

Earth in Danger and Space Law

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“This decade is the first in history that offers the choice between being the last decade of a fading, obsolete world or the first of a new and viable one.”

Ervin Laszlo (1932-), Hungarian philosopher of science and systems theorist.¹

“Unmask the illusion and foresee the disasters that come, such is our heritage. Refuting the globalist illusion does not mean resignation to the disorder of the world. On the contrary, this is also resist skepticism. E pur si muove!”

Mireille Delmas-Marty, in *Trois défis pour un droit mondial*.²

“This is preeminently the time to speak the truth, the whole truth, frankly and boldly.”

Franklin Delano Roosevelt, in his first address as president of USA, in 1932, during the Great Depression.³

We live in “a time of profound transformations to our global context,” stressed Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, during the presentation of the Global Risks Report 2015,⁴ in Davos, Switzerland. For him, mankind faces the accelerated effects of climate change and the increasing uncertainty about the global geopolitical context. Going further, the Bulletin of the Atomic Scientists Science and Security Board, in a recent analysis, pointed out that “in 2015, unchecked climate change, global nuclear weapons modernization, and out-sized nuclear weapons arsenals pose extraordinary and undeniable threats to the continued existence of humanity.”⁵ That led its Doomsday Clock to be advanced by two minutes. Today it marks three minutes to midnight, the moment of the Earth’s collapse.

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1 Laszlo, Ervin, *Quantum Shift in the Global Brain: How the New Scientific Reality Can Change Us and Our World*, USA, Rochester, Vermont, 2008, p. 1.

2 Delmas-Marty, Mireille, *Trois défis pour un droit mondial*, France: Paris: Éditions du Seuil, 1998, pp. 199-200.

3 See <<http://messenger.cjcmp.org/roosevelt.html>>.

4 See <www.weforum.org/reports/global-risks-report-2015>.

5 See <<http://thebulletin.org/>>.

There are many other reports and studies alerting to this catastrophe. Such an immeasurable disaster on Earth may affect all space activities, and their legal achievements. While focusing on outer space and space activities, international space law can be considered not only a probable victim of this disaster, but also an important instrument capable of preventing it. The fundamental 1967 Outer Space Treaty,⁶ as its Preamble points out, is inspired “by the great prospects opening up for humanity as a result of man’s entry into outer space” and recognizes “the common interest of all mankind in the progress of exploration and use of outer space for peaceful purposes.”

This obviously means that the fate of humanity is in the core of its attention. This paper attempts to demonstrate the ability and the need for international space law to face the critical situation of the Earth in extreme danger, including the legal examination and the use of juridical provisions presented in the recommendations of the main scientific documents already drawn up on this transcendental subject. In conclusion, some viable initiatives in the space law field are proposed as contributions to efforts to provide Earth with new guarantees of survival.

I. The Preventive Function of Law

The paper’s proposals raise the opportunity and the need to expand the scope and the objectives of international space law, including in it specific space issues of the Earth and of its life expressions. Furthermore, it is timely to underline that “in today’s world, the preventive function of law is more vital than ever,” as observed Manfred Lachs (1914-1993) about 28 years ago. For him, it would be necessary for men around the world to feel this reality, “in order to incite them to abandon something of the parish spirit and give them the feeling of the existence of a common interest, and of responsibility in application of law in the everyday life of nations, as well as to make them understand that, as usually is said, it is worth more act wisely together than commit follies separately.” At the same time, as a notable jurist and thinker, Lachs foresaw the dangers that the Earth is currently experiencing: “Today, it is required to work at a time when science and technology have placed in man’s hands weapons capable of creating a danger to life and even cause total destruction; when modern techniques create other dangers threatening the earth, water and air; when economic and political relations between the states require that a new order abolishes abyss between rich and hungry [...]”.⁷ If the world already was in great danger in the 1980s, what could be the magnitude of danger today?

6 See <www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html>.

7 Lachs, Manfred, *Le Monde de la Pensée en Droit International – Theories and Practice*, France, Paris: Economica, 1989, p. 230. (First published in English under the

II. Poly-Catastrophe

“Dark times [...] are not only not new, they are not a rarity in history,” as Hannah Arendt (1906-1975) observed.⁸ But today we are certainly living in often darker times. According to the Global Solidarity, Global Responsibility: An Appeal for World Governance – launched in Geneva, Switzerland, on 6 March 2012, and endorsed by the Collegium International members –,

“we are facing a conjunction of global crises that are unprecedented in history: depletion of natural resources, irreversible destruction of biodiversity, disruption of the global financial system, dehumanization of the international economic system, hunger and food shortages, viral pandemics and breakdown of political orders [...] none of these phenomena can be considered independently of the others. All are highly interconnected, constituting a single ‘poly-crisis’ that threatens the world with a ‘poly-catastrophe’ [...]”

