

Liberty and Prosperity in the Coming Age of the Commercialization and Industrialization of the Moon and Her Riches: The Common Heritage of Humankind

Vladimir Joy Mata Tamargo

ABSTRACT

A new space race is underway. Not between rival superpowers, but private individuals who wish to exploit the vast untapped natural resources of outer space. One such reservoir of these untapped natural resources is the Moon. Developing Luna's resources is not only profitable, but would lead to the commercialization and industrialization of the Moon. And perhaps, this new space race will be that giant leap that would lead our human species to a more prosperous future among the stars.

However, such bright future is stifled by the body of current space laws that are woefully lacking in answering the basic questions of "who owns what?" and "who should benefit?" from any development of the Moon or her natural resources. Such lack of answers leads to, at best, confusion or reluctance in pursuing the industrialization and commercialization of outer space. At worst, it may lead to conflicts between states.

This study is an attempt to answer such questions. The author submits that when the principle of "Common Heritage of (Hu)mankind" is applied, such questions will be answered.

First introduced in 1967 by Malta's Ambassador to the UN Arvid Pardo in the context of the deep sea bed and the resources found therein. The principle called for such area be deemed as "common heritage of mankind." As such, the exploration and exploitation of resources found therein should be carried out for the benefit of mankind as a whole with particular attention to the developing world.

The principle is relatively new in international law. However, as this study will clearly set forth, even though it is new, the principle has attained the status of customary international norm. And that applying it to the Moon and her resources is the best way forward to ensure that liberty and prosperity for all will be achieved in the coming age of the industrialization and commercialization of the Moon.

OUTLINE

This study is divided into six chapters. Chapter I contains the background of the study, the statement of the problem which the study aims to answer, and finally, the importance of the study.

Chapter II briefly explains the resurgence in the interest of mining the Moon and why the Moon is the logical target for initial development and the natural resources available therein.

Chapter III focuses on the history, criticism, and current legal status of "Common Heritage of Humankind" principle in international law; and the principle as customary international law.

Chapter IV delves into the legal and political questions as to the ownership of the Moon's natural resources; and the legal basis for the distribution of profits from lunar extractive activities.

Chapter V discusses the author's recommendation of creating a new treaty and incorporating elements of the Outer Space Treaty and the Moon Agreement in the treaty's provision.

Finally, Chapter VI contains the author's concluding remarks and hope for the future.

TABLE OF CONTENTS

CHAPTER I: INTRODUCTION	5
A. Background of the study.	5
B. Statement of the problem.....	6
C. Importance of the study.	7
CHAPTER II: WHY THE MOON?.....	8
A. The Moon is the closest celestial body relative to Earth.	8
1. Shorter travel times.	8
2. Near real time communication.	9
B. Plenty to go around	9
1. Platinum, gold, water, and other precious minerals.	10
2. Water.	10
3. KREEP.	11
C. The possibilities.....	12
CHAPTER III: COMMON HERITAGE OF (HU)MANKIND.....	14
A. History.	14
B. Definition.	15
C. Current Legal Status.....	17
1. CHM, a customary norm via UNGA resolutions.....	19
a. State practice.	19
b. <i>Opinio juris</i>	20
2. CHM principle as a customary norm via treaties.....	21
a. UNCLOS III.	21
b. OST.....	23
c. Moon Treaty/Agreement.....	25

CHAPTER IV: WHO OWNS LUNA’S RICHES?	28
A. Current legal regime governing property rights on the Moon.	29
B. Who <i>really</i> owns Luna’s riches?	30
1. Applying the CHM principle.....	31
a. “Mankind” under the OST and related UNGA Resolutions	32
i. The Moon: <i>Res Communis</i> ?	33
b. The “failed” Moon Treaty/Agreement.	34
i. The utility of the MA.....	36
C. CHM: Obligations of the owner.	37
CHAPTER V: A NEW PATH FORWARD.....	40
A. The principles to guide the new treaty.....	40
1. Inclusion of the CHM principle in the body of a new treaty.....	41
2. Balancing of competing interests	41
a. Regime of private property rights.	42
b. Need for a regulation of the any future lunar mining activities.	42
3. Fair sharing of the benefits.....	42
4. Creation of an international regulatory body: “Lunar Resources Authority.”	43
B. The folly of doing nothing and no international cooperation	44
CHAPTER VI: CONCLUSION.....	45

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development.

- Preambulatory Clause, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies¹

CHAPTER I: INTRODUCTION

A. Background of the study.

On February 26, 2018, SpaceX launched the Tesla Roadster of its founder Elon Musk into space aboard the Falcon Heavy (hereinafter, “FH”).² At the time of its launch, the FH was - and currently still is – the most powerful *commercial* heavy lift rocket to have ever successfully launched an object into outer space.³ It is second only to the Saturn V rocket, the same rocket that brought men and all their equipment to the Moon.⁴ The FH was privately funded and developed independently by SpaceX, a private American corporation founded by Musk.⁵ While Saturn V was developed and funded by the vast resources of the United States through the National Aeronautics and Space Administration’s (hereinafter “NASA”) Apollo Program.⁶ However, the most important difference is the launch costs of each rocket.

The cost to launch a Saturn V, adjusted for inflation (2006), was \$1.7 Billion⁷ while the cost to launch a FH, as claimed by SpaceX, is between \$90 - \$150 million.⁸

¹Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, Preamble ¶ 3, *opened for signature* Jan. 27, 1967, 610 U.N.T.S. 205 [hereinafter, “OST”].

² Denise Chow, ‘Starman’ and the Tesla Roadster that SpaceX launched into orbit have now cruised beyond Mars, NBC NEWS, Nov. 6, 2018, available at <https://www.nbcnews.com/mach/science/starman-tesla-roadster-spacex-launched-orbit-have-now-cruised-beyond-ncna931731> (last accessed Apr. 20, 2020).

³ Jeffrey Kluger, *Why the SpaceX Falcon Heavy Rocket Is Such a Big Deal for Elon Musk*, TIME, Feb. 6, 2018, available at <https://time.com/5133813/elon-musk-spacex-falcon-heavy-launch/> (last accessed Apr. 20, 2020).

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ The Congress of the United States - Congressional Budget Office, Alternatives for Future U.S. Space-Launch Capabilities, October 2006, p. 29, available at <https://www.cbo.gov/sites/default/files/109th-congress-2005-2006/reports/10-09-spacelaunch.pdf> (last accessed Apr. 20, 2020).

⁸ Kluger, *supra* note 3.

