities", *op. cit.,* p. 417.

[265] MONSERRAT FILHO, José, "Private, state and international public interests in space law", *op. cit.,* p. 69.

[266] DENNERLEY, Joel A., "Emerging space nations and the development of international regulatory regimes", *Space Policy,* 2016, Vol. 35, p. 30.

born holding the common interest of all mankind as a milestone, is still ruled by a law within which this component doesn't exist.[267]

One of the main features of the problem we analyze, as Professor Philippe DE MAN argues is that considering the generally phrased and ambiguously worded principles in the United Nation Space Treaties, it cannot be denied that national space law may become a relevant source of conduct for treaty interpretation. However, the exact circumstances under which national space legislation should be taken into account are perhaps not so clear, and need to be considered separately in each case. Hence, though domestic legal acts may be considered as subsequent practice under article 31.3, b) of the Vienna Convention on the Law of Treaties (VCLT), it is clear that the existence of an internal law that supports a defendant State's point of view should not necessarily be sidelined as a violation of Article 27 of the VCLT.[268]

In the final analysis, as DE MAN holds, the question arises to what extent the actions of a handful of States can suffice to establish subsequent practice pointing to an agreement of all parties of the interpreted treaty. It should be made clear that the requirement in Article 31.3, b) VCLT does not mean that all States Parties to treaty must actively engage in identical practice in the application of a treaty for their conduct to count as an authoritative interpretation of the meaning of a provision.[269]

It is necessary at this point to consider, following this author's reasoning that:

> "The erga omnes nature of the provisions of Article I, para. 2 and II of Outer Space Treaty is derived from the fact that they contain obligations owed by the States that have ratified them towards the international community as a whole.

[267] MONSERRAT FILHO, José, "Private, state and international public interests in space law", *op. cit.,* p. 63.

[268] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *op. cit.,* p. 96.

[269] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *op. cit.,* p. 98.

> Although the general phrasing of the principles of Outer Space Treaty, in particular of Article I of Outer Space Treaty, has been interpreted as an impediment to their direct applicability in domestic legal systems, the binding nature of these principles for the States that have agreed to be bound by them in their relations with third States is irrefutable." [270]

In fact, legal doctrine generally agrees that the fundamental nature and broad phrasing of Article II of the Outer Space Treaty creates an *erga omnes* obligation. The same status should be granted to the provision of Article I, para. 2 of the Outer Space Treaty. The commentary of the International Law Commission to the final draft of the Vienna Convention on the Law of Treaties explicitly recognize that "provisions concerning freedom of navigation in certain international rivers, and through certain maritime canals and straits" are provisions that accord rights to all States, including third parties.[271]

The conclusion to which this analysis leads is that, it can be assumed that third States have given their assent to the rights granted to them under Articles I, para. 2 and II of the Outer Space Treaty, for the text of the agreement does not provide otherwise. This fulfils the last condition of Art. 36, para 1 of the VCLT.[272] Our own point of view is that Philip DE MAN's argument as regards national space law possibilities to become a relevant source of conduct for treaty interpretation, seems very cogent; specially if we consider that Article 37, para 2 VCLT provides that third States rights "may not be revoked or modified by the parties if it is established that the right was intended not to be revocable or subject to modification without the consent of the third State". If the general nature of the provision in Article I, para. 2 does not prevent it, in our view, from granting, in effect, rights to third States, the language does not appear to fulfil the condition

[270] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *op. cit.,* p. 101.

[271] WALDOCK, Humphrey, "Sixth report on the law of treaties", *Yearbook of the International Law Commission*, 1966/II, p. 228.

[272] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *op. cit.,* p. 101.

expressed in Article 37, para. 2 of the VCLT that would preclude the States Parties to the Treaty to modify this provision.[273]

At the very least, there is an additional argument in favor of his thesis: Article 37, para 2, includes a rule on the burden of proof, and requires that the third State establishes that its right was intended to be immutable. For the case of the Outer Space Treaty, this may be a bargain in opinion of DE MAN. Though some authors may argue that provisions conferring *erga omnes* rights would establish a presumption that the consent of the third State is required to modify the right, in opinion of DE MAN –we fully agree– the text of Article 37, para. 2 of the VCLT rather seems to warrant the inverse conclusion. However, the fact remains that such modification should occur on the basis of a new agreement by the States Parties to the original instrument, rather than through interpretative practice.[274]

It could be claimed –as Margaret RACE does– that planning for communication about a discovery must consider how to deal with potential conflicts, gaps, misunderstandings and debates from the start, and concerns over the long term advisability and implications of continued exploration and interaction. In her own words:

> "To the extent the human are directly involved in the discovery, serious questions arise about laboratory worker and/or astronaut safety. Additional concerns include the rights of extraterrestrial life and responsibilities toward it, extraterrestrial property rights and environmental ethics, and future actions by either governments or the private sector with the potential for large scale or global impact (e.g. colonization, commercialization, extractive industries, tourism, terraforming, etc.). In addition, since all policies, laws, and ethics on earth are based upon life as we know it, some have even suggested the need for a comprehensive

[273] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *op, cit.,* p. 101.

[274] DE MAN, Philip, "State practice, domestic legislation and the interpretation of fundamental principles of international space law", *Space Policy,* 2017, Vol. 42, p. 101.

> overhaul from a Cosmo centric perspective if extraterrestrial life is discovered."[275]

Looking ahead, the management of communications for a discovery may also depend on which type of extraterrestrial intelligent life is found first. It is not totally clear whether the discovery of some particular type of extraterrestrial intelligent life would enhance or adversely impact other search efforts underway or planned. The implications of discovery and possible future actions by space faring nations compel us to think about the meaning of life, the evolutionary trajectory of humankind, and the future of life in our home planet. How we respond in the short or long term to the discovery of extraterrestrial intelligent life has significant repercussions for ourselves and future generations on planet Earth, as well as for the extraterrestrial intelligent life itself. How we communicate about it is equally important. As we plan to communicate about scientific efforts and successes in the search for life, but it must be done in the context of responsible exploration for all.[276]

Space technologies are indispensable to our daily life. Space cooperation has contributed to the process of wider use of space technologies.[277]

Multilateral agreements are important in creating norms for international society and common platform for cooperation for a group of States. The existing binding multilateral documents and mechanisms help to create a legal framework for space activities at the early stage: now with more States involved in space activities, the diversification of space interests caused difficulties in concluding any binding documents or mechanisms. Accordingly, we need to take a more flexible approach

[275] RACE, Margaret S., "Communicating about the discovery of extraterritorial life: Different searches, different issues", *op. cit.,* p. 76.

[276] *Ibídem.*

[277] ZHAO, Yun, "The Role of bilateral and multilateral agreements in international space cooperation", *Space Policy,* 2016, Vol. 36, p. 16.

regarding multilateral cooperative framework, for instance, non-binding multilateral agreements.[278]

With this in mind, it would be easier to reach some consensus on certain difficult issues with States in drastically different background. Similarly, some rules would be put on priority in concluding the agreements, such as the observer's status obtaining procedure, resolving disputes by consultation or negotiation and decision-making through consensus.[279]

Space cooperation at the horizontal aspect can build trust and confidence among the States in space activities, and contribute to the realization of fundamental principles of Space Law. The UNCOPOUS plays an important role in overseeing space cooperation at the international level.[280]

It is a fact that cannot be ignored that space activities are increasingly tending towards commercialization and privatization, which are having a considerable impact on the role of public authorities, i.e., States and their capacity to exercise control. States need to authorize and continually supervise national space activities undertaken by private (non-governmental) entities. For this reason, there is a need for a close harmonization between the international and national legal standards to the greatest extent possible[281]. See, at this regard, Resolution 68/74, adopted by the General Assembly of United Nations on 11 December 2013, where it can be read:

> "Observing that, in view of the increasing participation of non-governmental entities in space activities, appropriate action at the national level is needed, in particular with

[278] *Ibídem.*

[279] ZHAO, Yun, "The Role of bilateral and multilateral agreements in international space cooperation", *op. cit.,* p. 17.

[280] ZHAO, Yun, "The Role of bilateral and multilateral agreements in international space cooperation", *op. cit.* p. 18.

[281] HOBE, S. and NEUMANN, Julia, "Global and European challenges for space law at the edge of the 21st century", *Space Policy,* 2005, Vol. 21, p. 313.

> respect to the authorization and supervision of non-governmental space activities."[282]

See also the 9th Paragraph in the Preamble of the same Resolution where a clear reference to subordination of private entities to International Law through domestic dispositions is included:

> "Recognizing the different approaches taken by States in dealing with various aspects of national space activities, namely by means of unified acts or a combination of natural legal instruments, and noting that States, having adapted their national legal frameworks according to their specific needs and practical considerations and that national legal requirements depend to a high degree on the range of space activities conducted and the level of involvement of non-governmental entities (…) *3. Space activities should require authorization by a competent national authority… 4. The conditions for authorization should be consistent with the international obligations of States, in particular under the United Nations treaties on outer space, and with other relevant instruments*, and may reflect the national security and foreign policy interests of States." (Cursive is added)

In the fundamental argument for our approach we must not lose sight of the fact that whilst there is no universally agreed upon legal definition of the term "international cooperation" it is referred to extensively in the space law treaties and United Nations Resolutions. In these sources of Outer Space Law, "international cooperation" in the "scientific and… One might ask the question: "how do States implement international cooperation?" Just as some authors have maintained, for space cooperation to be effective there must be

[282] Resolution 68/74, adopted by the General Assembly of United Nations on 11 December 2013, 5th Paragraph, Preamble.

"scientific rationale, political will and legal agreement between those States involved in the space activities.[283]

As we have seen in previous pages, it cannot be denied that the principle of international cooperation is well established in Outer Space Law. It can indeed be proved as a principle designed to unite established space nations with developing countries and emerging space nations in terms of promoting multilateral space activities. International cooperation does include legal and policy development cooperation between States. However, despite the formal treaty recognition of a principle of international cooperation in Outer Space, in certain respects it is not a living principle.[284]

A first important issue is that SETI is an activity conducted by various Earth based scientific means, primarily by radio-astronomical devices focusing on potential sources of contact in outer space. SETI is, furthermore, concentrated in the USA, Australia, the CIS, Germany, Canada, France and the Netherlands, States under whose jurisdiction SETI has been and continues to be conducted. This implies that the governments of the respective States are in a position to politically further the essentially Earth-based SETI.[285]

Should contact with an ETI occur, this will be in all probability by radio-astronomical means, that is, by a receiving station in a State to which its municipal law applies. It will, apart from the question of exchange of information between the scientists involved in various States, depend on the provisions of municipal law of the receiving State how to deal internationally with the extraterrestrial contact. As Bess REIJNENN points out, in most Western and many other States, municipal law provides for licensing of dissemination of information, for reasons of national security and of protection of territory and

[283] DENNERLEY, Joel A., "Emerging space nations and the development of international regulatory regimes", *op. cit.,* p. 27.

[284] DENNERLEY, Joel A., "Emerging space nations and the development of international regulatory regimes", *op. cit.*, pp. 28-29.