The Appeal stresses that “the great crises of the 21st century are planetary,” and that “this is no butterfly effect, but the realization, grave and strong, that our common home is in danger of collapsing and that our salvation can only be collective.”⁹

III. Our World Today

The new Global Sustainable Development Goals – *Transforming our World: the 2030 Agenda for Sustainable Development*¹⁰ – have been adopted by Heads of State and Government and High Representatives, during the meeting at the United Nations (UN) Headquarters in New York from 25-27 September 2015 – with the UN celebrating its 70th anniversary.

title *The Teacher of International Law – Teachings and Teaching*, Netherlands, Martinus Nijhoff, 1997).

8 Arendt, Hannah, *Homens em tempos sombrios (Men in dark times)*, Brazilian edition: Companhia das Letras, 2008, p. 9.

9 The Appeal is signed by Edgar Morin, Michel Rocard, Mireille Delmas-Marty, Richard von Weitzsäcker, Milan Kucan, Stéphane Hessel, Fernando Henrique Cardoso, René Passet, Peter Sloterdijk, Bernard Miyet, Patrick Viveret, Ahmedou Ould Abdalah, Ruth Dreifuss, William vanden Heuvel, Michael W. Doyle, Ricardo Lagos, and others. See <www.collegium-international.org/index.php/en/presentation/textes-fondateurs/appeal-pour-une-gouvernance-mondiale-solidaire-et-responsable>. The ‘butterfly effect’ came from the “chaotic attractor” discovered by meteorologist Edward Lorenz, as he attempted to map progressive change in the global weather. Popularly speaking, “the tiny stream of air created by the flutter of the wings of a butterfly can amplify many times over and end by creating a storm on the other side of the planet. See Laszlo, Ervin, note 1, pp. 15-16.

10 See: <<https://sustainabledevelopment.un.org/content/documents/7891TRANSFORMING%20OUR%20WORLD.pdf>>.

Paragraph 14 of this historic document presents the vision of the UN General Assembly (UNGA) on the world global situation today, as follows: “We are meeting at a time of immense challenges to sustainable development. Billions of our citizens continue to live in poverty and are denied a life of dignity. There are rising inequalities within and among countries. There are enormous disparities of opportunity, wealth and power. Gender inequality remains a key challenge. Unemployment, particularly youth unemployment, is a major concern. Global health threats, more frequent and intense natural disasters, spiraling conflict, violent extremism, terrorism and related humanitarian crises and forced displacement of people threaten to reverse much of the development progress made in recent decades. Natural resource depletion and adverse impacts of environmental degradation, including desertification, drought, land degradation, freshwater scarcity and loss of biodiversity, add to and exacerbate the list of challenges which humanity faces. Climate change is one of the greatest challenges of our time and its adverse impacts undermine the ability of all countries to achieve sustainable development. Increases in global temperature, sea level rise, ocean acidification and other climate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and small island developing States. The survival of many societies, and of the biological support systems of the planet, are at risk.”

“Climate change will amplify existing risks and create new risks for natural and human systems. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development,” as Intergovernmental Panel on Climate Change (IPCC) says in *Climate Change 2014 – Synthesis Report – Summary for Policymakers*.¹¹

IV. Care for Our Common Home

Pope Francis in his 2015 Encyclical Letter *Laudato Si – On Care for Our Common Home* – issued in 25 May – makes an “urgent appeal for a new dialogue about how we are shaping the future of our planet.” According to Pope, “we require a new and universal solidarity,” as “our present situation [...] is in many ways unprecedented in the history of humanity.”

“The Earth, our home,” – he stresses – “is beginning to look more and more like an immense pile of filth,” because “each year hundreds of millions of tons of waste are generated, much of it non-biodegradable, highly toxic and radioactive, from homes and businesses, from construction and demolition sites, from clinical, electronic and industrial sources.”

Pope Francis also warns:

11 See <www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf>.

“A very solid scientific consensus indicates that we are presently witnessing a disturbing warming of the climatic system [...] most of global warming in recent decades is due to the great concentration of greenhouse gases (carbon dioxide, methane, nitrogen oxides and others) released mainly as a result of human activity [...] The problem is aggravated by a model of development based on the intensive use of fossil fuels, which is at the heart of the worldwide energy system. Another determining factor has been an increase in changed uses of the soil, principally deforestation for agricultural purposes.”