Both rockets are capable of sending a manned mission to the Moon.⁹ However, SpaceX's cost will only get lower as it is known for the reusability of its rockets¹⁰ and competition from other corporations such as Blue Origin, a company founded by Amazon's Jeff Bezos.¹¹ With a vastly lower price tag to get to space, it is by no stretch of the imagination that humankind is taking the next giant leap to a space based future.

The Moon will be the gateway to that future. And moon mining will be the first steps towards full commercialization and industrialization of the Moon. The opportunity for wealth and prosperity will be unimaginable. The only question is, will such wealth and prosperity be limited to the hands of the few or benefit all of humanity as a whole?

The aim of this study, through an analysis of the bodies of space law concerning the Moon, is to propose a change in the current ambiguous status quo of the Moon's natural resources. The proposed change is to create new treaty so that the fair and equitable sharing of benefits from the eventual exploitation of the Moon's natural resources on one hand and the commercial and industrial development of the Moon on the other can be achieved. At the cusp of a new space race, the time is now ripe to re-examine the body of space laws concerning the Moon to ensure that liberty and prosperity for all mankind will be achieved.

B. Statement of the problem.

With the above scenario in mind, this paper will answer the central issue as to who owns the natural resources of the Moon? Three related issues will also be addressed, namely: (1) the applicability of the principle "common heritage of mankind" to the central issue; (2) the inadequacy of laws and institutions in eventual exploitation of the Luna's natural resources; and (3) the fair and equitable distribution of wealth stemming from the eventual exploitation of lunar resources.

⁹ Eric Berger, *NASA chief says a Falcon Heavy could fly humans to the Moon*, ARSTECHNICA, Apr. 2, 2019, available at <https://arstechnica.com/science/2020/04/nasa-chief-says-a-falcon-heavy-rocket-could-fly-humans-to-the-moon/> (last accessed Apr. 20, 2020).

¹⁰ Kluger, *supra* note 3.

¹¹ Glenn Fleishman, *Jeff Bezos Says Blue Origin Will Put People in Space in 2020*, FORTUNE, Sept. 19, 2018, available at <https://fortune.com/2018/09/19/bezos-blue-origin-people-in-space-2020/> (last accessed Apr. 20, 2020).

C. Importance of the study.

As things currently stand, while the Moon and outer space contain precious and valuable natural resources that offers potentials for huge profits and will alleviate resources scarcity on Earth, only those developed and industrialized countries with robust space industry will reap the benefits from eventual exploitation of such natural resources. The irony is that while space technology advances and the costs associated in reaching space continue to go down,¹² access to outer space between space faring nations and non-space faring would continue to widen.

However, even if the costs continue to go down, there is still reluctance among the private sector to “go all in” and make the needed capital in order to industrialize and commercialize the Moon due to the lack of international legal framework that would protect their investments. Such reluctance only works to the detriment of humanity as the opening up of space, via the Moon, will reap enormous benefits to our species.

The lack of an internationally agreed upon legal framework may also lead to potential conflicts among states in outer space or the Moon as each of them may try to unilaterally enforce their own sovereignty over the Moon. The importance of this study is to provide a possible legal framework which will serve as a guide to a peaceful and just industrialization and commercialization of the Moon.

¹² Harry W. Jones, *The Recent Large Reduction in Space Launch Cost*, 1, The 48th International Conference on Environmental Systems held in Albuquerque, New Mexico, USA on 08 July 2018 through 12 July 2018, available at <https://ttu-ir.tdl.org/handle/2346/74082> (last accessed Apr. 20, 2020).

*Fly me to the moon
Let me play among the stars
-Frank Sinatra*

CHAPTER II: WHY THE MOON?

A new space race to go back to the Moon is ongoing.¹³ Plans for returning to the Moon is under way among private corporations like SpaceX, Blue Origin, and Moon Express.¹⁴ However, states around the world are also planning to go back to the Moon.¹⁵ China already has a robot on the Moon named the Chang'e-4 while the US has promised putting up lunar laboratories.¹⁶ Europe and Russia, on the other hand, have also revealed “plans to launch complex missions” back to the Moon.¹⁷

So why the frenzy to go back to the Moon? What does the Moon have that all other celestial bodies in the vastness of space do not? The following are the reasons as the renewed interest to go back to the Moon and why it will be the gateway to a full commercialization and industrialization of space.

A. The Moon is the closest celestial body relative to Earth.

The Moon is 384,000 kilometers (236,840 miles) from the Earth.¹⁸ The next two massive bodies close to Earth are Venus and Mars. The former is 40 million kilometers (25 million miles) away while the latter, at its nearest orbit to Earth, is 55 million kilometers (34 million miles).¹⁹ This distance is important for two things: (1) shorter travel times; and (2) near real time communication.

1. Shorter travel times.

The majority of cost of a rocket launch to space is determined by: the non-reusable rocket engine; the mass of the rocket – including all of its fuel, and payload;

¹³ Richard Waters, *Which Company Will Win the New Space Race to the Moon?*, FINANCIAL TIMES, Jul. 19, 2019, available at <https://www.ft.com/content/8fc9c146-a77f-11e9-984c-fac8325aaa04> (last accessed Apr. 20, 2020).

¹⁴ *Id.*

¹⁵ Robin Mckie, *Everyone's Going Back to the Moon. But Why?*, THE GUARDIAN, Jul. 6, 2019, available at <https://www.theguardian.com/science/2019/jul/06/everyones-going-to-the-moon-again-apollo-11-50th-anniversary> (last accessed Apr. 20, 2020).

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ NASA, *Earth's Moon*, available at <https://solarsystem.nasa.gov/moons/earths-moon/by-the-numbers/> (last accessed Apr. 20, 2020). [Hereinafter, “Earth’s Moon”]

¹⁹ Elizabeth Howell, *How Far Are the Planets from the Sun?*, UNIVERSE TODAY, Apr. 21, 2014, available at <https://www.universetoday.com/15462/how-far-are-the-planets-from-the-sun/> (last accessed Apr. 20, 2020).

and the destination of the payload.²⁰ SpaceX's reusable rocket engine has significantly lowered the cost of a rocket launch.²¹

Mass and destination are related to each other. Farther destinations require more mass due to the need for more fuel. If the rocket launch is a manned flight, it would need more mass due to need for life support systems (i.e. oxygen, food, water, waste disposal, etc.) for the passengers.²² The farther the destination, the more of everything is needed. Hence, launch costs are relatively lower for shorter destination. The Moon being closest celestial body to Earth, it makes practical sense and economic sense that it be the first celestial body that humankind would exploit first.