[285] REIJNEN, Bess, "The Nations United in the scientific and political debate of the search for extraterrestrial intelligence (SETI)", *Acta Astronautica,* 1998, Vol. 42, No. 10-12, p. 667.

inhabitants. In how far these licensing procedures apply to the exchange of information –exchange implying, in our view, dissemination of information as regards the contact with the extraterrestrial intelligent beings–, depends on the various municipal law systems in the world. Essentially, therefore, it is up to each national government to formulate its policy in regard to contact with extraterrestrial civilizations, taking into account the fact that any contact with them will, by fact of nature, surpass national interest and national security provisions.[286]

The main policy questions then, according to this author, to be decided on the national government level are: a) if the State desires to participate in an international SETI Programme both in collecting and disseminating the data; b) if the respective State's municipal law system permits the dissemination of part of, or all, information available as soon as confirmed evidence becomes available of a contact with ETI having been established; c) if the respective state's municipal law system permits its inhabitants, including the scientist who had the contact, to disseminate their information on the contact to the inhabitants of other States; and d) if the respective State's municipal law system permits its government's representatives to inform their colleagues in other States, bilateral or multilateral.[287]

There is an additional argument, according to Bess RFEIJNEN, that cannot be ignored: Apart from the various scientific and political fora already existing, where SETI has been discussed and continues to be discussed, it would be a good proposal to assume the establishment of an Intergovernmental Committee consisting of States where SETI has been undertaken. It seems advisable as an intergovernmental entity, and as such independent of the United Nations, specific SETI issues studied in the proposed committee might be brought to the attention

[286] REIJNEN, Bess, "The Nations United in the scientific and political debate of the search for extraterrestrial intelligence (SETI)", *op. cit.,* p. 668.

[287] *Ibídem.*

of the UNCOPOUS Scientific and Technical Sub-Committee members.[288]

Assuming that the Detection Declaration and the Draft Reply Declaration are fully approved by those most concerned in the matter, should steps be taken to make the mover into law? It is not likely that a treaty will be created to incorporate the terms of the declarations. Treaty status could be useful in that it would make the principles of the declarations into international obligations, which would strengthen the will of States to observe the principles themselves, and to enforce their observance by those over whom each State has jurisdiction. Different constitutions provide differently. An international obligation would either change municipal law, or require States to change their law to comply with its terms. It could also persuade scientists to comply with such principles.[289]

However, in our opinion, such a treaty is not likely for pragmatic reasons. To convert the declarations into legal form, and convene an international conference on the matter takes time and effort. Short of treaty status, one can look to the useful effect that has been obtained in Space Law by the declarations of principle which have been unanimously adopted by the General Assembly of the United Nations or the recommendation of the Committee on the Peaceful Uses of Outer Space.[290]

There is an additional argument in favor of the legal status of such Declarations. They are not treaty, but they are more than good intentions. They are and affirmation by States –an affirmation made by their consent to their adoption by the General Assembly– that they do contain principles which each assenting States will seek to observe (there is also the interaction with customary international law).[291]

[288] REIJNEN, Bess, "The Nations United in the scientific and political debate of the search for extraterrestrial intelligence (SETI)", *op. cit.,* p. 669.

[289] LYALL, Francis, "Communications with extraterrestrial intelligence: a new dimension of Space Law", *op. cit.,* p. 754.

[290] *Ibídem.*

[291] LYALL, Francis, "Communications with extraterrestrial intelligence: a new dimension of Space Law", *op. cit.,* p. 755.

UNCOPOUS is to be admired for its progressive elaboration of space law under the wise rule of consensus and the interpretation of its Technical and Legal Subcommittees. However, in order to face a challenging future, it may be time to retire it in favour of a body with greater powers that can act as a global space organization.[292]

UNCOPOUS reviewed in 1977 (UN Doc. A/AC.105/206, of 18 October, 1977) the question of "Messages to Extra-terrestrial Civilizations", 20th Session of UNCOPOUS held in Vienna, from 20 June 1977 to 1 July 1977. In the view of various representatives of States, the SETI was among the challenges of the future. It was at the time, also proposed that the question of SETI be taken up by UNCOPOUS, and be assigned to the STSC in the first place, to be debated after in the LSC. Between 1977 and the present, the item of SETI has not been taken up again by UNCOPOUS. It has, however, been continuously discussed in the International Academy of Astronauts Annual Review Meeting of SETI.[293]

While international treaty negotiations in general tend to be time consuming, space law negotiation in particular have the potential to occasion all the specific time relating problems: space activities rely heavily on science and technology; they may involve unforeseeable changes in circumstances and continuing scientific and technological development frequently changes our view of outer space and the possibilities of utilizing it. The increasing globalization, privatization and commercialization of space activities complicate the situation further. It is not great surprise that the efforts to create new space treaties (after the Moon treaty) have failed already when setting the agenda.[294]

Another option is that States may desist from treaty-making altogether and recommend some sort of common rules of conduct

[292] GAGGERO, Eduardo D., "New roles in space for the 21st century: a Uruguayan view", *op. cit.,* p. 203.

[293] REIJNEN, Bess, "The Nations United in the scientific and political debate of the search for extraterrestrial intelligence (SETI)", *op. cit.,* p. 668.

[294] VIIKARI, Lotta, "Time is of the essence: making space law more effective", *Space Law,* 2005, Vol. 21, p. 2.

instead. Such recommendations, resolutions and declaratory instruments have been widely applied in space activities. Their obvious advantage is that, since they require no national ratification, the process leading to their adoption is usually far less painful than that required in the case of international treaties. However, the fact that they are relatively easy to make and are (generally recognized) not legally binding also introduces significant risks: the lack of formality makes them an attractive short-cut with possibly very little practical effect.[295]

One more opportunity to sidestep the ratification problem is to delegate powers to adopt and regularly amend "technical standards" (contained in technical annexes) to a specialized intergovernmental body where these amendments do not require State ratification. However, the more parties there are to a treaty regime, the more difficulties the normal unanimity rule in international treaty-making will entail.[296] In this sense, it is not an overstatement to say that there cannot be effective international space law without broad international cooperation.[297]

Be at it may, something seems clear to us, coinciding with authors like John BILLINGHAM: As a starting point for discussion, any draft Agreement or Declaration about SETI and METI (as part of the short term strategy of the International Community of States facing a discovering of extraterrestrial civilization should include the following principles:

a) Any response to the detection of extraterrestrial intelligence should be on behalf of all Humankind. If Humankind decides to respond, it should do so with one voice, not many.

[295] *Ibídem*.

[296] VIIKARI, Lotta, "Time is of the essence: making space law more effective", *op. cit.* p. 3.

[297] VIIKARI, Lotta, "Time is of the essence: making space law more effective", *op. cit.* p. 5.

b) The decision on whether or not to respond should be made by an appropriate international body, broadly representative of Humankind;

c) The content of a reply should reflect an international consensus.[298]

As a conclusion to this Chapter we must say that *ius communicationis* as the right of the humankind to explore the Universe and to make contact with extraterrestrial intelligent beings only can achieved through cooperation of interested actors in Space Law –not only States– in the framework of United Nations. A short-term strategy under International Law of Outer Space upon the principles generally accepted for outer space is needed as regard communication with extraterrestrial civilization, as we have defended in this Chapter. However, such a short-term strategy would be insufficient at long term. Contacting with any extraterrestrial civilization would amount more than an interchange of messages. It would imply a kind of diplomacy, governed by some instrumental rules and under the assumption of some principles (some of them of *ius cogens* nature). The key point is to identify them taking for granted that they should be valid for both, extraterrestrials civilization and human beings here on Earth. This is our intention in the next and final Chapter of this study.

[298] BILLINGHAM, John, "Cultural aspects of the search for extraterrestrial intelligence", *op. cit.,* p. 717.

CHAPTER FOUR.
A LONG TERM STRATEGY TOWARDS EXTRATERRESTRIAL CIVILIZATIONS: *IUS COMMUNICATIONIS* OF HUMANKIND AS *IUS GENTIUM* FOR NEW WORLDS

As professor Carl CHRISTOL has rightly asserted, there is a clear relationship between the space (as a physical area) and the International Space Law: our planet consists of some 57 million square miles of land area *plus* 340 million cubic miles of ocean area. In the *cislunar space* alone (space between the Earth and the Moon) there are some 56.5 quadrillion cubic miles, and the final sum is hard to imagine for the whole outer space, including planets and celestial bodies. These are clearly amazing figures. In a similar way, it is appalling the interest of International Space Law in managing the exploration and exploitation of high value natural resources in this endless area.[299]

In our analysis we have considered necessary to recall in previous Chapters an obvious idea: International Law of Outer Space is part of General International Law. Article 3 of the 1967 Treaty on Principles

[299] CHRISTOL, Carl Q., "International outer space law", *Space Law,* 1987, Vol. 3, No. 1, p. 65. We are talking about resources including solar energy, orbit/spectrum positions, mineral resources, vantage points for military reconnaissance and other military operations, as well as for remote sensing and monitoring of both space-based and Earth-based activities, areas for scientific experiments and technological applications, and areas for Space Shuttles and Space Stations. *Ibidem.*

Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies clearly asserts in this sense that:

> "States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and in promoting international cooperation and understanding."[300]

Note the use of "shall" instead of "should", in order to stress the strong nature of such legal framework for any activity in connection to Outer Space and celestial bodies. This is a clear example of *hard law* (binding for States) in opposition to the so called *soft law* (*de lege ferenda* obligations).[301]

It is not an overstatement to say that the international community of States has conducted itself, since its early beginning, according to the idea that Outer Space is not a "law-free" zone. Thus, as Professor CHRISTOL recalls, by way of international agreements[302],

[300] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, 27 January 1967, 610 UNTS 205, (entered into force on 10 October, 1967) (Outer Space treaty).

[301] WEIL, Prosper, "Towards relative normativity in international law?" *American Journal of International Law*, 1983, Vol. 77, pp. 413 and ff.

[302] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, 27 January 1967, 610 UNTS 205, (entered into force on 10 October, 1967) (Outer Space treaty); Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, 22 April 1968, 672 YNTS 119 (entered into force 3 December 1968) (Rescue and Return Agreement); Convention on International Liability for Damage Caused by Space Objects, 29 March 1972, 961 UNTS 187 (entered into force 1 September 1972 (Liability Convention); Convention on Registration of Objects Launched into Outer Space, 6 June 1975, 1023 UNTS 15 (entered into force 15 September 1976) (Registration Convention); and Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Adopted by the General Assembly in its resolution 34/68, opened for signature on 18 December 1979, entered into force on 11 July 1984 (Moon Agreement).

customary international norms[303] and resolutions of General Assembly of United Nations[304], among other relevant contributions like the ITU, the so called "International law of space" has contributed to make clear for States (and other subjects of International Law) what they may do, what they may not do and what they are required to do.[305]

In the eyes of many authors, the search for extraterrestrial intelligence is the most exotic of all space activities[306]. One consequence has been the erratic availability of government funding for Search programmes (and the provisional cancellation from the NASA budget in 1992). However, many of them accept that the most likely evidence of the existence of extra-terrestrial intelligence would be the detection of artificial radio signals emitted by some civilization somewhere in the depth space.[307] Taking for granted that event could eventually happen, one should conjecture with Francis LYALL, how would a suspected detection be validated? How should a validated detection be announced? And, perhaps more contentiously: should a reply be made to such a signal, and if so, who should make it, and what its terms can be? [308]

These have been the key questions analyzed in previous Chapter were we concluded that an international Regulation for these questions

[303] Like the freedom for a space objects to orbit in outer space at perigee limits, fixing this way, the limits between sovereign airspace and non-sovereign outer space.

[304] See, *inter alia*, Resolution 1721 A and B (XVI) of 20 December 1961: International cooperation in the peaceful uses of outer space. Paragraph 4 of resolution 55/122 of 8 December 2000: International cooperation in the peaceful uses of outer space. Resolution 59/115 of 10 December 2004: Application of the concept of the "launching State". Resolution 62/101 of 17 December 2007: Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects. Resolution 68/74 of 11 December 2013: Recommendations on national legislation relevant to the peaceful exploration and use of outer space.