“Warming has effects on the carbon cycle. It creates a vicious circle which aggravates the situation even more, affecting the availability of essential resources like drinking water, energy and agricultural production in warmer regions, and leading to the extinction of part of the planet’s biodiversity. If present trends continue, this century may well witness extraordinary climate change and an unprecedented destruction of ecosystems, with serious consequences for all of us,” as “climate change is a global problem with grave implications: environmental, social, economic, political and for the distribution of goods.”

Moreover, Pope Francis remarks:

“We all know that it is not possible to sustain the present level of consumption in developed countries and wealthier sectors of society, where the habit of wasting and discarding has reached unprecedented levels. The exploitation of the planet has already exceeded acceptable limits and we still have not solved the problem of poverty.”

“Caring for ecosystems demands far-sightedness, since no one looking for quick and easy profit is truly interested in their preservation. But the cost of the damage caused by such selfish lack of concern is much greater than the economic benefits to be obtained,” points out Pope Francis. And he adds that “the alliance between the economy and technology ends up sidelining anything unrelated to its immediate interests.”

“The failure of global summits on the environment makes it plain that our politics are subject to technology and finance. There are too many special interests, and economic interests easily end up trumping the common good and manipulating information so that their own plans will not be affected.”

“It is foreseeable that, once certain resources have been depleted, the scene will be set for new wars, albeit under the guise of noble claims. War always does grave harm to the environment and to the cultural riches of peoples, risks which are magnified when one considers nuclear arms and biological weapons [...] Politics must pay greater attention to foreseeing new conflicts and addressing the causes which can lead to them. But powerful financial interests prove most resistant to this effort, and political planning tends to lack breadth of vision.”¹²

Wouldn’t these observations also applicable to outer space?

12 See <<https://www.documentcloud.org/documents/2105201-laudato-si-inglese.html>>.

V. The Tragedy of Common Goods

To explain how we arrived to it at current bad situation of the common resources of Earth, Eduardo Felipe P. Matias recalls the article *Tragedy of Common Goods*, written in 1968 by American ecologist Garrett Hardin (1915-2003). Hardin recounts the case of a village of shepherds, whose sheep used a pasture in common. Each shepherd was engaged in putting more and more sheep in the pasture in order to increase his income. Over time, the pasture was saturated, and there was no pasture left to feed all the sheep. Most of them died. In sum, a tragedy. The shepherds abused the common good to increase their individual gains, ignoring the limits of nature. Although they gained more in short term, they lost out in long run. Already in 1999, it was recognized that “a globalized world requires a theory of global public goods to achieve crucial goals such as financial stability, human security or the reduction of environmental pollution.” And that “many of today’s international crises have their roots in a serious under supply of global public goods.”¹³

As to global human security as a public good, the *1994 Human Development Report* has showed threats to world peace in transborder challenges: unchecked population growth, disparities in economic opportunities, environmental degradation, excessive international migration, narcotics production and trafficking and international terrorism.” It was equally said that the society would be “willing to pay for public goods that serve our common interest, be they shared systems of environmental controls, the destruction of nuclear weapons, the control of transmittable diseases such as malaria and HIV/AIDS, the preservation of ethnic conflicts or the reduction of refugee flows.”¹⁴

Addressing the present question of common goods in his 2015 Encyclical Letter, Pope Francis points out:

“Whether believers or not, we are agreed today that the Earth is essentially a shared inheritance, whose fruits are meant to benefit everyone. Hence every ecological approach needs to incorporate a social perspective which takes into account the fundamental rights of the poor and the underprivileged. The principle of the subordination of private property to the universal destination of goods, and thus the right of everyone to their use, is a golden rule of social conduct [...]” He also notes that “the natural environment is a collective good, the patrimony of all humanity and the responsibility of everyone. If we make something our

13 Matias, Eduardo Felipe P., *A humanidade contra as cordas: a luta da sociedade global pela sustentabilidade* (Humanity against the ropes: the struggle of the global society for sustainability), Brazil, Sao Paulo: Paz e Terra, 2014, p. 17 (Portuguese edition). The author holds a PhD in International Law.

14 *Global Public Goods – International Cooperation in the 21st Century*, Edited by Inge Kaul, Isabelle Grunberg and Marc A. Stern, Published for the UN Development Program (UNDP), Oxford University Press, 1999, pp. XII-XIII.

own, it is only to administer it for the good of all. If we do not, we burden our consciences with the weight of having denied the existence of others.”