2. Near real time communication.

Light travels at 299,792,458 meters per second in the vacuum of space.²³ At this speed, one way communication using radio signals (which travels at the speed of light) would take only 1.27 seconds from the Earth to the Moon and vice versa. A two-way communication then between the Moon and Earth would take 2.54 seconds. This makes it possible for a near real time communication while the delay is nothing more than an annoying lag. Near real time communication is important not only for emergencies, but also for businesses who want to keep in constant contact with their people and investments on the Moon.

B. Plenty to go around.

Perhaps, the reason for the renewed interest in going back to the Moon is due to its vast amount of natural resources. With a surface area of 37,936,694.79km², the Moon has a lot of places to prospect for such resources.²⁴ If done correctly, perhaps the exploitation of these resources would alleviate the scarcity here on Earth or allow humanity to play among the stars.

The Moon has a lot of natural resources that are inherently valuable, but some are also valuable in surprising ways. Below is a short overview of the resources on the Moon that can, and will, be exploited.

²⁰ Jones, *supra* note 12 at 2 – 3.

²¹ Kluger, *supra* note 3.

²² Jones, *supra* note 12 at 3.

²³ Encyclopedia Britannica, Speed of Light, available at <https://www.britannica.com/science/speed-of-light> (last accessed Apr. 20, 2020).

²⁴ Earth's Moon, *supra* note 18.

1. Platinum, gold, water, and other precious minerals.

The current widely accepted theory about the formation of the Earth's moon is that sometime in the ancient past, Mars sized planet, slammed into the Earth. The enormous collision ejected large chunks of Earth debris into space. Due to gravity, these debris eventually formed what is now called the Moon. For this reason, most astronomers believe that the Moon contains much the same minerals as the Earth.²⁵ Just like the Earth, as some researches note, “gold, platinum, palladium and other so-called “siderophile”...elements are found in these bodies’ [Mars and the Moon] upper reaches in perplexing abundances.²⁶

It is not only in the Moon's crust that precious metals can be found. Precious metals may also be found at the bottom of the impact craters that dot the face of the Moon. It must be remembered that these craters - ranging from microscopic to the size of islands here on Earth - were created by asteroid impacts. These asteroids are the same that are believed to contain quadrillions worth of precious metals.²⁷ The abundance of these precious metals is one of the driving force that is making corporations, backed by billionaires, racing back to the Moon.²⁸

2. Water.

Seemingly barren, the Moon is surprisingly abundant in water in the form of water ice. These water ices are easily accessible as they are found on its north and south poles as well as areas in its permanently dark side.²⁹ The importance of the discovery of water ice on the Moon cannot be understated. It would allow for a viable

²⁵ R. Jaumann, et. al., *Geology, Geochemistry, and Geophysics of the Moon: Status of current Understanding*, 74 PLANETARY AND SPACE SCIENCE 15, 34 (2012).

²⁶ NASA Solar System Exploration Research Virtual Institute, Ancient Crashes Blasted Precious Metals Into Earth, Moon and Mars, available at <https://sservi.nasa.gov/articles/ancient-crashes-blasted-precious-metals-into-earth-moon-and-mars/> (last accessed Apr. 20, 2020).

²⁷ Brid-Aine Parnell, *NASA Will Reach Unique Metal Asteroid Worth \$10,000 Quadrillion Four Years Early*, FORBES, May 26, 2017, available at <https://www.forbes.com/sites/bridaineparnell/2017/05/26/nasa-psyche-mission-fast-tracked/#7f2c86f94ae8> (last accessed Apr. 20, 2020).

²⁸ Jayshree Pandya, *The Race to Mine Space*, Forbes, May 13, 2019, available at <https://www.forbes.com/sites/cognitiveworld/2019/05/13/the-race-to-mine-space/#395a12c71a70> (last accessed Apr. 20, 2020).

²⁹ Passant Rabbie, *Water On The Moon May Be Easier To Reach Thanks To Meteorite Strikes, Solar Wind*, SPACE.COM, July 24, 2020, available at <https://www.space.com/water-on-moon-kicked-up-meteorites-solar-wind.html> (last accessed Apr. 20, 2020).

permanent human settlement on the Moon or in space as it can be melted into potable water, oxygen, and Hydrogen.³⁰

And there's plenty of water to be extracted on the Moon. Trapped in moon craters, there's an estimated 600 million metric tons of water ice.³¹ A 2019 study by researchers from NASA and the private sector, suggested that there could be as much as ~100 metric tons of water ice on every subsurface of the Moon.³² If such study holds true, then not only would there be enough water ice for human life support, but also fuels. Hydrogen can be extracted from water and can be used as a propellant for rockets, space craft and satellites.³³ In fact, there is enough hydrogen (extracted from lunar water ice) on the Moon that it can support "one space shuttle [launch] per day for 2,200 years."³⁴ The Moon could be the Saudi Arabia of early space colonization.

3. KREEP.

KREEP stands for Potassium (K), Rare Earth Elements (REE), and Phosphorous. These elements are abundant on the Moon and are concentrated in "KREEP rocks."³⁵

Rare Earth Elements are not rare, but are hard to mine in good quantity because they are so widely distributed that there are only a few places on Earth where these elements may be mined economically.³⁶ REEs are an integral part of our modern way of life as they serve as "components of smart phones, computer monitors, flash drives...and are fundamental to many military based technologies."³⁷

At present, China has virtual monopoly of REE as it produces 80% of the world's supply of REE; however, its own industries account for only 70% of the

³⁰ Anand, M. et. al., *A Brief Review of Chemical and Mineralogical Resources On The Moon and Likely Initial In Situ Resource Utilization (ISRU) Applications*, 74 (1) PLANETARY AND SPACE SCIENCE 42, 44 (2012).

³¹ Scot W. Anderson, *The Development of Natural Resources in Outer Space*, 37 JOURNAL OF ENERGY & NATURAL RESOURCES LAW 227, 230 (2018).

³² Bob Yirka, *Study Suggests Much More Water On the Moon Than Thought (Update)*, PHYS.ORG, July 23, 2019, available at <https://phys.org/news/2019-07-moon-thought.html> (last accessed Apr. 20, 2020).

³³ Anderson, *supra* note 31 at 234.

³⁴ *Id.* at 230.

³⁵ Michael B. Duke, et. al., *Development of the Moon*, 60 GEOSCIENCEWORLD, 597, 632 - 633 (2006)

³⁶ Claire L. Mcleod & Mark P. S. Krekeler, *Sources of Extraterrestrial Rare Earth Elements: To the Moon and Beyond*, 6 (3) RESOURCES 40, 41 (2017).