[305] CHRISTOL, Carl Q., "International outer space law", *op. cit.*, p. 66.

[306] See, *inter alia*: BENNETT, Jeffrey, (Ed.), *Beyond UFOs: The search for extraterrestrial life and its astonishing implications for our future,* Princeton University Press, Princeton, 2011.

[307] LYALL, Francis, "SETI and the law: what if the search succeeds?" *Op. cit.,* p. 75.

[308] *Ibídem.*

were preferred to an unilateral approach from a State or a group of States, under the assumption that contacting extraterrestrial civilizations needed to be considered an issue of general interest for the international community of States as a whole. We also defended in Chapter Three as the most suitable among possible ways for enabling such international normativity for communication with extraterrestrial intelligent beings, the adoption by consensus of the core principles included in the *Declaration of principles concerning activities following the detection of extraterrestrial intelligence* and in the *Draft Declaration of principles concerning the sending of communication to ETI* by the General Assembly of United Nations, as a starting point for a process of progressive crystallization as customary law of these obligations on States and on non-governmental entities as regard detection and post-detection replies (what we call *short-term strategy* towards a discovering of extraterrestrial civilization).

To make some reservation to our proposal, one cannot let pass without commenting that, at the end of the day, the General Assembly of United Nations –in a similar way as COPOUS behaves– seems not especially interested in studying, let alone in regulating, issues like SETI and METI[309]. In a recent publication of United Nations collecting the

[309] In all probability, considering there exist more cogent and urgent issues at Stake like debris in outer space, outer space and moon exploitability, no placement of weappons in space… The list seems endless. See, as example, CHRISTOL, Carl Q., "Outer space exploitability: International Law and developing nations", *Space Policy,* 1990, Vol. 6, No. 2, pp. 146-160. FOX, Sarah Jane, "SPACE: The race for mineral rights. 'The sky is no longer the limit' Lessons from earth", *Resources Policy,* 2016, Vol. 49, pp. 165-178. HAO, Liu and TRONCHETTI, Fabio, "Should the Red Dragon arise? Assessing China's options vis-à-vis the enactment of the domestic space resources utilization law", *Space Policy,* 2017, Vol. 39-40, pp. 9-13. LIU, Hao and TRONCHETTI, Fabio, "United Nations Resolution 69/32 on the 'No first placement of weapons in space': A step forward in the prevention of an arms race in outer space?" *Space Policy,* 2016, Vol. 38, pp. 64-67. MARCHISIO, Sergio, "Security in space: Issues at stake", *Space Policy,* 2015, Vol. 33, pp. 67-69. REIF, Susanne U., "Shaping a legal framework for the commercial use of outer space: recommendations and conclusions from Project 2001", *Space Policy,* 2002, Vol. 18, pp. 157-162. SLANN, Philip, "Space debris and the need for space traffic control", *Space Policy,* 2014, Vol. 30, pp. 40-42. SU, Jinyuan, "The 'peaceful purposes' principle in outer space and the Russia-China PPWT Proposal", *Space Policy,* 2010, Vol. 26, pp. 81-90. TRONCHETTI, Fabio, "Private property rights on asteroid resources: Assessing the legality of the ASTEROIDS ACT", *Space Policy,* 2014, Vol. 30, pp. 193-

(…)

results on this issue by this International Organization –notably thanks to the auspicious of its General Assembly's Committee on the Peaceful Uses of Outer Space (COPOUS)[310]– one could see how vast areas of interest for international community space law claims for[311]. Surprisingly, little attention –to be generous– or no attention –being honest– has been paid up to date to one question: what would happen in case extraterrestrial intelligence was found? This is so even the fact that detection of extraterrestrial intelligent beings would complete the Copernican revolution in the sense we commented in the beginning of previous Chapters. Most of authors dealing with International Law of Space, simply omit any reference to this issue when identify the current and envisaged problems in such a branch of International Law.[312]

This is not only a question of United Nations' fault but rather a negligence which all States integrating such International Community could be charged with. Here one cannot assume is a consequence of developed States conditioning developing States' agenda for Outer Space Law, since in the COPOUS, about two-thirds of its members can be classified as developing countries. A *naïf* excuse could be found in the *risks of anticipatory lawmaking* concerning outer space. As it has been defended by DANILENKO, International Space Law is based on anticipatory regulation, which produces rules to govern topics that

196. VELÁZQUEZ ELIZARRARÁS, Juan Carlos, "El derecho del espacio ultraterrestre en tiempos decisivos: ¿estatalidad, monopolización o universalidad?", *Anuario Mexicano de Derecho Internacional,* 2013, Vol. XIII, pp. 583-638. VIIKARI, Lotta, "The legal regime for moon resource utilization and comparable solutions adopted for deep seabed activities", *Advances in Space Research,* 2003, Vol. 31, No. 11, pp. 2427-2432. VON DER DUNK, Frans G., "The integrated approach: Regulating private human spaceflight as space activity, aircraft operation, and high-risk adventure tourism", *Acta Astronautica,* 2013, No. 92, pp. 199-208.

310 http://www.unoosa.org/oosa/en/ourwork/copuos/index.html Last visited 8th August 2018.

311 *International Space Law: United Nations Instruments,* United Nations Press, New York, 2017. Available at http://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties.html Visited 17 July 2018.

312 See, as a matter of example, WEEKS, Edith E., *Outer space development, international relations and space law,* Cambridge Scholars Publishing, 2012. VELÁZQUEZ ELIZARRARÁS, Juan Carlos, "El derecho del espacio ultraterrestre en tiempos decisivos: ¿estatalidad, monopolización o universalidad?", *op. cit.,* pp. 583-638.

might arise only in the future. He indicates the example of The Moon Treaty[313], which was negotiated at a time when the activities of States in the exploration and exploitation of its natural resources were very limited. Consequently, States agreed that anticipatory regulation might be less appropriate in the formulation of detailed policies regarding complex technical and economic issues.[314]

The argument *a contrario* can be found, as Aldo Armando COCCA does, in saying that

> "It must be borne in mind that international law tends to guide and precede events in space, which is rarely the case on Earth, where it is generally more reactive."[315]

In my opinion, underlying the silence in the policy makers' agenda of the question relative to the eventual contact with extraterrestrial intelligent beings is the question –not yet resolved– of the inherent paradigm of international law applicable in that event: the Grotian model –a paradigm of international law created only by States as "subject"– or the Kantian model –a paradigm of norms which are not created only by States but by many entities as much as they can independent participants in the process of intercommunication with extraterrestrial intelligent beings.

We defend in these pages the Kantian model and in the following pages we will examine the possibility of establishing a dialogue with an extraterrestrial civilization eventually contacted (epigraph 1) as the necessary mean for recognizing extraterrestrial and terrestrial ethical

[313] Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Adopted by the General Assembly in its resolution 34/68, opened for signature on 18 December 1979, entered into force on 11 July 1984 (Moon Agreement).

[314] DANILENKO, Gennady, "Outer Space and the Multilateral Treaty-Making Process", *Berkeley Technological Law Journal,* 1989, Vol. 4, Iss. 2. Available at https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1076&context=btlj Visited 22 July, 2018.

[315] COCCA, Aldo Armando, "Space law: Latin America's contribution", *Space Law,* 1991, p. 152.

values and meta legal principles (epigraph 2), and we may convene some kind of diplomacy among us and "them" (epigraph 3). We will also explore the chance of formalizing such diplomatic relationship under a legal framework which can be acceptable for any civilization in the Universe (*ius gentium universalis*) in epigraph 4.

1. Needing a new Language? The theoretical basis for communication with extraterrestrial intelligent beings

Have extraterrestrial intelligent beings their own language? Do aliens speak in binary terms ("0" and "1")? Do they simply "read the mind" by telepathy? There are so many possible answer as question we may pose. Nevertheless, we can agree two points here: firstly, if extraterrestrial intelligent beings contact with us directly or indirectly (by replying our signals) that would imply some kind of civilization; secondly, there cannot be any civilization without communication among its components and this necessarily implies the use of a language as a way to communicate vertically and horizontally in such civilization. Consequently, extraterrestrial intelligent beings would manage an own language and it is probable they somehow are able to share it with us or to help us to decrypt it.

It should be mentioned in passing, in support of the thesis of *ius communicationis* of the humankind as connected to the exploration of Outer Space independently of its eventual use, that the SETI Institutes's *Earth Speaks* project (http://earthspeaks.seti.org) is an ongoing and global effort to involve the people of the world in identifying the appropriate content of interstellar messages. It does so by asking participants to supply text, audio files, or images that they would want included in an interstellar message sent to another intelligent species. Initial analysis of messages submitted through the Earth speaks website revealed the ability to identify and cognitively map the major themes that participants would like included in potential interstellar messages to extraterrestrial intelligence. These major themes were, in rank order:

a. we are human of the planet Earth

b. you are aliens to us, but you have know-how

c. Hello and welcome

d. Please help

e. Peace, love and friendship

f. Mathematics and binary expressions

g. we feel alone and we are fearful, primarily of our own propensity for violence

h. our gods and religions are influential in our lives

i. we recognize our cultural heritage and the civilizations they produce.[316]

In this connection, nevertheless, we could also point out that any decision of a reply will most probably depend on scientific data as well as on the way in which the contact has been established. As we commented in Chapter One, a number of different categories of ET evidences can be envisaged:

a) electromagnetic radiation received from a non-human source has been identified beyond reasonable doubt as a non-natural, i.e., artificial signal;

b) one or more objects are discovered, either on Earth itself or in its immediate neighborhood, which are identified beyond reasonable doubt as being both artificial and non-human, and which contain no living creatures;

c) the Earth is visited by extraterrestrial spaceships with living beings on board;

d) The Earth receives unmistakable and confirmed evidence of the presence on or near it of an alien intelligence that

[316] VACOCH, Douglas A., *et al.,* "What should we say to extraterrestrial intelligence?: An analysis of responses to «Earth Speaks»", *Acta Astronautica,* 2013, No. 86, p. 137.

> manifests itself in presently unknown and unforeseeable ways.[317]

Once the decision would have been taken that a reply is relevant, it would depend on the character of the message contained in the signal from ETI how we will formulate the message in the return signal. The message contents of the terrestrial reply should explain:

- that intelligent life is present on Earth;
- that Earth has received the signal and understood its message;
    - the kind of organisms existing at present on Earth, especially the kind of organism that formulated the present message: human beings;
- the exact location and size of the Earth in the Universe;
    - the fact that the senders of the signal from Earth send it on behalf of the entire Earth;
- the main physical features of human beings and their number;
    - the express desire of the Earth to establish and to maintain friendly relations with the senders of the ETI signal;
    - the wish to receive more signals from ETI.[318]

The only conclusion to be drawn from all this is that the question remains open[319]:

[317] REIJNEN, G. C., "Basic elements of an international terrestrial reply following the detection of a signal from extraterrestrial intelligence", *Acta Astronautica,* 1990, Vol. 21, No. 2, pp. 144.

[318] REIJNEN, G. C., "Basic elements of an international terrestrial reply following the detection of a signal from extraterrestrial intelligence", *op.cit.*, No. 2, pp. 147.

> "Will we able to understand the message or, vice versa, if we submit a message to extraterrestrial intelligence first, how can we make sure that they will understand us?"