Antonio Cassese (1937-2011) commented that “the concept of ‘common good’ is not yet felt by the members of the international society. Only state interests and their occasional convergence regulate international relations.”¹⁵ The refugees tragedy in Europe today proves it.

VI. Uncertainty

According to Klaus Schwab, Executive Chairman of World Economic Forum, “in the coming decade [...] our lives will be even more intensely shaped by transformative forces that are under way already. The effects of climate change are accelerating and the uncertainty about the global geopolitical context and the effects it will have on international collaboration will remain. At the same time, societies are increasingly under pressure from economic, political and social developments including rising income inequality, but also increasing national sentiment [...] [N]ew technologies, such as the Internet or emerging innovations will not bear fruit if regulatory mechanisms at the international and national levels cannot be agreed upon.”

The Global Risks Report 2015, in turn, stresses: “2015 differs markedly from the past, with rising technological risks, notably cyber-attacks, and new economic realities, which remind us that geopolitical tensions present themselves in a very different world from before. Information flows instantly around the globe and emerging technologies have boosted the influence of new players and new types of warfare [...] Past warnings of potential environmental catastrophes have begun to be borne out, yet insufficient progress has been made – as reflected in the high concerns about failure of climate-change adaptation and looming water crises in this year’s report.”

The Report sees three risk constellations that bear out its findings:

- “1) The interconnections between geopolitics and economics are intensifying because States are making greater use of economic tools, from regional integration and trade treaties to protectionist policies and cross-border investments, to establish relative geopolitical power. This threatens to undermine the logic of global economic cooperation and potentially the entire international rule-based system;
- 2) The world is in the middle of a major transition from predominantly rural to urban living, with cities growing most rapidly in Asia and Africa. If managed well, this will help to incubate innovation and drive economic growth. However, our ability to address a range of global risks – including climate

15 Cassese, Antonio, *Gathering up the main threads, in Realizing Utopia – The Future of International Law*, United Kingdom: Oxford University Press, 2012, p. 650.

- change, pandemics, social unrest, cyber threats and infrastructure development – will largely be determined by how well cities are governed; and
- 3) The pace of technological change is faster than ever. Disciplines such as synthetic biology and artificial intelligence are creating new fundamental capabilities, which offer tremendous potential for solving the world's most pressing problems. At the same time, they present hard-to-foresee risks. Oversight mechanisms need to more effectively balance likely benefits and commercial demands with a deeper consideration of ethical questions and medium to long-term risks – ranging from economic to environmental and societal. Mitigating, preparing for and building resilience against global risks is long and complex, something often recognized in theory but difficult in practice.”

How to govern the emerging technologies and uncertainties?

VII. The Doomsday Clock

It is a symbolic clock face, marking countdown to doomsday. On 19 January 2015, it went on to score 23:57h, three minutes to midnight – the time of global catastrophe able to extinguish the human species inhabiting the Earth for many thousands of years. The decision to advance the clock by two minutes was taken after consultations with more than 20 scientists, including 17 Nobel laureates, among them famous physicists, such as the British Stephen Hawking, the Japanese Masatoshi Koshihira, pioneer in the study of neutrinos, and the American Leon Lederman. The clock has been maintained since 1947 – when the Cold War between the USA and the former USSR began – by the members of the Bulletin of the Atomic Scientists Science and Security Board. In 68 years, this *sui generis* indicator has been adjusted 22 times. Its worst moment came in 1953, triggered by American and Soviet tests with hydrogen weapons when the Clock scored 23:58h.

The Clock was conceived by the celebrated Chicago Atomic Scientists, that had actively participated in the Manhattan Project in the creation of the atomic bombs launched over Hiroshima and Nagasaki, Japan, in August 1945. Haunted with these bombings – that killed more than 100,000 people just on the first day, and many more in the following months – they started to publish a mimeographed warning newsletter and then the Bulletin. The closer they set the Clock to midnight, the closer the scientists believe the world is to a global disaster.

The Clock hangs on a wall in a Bulletin's office in the University of Chicago. Originally, it represented an analogy to the threat of global nuclear war. But since 2007 it has also reflected climate change, and new developments in the life sciences and technology that could inflict irrevocable harm to humanity.