³⁷ *Id.* at 40 – 42.

demand for REE.³⁸ This disparity has led other nations, like the US and Japan, to secure their own supply of REE.³⁹ The Moon maybe an alternative source for these elements. It is believed that the Moon contains an estimated REE reserve of “~2.25 x 10¹⁴ – 4.5 x 10¹⁴ kg.”⁴⁰

Phosphorous (P) will be a key element that will be mined on the Moon as it is an essential mineral for all life⁴¹ – humans, animals, and plants. It is also a key ingredient in commercial fertilizers.⁴² An essential thing to note is that, “Phosphorus cannot be manufactured (or destroyed).”⁴³

Perhaps there may be a need to transport this non-renewable mineral from the Moon to Earth in the near future. Proponents of the so called “Peak Phosphorous Theory” posits that P is depleting fast due an increasing world population. Demand continues to push the need for commercial fertilizers to feed the world.⁴⁴ Proponents warn that peak worldwide production of P will happen in 2033 and then sharply decline due to resource depletion and thus, leading to worldwide starvation.⁴⁵

Meanwhile, Potassium (K) is another essential mineral for life. It maintains “fluid and electrolyte balance” and an important component in the production of commercial fertilizers.⁴⁶ The ready supply of P and K on the Moon will be very important during early human settlement in space, establish space based agriculture, and for permanent human settlements in outer space.

C. The possibilities.

When people hear space or moon mining, they imagine dragon horde’s worth of precious metals ready for the taking and transporting back to Earth for enormous profit, thus, starting a gold rush to space. In order to exploit such riches, there would certainly be an explosion of space technology innovations or improvements to

³⁸ Kristin Majcher, *What Happened to the Rare Earth Crisis?*, MIT TECHNOLOGY REVIEW, Feb. 25, 2015, available at <https://www.technologyreview.com/s/535381/what-happened-to-the-rare-earths-crisis/> (last accessed Apr. 20, 2020).

³⁹ *Id.*

⁴⁰ McLeod, *supra* note 36 at 48.

⁴¹ Royal Society of Chemistry, Phosphorus, available at <https://www.rsc.org/periodic-table/element/15/phosphorus> (last accessed Apr. 20, 2020).

⁴² Dana Cordell, *Peak Phosphorus: Clarifying the Key Issues of a Vigorous Debate about Long-Term Phosphorus Security*, 3 SUSTAINABILITY 2027, 2029 (2011).

⁴³ *Id.* at 2028

⁴⁴ *Id.*

⁴⁵ *Id.* at 2035-36

⁴⁶ Royal Society of Chemistry, Potassium, available at <https://www.rsc.org/periodic-table/element/19/potassium> (last accessed Apr. 20, 2020).

already existing technology such as in “smart” robotics, space based solar power, medicine, space tourism, and energy to name a few.⁴⁷ And as the space race has taught us, these technologies will eventually indirectly benefit different sectors of the population.⁴⁸

The above does not even take into consideration the environmental impact of resources sourced from outside the Earth. Perhaps, scarce resources would no longer be mined on Earth, but exclusively done on the Moon. Thus, such a change in the resource extraction paradigm would lessen the damage to Earth’s ecosystems.

Water on the Moon could also be used as fuel for space ships on their way to other destinations in the Solar systems. Perhaps one day, humans would travel to Jupiter to gaze at its monstrous eye, or dart around Saturn’s rings, or visit the growing colony on Mars all for the price of a typical overseas vacation. Truly the commercialization and industrialization of the Moon’s natural resources would allow humankind to “*play among the stars.*”

⁴⁷ STELLA TKATCHOVA, SPACE-BASED TECHNOLOGIES AND COMMERCIALIZED DEVELOPMENT: ECONOMIC IMPLICATIONS AND BENEFITS 131 – 134 (2011)

⁴⁸ *Id.* at 139.

We are together in this. Our human compassion binds us the one to the other - not in pity or patronizingly, but as human beings who have learnt how to turn our common suffering into hope for the future.
- Nelson Mandela

CHAPTER III: COMMON HERITAGE OF (HU)MANKIND

With the abundance of possible resources to exploit on the Moon, questions arise such as - “Who owns such riches?” “Who should benefit?”. This study puts forth that the answer to both questions are found in the principle of the “Common Heritage of (Hu)mankind” (hereinafter, “CHM”).

This chapter will briefly review the history, definition, and current legal status of the principle. As will be shown and supported, the author submits that CHM has attained the status of an international customary norm.

A. History.

In 1967, Malta’s Ambassador to the UN, Arvid Pardo, known as the “Father of the law of the Sea Conference,”⁴⁹ spoke before the UN General Assembly (hereinafter, “UNGA”) of the idea that the deep sea bed and ocean floor, and the resources there in, should be considered as the common heritage of mankind.⁵⁰ Pardo reasoned out that the resource rich ocean floor would lead to states scrambling to start carving the ocean floor into “colonies” much like in the past; thus, restarting the vicious cycle that led to two world wars.⁵¹ Pardo’s 1967 speech is regarded as the beginning of the story of the CHM principle in international law.⁵²

⁴⁹ United Nations, Dr. Arvid Pardo, 'Father Of Law Of Sea Conference', Dies At 85, In Houston, Texas, *available at* <https://www.un.org/press/en/1999/19990716.SEA1619.html> (last accessed Apr. 20, 2020).

⁵⁰ FABIO TRONCHETTI, THE EXPLOITATION OF NATURAL RESOURCES OF THE MOON AND OTHER CELESTIAL BODIES: A PROPOSAL FOR A LEGAL REGIME 92 (2009).

⁵¹ Arvid Pardo, Ambassador to the UN of Malta, speech before the United Nations General Assembly 22nd Session, Agenda item No. 92, (Nov. 1, 1967) (transcript *available at* https://www.un.org/depts/los/convention_agreements/texts/pardo_ga1967.pdf) (last accessed Apr. 20, 2020).

⁵² John Noyes, *The Common Heritage of Mankind: Past, Present, and Future*, 40 DENV. J. INT’L. & POL’Y 447, 456 (2012).

Heeding Pardo's call, the UNGA, in the following year, passed *Resolution 2467 A* stating that the exploitation of the resources present in the seafloor and subsoil are beyond national jurisdictions and should be done "for the benefit of mankind as a whole, irrespective of the geographical location of states, taking into account the special interest and needs of the developing countries."⁵³

A year later, another resolution of the UNGA recognizing the "common interest of mankind in the reservation of the seabed and ocean floor exclusively for peaceful purposes" was adopted.⁵⁴ In 1970, the UNGA adopted a *Declaration of Principles* stating that the seabed and its resources are the "common heritage of mankind"⁵⁵ and that exploration and exploitation of such resources should be carried out for the benefit of mankind as a whole.⁵⁶

The principle was pushed into prominence by its proponents, who were mostly states from developing world, to "re-define international relations based on preferential treatment for the countries of the Third World."⁵⁷ The principle, or its elements, has found its way in various legally binding treaties such as: the United Nations Convention on the Law of the Sea (hereinafter, "UNCLOS"); Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereinafter, "OST"); and Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (hereinafter, "Moon Agreement" or "MA").