However, it should be pointed out that this may be a relatively minor problem when compared to others we develop in following pages. It is also interesting to add in concluding this epigraph that to provide an answer to this question, authors like René HELLER, has carried out a successful experiment by which is has been defended the power of the world wide web to help interpreting future messages from extraterrestrial intelligence and to test the decryptability of our own interstellar messages.[320]

2. Meta legal principles valid for extraterrestrial intelligent beings?

Once accepted the extraterrestrials intelligent beings we may contact or be contacted by, it is interesting to wonder about extraterrestrial ethics, which, in a short way, following to BAUM and others, can be summarized in selfishness and universalism.[321] The former would mean the extraterrestrials' desire to maximize their own

[319] See at this regard the interesting works of BALLESTEROS, Fernando J., *Gramáticas extraterrestres,* Publicaciones Universidad de Valencia, Valencia, 2018. VACOCH, Douglas A., "The dialogic model representing human diversity in messages to extraterrestrials", *Acta Astronautica,* 1998, Vol. 42, No. 10-12, pp. 705-710. VACOCH, Douglas A., *et al.,* "What should we say to extraterrestrial intelligence?: An analysis of responses to «Earth Speaks»", *op.cit.*, pp. 136-148.

[320] The experiment consisted of a the following: imaging a radio message supposedly received on Earth from beyond the Solar system, this author posted a sequence of about two million binary digits to the social media that encoded a configuration frame, two slides with mathematical content and four images along with spatial and temporal information about thir contents. Six questions were asked and for that, it was needed a successful decryption of the message. From the three hundred replies she received from all around the world, about sixty of them included a correct solution. HELLER, René, "Decryption of messages from extraterrestrial intelligence using the power of social media – The SETI Decrypt Challenge", *International Journal of Astrobiology,* 2017, https://doi.org/10.1017/S1473550417000568

[321] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.,* p. 2117.

self-interests, whereas the former would imply their desire to maximize the interests of everyone, regardless of which civilization they are part of.[322]

We must not lose sight of the fact that the idea of homogeneous extraterrestrial intelligent beings has not to be given as granted. Some authors draw the attention to the fact that, similarly as it happens in our planet Earth with human population featuring a high heterogeneity (values, technical abilities, views, etc.), there is a serious probability of encountering not a homogenous but a heterogeneous extraterrestrial civilizations, whether if they share the same world home or proceed from different ones. Accepting the idea of heterogeneity of extraterrestrial intelligent life necessarily poses us face to face to the question whether contact between us –as human beings– and those –extraterrestrial intelligent beings– will be beneficial, neutral or harmful, for one, none or both parts. In my opinion, the best scenario analysis of this question has been provided by BAUM, HAQQ-MISRA and DOMAGAL-GOODMAN, even though they focus only on the effects of such contact on the human beings side.[323]

One implication of searching for an ethical ground for a universally applicable moral norm is that we must think in terms of a global ethic embraced by a single planetary society on Earth. Neither our Solar ghetto nor the encompassing Milky Way are the private property of one nation. Nor do they belong to whichever team of astronauts arrives first on an alien site. The competition and rivalry that

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[322] *Ibídem*. In fact, human beings as species is a good example of *ethics of selfishness,* if we consider that human ethics "is often anthropocentric in the sense that it places intrinsic value only on human phenomena, such as human life, human happiness, or other human factors. Such anthropocentrism is selfish on a civilization scale because it involves human only placing intrinsic value on the interests of their own civilization. In contrast, a universalist ethical framework would place equal intrinsic value on certain phenomena regardless of which civilization possessed that phenomena."

[323] BAUM, Seth D., HAQQ-MISRA, Jacob D., DOMAGAL-GOLDMAN, Shawn D., "Would contact with extraterrestrials benefit or harm humanity? *Op. cit.*, pp. 2114 and ff. As these authors recognize, it is a theoretical analysis since "we do not know how contact would proceed because we have no knowledge of ETI in the galaxy. Indeed, we cannot know for sure until after contact with ETI actually occurs".

plague our everyday territorial claims must be superseded by a just and participatory global community about to enter the space environment which surrounds all of us. Terrestrial ecoethicists have already confronted the mandate of thinking globally. If we add to ecological consciousness the new awareness of Earth's place within the Solar system and the Milky Way, we cannot help but think of a single Earth community with a planetary morality. Such a single Earth community does not actually exist, however, at least not yet. The United Nations has been working with such a concept of a global community at least since 1967. The 1967 UN Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies stipulated: '§1. The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind. §2. Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies' (UN 1967). In short, a universal and normative responsibility ethic applied off-Earth implies a trans-cultural global community here on Earth.[324]

As a starting point in our analysis, it is essential to admit that there are terrestrial international laws, therefore applicable to earth nations and peoples which cannot be suitable for any possible extraterrestrial intelligent beings. In a similar way, *a contrario*, there can exist extraterrestrial principles, norms or protocols of behavior which could not be expendable to the inhabitants on planet Earth.

A necessary premise of depart for identifying meta principles of Interstellar Law could be the two-side principle of relativism and neutrality (namely, treat ETI as they might desire to be treated and the same treatment for us). However, as Patricia STERNS points out:

[324] PETERS, Ted, "Does extraterrestrial life have intrinsic value? An exploration in responsibility ethics", *International Journal of Astrobiology*, 2017, https://doi.org/10.1017/S147355041700057X

> "We cannot approach relations with alien intelligences from a moral void. Specifically, we must consider the moral implications of our actions on an ETI, as well as the implications of their actions on human morality. If the ETI desired us to act in a manner toward them which were repugnant to our moral code and sensibilities. Perhaps, on the alien world, wars of conquest constitute the norm, and further that the victors practice cannibalism or slavery on the vanquished, or require that the vanquished pay homage to the deity or deities of the victors. In such a situation, the ETI may desire for us to engage them in an interplanetary war of conquest, with cannibalism or slavery or religious subjugation as the expected fate of one party." [325]

Authors like Ted PETERS has talked of an ethical imperative, which he nominate *responsibility ethics:*

> "Whenever the ethicist says, 'should' or 'ought', we can easily ask, 'why?' Any moral prescription can appear to be only one person's opinion or one culture's contextualized value. To assert that a particular action would be universally normative regardless of personal opinion or cultural difference poses a challenge. Yet, we must take up this challenge on two fronts, one terrestrial and the other extraterrestrial. The terrestrial front faces up to the threat to our planet's fecundity due to climate change and environmental deterioration. The extraterrestrial front raises the question: how should we earthlings treat living creatures in an off-Earth biosphere? Both of these call for moral guidance on a universal scale, that is, they call for an ethic that enjoins every pertinent moral actor. Here we will ask: if not grounded in objectivity per se, might an ethical imperative be grounded in what is

[325] STERNs, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *op. cit.,* pp. 759-760.

> inter-subjective, in what is relational? The candidate I nominate here is responsibility ethics."[326]

Other authors, like Ernst FASAN have identified some basic meta-legal principles serving basic interests of all intelligent life forms. From these meta-legal principles, there would evolve the following universally acceptable legal rules[327]:

1. The avoiding of damage: it is prohibited to damage the other race, and the other race (and we as well) will have the right to protect and finally to defend itself against such damaging acts.

2. If and as an intelligent being has the possibility of election between different courses of action, it has got the basic "freedom of will". This freedom of will shall have to be recognized by all intelligent races in the universe for all other such races. Of course, some races might feel they were unique and superior and the "lords of creation", and those other races should have to be subjugated in the sense of only acting according to the orders of the superior race. However, this would damage the other race, who would be permitted to protect itself from such damage. The right of self-defense is a legal consequence of the rights of freedom of will.

3. Humans are living in three-dimensional space. Our galaxy in itself is such three-dimensional space. Technical and scientific development of intelligent life forms will in all probability require three-dimensional space. It may be some "Blue planet" or some other habitat. We as well as ETIs will have to exist at least "somewhere".

From that "somewhere" their emissions will have originated and will have gone to our habitat. FASAN calls it the "necessary three-dimensional living space of every intelligent race in the Universe". To

[326] PETERS, Ted, "Does extraterrestrial life have intrinsic value? An exploration in responsibility ethics", *International Journal of Astrobiology*, 2017, https://doi.org/10.1017/S147355041700057X

[327] FASAN, Ernst, "Legal consequences of SETI detection", *op. cit.,* p. 678.

infringe an alien living space would be damaging for the life form, which inhabits such space[328].

The idea of mutual recognition of living spaces already inhabited by other races will be one more necessary legal notion for all sentient beings.

Here is interesting the view of Patricia STERNS[329] when she says that we must forgot any thought of enforcing our legal concepts on other intelligent beings: "Terrestrial nations must realize that any ETI will be beings with their own understanding of a kind of rules of behavior and thus, be legal subjects. Furthermore, in regard to contact between two intelligent races, a basic understanding of mutual rules will lead to a code of code of conduct. This is the starting point for meta-law.

This is a clear option for relativism when communicating with extraterrestrial intelligent beings: "It can be asserted that natural moral law transcends the universe, and that any sentient beings will discover the same moral truths which will apply to both intelligent races. This may, however, be a situation, not where reasonable minds may differ, but where reasoning minds may differ. The ability of humans to reason and think logically is inherently and inexorably intertwined with our environment, biology and evolution… Thus, our thought processes may be unique to these circumstances. Similarly, an ETI's ability to think and reason will be derived from its indigenous environment, its unique history and its biology. Therefore, we must consider the possibility that in logic, as in physics, everything may be relative." [330]

[328] FASAN, Ernst, "Legal consequences of SETI detection", *op. cit.,* p. 679.

[329] STERNs, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *op. cit.,* p. 761.

[330] STERNs, Patricia, M., "SETI and Space Law: Jurisprudential and Philosophical Considerations for Humankind in Relation to Extraterrestrial Life", *op. cit.,* p. 762.

3. Intergalactic Protocols for diplomacy with extraterrestrial civilizations?

It is a question which has rarely interested to authors, although there are some exceptions[331]. In our analysis, however, this is a key question: which kind of relation would we think to maintain with an extraterrestrial civilization in case it is discovered in next years? Will it be a relation of subordination from us to them or vice versa? Will we in a situation of equality in rights and duties (once identified as those most convenient for both sides)? Nobody has an answer because it will depend on the specific situation we may face to. As we have seen in epigraph 3 of Chapter One, it is commonly assumed that a "standard galactic protocol" for information exchange should recognize our asymmetrical listen-only strategy as a consequence of our asymmetrical position amongst galactic civilizations. In short, the most advanced civilizations will be in charge of transmitting and the less advanced civilization will remain listening.[332] What is not so clear, however, is whether the advanced civilizations will feel the responsibility to take on this burden. After all, as Douglas VACOCH reminds:

> "We see cases on our planet of cultures that provides benefits for individuals within their own culture, but they do not place much emphasis on providing for the well-being for individuals in other cultures. Perhaps this assumption really reflects our ethical assumption that if a civilization has the resources to transmit messages for our benefit, it should transmit messages."[333]

[331] See: GOODMAN, Allen E., "Diplomatic and political problems affecting the formulation and implementation of an international protocol for activities following the detection of a signal from extraterrestrial intelligence", *Acta Astronautica*, 1990, Vol. 21, No. 1, pp. 103-108. GALLOWAY, Jonathan F., "An international relations perspective on the consequences of SETI", *Space Policy*, 1996, Vol. 12, No. 2, pp. 135-137. GALLOWAY, Jonathan F., "Game theory and the law and policy of outer space", *Space Policy,* 2004, Vol. 20, pp. 87-90.

[332] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 516.