The analysis of the Bulletin – addressed “to the leaders and citizens of the world” – says in sum: “In 2015, unchecked climate change, global nuclear weapons modernizations, and out-sized nuclear weapons arsenals pose extraordinary and undeniable threats to the continued existence of humanity.” The

group said in a statement: “[W]orld leaders have failed to act with the speed or on the scale required to protect citizens from potential catastrophe. These failures of political leadership endanger every person on Earth.” In 2014, with the Doomsday Clock at five minutes to midnight, the members of the Science and Security Board concluded their assessment of the world security situation by writing: “We can manage our technology, or become victims of it. The choice is ours, and the Clock is ticking.”

In 2015, with the Clock hand moved forward to three minutes to midnight, the Bulletin feels compelled to add, with a sense of great urgency: “The probability of global catastrophe is very high, and the actions needed to reduce the risks of disaster must be taken very soon.”

In face of the dangers affecting today civilization on a global scale, the Bulletin urges the citizens of the world to demand that their leaders, among other measures, “dramatically reduce proposed spending on nuclear weapons modernization programs”, as “the USA and Russia have hatched plans to essentially rebuild their entire nuclear triads in coming decades, and other countries with nuclear weapons are following suit.”

At the start of 2015, nine States – the USA, Russia, the United Kingdom, France, China, India, Pakistan, Israel and Democratic People’s Republic of Korea (North Korea) – possessed about 15,850 nuclear weapons, of which 4,300 were deployed with operational forces. Roughly 1800 of these weapons are kept in a state of high operational alert, according to the Stockholm International Peace Research Institute (SIPRI). Launched on 15 June 2015, the SIPRI Yearbook 2015, which assesses the current state of armament, disarmament and international security, notes as one of its key findings that “all the nuclear weapon-possessing states are working to develop new nuclear weapon systems and/or upgrade their existing ones.”¹⁶

“There are too many nuclear weapons,” said Sharon Squassoni, an expert in nuclear weapons nonproliferation at the Center for Strategic and International Studies in Washington, USA. And she added: “The existence of these weapons takes a lot of time, effort, and money to keep them safe, and the bureaucracies are poised to keep these systems going indefinitely.”¹⁷

For Hans M Kristensen, director of the Nuclear Information Project at the Federation of American Scientists, “the projected costs of the nuclear weapons modernization program are indefensible, and they undermine the global disarmament regime.”¹⁸

16 See <www.sipri.org/research/armaments/nuclear-forces>.

17 Xin, Ling, Bulletin of the Atomic Scientists moves Doomsday Clock 2 minutes closer to midnight, Science, 23 January 2015.

18 Kristensen, Hans, M., *Nuclear Weapons Modernization: A Threat to the NPT?*, <www.armscontrol.org/act/2014_05/Nuclear-Weapons-Modernization-A-Threat-to-the-NPT>.

That is why another demand from Bulletin, addressed to world leaders, is to “re-energize the disarmament process.” In practice it means that “the USA and Russia, in particular, need to start negotiations on shrinking their strategic and tactical nuclear arsenals.”

The creation of “institutions specifically assigned to explore and address potentially catastrophic misuses of new technologies,” is also a requirement proposed by the Bulletin.

The Bulletin’s appeals are also, to some extent, applicable to outer space, and some of its requirements can be objects of proper regulation by international space law.

VIII. Transparency and Confidence

The Earth being in danger, the transparency and confidence-building measures (TCBMs) are as vital as those of collective security. These actions are means by which Governments can share information aiming at creating mutual understanding and trust, reducing misconceptions and miscalculations and thereby helping both to prevent military confrontation and to foster regional and global stability. They played an important role during the Cold War, contributing to reducing the risk of armed conflict through mitigating misunderstandings on military actions, particularly in situations where States lacked clear and timely information.¹⁹ The need for such measures in outer space activities has increased significantly over the past 20 years.

The world’s growing dependence on space-based systems and technologies and the information they provide requires collaborative efforts to address threats to the sustainability and security of outer space activities. TCBMs “can reduce, or even eliminate, misunderstandings, mistrust and miscalculations with regard to the activities and intentions of States in outer space”. This is the conclusion of the Report of the Group of Governmental Experts on TCBMs in Outer Space Activities – a study adopted by consensus and issued on 29 July 2013.²⁰

The Report adds that “these measures can augment the safety, sustainability and security of day-to-day space operations and can contribute both to the development of mutual understanding and to the strengthening of friendly relations between States and peoples.”

It is acknowledged that “the existing treaties on outer space contain several TCBMs of a mandatory nature. Non-legally binding measures for outer space activities should complement the existing international legal framework on space activities and should not undermine existing legal obligations or ham-

19 See <www.un.org/disarmament/publications/studyseries/en/SS-34.pdf>. The Expert Group was established by the Secretary-General of the United Nations, by-General Assembly resolution 65/68.