B. Definition.

Similar to other principles of law, one of the difficulties of the CHM principle is that it lacks a strict legal definition.⁵⁸ International jurists and academics still debate as to what exactly is CHM. The debate stems from differing interpretation of the principle between developed and developing states. The former argues that the principle stands for common use for all (i.e. freedom of navigation) while the latter

⁵³ G.A Res. A/RES/2467 [A] (XXIII), U.N. GAOR, 23rd Sess, Suppl. No. 18, U.N. Doc. A/7477 at ¶ 7 (Dec. 21, 1968).

⁵⁴ G.A Res. A/RES/2602(XXIV)A-F [F], U.N. GAOR, 24th Sess., Suppl. No. 30, U.N. Doc. A/7902, at ¶ 1 (Dec. 16, 1969).

⁵⁵ Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction, G.A. Res. A/RES/2749 (XXV), GAOR, 25th Sess., Suppl. No. 28, U.N. Doc. UNA(01)/R3, at 24, (Dec. 17, 1970). [hereinafter, "Declaration of Principles"].

⁵⁶ *Id.*

⁵⁷ TRONCHETTI, *supra* note 50 at 86.

⁵⁸ KEMAL BASLAR, THE CONCEPT OF THE COMMON HERITAGE OF MANKIND IN INTERNATIONAL LAW 1 - 2 (1998).

argues that principle is to be applied in resource extraction management and favorable distribution of the economic benefits of such to developing nations.⁵⁹

On one hand, professor Baslar submits that CHM is philosophical concept “because it encourages speculation about major changes in the world that would be required to apply to its provisions...[CHM] as a concept is a vital instrument for gathering and organizing various complementary doctrines in a coherent and structural form.”⁶⁰ Certainly, the quick pace of technological innovations in ocean and space exploration and possible extraction in those areas are major changes in the world which requires the organization and gathering of principles and doctrines to peacefully guide the world as it undergoes such changes.

Nonetheless, for the purpose of this study, professor Christol’s⁶¹ definition is a good starting point. Christol, writing in *The International Lawyer* – an official publication of the American Bar Association, submits that CHM is:

[A] reflection of high principles of justice and equity...a political-legal response to the world’s unequal distribution of resources and human capabilities...In its ultimate sense [it] provides a guidance in effecting an orderly and equitable distribution of resources so that a measure of global fairness may be realized.⁶²

Christol’s above definition must be taken in light of the original purpose for which the CHM was developed. In Ambassador Pardo’s 1967 speech, the principle’s purpose was to afford certain areas as “common heritage of mankind and as such should be reserved exclusively for peaceful purposes and administered by an international authority for the benefit of all peoples.”⁶³

⁵⁹ Seokwoo Lee, et. al., Applying the Principle of the Common Heritage of Mankind: An East Asian Perspective in *GLOBAL COMMONS AND THE LAW OF THE SEA* 15 (Keyuan Zou ed., 2018).

⁶⁰ BASLAR, *supra* note 58 at 6 – 7.

⁶¹ Distinguished professor emeritus of International Law and Political Science, University of Southern California (1948 – 1987). PhD. in International Studies from the University of Chicago. Graduate of Yale School of law. 2008 recipient of the Distinguished Achievement Award of the International Institute of Space Law. Available at www.emeriti.usc.edu/carl-q-christol (last accessed Apr. 20, 2020).

⁶² Carl Q. Christol, *The Common Heritage of Mankind Provision in the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, 14 *THE INTERNATIONAL LAWYER* 429, 454 (1980).

⁶³ Pardo, *supra* note 51 at 225 – 226.

While there is no agreed definition of the CHM principle exists, most scholars view that certain elements of the principle are applied to areas deemed as “common heritage of mankind.”⁶⁴ These elements are:

- [1] a prohibition of acquisition of, or exercise of sovereignty over, the area or resources in question;
- [2] the vesting of rights to the resources in question in humankind as a whole;
- [3] reservation of the area in question for peaceful purposes;
- [4] protection of the natural environment;
- [5] an equitable sharing of benefits associated with the exploitation of the resources in question, paying particular attention to the interests and needs of developing states;
- [6] and governance via a common [international] management regime.⁶⁵

The author submits that the second and fifth elements are the most contentious. An expanded discussion and analysis of said contentious elements of the CHM principle will be discussed in Chapter IV of this study.

With the above in mind and guidance from the eloquent words of Philippine Supreme Court Associate Justice Jose P. Laurel in the case of *Calalang v. Williams*,⁶⁶ the author submits that the principle of CHM ought to be defined as a legal principle that is neither communism nor capitalism but is the humanization – i.e. “the basic consideration of humanity”⁶⁷ - of the world economic order through treaties, customary norms, and social economic forces assented to by humanity, as a whole through its respective representatives, so that equity and fairness in their rational and objective secular conception maybe realized. It has for its purpose the promotion of the welfare of all humanity through ownership and use of real and personal property that achieve the greatest good for those in greatest need.

C. Current Legal Status.

The relatively new appearance of the CHM principle in international law is seen as “one of the most extraordinary development in recent intellectual history.”⁶⁸ It is a “world-changing phrase.”⁶⁹ And much like there is a considerable debate

⁶⁴ Noyes, *supra* note at 450.

⁶⁵ *Id.* at 450 – 451.

⁶⁶ *Calalang v. Williams*, G.R. No. 47800. Dec. 2, 1940.

⁶⁷ ANTONIO TRINDADE, INTERNATIONAL LAW FOR HUMANKIND: TOWARDS A NEW JUS GENTIUM 394 (2010).

⁶⁸ BASLAR, *supra* note 58 at 7.

⁶⁹ *Id.*

regarding the exact definition of the CHM principle, so it is with its status in contemporary international law.