[333] *Ibídem.*

Thus, the first major argument we must confront –according to Professor VACOCH– is whether extraterrestrials will feel themselves bound by comparable ethical guidelines that we have. From the perspective of an extraterrestrial's ethical system, perhaps it is the younger civilization, which arguably has the most to gain from an interstellar exchange; that younger civilization should be expected to take on the burden of transmitting. Rather than benevolent transmitting, more advanced civilizations may instead be selective in deciding to whom they will reply. Besides, according to Professor VACOCH It is unlikely that a young civilization may have a galactic right to intercept transmissions from other civilizations simply by virtue of its youth. Moreover, there is a chance that such a young civilization may need to earn the knowledge that other civilization exist by first showing that they are willing to transmit message of their own.[334]

It is a fact that cannot be ignored –as many authors have considered– that humankind might benefit from joining a "Galactic Club" of other civilizations. Nevertheless, few of these authors have suggested that humankind should be expected to pay dues to join, or that we should consider the needs and interest of other members of the club. The result of our uncertainty about extraterrestrial motivations and "galactic protocols" for a first contact will be that passive searchers may be met with silence, even if the galaxy is teeming with intelligent life capable of communicating at interstellar distances.[335]

Be as it might, the questions we are interested here to deal with are the following: Who would speak on the side of Earth? What would be the content of that discourse? Which kind of relations can be expected to establish as result of these conversations? To the first two questions we have tried to give an answer in previous pages by suggesting the adoption by consensus of the core principles included in the *Declaration of principles concerning activities following the detection of*

[334] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 516.

[335] VACOCH, Douglas A., "Responsibility, capability and Active SETI: Policy, law, ethics, and communication with extraterrestrial intelligence", *op. cit.,* p. 518.

extraterrestrial intelligence and in the *Draft Declaration of principles concerning the sending of communication to ETI* by the General Assembly of United Nations, as a starting point for a process of progressive crystallization as customary law of these obligations on States and on non-governmental entities as regard detection and post-detection replies (what we call *short-term strategy* towards a discovering of extraterrestrial civilization). In all probability one single voice should be heard and the most suitable will be the General Secretary of United Nations in close cooperation with the Council of Security (and the Great Nuclear Power who remain the right to veto) and the General Assembly, according to the dispositions in the founding Charter of this International Organization.

As regards the content of our discourse, until more precise information is possessed by the Governments and the scientific community, it is obvious that a cautious approach should be remained on our side. In any case, the basic message which –in my opinion– can be sent in case we are contacted in a peaceful way would be coinciding with the meta-legal principles enounced by Ernst FASAN we have already commented in previous epigraph:

a) The interest (and with this the right) to preserve and to continue one's own living experience –be it personally or for a group of persons (family) or for bigger organizations (nations) or the whole race, etc.

b) Preservation means protection, and that means defending against (repelling of) damaging intrusion.

c) Intelligence means learning, and learning is a kind of expansion.[336]

In my opinion, these three metal-legal principles can be shared by any intelligent form of life in the universe, terrestrial and extraterrestrial. As a matter of fact, they resemble some classical principles governing the relations among States during centuries (interest-sovereignty; preservation-right to self-defense; expansion-*ius*

[336] FASAN, Ernst, "Legal Consequences of ETI detection", *op. cit.,* p. 678.

communicationis), and they notably find out room in the principles enounced in article 2 of the United Nations Charter. The third question remaining unresolved: "Which kind of relations can be expected to establish as result of these conversations?" is object of our attention in following pages.

The SETI Institut report on its strategic Planning workshops charged with identifying research priorities for the First two decades of the twenty-first century, *SETI 2020: A roadmap for the Search for Extraterrestrial Intelligence*[337], recognizing that transmissions searching extraterrestrial intelligent beings must be seen not only as a matter of science but, and specially, an act of diplomacy[338].

In a theoretical plane, we can assume in a binary response, considering our own experience as human civilization: we can start relationships governed by the principle of force (and then, we will feel comfortable in the discourse of International Relations) or we can have the chance and the political will to settle down a relationship with an extraterrestrial civilization upon the empire of Law (the so called Interstellar Law).

The dominant school of thought in the study of international relations is Realism. As applied to contact with an extraterrestrial civilization or civilizations, Realism would predict conflictive and not cooperative communications. However, since territorial conflict would not be an issue, war would not eventuate. On the other hand, the civilizational encounters would be fraught with suspicion and misperception. Each side might misinterpret the other's message. Communications would be seen as perplexing and threatening.[339] From an idealist standpoint, Carl SAGAN and others, sees the extraterrestrial

[337] EKERS, M. A., CULLERS, D. K., BILLINGHAM, J., and SCHEFFER, L. K., (Eds.), *SETI 2020: A Roadmap for the Search for Extraterrestrial Intelligence,* SETI Press, Mountain View, California, 2002.

[338] EKERS, M. A., CULLERS, D. K., BILLINGHAM, J., and SCHEFFER, L. K., (Eds.), *SETI 2020: A Roadmap for the Search for Extraterrestrial Intelligence, op. cit.* p. 244.

[339] GALLOWAY, Jonathan F., "An international relations perspective on the consequences of SETI", *Space Policy*, 1996, Vol. 12, No. 2, p. 135.

civilization helping us out with our adolescent problems. They will become harmonious on earth and throughout the cosmos.[340]

As Professor CASSESE has stated, every legal system undergoes constant change, for law must steadily adjust itself to new realities. In the international community two different patterns in law, one traditional, the other modern, live side by side. We can call the traditional model "Grotian" and the new one "Kantian". Under the former model the international community is based on a "statist" vision of international relations; it is characterized by co-operation and regulated intercourse among sovereign States, each pursuing its own interests. In contrast, the more modern "Kantian" paradigm is based on a universalist or cosmopolitan outlook, which see at work in international politics a potential community of mankind.[341] Interstellar law would be according to this Kantian paradigm.

Assuming as preferred the rule of law to the rule of force, we propose the Interstellar Law as a mean for cooperation between extraterrestrial civilizations and the humankind (as the terrestrial civilization), necessarily implies two dimensions, internal and external, respectively. As far as the former, it needs to be accepted by the International Community of States as a whole. That is not mean unanimity (the whole States that integrate such international community) but a group of States sufficiently representative of our cultural, political, economic and geographical diversity, including the States particularly concerned in activities in Outer Space. It must be an example of a norm of *ius cogens*, nevertheless, considering it is a matter of general interest of all. Personally, we do not see any obstacle for such condition.

Professor VERDROSS defined the *jus cogens* in the following way: "The criterion for those rules consists in the fact that they do not exist to satisfy the needs of the individual states but the higher interests of the whole international community. Hence these rules are absolute.

[340] SAGAN, Carl, *Brocca's Brain,* Random House, 1979, New York, p. 279 and ff. Cited in GALLOWAY, Jonathan F., "An international relations perspective on the consequences of SETI", *op. cit.,* p. 136.

[341] CASSESE, Antonio, *International Law, op. cit.,* p. 21.

The others are relative, because the rights and obligations created by them concern only individual states *inter se*."[342] What it was not considered *jus cogens* in one epoch of International Law[343] –for instance, the unilateral use of force in international relations before 1945 for solving disputes among States– can be contrarily seen in other epoch –namely, article 2.4 of the United Nations Charter, forbidding the unilateral use of force in a way contrary to the Charter. This open-conception of *ius cogens* is a two-side sword: on the one side, *jus cogens* must be used carefully. As Professor MERON says:

> "It is necessary to show that the norms of *ius cogens* have been accepted and recognized as such by the international community as a whole. To maintain the value and credibility of *ius cogens*, it should be limited to few fundamental norms. An inflation of *ius cogens* norms should imperil its very existence."[344]

Moreover, one could argue, following to CSABAFI that most of the legal principles declared by the Space Treaty are well on their way toward acquiring the character of *jus cogens*. There is evidence in the United Nations practice that States regard these legal principles as part of International Law. In opinion of this author:

> "States assumed legal obligations to respect these principles, and demonstrated the effectiveness of these legal principles in the course of the elaboration of further special rules of space law in the field of liability, return and assistance. Any consideration of State jurisdiction in outer space must not lose sight of the fact that these rules must satisfy not only the needs of States, but also serve the benefit and interest of all

[342] VERDROSS, Alfred, "Ius Dispositivum and Ius Cogens in International Law", *American Journal of International Law*, 1966, Vol. 60, p. 58.

[343] See GREWE, Wilhelm G., *The Epochs of International Law,* (translated and revised by Michael BYERS). Walter de Gruyter, Berlin-New York, 2000.

[344] MERON, Theodor, "International Law in the Age of Human Rights", *Collected Courses of The Hague Academy of International Law,* Vol. 301, Martinus Nijhoff Publishers, 2004, Leiden, p. 420.

> countries. This follows from the legal obligations assumed by States under the Declaration of Legal Principles and the Space Treaty."[345]

The other side of this imaginary sword is the flexibility of *jus cogens* for serving to any particular branch of International Law[346]. During more than half a Century it has been defended as a peremptory norm the principle of the Outer Space, the moon and other celestial bodies as a res communis omnium in the benefit and interest of mankind. Nothing would impede that the same principle was adapted to the communication with extraterrestrial civilization as implicit in the freedom of exploration of Space and its celestial bodies.

In its external dimension, Interstellar Law must be sufficiently flexible and strong, at the same time, for bearing any critics as regards its acceptance by any extraterrestrial civilization. Why some intelligent aliens are going to conditionate their relation with inhabitants of a small planet in the Solar System, even more, considering their primitiveness in comparison with them who might have experienced a brighter evolution through the pass of time? The possible answer is simple in my opinion: because they are intelligent beings and as such, they would prefer to act guided by reason and look for their general good.

Is it time for the humankind be considered a subject of International Law? In the symposium held in the UNESCO in 2000 was raised the question.[347] Although a clear answer was not offered in

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345 CSABAFI, Imre Anthony, *The concept of State Jurisdiction in International Space Law,* Martinus Nijhoff, Dordrecht, 1971, p. 47.

346 As the International Law Commission stated on draft Article 50 (Article 53 of the Convention on the Law of Treaties) it is not the form of a general rule of international law, but the particular nature of the subject-matter with which it deals that gives to a rule the character of jus cogens. Draft Articles on the Law of Treaties, p. 67, para. 2. (1966-II) *Yearbook of the International Law Commission,* p. 248, para. 2, UN doc. A/CN. 4/SER.A/1966/Add.1.

347 Report of the COMEST Sub-Commission on "The ethics of Outer Space", UNESCO, 10-11 July 2000, p. 18, epigraph 29, point 10: "As to the existing treaties, the Sub-Commission proposes two further points: - Should humankind be regarded

(...)

that occasion, it has been object of study by many internationalists. We follow here to Professor MERON who argued in his *General Course on Public International Law in The Hague Academy*, responding to the developing needs of the international community, International Law may create new subjects, endowed with varying legal personality, and various rights, obligations and attributes.[348] Even though the authority of this academic, there still is a debate among iusinternationalists regarding the eventual nature of the humankind as subject of International Law. Personally, I prefer avoid this endless discussion accepting it is not a conceptual but procedural problem: How would act as subject of International Law the humankind?

At the end of the day the way humankind could act as a subject of International Law would require the existence of a supranational entity –some kind of Organization like the High Authority of the seabed, like it was proposed in the referred symposium held in the Headquarter of UNESCO in 2000 on the topic "The Ethics for Outer Space"[349] Furthermore, they are independent participants and this is particularly evident in International Space Law. So, it is evident that International Law can consider –if it is the case– that extraterrestrial intelligent beings could be subjects of International Law.

As we cannot pretend that all norms of International Law applicable to subjects in the Earth can be equally applied to

as a subject of international law?" *Op. cit.*, available at http://unesdoc.unesco.org/images/0012/001220/122048E.pdf Visited 5 August 2018.