20 Ibid.

per the lawful use of outer space, particularly by emerging space actors.” The Group also discussed other measures, including those of a legally binding nature. The Group further agreed that “such measures for outer space activities could contribute to, but not act as a substitute for, measures to monitor the implementation of arms limitation and disarmament agreements,” help States to enhance clarity of their peaceful intentions and create conditions for establishing a predictable strategic situation in both the economic and security arenas.

Similarly, included in the Report were “coordination and consultative mechanisms aimed at improving interaction between participants in outer space activities and clarifying information and ambiguous situations.” Likewise the Report recommended a coordination between the Office for Disarmament Affairs, the Office for Outer Space Affairs (OOSA) and other appropriate UN entities. Moreover, the Report drafted “a series of measures for outer space activities, including exchange of information relating to national space policy such as major military expenditure in outer space, notifications of outer space activities aimed at risk reduction, and visits to space launch sites and facilities.”

The Group took note of the “Guidelines for appropriate types of confidence-building measures and for the implementation of such measures on a global or regional level”, as contained in the “Study on the application of confidence-building measures in outer space”²¹

TCBMs for outer space activities are integrated in a broader context. The UN General Assembly endorsed, in its resolution 43/78 H, the guidelines on confidence-building measures adopted by the Disarmament Commission at its 1988 session. This resolution noted that “confidence-building measures, while neither a substitute nor a precondition for arms limitation and disarmament measures, can be conducive to achieving progress in disarmament”.

The Report indicates the following categories of TCBMs for space activities as relevant: “a) General transparency and confidence-building measures aimed at enhancing the availability of information on the space policy of States involved in outer space activities; b) Information exchange about development programs for new space systems, as well as information about operational space-based systems providing widely used services such as meteorological observations or global positioning, navigation and timing; c) The articulation of a State’s principles and goals relating to their exploration and use of outer space for peaceful purposes; d) Specific information-exchange measures aimed at expanding the availability of information on objects in outer space and their general function, particularly those objects in Earth orbits; e) Measures related to establishing norms of behavior for promoting spaceflight safety such as launch notifications and consultations that aim at avoiding potentially harmful interference, limiting orbital debris and mini-

21 A/48/305 and Corr.1, annex, appendix II.

mizing the risk of collisions with other space objects; f) International cooperation measures in outer space activities, including measures aimed at promoting capacity-building and disseminating data for sustainable economic and social development, that are consistent with existing international commitments and obligations.

In fact, some TCBMs for outer space activities have already been enacted at the multilateral and/or the national level. They include pre-launch notifications, space situational awareness data-sharing, notifications of hazards to spaceflight safety and other significant events, and the publication of national space policies. But they need to be further developed.

IX. Common Law of Mankind and Earth

More than ever, it is time to think big. International space law is usually defined as dealing with outer space, celestial bodies – Moon and asteroids, Mars and other planets –, as well as with the space activities which so far are carried out only by the human species from the planet Earth. However, the very specific situation of Earth as celestial body responsible for the creation and development of the international space law is not taken into the due consideration. Earth is not recognized as one of the main objectives of this branch of law.

Ironically, in this context, we could say that the international space law takes care of the solar system and the universe as a whole, minus of Earth, although it is the cradle of the exploration and use of outer space in general, and, therefore, of international space law.

Let's take just two examples. "At its broadest, space law comprises all the law that may govern or apply to outer space and activities in and relating to outer space," write Francis Lyall and Paul B. Larsen.²² In the same sense, the Education Curriculum of Space Law, adopted by United Nations Office For Outer Space Affairs (UNOOSA), on March, 2014, states that "space law can be described as the body of law applicable to and governing space related activities."²³

Nevertheless, the Outer Space Treaty, of 1967, has, at least, two extremely important norms for the security of Earth and its inhabitants in Articles IV and IX, respectively: 1) "not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction," and 2) to avoid "harmful contamination and adverse changes in the environment of the Earth resulting from introduction of extraterrestrial matter."

The sky always has played a crucial role in the evolution of mankind and all life manifestations on Earth. However, today the importance of outer space

22 Lyall, Francis; Larsen Paul B., *Space Law – A Treatise*, England: Ashgate Publishing, 2009, p. 2.

23 See <www.unoosa.org/pdf/publications/st_space_064E.pdf>.

to our planet and its common life has increased as never before. The data coming from satellites are absolutely fundamental for any efforts to assure the sustainability of Earth and all its life expressions. In this global reality it is sheer recklessness to ignore the imperative of protecting our planet and its population, based on inclusive international space legislation. Hence the necessity of a Common Law of Mankind²⁴ and Earth, specially related with international space law.