Some argue that the principle constitutes *jus cogens* obligation, a fundamental and non-derogable norm. The argument is based off the principle's prominence in the UNCLOS.⁷⁰ Art. 311, Sec. 6 of the said treaty declares that, "States Parties agree that there shall be no amendments to the basic principle relating to the common heritage of mankind set forth in Art. 136 and that they shall not be party to any agreement in derogation thereof."⁷¹ Others argue that CHM has attained the status of a general principle of law in international law. As observed by Noyes, "[t]he International Law Association's 1986 Seoul Declaration, for example, provides that "[t]he concept of the common heritage of mankind as a general legal principle has entered into the corpus of public international law."⁷²

While others submit that CHM is neither *jus cogens* nor a customary norm. Baslar goes further and argues that it is not a principle at all. He states that, "the common heritage of mankind is not so far a crystallized principle of positive international law *erga omnes*, owing to lack of definition, state practice and widespread acceptance."⁷³ Joyner agrees with Baslar's position, stating that, "the [Common Heritage] principle is too indeterminate and too lacking in accompanying state practice and *opinio juris* to have gained acceptance in customary international law."⁷⁴

Professor Wolfrum,⁷⁵ concluded that, "[t]he common heritage principle, as far as the use of common spaces is concerned, is a part of customary international law," constituting "a distinct basic principle providing general . . . legal obligations with respect to the utilization of areas beyond national jurisdiction."⁷⁶

⁷⁰ Noyes, *supra* note 52 at 455.

⁷¹ U.N. Convention on the Law of the Sea, Art. 311, Sec. 6, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter, "UNCLOS"].

⁷² Noyes, *supra* note 52 at 455.

⁷³ BASLAR, *supra* note 58 at 4.

⁷⁴ Noyes, *supra* note 52 at 455.

⁷⁵ Professor emeritus at the Max Planck Society for the Advancement of Science. President of the International Tribunal for the Law of the Sea (2005 – 2008) since 2013. Member of the arbitration "Between the Republic of the Philippines v. the People's Republic of China with respect to the dispute with China over maritime jurisdiction of the Philippines in the west Philippines Sea (*Philippines v. China*)."
available at <https://www.mpil.de/en/pub/institute/personnel/institute-management/academic-members/wolfrum.cfm#about> (last accessed Apr. 20, 2020).

⁷⁶ Rudiger Wolfrum, *The Principle of the Common Heritage of Mankind*, 43 ZEITSCHRIFT FOR AUSLANDISCHES OFFENTLICHES RECHT UND VOLKERRECHT 312 (1983).

As the following discussion will illustrate, the author agrees with professor Wolfrum that the CHM principle has attained the status of customary international law in modern times and is, thus, binding upon all states. For a norm to be considered as an international customary norm, the requisites of state practice and *opinion juris* must be met.⁷⁷ It is submitted that the CHM principle has met both requirements.

1. CHM, a customary norm via UNGA resolutions.

Recall the adoption of the UNGA of *Resolution No. 2467* in 1968, which stated that the exploitation of the resources present in the seafloor and subsoil are beyond national jurisdictions and should be done “for the benefit of mankind as a whole, irrespective of the geographical location of states, taking into account the special interest and needs of the developing countries.”⁷⁸

Recall, also, the Declaration of Principles (*Resolution No. 2749*) adopted by the UNGA which passed unanimously with 108 votes in favor and none against with 14 abstentions.⁷⁹ The Declaration stated:

The seabed and its resources...were the common heritage of mankind; that the area should not be subject to appropriation by States or persons, natural or juridical, and no State should claim sovereign rights over any part thereof... that exploration of the area and exploitation of its resources should be carried out for the benefit of mankind as a whole...”⁸⁰

The adoption of the above declaration and the positive votes of the member states in recognizing the principle of CHM reflect that it is an accepted (a) state practice and the existence of (b) *opinio juris*.

a. State practice.

As regards to the requisite state practice, Shaw noted that, “the way states vote in the General Assembly and the explanations given upon such occasions constitute

⁷⁷ MALCOM SHAW, *INTERNATIONAL LAW* 74 (2008 ed.).

⁷⁸ G.A. Res. A/RES/2467 [A] (XXIII), *supra* note 96 at ¶ 8.

⁷⁹ Stephen Gorove, *The Concept of Common Heritage of Mankind: A Political Moral or Legal Innovation*, 9 SAN DIEGO LAW REVIEW 390, 392 (1972).

⁸⁰ Declaration of Principles, *supra* note 55.

evidence of state practice and state understanding as to the law.”⁸¹ Dr. Asamoah⁸² argues that, “[a] vote for a resolution is a formal state act. A resolution, therefore, is a collective act resulting from individual acts and represents evidence of state acts.”⁸³

Recall the votes of the UNGA members in of resolutions containing the principle of CHM and elements thereof. It is clear that the adoption of said resolutions and the near unanimous favorable votes are evidence of state practice. As Shaw points out, if the majority of the member states vote consistently in favor of a resolution or declaration on a topic, such act “amounts to a state practice and a binding rule [that] may very well emerge provided that the requisite *opinio juris* can be proved.”⁸⁴ Thus, it is submitted that the first requisite of state practice is met.

b. *Opinio juris*.

As to the requisite of *opinio juris*, even if such UNGA resolutions are not legally binding, “they...may sometimes have normative value...They can, in certain circumstances, provide evidence important for establishing the existence of a rule or the emergence of an *opinio juris*.”⁸⁵ The International Court of Justice (hereinafter, “ICJ”) in *Nicaragua v. the United States*⁸⁶ stated:

Opinio juris may, though with all due caution, be deduced from, *inter alia*, the attitude of the Parties and states towards certain General Assembly resolutions... Consent to such resolution is one of the forms of an expression to *opinio juris*...The effect of consent to the text of such resolutions...may be understood as an acceptance of the validity of the rule or set of rules declared by the resolution by themselves...⁸⁷

It is submitted that act of member states, by not voting against the Declaration of Principle (*Resolution No. 2749*), then such act constitutes as *opinio juris* as to them. It can be reasonably inferred that they adopted such resolutions because “they are

⁸¹ SHAW, *supra* note 77 at 115.

⁸² Former Attorney General of Ghana. Lecturer in International Law at the University of Ghana School of Law. LL.B.Hons (Kings College London), LL.M. (Columbia University).

⁸³ OBED ASAMOAH, THE LEGAL SIGNIFICANCE OF THE DECLARATIONS OF THE GENERAL ASSEMBLY OF THE UNITED NATIONS, 54 (1966).

⁸⁴ SHAW, *supra* note 77 at 115.

⁸⁵ Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. Reports, 226, 254–255 (Jul. 8, 1996).

⁸⁶ Military and Paramilitary Activities in and against Nicaragua (Nicar. V. U.S.), 1984 ICJ Reports 14, (Jun. 27, 1984).