348 MERON, Theodor, "International Law in the Age of Human Rights", *op. cit.,* p. 369.

349 Report of the COMEST Sub-Commission on "The ethics of Outer Space", UNESCO, 10-11 July 2000, p. 18, epigraph 30: "Having regard to the specific dimension created by the special features of outer space, international organizations must be encouraged to reflect on the creation of an International High Authority for the use of outer space for the benefit of humankind, based on the model of the authority for the sea and ocean beds, but taking account also of the rules laid down in the Antarctic Treaty. Such an authority will have to define what constitutes scientific knowledge, requiring total freedom of information exchange, and what falls within the domain of industrial development for the purpose of commercial exploitation by ensuring mutual and reciprocal benefits in the service of all humankind." *Op. cit.*, available at http://unesdoc.unesco.org/images/0012/001220/122048E.pdf Visited 5 August 2018.

extraterrestrial subjects, we need to convene an Interstellar Law which can regulate the exercise of the *ius communicationis* among us –human beings and extraterrestrial intelligent beings. To that aim, we can have a look back in our recent past History in our planet Earth to consider the fundamentals for such interstellar diplomacy.

4. Basis for an Interstellar Law: making the future of humankind today

Our approach to the topic, as we have already stated, is that we will consider only extraterrestrial living organisms which are technically and scientifically sufficiently developed in order to be able to create emissions into space[350]. That is, *alive* and *intelligent* extraterrestrial beings.

The fundamental argument for our approach –with all criticism it can deserve– is that this definition is the most convenient for our thesis of an Interstellar Law as a *ius gentium* for new world (in the milky way and far beyond). This is so considering the *ius communicationis* as the basis for such Interstellar Law which assume implicitly the idea of an extraterrestrial intelligent civilization. As we have argued in previous pages, the basis for such Interstellar Law –as a *ius gentium* for new worlds upon the *ius communicationis* of different terrestrial and extraterrestrial civilizations is the natural reason or intelligence of us and them to select between two or several possibilities, to realize which possibility is least harmful for us and for them and thus, to preserve and to embrace our life and their life, and that of our species and their species as well.

According to Ernst FASAN, like all living beings, the intelligent ones –but consciously so– will choose the alternatives which seem to be least harmful to them. The greatest harm for a living being is its extinction, its death. Therefore, the selection of possibilities will practically always go into the direction of preserving the organism's

[350] FASAN, Ernst, "Legal consequences of ETI detection", *op. cit.,* p. 677.

existence. This brings about the most basic characteristics of life, namely the will to live.[351]

Intelligent life thus recognizes the freedom of will and recognizes furthermore its unalterable will to live and to protect its life. Thus, this author asserts that an intelligent living organism will be able to realize that harmful acts can be committed. At the same time it will be able to realize that harmful acts can be suffered as well. Therefore, it would consider harmful acts committed against it as undesirable or, in other words as "evil". And it will consider acts which protect it from damage as desirable or "good".[352]

There is an additional argument in favor of this thesis that cannot be ignored. Ernst FASAN feel most strongly that all intelligent races that might come into contact with each other should probably expect to have some basic interests: to preserve and continue its own life and/or the life of its own race; to protect this life from damage and intrusion; possibly to expand the realms of its own life and/or the life of its own race. Both terrestrial life and intelligence show distinct qualities of the capacity of "fighting for survival". The whole evolutionary process of life, creating higher and higher organisms and, finally, organisms equipped with intelligence is known to have been a result of the selection process of the "survival of the fittest". In opinion of this author, it is therefore impossible to exclude the notion that extraterrestrial intelligent life might be a product of such an evolutionary process as well.[353] With this, the notion of "fighting for survival" the notion of competition and the notion of survival of the fittest may at least be a possible quality or characteristic of such extraterrestrial intelligence. At the same time, the intelligent extraterrestrial will probably speculate in the same direction. And thus he might realize that mankind could be dangerous to his race.[354]

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[351] FASAN, Ernst, "Discovery of ETI: Terrestrial and Extraterrestrial Legal Implications", *op. cit.,* p. 133.

[352] *Ibídem.*

[353] FASAN, Ernst, "Discovery of ETI: Terrestrial and Extraterrestrial Legal Implications", *op. cit.,* p. 134.

[354] *Ibídem.*

Professor CARRILLO SALCEDO in his famous study *Derecho Internacional en perspectiva histórica,* has claimed that History shows how relations between independent political entities have developed in very different times, and how these relations were regulated by legal norms among which it is possible to detect some common features: the admission of the existence of foreign political entities and the recognition of the legal individuality of each of them; the possibility that in their reciprocal relations said political entities were represented one to another, with a special legal regime applicable to ambassadors; the admission of the existence of reciprocal rights and duties that could be invoked in the relations between different independent political entities; the conviction that the commitments assumed under certain conditions of form and through certain procedures created legal obligations between the political entities parties to such agreements or treaties, etc.[355]

Thus, when the discovery of America makes Francisco de VITORIA to raise the question of legal titles that could legitimize the presence of the Spaniards and their dominion over the new territories and their populations, in his *Relectio de Indis recenter investis*, (1539) , he not only addressed the ethical problem of the conquest of that new world but, moreover, contributed decisively to the creation of modern international law by rejecting traditional titles and, in particular, the alleged universal authority of the Pontiff. Thus, by affirming the natural right of the natives of those lands (America) to form independent political societies and not admitting other title than the *jus communicationis*, Francisco de VITORIA and the school of *theologians* and jurists that is known by the name of *Spanish School of International Law*, laid the foundations of a universal conception of the international community.[356]

[355] CARRILLO SALCEDO, Juan Antonio, *El Derecho Internacional en Perspectiva Histórica,* Tecnos, Madrid, 1991, p. 15. In the same line of though *confer* TRUYOL Y SERRA, Antonio, *Théorie du Droit International Public,* Recueil des Cours de l'Académie de Droit International, tome 173 (1981-IV), Martinus Nijhoff. Dordrecht, 1992. BOS, M., "L'universalité du droit des gens", in *Varia Juris Gentium, Liber Amicorum Jean Pierre Adrien François,* Sijthoff, Leyden, 1959, pp. 62-72.

[356] CARRILLO SALCEDO, Juan Antonio, *El Derecho Internacional en Perspectiva Histórica, op. cit.,* p. 17.

According to the thought of VITORIA[357] –as it is recalled by Professor CARRILLO SALCEDO– two presuppositions are necessary for the existence of an international legal order at any time: on the one hand, the coexistence of independent political entities; on the other, the general conviction that such entities are mutually and reciprocally linked by legal norms that confer rights, impose obligations and distribute competences among them (States).[358] This way, for Francisco de Vitoria the international community results from the natural sociability of man that extends to the universality of the human race, and hence the double dimension in which he conceived the jus gentium: as the universal law of humanity, in the manner of Roman law , and as the Right of the organized peoples in independent political communities in their reciprocal relations. In this last meaning, VITORIA defined the Law of people as that which natural reason establishes among people.[359] There is, then, a universal community of the human race, based on natural sociability and the common nature of men. The universal international community –which encompasses the entire world and the entire human race– therefore, is a frame of reference in which sovereign States, holders of independent political power, take on meaning and meaning.

In VITORIA's view, every human group requires an authority that ensures the common good, with which political power –which resides in such a human community– is a moral necessity. In short, it is in the theory of political power that we find the basis of their attitude towards the crucial question of whether international relations can exist on the margin or above the political community that we call today the State: the emphasis on the person, on Man reaches his fullness by

[357] See it in: VITORIA, Francisco de, *Reflections in Moral Theology of the Very Celebrated Spanish Theologian, Franciscus de Vitoria,* E. NYS (ed.), J. P. BATE (trans.), The Carnegie Institution of Washington, Washington, 1917.

[358] CARRILLO SALCEDO, Juan Antonio, *El Derecho Internacional en Perspectiva Histórica, op. cit.,* p. 18.

[359] CARRILLO SALCEDO, Juan Antonio, *El Derecho Internacional en Perspectiva Histórica, op. cit.,* p. 19.

affirming the existence of a human community over the borders of the different political powers.[360]

As Professor ZORROZA has argued, he most radical change VITORIA's doctrine supposed for International Law of the epoch was he looked for human dignity not in what he is (essence as a God's gift) but in the ability to make himself, in the possibility that man has to become whatever he wants. To Mankind Nature gave only reason and virtue. Therein lies the dignity of human nature: its rational character.[361] The *ius societatis et communicationis* is the same thing in the thought of VITORIA because community and communication are intrinsically linked for this author in a way that it is the *ius communicationis* of any Society where he would find out the justification for the Spaniards action in America afterwards its discover.[362]

The thought of VITORIA cannot be fully understood without the complementing work of Francisco SUÁREZ, from the same Spanish Classic School of International Law.[363] As Professor BRAWN

[360] *Ibídem. Confer*: DESANTES-GUANTER, José María, "Los mensajes simples en el 'ius communicationis' de Francisco de Vitoria", *Persona y Derecho. Revista de fundamentación de las Instituciones Jurídicas y de Derechos Humanos,* 1989, No. 20, pp. 191-209.

[361] ZORROZA, María Idoya, "Francisco de Vitoria and the Dignity of Man: Scholastic Anthropology and Humanism", Chapter 7 in *New perspectives on Francisco de Vitoria: does international law lie at the heart of the origin of the modern world?,* BENEYTO, José María and VACA, Carmen (Eds.), CEU Publishers, 2014. As this author states: "Vitoria makes his defense in a indirect way that the newly discovered territory and its people should be ruled and governed. The relectiones entitled *De Indis* should be interpreted in this way. Vitoria wholly follows Aquina's thesis in which he maintains that man is the beginning of his own actions because of the freedom and dominion he exercises over his actions. In addition, Vitoria uses this argument in attributing humanity to the people and nations of the newly discovered lands and, with it, the defense of their inalienable dignity.

[362] DESANTES-GUANTER, José María, "Los mensajes simples en el 'ius communicationis' de Francisco de Vitoria", *Persona y Derecho. Revista de fundamentación de las Instituciones Jurídicas y de Derechos Humanos,* 1989, No. 20, p. 192.

[363] SUÁREZ, Francisco, *DE LEGIBUS, AC DEO LEGISLATORE,* 1612 (translation by WILLIAMS, Gladys L. *et al.,* preliminary study by BROWN SCOTT, James) Vol. I of *The Classics of International Law*, Oxford University Press, 1944. See also:

(...)

SCOTT has argued, the philosophy of VITORIA was for an occasion –the discovery of the New World– within the law of Christendom, thus universalizing it. On the contrary, the purpose of SUÁREZ was to state the law universal and its elements in abstract. In other words, with VITORIA, the philosophy of law was subordinated to its application; with SUÁREZ the *desideratum* was the creation of a philosophy which would permeate not merely but to every concrete situation.[364]

SUÁREZ has the thesis that law, in the true juridical sense, is applicable only to rational creatures. Man is a reasoning creature and can distinguish between right and wrong. Therefore law is not an end in itself but a mean for securing the true welfare, peace and happiness of those to whom it applies.[365] As eternal law resides immutably and from eternity in the mind and will of God, according to SUÁREZ, natural law resides in the *ratio* or intelligence, that is, the power to make decisions among various possibilities and according to a result envisaged. In a similar way as VITORIA did, SUÁREZ identifies the natural law, that which dwells within the human mind in order that the righteous may be distinguished from the evil: natural law prescribes that which is in harmony with rational nature as such and prohibits the contrary and it embraces all precepts or moral principles which are plainly characterized by the goodness necessary to rectitude of conduct.[366]

SUÁREZ makes a threefold classification of those things which are recognized by means of natural reason. Firstly, there are certain primary and general principles of morality, namely that good should be done and evil avoided. These are inherent in the natural law. There are other principles which, though less broad in scope and more specific in

BROWN SCOTT, James, *El origen español del Derecho Internacional Moderno,* Universidad de Valladolid, Valladolid, 1928.