More and more, outer space protection²⁵ must be seen as an indispensable factor to Earth protection, and vice-versa. As the globalization of Earth – with the interdependence of physical, social and political events – is more than ever recognized as an undeniable fact, the universalization of outer space (its cosmic reach), with the interconnection of everything with everything, cannot be bypassed, as it has been in the past. As Ervin Laszlo remarks, “the reality we call universe is a seamless whole, evolving over eons of cosmic time and producing conditions where life, and then mind and consciousness can emerge.”²⁶ Or, as Edgar Morin says, “we carry inside of us all the cosmos” and “we are all children of the sun.”²⁷

X. It Is up to International Space Law

If we are really determined to avoid a likely apocalypse visible on the horizon, one of the main tasks of the international space law that we must trigger is to help save the Earth from space, using the powerful scientific and technological resources we have installed there.

Centuries ago Earth ceased to be the center of the universe, as our ancestors thought. But in face of unprecedented global dangers that threaten our planet today, its place cannot be other than the center of our universal concerns. Probably, a collapse of Earth would deprive the universe of a specie of intelligent life.

In reality, as Jonathan Schell (1943-2014) pointed out, “the vision that counts is the view from Earth, from life,” as “from our strategic position on Earth different view opens, bigger even than the one taken from space. It is the vision of our children and grandchildren, of all future generations of mankind, stretching ahead of us into the future.”²⁸

24 Jenks, C. Wilfred (1909-1973), *The Common Law of Mankind*, USA, NY: Frederick A. Praeger, 1958.

25 Williamson, Mark, *Space: The Fragile Frontier*, US, Reston, Virginia, AIAA, 2006.

26 Laszlo, Ervin, note 1, p. 52.

27 Morin, Edgar, Interview published in Brazilian Journal ECO-21, July 2015, pp. 8 and 9, Reprinted from La Croix, 22/06/2015. See: <[www.la-croix.com/lacroixsearch/search/\(keyword\)/Edgar+Morin/](http://www.la-croix.com/lacroixsearch/search/(keyword)/Edgar+Morin/)>.

28 Encyclical Letter Laudato Si' of the Holy father Francis on Care for Our Common Home, http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

The question, as posed by Antonio Cassese, is that “international society is still grounded in the mere juxtaposition of its subjects – not in their solidarity, let alone in their integration.”²⁹

In any event, “from the microbes inhabiting the earth beneath our feet to environments of the universe unknown to us now, the next 100 years of ecological discoveries will influence our lives. We enter a time when society is armed with the scientific knowledge and ability to make responsible decisions,” as a recent editorial of *Science* affirms.³⁰ And with “a new human consciousness”, as says Edgar Morin.³¹

So, “the choice is our: form a global partnership to care for Earth and one another or risk the destruction of ourselves and the diversity of life,” according to The Earth Charter.³²

The current global situation seems to be so serious that the titanic work of saving mankind and our planet can be seen as a kind of utopia, maybe the major utopia of all times. A dream still far from having a general support. Coincidentally we’ll commemorate in 2016 the 500 years since the English humanist and statesman Thomas More (1478-1535) published his *Utopia*, considered “a playfully serious social critique to a social reality deadly and tragically grave.”³³

In this context, it is urgent to build a positive agenda for the international space law.

XI. Some Ideas for a Positive Agenda

1. Convene by UN the Decade for Saving Mankind and the Earth, inaugurated with a Supreme United Nations Conference for Saving Mankind and Earth, in view to prepare and approve a wide and concrete program with this purpose. To this end mobilize all countries, international intergovernmental and non-governmental organizations, universities and research centers, technological and industry confederations and federations, multinational corporations, as well as the public opinion in general. Other similar events could be promoted during the decade;

29 Cassese, Antonio, id. *ibid.*, p. 648.

30 David W., *The next century of ecology*, Editorial of *Science*, 7 August 2015.

31 Morin, Edgar, *Vers l’abîme?*, Editions de l’Herne, 2007; *Rumo ao abismo?*, Brasil, Rio de Janeiro: Bertrand Brasil, 2011, p. 190.