⁸⁷ *Id.* at ¶ 188.

convinced it is binding upon them to do so”⁸⁸ In other words, they see as valid the principles enshrined in these resolutions.

Thus, from the above discussion, the UNGA, through its adoptions of resolutions containing the principle of CHM, has elevated the principle to a customary norm by meeting the requisites of the state practice and *opinio juris*.

2. CHM principle as a customary norm via treaties.

The Supreme Court of the Extraordinary Chambers in the Courts of Cambodia in the case of *The Prosecutor v. Kaing Guek Eav alias Duch*, stated:

It must be recognized that treaty law and customary international law often mutually support and supplement each other... [T]reaty law may serve as evidence of customary international law either by declaring the *opinio juris* of States Parties, or articulating the applicable customary international law that had already crystallized by the time of the treaty’s adoption.⁸⁹

It is submitted that adoption of the UNGA of the earlier mentioned resolutions containing CHM has led to its crystallization as customary international law which eventually led to its codification through legal binding treaties. Three treaties containing the expression “common heritage of mankind” or its elements is briefly discussed below, namely: (1) UNCLOS III, (2) The OST, (3) The MA as evidence of such codification.

a. UNCLOS III.

The “[United Nations Convention on the] Law of the Sea” III (herein after “UNCLOS III”) was adopted in 1982 by members of the UNGA with a near unanimous favorable vote of 130 - 4, with 17 abstentions.⁹⁰ Hailed as the “most significant legal instrument of this century,” by then UN Secretary-General Perez de Cuellar, the convention was an attempt by the community of nations “to regulate all aspects of the resources of the sea and uses of the ocean...”⁹¹

⁸⁸ SHAW, *supra* note 77 at 84.

⁸⁹ Kaing Guek Eav alias Duch, Case No. 001/18/07-2007-ECCC/SC, Appeal Judgement Extraordinary Chambers in the Courts of Cambodia, Supreme Court Chamber, ¶ 94 Feb. 3, 2012.

⁹⁰ SHAW, *supra* note 77 at 555.

⁹¹ United Nations, The United Nations Convention on the Law of the Sea (A Historical Perspective), *available at* https://www.un.org/depts/los/convention_agreements/convention_historical_perspective.htm#Historical%20Perspective (last accessed Apr. 20, 2020).

It must be remembered that it was in the UNCLOS III, which included the CHM principle, comprised the same principles unanimously adopted by the UNGA Declaration of Principles (*Resolution No. 2749*). The near unanimous vote of the members of the UNGA of the treaty is evidence of state practice and *opinio juris* of such member states of the principles contained therein. Below are some excerpts from the treaty containing the CHM principle or elements thereof.

Preamble

XXX

Desiring by this Convention to develop the principles embodied in resolution 2749 (XXV) ... the area of the seabed and ocean floor and the subsoil thereof, **beyond the limits of national jurisdiction, as well as its resources**, are the **common heritage of mankind, the exploration and exploitation of which shall be carried out for the benefit of mankind as a whole**, irrespective of the geographical location of States.⁹²

XXX

Article 137

Legal status of the Area and its resources

1. No State shall claim or exercise sovereignty or sovereign rights over any part of the Area or its resources, nor shall any State or natural or juridical person appropriate any part thereof...

2. All rights in the resources of the Area are vested in mankind as a whole, on whose behalf the Authority shall act...⁹³

XXX

⁹² UNCLOS, *supra* note 71 at Preamble.

⁹³ *Id.* at art. 137, § 1, 2, & 3.

Article 140

Benefit of mankind

1. Activities in the Area shall, as specifically provided for in this Part, be **carried out for the benefit of mankind as a whole**, irrespective of the geographical location of States, whether coastal or land-locked, and **taking into particular consideration the interests and needs of developing States...**

2. The Authority shall provide for **the equitable sharing of financial and other economic benefits derived** from activities in the Area through any appropriate mechanism, on a non-discriminatory basis...⁹⁴ (all emphases supplied).

The UNCLOS III treaty was soon followed by the near unanimous adoption in July 28, 1994 of the *Agreement Relating to the Implementation of Part XI of the United Convention on the Law of the Sea of 10 December 1982* or otherwise known as “the 1994 Implementation Agreement.”⁹⁵ The agreement, in its preambulatory clause, contained the phrase “[r]eaffirming that the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction (hereinafter referred to as “the Area”), as well as the resources of the Area, are the common heritage of mankind.”⁹⁶

Such above acts (adoption of UNCLOS III and the 1994 Implementation Agreement) maybe evidence of the principle’s emergence as a customary norm. As pointed out by Noyes, “the near-universal acceptance of the [UN]LOS Convention and the 1994 Implementation Agreement along with the practice of states and international organizations concerning deep seabed minerals, provide evidence supporting customary international law status [of the CHM principle].”⁹⁷

b. OST.

While many consider the “genesis” of the CHM principle as coming from Ambassador Pardo’s 1967 speech and the subsequent UNCLOS negotiations, Ambassador Cocca of Argentina has argued that it was actually in the field of the

⁹⁴ *Id.* at art.140, § 1, & 2.

⁹⁵ TRONCHETTI, *supra* 50 at 115.

⁹⁶ Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 1836 U.N.T.S. 3, A/RES.48/263, at preamble ¶ 2, (Jul. 28, 1994).

⁹⁷ Noyes, *supra* note 52 at 456.

then nascent space law that the principle was first introduced. It predated Maltese Ambassador Pardo's introduction of the principle.⁹⁸ Cocca argues:

[T]he paternity of the “common heritage” concept is, more often than not, attributed to the Permanent Mission of Malta to the U.N... Yet is not quite exact... it was in the U.N. Committee on Outer Space, and not in the Seabed Committee, that the expression “common heritage” was first used and explained.⁹⁹

Indeed, after the success of the USSR's Sputnik and the Apollo missions, various treaty proposals, including the Cocca's Argentinean delegation, for the rules governing outer space were put forward to the Legal Sub-committee of the UN Outer Space Committee.¹⁰⁰ The UNGA adopted a series of resolutions calling for international cooperation for the peaceful uses of outer space.¹⁰¹ These resolutions eventually culminated in the adoption of the UN Declaration of *Legal Principles Governing the Activities of States in Exploration and Use of Outer Space Treaty* in 1963.¹⁰² This declaration was soon followed by the adoption in 1967 of the OST.¹⁰³ Currently, 109 states have either ratified the treaty or accented to it.¹⁰⁴

While the final text of the OST did not contain the exact phrase “common heritage of mankind,” the framers instead opting to use “common interest of all mankind,” the elements of CHM are, nonetheless, present in the provisions of the treaty. Excerpts containing elements of the principle are highlighted below:

The States Parties to this Treaty,

Recognizing the **common interest of all mankind** in the progress of the exploration and use of outer space...