364 SUÁREZ, Francisco, *DE LEGIBUS, AC DEO LEGISLATORE,* 1612 (translation by WILLIAMS, Gladys L. *et al.,* preliminary study by BROWN SCOTT, James), *op. cit.*, p. 16.

365 SUÁREZ, Francisco, *DE LEGIBUS, AC DEO LEGISLATORE,* 1612, *op. cit.*, p. 23.

366 SUÁREZ, Francisco, *DE LEGIBUS, AC DEO LEGISLATORE,* 1612, *op. cit.*, p. 25.

nature (such as those requiring the observance of justice and other virtues) are likewise clearly a part of natural law. And finally, that law also includes conclusions deduced from natural principles by an evident inference and through a more or less complex process of rational reflection.[367]

Because men in different parts of the world have reached different stages of civilization, however, they may not all have attained the same knowledge of the precepts of that law. Hence varying conceptions of its content may prevail throughout the world at a given time. But the natural law itself is a unified whole with respect to all men and in all places: a single law with respect to all times and every condition of human nature. Thus conceived, the natural law may be termed as an expression of the nature and dignity of the human being. They are of a perpetual character and remain unaffected by the passage of time. But natural law, immutable in itself, applies to changeable and changing human conditions-For this reason it possesses certain adaptability in the subject-matter to which it applies and adapt its own precepts to this mutability.[368]

SUÁREZ did not support the idea of a world State. He conceived of the law of nations as having a "rational basis" which consisted in the fact that the human race, into howsoever many different peoples and kingdoms it may be divided, always preserves a certain unity. The unity he had in mind was not merely that of "a species but also a moral and political unity (as it were) enjoined by the natural precepts of mutual love and mercy". Although each State may be a perfect community in itself, and therefore "sovereign" and independent, it is another sense when viewed in relation to human race, a member of that universal society. For all their sovereignty and independence, these States when standing alone are never so self-sufficient that they do not require some mutual assistance, association and intercourse. This feeling of interdependence may in part result from the material "welfare and advantage" produced by international

[367] SUÁREZ, Francisco, *DE LEGIBUS, AC DEO LEGISLATORE,* 1612, *op. cit.*, pp. 25-26.

[368] *Ibídem.*

co-operation, but it is likewise due to a recognition of some moral necessity or need.[369]

Thus, according to Professor BRAWN SCOTT, in the thought of SUÁREZ, *ius gentium* comprises those customs of the world at large. *Ius gentium* or law of nations is true law and has been introduced by the usage and general conduct, not of one of another people, but of the whole world. The law of nations, according to SUÁREZ is very closely related to the natural law. Moreover, it is natural law which supplies the basic sanctions for the law of nations; for the rules concerning peace, truces and ambassadors, SUÁREZ declares they have their foundation in some human agreement and with respect to such agreements not only the power to contract a treaty or a convention, but also the obligation arising from whom that treaty or convention are demanding good faith and justice, have regard to the law of nature.[370]

The thesis we are defending in this study is that after the discovering of extraterrestrial intelligent beings, it would not be too difficult to make out a convincing case for considering it as an *ius gentium* for new worlds of humankind, by looking back to the doctrine of classical Francisco de VITORIA and Francisco SUÁREZ, both eminent representing the Spanish School of International Law in the XVI and XVII. The natural law which justified in these authors the *ius communicationis* and the necessary law to regulate the relationships of cooperation among peoples from Europe and the New World (America) would still be valid for any eventual discover of an extraterrestrial civilization, provided the basis for such natural or Interstellar Law is found in the *ratio* or intelligence of any creature, terrestrial or extraterrestrial.

In previous epigraph 2 in this Chapter Four, we analyzed the ethical values of any extraterrestrial civilization. For some authors, like Ted PETERS, we would clearly be facing an example of a *responsibility*

[369] SUÁREZ, Francisco, *DE LEGIBUS, AC DEO LEGISLATORE,* 1612, *op. cit.*, pp. 36-37.

[370] SUÁREZ, Francisco, *DE LEGIBUS, AC DEO LEGISLATORE,* 1612, *op. cit.*, pp. 33.

ethic[371]. The key to making such a responsibility ethic viable would be the simple logic of the good. As this author states:

> "Because the good is self-defining and is presupposed in all moral discourse, and because living creatures can participate in the good and appreciate the good better than non-living things, it follows that life should be treated as possessing intrinsic value. We, homo sapiens, then, are morally responsible to respect, protect and even enhance life. If justification for human responsibility towards life wherever it is found becomes persuasive, perhaps we can provide a persuasive argument for the intrinsic value of life as we find it on Earth and elsewhere in the Milky Way".[372]

Could these words have been written *mutatis mutandis* in the XVI Century? Have this thought ever been made somewhere in the universe, apart than on planet Earth?

[371] PETERS, Ted, "Does extraterrestrial life have intrinsic value? An exploration in responsibility ethics", *op. cit.*

[372] *Ibídem.*

CONCLUDING REMARKS

One of the most common questions human beings have posed themselves, across cultures since the beginning of time, has been whether they are alone in the Universe. Discovering extraterrestrial intelligent life would amount a post Copernicus revolution, in the sense that similarly the Earth was probed not to be the center of the universe, the human beings are not central in essence. As a professor of International Law, I have felt myself interested in some cogent questions to be answered sooner than later (accepting that if we are not alone in the Universe, it is a matter of time contact or being contacted by an extraterrestrial civilization): is the search for extraterrestrial intelligent beings a domain to be considered by International Law of Outer Space? Considering an affirmative answer to this question, attention deserving from International Law should be at two levels: at the short time (any question related to the fact of sending messages and eventually answering any signal detected) and at the long time. Here, the issues at stake are rather far complex: What are the legal basis (meta rules, principles and substantive norms) we can identify as valid for any intelligent form of life in the Universe? What kind of procedural legal norms –that is, rules of cooperation with extraterrestrial intelligent beings– we might have? In short, how can we communicate them and cooperate with or, eventually fight them?

Moreover, which is the legal framework for providing answers to these and connected questions? Would it be the current International Law of Outer Space the best juridical framework? Or, should we consider the convenience of thinking about a new paradigm of International Law of Outer Space –an Interstellar Law– as an *ius gentium* for new worlds, in a similar way the Classic Spanish School of International Law refunded the Law of Christianity after the discovering of America? These are the core questions we have dealt with in the study.

We started our analysis with an introduction where we made some conceptual precisions about extraterrestrial intelligent beings; namely, that they are living and intelligent as far as to amount a

civilization. We also presented the state of Art as regards the different scenarios scientists consider can provide evidences of the existence of extraterrestrial life and its implications for this study: a) electromagnetic radiation received from a non-human source which is identified beyond reasonable doubt as a non-natural; b) one or more objects having been discovered, either on Earth itself or in its immediate neighborhood, which are identified beyond reasonable doubt as being both artificial and non-human, and which contain no living creatures; c) the Earth being visited by extraterrestrial spaceships with living beings on board; and d) the Earth receiving unmistakable and confirmed evidence of the presence on or near it of an alien intelligence that manifests itself in presently unknown and unforeseeable ways. At this strict regard, there cannot be any doubt that the detection of extraterrestrial intelligence could take many forms, and the exact scenario of such detection might be unpredictable. However, it is evident that the same questions would arise. Should the human species send a message to the extraterrestrial civilization? Who decides? Are there reasons why Humankind should not reply? Who decides? If we decide to reply, what should be said? Again, who decides? Should humankind respond as a unit, rather than as separate States? Should we attempt to design a generic response, or should we better await the circumstances of the detection before drafting a more specific response?

After the critical exam of the current efforts of searching extraterrestrial intelligent beings (SETI), we assumed a scenario more optimistic than pessimistic of an eventual contact with an extraterrestrial civilization –although we recognized there is no scientific data supporting such a personal feeling– and proposed the inclusion of the communication with extraterrestrial intelligent civilizations (SETI and METI) under the regulation of International Law of Outer Space –still pending– as an exercise of an *ius communicationis* of humankind based in the classic Works of the School of Salamanca (VITORIA and SUÁREZ) updated to present. To this aim, we discussed whether the current International Law of Outer Space –created during the extinct Cold War– would be the best juridical framework for a regulation of such *ius communicationis* or, on the contrary, we should consider the convenience of assuming a new paradigm of International Law of Outer Space –an Interstellar Law– as an *ius gentium* for new worlds. We presented the existing debate about a

new regime for the Outer Space (motivated for economic reason mainly) and the permanencies and changes in this period of transition. Namely, we have referred the notions of mankind and shared benefits of Outer Space. Departing from a personal theory of General International Law (a kinetic theory of Post-contemporaneous International Law as geometry in motion) in order to understand that changes affecting the international order in the last decades also has incidence in its subject matters, like the exploration and use of Outer Space, we developed the thesis of the convenience of Interstellar Law as *ius gentium* for new worlds upon the basis of the exercise of *ius communicationis* of the humankind which is implicit in the principle of customary law of free exploration of the Outer Space.

As we commented in Chapter One, there are only "soft law" Declarations: the so called *Declaration of Principles concerning activities following the detection of extraterrestrial intelligence* and the *Draft Declaration of principles concerning the sending of communication to extraterrestrial intelligent beings*. Although some dispositions of existing International Law of Outer Space can indirectly be applied to regulate both dimensions of Earth's strategy facing a discover of extraterrestrial civilizations, we have defended with juridical arguments that communication with extraterrestrial intelligent beings should be considered a matter of interest by the International Law of Outer Space. This should be so not only due to the fact that neither in the Declarations of the United Nations nor in the different treaties on Outer Space elaborated up to date, an express limitation has been included to the scope of application of International Law to some specific activities in the space (and the general rule is that everything which is not prohibited is allowed). Moreover, communication with extraterrestrial civilization cannot be considered an internal matter of each State (regulated by domestic norms), but an issue for general concern of the international community of States (as expression of an *ius communicationis* of the mankind).

We have argued that the traditional approach of States facing spaces on Earth which are out of their jurisdiction (like the seabed) and the "res communis" model (which in practice implies "first come, first served") would not be valid for communicating with extraterrestrial civilizations. Thus, the humankind is entitled to use of outer space and in this case, it would be acceptable the *ius occupationis* by any State as it

has happened on Earth with spaces *res communis omnium*. However, the exploration of outer space on behalf of the humankind –including the *ius communicationis*– would not resist its unilateral exercise by a single State considering that discovering and interacting with an extraterrestrial civilization would amount an issue of general concern for the international community of States as a whole, and for the human beings as a species as well. Consequently, we have defended that SETI and METI must be regarded as expression of *ius communicationis* of humankind which demands us preventing from unilateralism of States in contacting extraterrestrial civilizations.

Cooperation among governmental and non-governmental actors for a successful response of humankind face to face a discovering of extraterrestrial intelligent life, in the framework of United Nations according to International Law has been our proposal to that aim in Chapter Three. *Ius communicationis* as the right of the humankind to explore the Universe and to make contact with extraterrestrial intelligent beings only can achieved through cooperation of interested actors in Space Law –not only States– in the framework of United Nations. A short-term strategy under International Law of Outer Space upon the principles generally accepted for outer space is needed as regard communication with extraterrestrial civilization. Coinciding with mainstream, any draft Agreement or Declaration about SETI and METI should be on behalf of all Humankind; any decision or action should be made by an appropriate international body, broadly representative of Humankind; and the content of a reply should reflect an international consensus.