32 See <<http://www.earthcharterinaction.org/content/pages/Read-the-Charter.html>>.

33 Setari, Nicola, *500 years of Utopia: How a different story about Europe started in Flanders*, *Flanders Today*, 14 August 2015. See <www.flanderstoday.eu/living/500-years-utopia-how-different-story-about-europe-started-flanders>. The author is Curator of Contour 7: A Moving Image Biennale, dedicated to Thomas More, in Belgian Flanders, from 29 August to 8 November 2015.

2. Convene the UNISPACE IV to discuss a Space Program for Saving Mankind and the Earth; during the first years of the UN Decade devoted to this cause;
3. Discuss the updating of the UN Treaties and Resolutions on Outer Space, starting by the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies; amending, for instance, the Article IV of Outer Space Treaty;
4. Discuss the issue of the passage in outer space of intercontinental missiles carrying weapons of mass destruction. Article IV of Outer Space Treaty of 1967 prohibits placing into Earth's orbits any weapons of mass destruction, as well as installing such weapons in outer space in any other manner. When weapons of mass destruction cross outer space, it does not mean putting them into Earth's orbits nor installing them in some way in outer space. Therefore, it seems to be allowed. But to prevent conflicts anywhere, this dangerous situation must be changed. Our planet, and outer space will certainly be safer and more peaceful if the nuclear arsenals cannot cross outer space to achieve their targets anywhere on Earth;
5. Discuss draft projects as International Code for Space Activities, proposed by European Union, and Treaty on the Prevention of the Deployment of Weapons in Outer Space, [and of] the Threat or Use of Force Against Outer Space Objects", presented by Russia and China to the Conference on Disarmament (CD) in Geneva. The major goal is not deploy weapons and not use force in outer space, preventing its transformation into a theater of war;
6. Propose a drastic reduction in spending on nuclear weapons modernization programs, aiming at creating a new atmosphere of cooperation and peace among the great powers, preventing a new Cold War, a space arms race, and military conflicts directly in outer space;
7. Support the Manfred Lachs International Conference on Global Space Governance, whose second edition was held in Montreal, Canada, in May 2014, and issued the Montreal Declaration,³⁴ as well as similar initiatives of high level of excellence. This Conference was proposed and is being organized by the McGill University Institute of Air and Space Law. It aims to produce an *International Study on Global Space Governance* that examines drivers of space regulations and standards for discussion during the International Conference, to be convened possibly in May 2016, at McGill University. According to Ram Jakhu, coordinator of the 2016 Conference, it will address a specific question: "In order to achieve, effectively and in practice, the goal of sustainable use of space for peace-

34 See <www.mcgill.ca/iasl/files/iasl/montreal-declaration-2nd-manfred-lachs-conference.pdf>.

- ful purposes and for the benefit of all mankind, what should be the format and substance of global space governance in the next 20-30 years?” The answer to this question inevitably involves the basic challenge of achieving the survival and the sustainability of the only planet known so far that has given rise to intelligent life;
8. Strengthen the role of the UN Committee on the Peaceful Uses of Outer Space, and study the opportunity to create an International Space Organization as an UN institution;
 9. Study a legal definition of the Precautionary Principle as an universal norm for international public law and international space law, on the basis of Principle 15 of the Rio Declaration – “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”;³⁵
 10. Study a legal definition of “Fair and Responsible Use of Space”;³⁶ and
 11. Establish a legal framework for the industrial and commercial exploitation of resources of celestial bodies, based on the common benefits clause adopted in Article I of the Outer Space Treaty, to deter and reduce the increase of the already immense inequality between countries. Qatar, for instance, has a *per capita* income 428 times higher than Zimbabwe.³⁷

35 Rio Declaration was approved by the UN Conference on the Human Environment, held in Rio de Janeiro, Brazil, from 3 to 14 June 1992. The Precautionary Principle by World Commission on the Ethics of Scientific Knowledge and Technology (COMEST), published in 2005 by the UN Educational, Scientific and Cultural Organization (UNESCO), 2005, p. 14. See <<http://unesdoc.unesco.org/images/0013/001395/139578e.pdf>>. See also Dupuy, Jean Pierre, *Pour un catastrophisme éclairé. Quand l'impossible est certain*, Paris: Seuil, 2002.

36 *The Fair and Responsible Use of Space: An International Perspective*, editors: Wolfgang Rathgeber, Kay-Uwe Schrogl and Ray A. Williamson, edited by the European Space Policy Institute, Germany: Springer-Verlag/Wien, 2010.

37 See Bauman, Zygmunt, *Does the Richness of the Few Benefit Us All?*, United Kingdom, Cambridge: Policy Press, 2013, p. 9.