Under such circumstances, it is not likely that an international treaty would endorse the content of both Declarations. Moreover, such a treaty would not be convenient for pragmatic reasons. In our opinion, the most suitable among possible ways for enabling such international normativity for communication with extraterrestrial intelligent beings, the adoption by consensus of the core principles included in the *Declaration of principles concerning activities following the detection of extraterrestrial intelligence* and in the *Draft Declaration of principles concerning the sending of communication to ETI* by the General Assembly of United Nations, as a starting point for a process of progressive crystallization as customary law of these obligations on States and on non-governmental entities as regard detection and post-detection

replies (what we call *short-term strategy* towards a discovering of extraterrestrial civilization).

In my opinion, underlying the silence in the policy makers' agenda of the question relative to the eventual contact with extraterrestrial intelligent beings is the question –not yet resolved– of the inherent paradigm of international law applicable in that event: the Grotian model –a paradigm of international law created only by States as "subject"– or the Kantian model –a paradigm of norms which are not created only by States but by many entities as much as they can independent participants in the process of intercommunication with extraterrestrial intelligent beings.

However, such a short-term strategy –in case it could be successful– would be insufficient at long term. Contacting with any extraterrestrial civilization would amount more than an interchange of messages. It would imply a kind of diplomacy, governed by some instrumental rules and under the assumption of some principles (some of them of *ius cogens* nature). The key point is to identify them taking for granted that they should be valid for both, extraterrestrials civilization and human beings here on Earth. Having assumed in this study a Kantian model of International Law, we have examined the possibility of establishing a dialogue with an extraterrestrial civilization eventually contacted as the necessary mean for recognizing extraterrestrial and terrestrial ethical values and meta legal principles, and we may convene some kind of diplomacy among us and "them" (a *standard galactic protocol* for information exchange). We also explored the way of formalizing such diplomatic relationship under a legal framework which could be acceptable for any civilization in the Universe (*ius gentium universalis*).

Assuming as preferred the rule of law to the rule of force, we propose the Interstellar Law as a mean for cooperation between extraterrestrial civilizations and the humankind (as the terrestrial civilization), necessarily implies two dimensions, internal and external, respectively. As far as the former, it needs to be accepted by the International Community of States as a whole. That is not mean unanimity (the whole States that integrate such international community) but a group of States sufficiently representative of our cultural, political, economic and geographical diversity, including the

States particularly concerned in activities in Outer Space. It must be an example of a norm of *ius cogens*, nevertheless, considering it is a matter of general interest of all. In its external dimension, Interstellar Law must be sufficiently flexible and strong, at the same time, for bearing any critics as regards its acceptance by any extraterrestrial civilization. Why some intelligent aliens are going to conditionate their relation with inhabitants of a small planet in the Solar System, even more, considering their primitiveness in comparison with them who might have experienced a brighter evolution through the pass of time? The possible answer is simple in my opinion: because they are intelligent beings and as such, they would prefer to act guided by reason and look for their general good.

Our approach to the topic, as we have already stated, is that we will consider only extraterrestrial living organisms which are technically and scientifically sufficiently developed in order to be able to create emissions into space. That is, *alive* and *intelligent* extraterrestrial beings.

The fundamental argument for our approach –with all criticism it can deserve– is that this definition is the most convenient for our thesis of an Interstellar Law as a *ius gentium* for new world (in the milky way and far beyond). This is so considering the *ius communicationis* as the basis for such Interstellar Law which assume implicitly the idea of an extraterrestrial intelligent civilization. As we have argued in previous pages, the basis for such Interstellar Law –as a *ius gentium* for new worlds upon the *ius communicationis* of different terrestrial and extraterrestrial civilizations is the natural reason or intelligence of us and them to select between two or several possibilities, to realize which possibility is least harmful for us and for them and thus, to preserve and to embrace our life and their life, and that of our species and their species as well.

The thesis we have defended in the final part of this study is that after the discovering of extraterrestrial intelligent beings, it would not be too difficult to make out a convincing case for considering it as an *ius gentium* for new worlds of humankind, by looking back to the doctrine of classical Francisco de VITORIA and Francisco SUÁREZ, both eminent representing the Spanish School of International Law in the XVI and XVII. The natural law which justified in these authors the *ius communicationis* and the necessary law to regulate the relationships of

cooperation among peoples from Europe and the New World (America) would still be valid for any eventual discover of an extraterrestrial civilization, provided the basis for such natural or Interstellar Law is found in the *ratio* or intelligence of any creature, terrestrial or extraterrestrial.

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ANNEXES

DECLARATION OF PRINCIPLES CONCERNING ACTIVITIES FOLLOWING THE DETECTION OF EXTRATERRESTRIAL INTELLIGENCE (ETI)[373]

We, the institutions and individuals participating in the search of ETI:

Recognizing that the search for ETI is an integral part of space exploration and is being undertaken for peaceful purposes and for the common interest of all mankind.

Inspired by the profound significance for mankind of detecting evidence of ETI, even though the probability of detection may be low.

Recalling the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, which commits States Parties to that Treaty "to inform the Secretary General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results" of their space exploration activities (Article XI).

Recognizing that any initial detection may be incomplete and ambiguous and thus, requiring careful examination as well as confirmation, and that it is essential to maintain the highest standards of scientific responsibility and credibility.

Agree to observe the following principles for disseminating information about the detection of ETI:

1. Any individual, public or private research institution or governmental agency that believes it has detected a signal from or other evidence of ETI (the discover) should seek to verify that the

[373] Available in https://www.seti.org/protocols-eti-signal-detection

most plausible explanation for the evidence is the existence of ETI rather than some other phenomenon or anthropogenic phenomenon before making public announcement. If the evidence cannot be confirmed as indicating the existence of ETI, the discoverer may disseminate the information as appropriate to the discovery of any unknown phenomenon.

2. Prior to making a public announcement that evidence of ETI has been detected, the discover should promptly inform all other observers or research organizations that are parties to this declaration, so that those other parties may seek to confirm the discovery by independent observations at other sites and so that a network can be established to enable continuous monitoring of the signal or phenomenon. Parties to this declaration should not make any public announcement of this information until it is determined whether this information is or is not credible evidence of the existence of ETI. The discoverer should inform his/her or its relevant national authorities.

3. After concluding that the discover appears to be credible evidence of ETI, and after informing other parties to this declaration, the discover should inform observers throughout the world through the central Bureau for Astronomical Telegrams of the International Astronomical Union, and should inform the Secretary General of the United Nations in accordance with Article XI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and other Bodies. Because of their demonstrated interest in and expertise concerning the question of the existence of ETI, the discover should simultaneously inform the following international institutions of the discover and should provide them with all pertinent data and recorded information concerning the evidence: the ITU, the Committee of Space Research of the International Council of Scientific Unions, the International Astronautical Federation, the IAA, the IISL, Commission 51 of the International Astronomical Union and Commission J of the International Radio Science Union.

4. A confirmed detection of ETI should be disseminated promptly, openly and widely through scientific channels and public media, observing the procedure in this declaration. The discover should have the privilege of making the first public announcement.

5. All data necessary for confirmation of detection should be made available to the international scientific community through publications, meetings, conferences and other appropriate means.

6. The discovery should be confirmed and monitored and any data bearing on the evidence of ETI should be recorded and stored permanently to the greatest extent feasible and practicable, in a form that will make it available for further analysis and interpretation. These recordings should be made available to the international institutions listed above and to members of the scientific community for further objective analysis and interpretation.

7. If the evidence of detection is in the form of electromagnetic signals, the parties to this declaration should seek international agreement to protect the appropriate frequencies by exercising procedures available through the International Telecommunication Union. Immediate notice should be sent to the Secretary General of the ITU in Geneva, who may include a request to minimize transmissions on the relevant frequencies in the Weekly Circular. The Secretariat, in conjunction with advice of the Union's Administrative Council, should explore the feasibility and utility of convening an Extraordinary Administrative Radio Conference to deal with the matter, subject to the opinions of the member Administrations of the ITU.

8. No response to a signal or other evidence of ETI should be sent until appropriate international consultations have taken place. The procedures for such consultations will be the subject of a separate agreement, declaration or arrangement.

9. The SETI Committee of the International Academy of Astronautics, in coordination with Commission 51 of the International Astronomical Union, will conduct a continuing review of procedures for the detection of ETI and the subsequent handling of the data. Should credible evidence of ETI be discovered, an international committee of scientist and other experts should be established to serve as a focal point for continuing analysis of all observational evidence collected in the aftermath of the discovery, and also to provide advice on the release of information to the public. This committee should be constituted from representatives of each of the international

institutions listed above and such other members as the committee may deem necessary. To facilitate the convocation of such a committee at some unknown time in the future, the SETI Committee of the International Academy of Astronautics should initiate and maintain a current list of willing representatives from each of the international institutions listed above, as well as other individuals with relevant skills, and should make that list continuously available through the Secretariat of the International Academy of Astronautics. The International Academy of Astronautics will act as the depositary for this declaration and will annually provide a current list of parties to all the parties to this declaration.

DRAFT DECLARATION OF PRINCIPLES CONCERNING THE SENDING OF COMMUNICATION TO ETI[374]

The States participating in this Declaration,

Recognizing that a scientific search for evidence of extraterrestrial intelligence is being conducted with increasingly effective means,

Acknowledging the possibility of discovering such evidence,

Recognizing the potentially profound importance of such a discovery for Humankind,

Noting the existence of procedures for the verification and announcement of a detection of evidence of extraterrestrial intelligence,

Conscious of the question of whether and how Humankind should send a communication to extraterrestrial intelligence,

Desiring to establish an orderly process for dealing with that question,

Agree to the following Principles:

[374] Disponible en http://www.coseti.org/setiprot.htm

I. International consultations should be initiated to consider the question of sending communications to extraterrestrial civilizations.

II. Consultations on whether a message should be sent, and its content, should take place within the Committee on the Peaceful Uses of Outer Space of the United Nations and within other governmental and non-governmental organizations, and should accommodate participation by qualified, interested groups that can contribute constructively to these consultations.

III. These consultations should be open to participation by all interested States and should be intended to lead to recommendations reflecting a consensus.

IV. The United Nations General Assembly should consider making the decision on whether or not to send a message to extraterrestrial intelligence, and on what the content of that message should be, based on recommendations from the Committee on the Peaceful Uses of Outer Space and from governmental and non-governmental organizations.

V. If a decision is made to send a message to extraterrestrial intelligence, it should be sent on behalf of all Humankind, rather than from individual States.

VI. The content of such a message should reflect a careful concern for the broad interests and well-being of Humanity, and should be made available to the public in advance of transmission.

VII. As the sending of a communication to extraterrestrial intelligence could lead to an exchange of communications separated by many years, consideration should be given to a long-term institutional framework for such communications.

VIII. No communication to extraterrestrial intelligence should be sent by any State until appropriate international consultations have taken place. States should not

cooperate with attempts to communicate with extraterrestrial intelligence that do not conform to the principles in this Declaration.

IX. In their deliberations on these questions, States participating in this Declaration and United Nations bodies should draw on the expertise of scientists, scholars, and other persons with relevant knowledge.

X. Should a decision be made to send a communication, the encoding and transmission of the message should be assigned to scientists and engineers specializing in the technologies required.