⁹⁸ Aldo Cocca, *Revaluation of the Concept of the Human Condition and the Common Heritage of Mankind: Keys to the Social Benefits of Space Technology*, 19 ACTA ASTRONAUTICA 779, 781 (1989).

⁹⁹ Aldo Cocca, *The Advances in International Law Through the Law of Outerspace*, 9 JOURNAL OF SPACE LAW 13, 15 (1981).

¹⁰⁰ BIN CHENG, *STUDIES IN INTERNATIONAL SPACE LAW*, 220-226 (1997).

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ United Nations Office of Disarmament Affairs, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, available at http://disarmament.un.org/treaties/t/outer_space (last accessed Apr. 20, 2020). [hereinafter, “UN Disarmament Affairs”]

Believing that the exploration and **use of outer space should be carried out for the benefit of all peoples...**¹⁰⁵

XXX

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 interests of all countries**, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Article II

Outer space, including the Moon and other celestial bodies, is **not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means...**¹⁰⁶ (emphases supplied)

With the above provisions in mind, the adoption of the OST acknowledged that certain areas (outer space, the Moon, and other celestial bodies) are outside state appropriation, and are to be used for the benefit of all mankind. Such are the same elements found in the CHM principle.

c. Moon Treaty/Agreement.

When Apollo 11 landed on the Moon and brought back samples of lunar rocks and soil, it became apparent to other states that the OST did not provide enough legal framework as to the ownership of movables extracted from the Moon.¹⁰⁷ After an arduous negotiation process of the UN's Committee on the Peaceful Uses of Outer Space, the treaty came into effect in 1984. The treaty called for the demilitarization of the Moon and other celestial bodies and "reiterates the principle established in the 1967 Outer Space Treaty."¹⁰⁸ It is also the first time that the phrase "common heritage of mankind" was used in an international treaty and referring specifically to celestial bodies.¹⁰⁹ Excerpts containing the principle of CHM and its elements are highlighted below:

¹⁰⁵ OST, *supra* note 1 at preamble ¶ 1.

¹⁰⁶ *Id.* at art. 1.

¹⁰⁷ SHAW, *supra* note 77 at 547.

¹⁰⁸ TRONCHETTI, *supra* note 50 at 38

¹⁰⁹ To clarify, the MA, was opened for signatures on December 18, 1979. Meanwhile the UNCLOS III treaty, which also contained the principle of CHM was only opened for signature on December 10, 1982. Hence, the MA, an international treaty, was the "first" to introduce the principle of CHM in the field of international law.

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...¹¹⁰

XXX

Article 11

1. The **Moon and its natural resources** are the **common heritage of mankind**...¹¹¹

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.¹¹²

3. **Neither the surface nor the subsurface of the Moon, nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person**...¹¹³

XXX

5. States Parties to this Agreement hereby **undertake to establish an international regime**, including appropriate procedures, to **govern the exploitation of the natural resources of the moon as such exploitation is about to become feasible**...¹¹⁴

XXX

¹¹⁰ Agreement governing the Activities of States on the Moon and Other Celestial Bodies, at art. 4, *opened for signature* Dec. 18, 1979, 1362 U.N.T.S. 3, [hereinafter, "Moon Agreement"].

¹¹¹ *Id.* at art. 11, § 1

¹¹² *Id.* at art. 11, § 2

¹¹³ *Id.* at art. 11, § 3

¹¹⁴ *Id.* at art. 11, § 5

7. The main purposes of the international regime to be established shall include:

(a)...

(b)...

(c)...

(d) An equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the Moon, shall be given special consideration.¹¹⁵ (all emphases supplied).

A full discussion of the importance of the MA to the development of the codification of the CHM principle as customary international will be discussed at length in Chapter IV of the study.

There are three ways that treaty provisions may reflect the existence of customary international law or help determine its existence. Special Rapporteur Wood, writing in the 67th Session of the International Law Commission, enumerated the 3 ways: “(a) codify a rule that exists at the time of the conclusion of the treaty; (b) lead to the crystallization of a rule that may be emerging; or (c) lead to a general practice accepted as law...”¹¹⁶ It is submitted that the three treaties codified the CHM principle as a customary international law. The above discussion of the various treaties containing the principle of CHM or its elements show that the principle was already existing, and arguably crystalized, through UNGA resolutions at the time of the adoption of the treaties. It is submitted then that the treaties merely codified the principle in a legally binding document.

This being the case, as an international customary norm, it is a source of international law per Article 38 (1) (b) of the International Court of Justice (ICJ) statute,¹¹⁷ which states: “international custom, as evidence of a general practice accepted as law”.¹¹⁸ Hence, the ICJ may refer to the principle of CHM to decide disputes before it.¹¹⁹ This being the case, CHM principle is therefore binding upon all states.

¹¹⁵ *Id.* at art. 11, § 7

¹¹⁶ Third Report on Identification of Customary International Law, Int'l Law Comm'n, U.N. Doc A/CN.4/682 (Mar. 27, 2015) (by Michael Wood). [hereinafter, “Third Report”]

¹¹⁷ SHAW, *supra* note 77 at 70.

¹¹⁸ Statute of the International Court of Justice, art. 38, § (1) (b).

¹¹⁹ *Id.* at art. 38.

We cannot seek achievement for ourselves and forget about progress and prosperity for our community...our ambitions must be broad enough to include the aspirations and needs of others, for their sake and for our own.

- Cesar Chavez, American Civil Rights Activist

CHAPTER IV: WHO OWNS LUNA'S RICHES?

In November 2015, then U.S. President Obama signed into law, *SPACE Act of 2015*.¹²⁰ Section 51302 (a), Title IV of the said act gives formal and legal support for property rights claims by private U.S. citizens of “space resources.” It allowed U.S. citizens to “be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell it according to applicable law, including U.S. international obligations.”¹²¹

Soon after, Luxemburg passed a similar law like the United States’ while other countries are contemplating the same.¹²² While the legality of the US law – and similar laws - is challenged by Russia, France, India, Turkey, Australia and Brazil,¹²³ its passage has put the issue of ownership of natural resources on the Moon front and center. The latter states argue that the said US laws and other similar laws run afoul to the principles established under the OST.¹²⁴ For its part, the US claims that the law does not contravene the OST as it does not assert any sovereign claim on any celestial bodies. What the law merely does is recognize the property rights of its citizens over any resources they extract from said bodies.¹²⁵

¹²⁰ Andrew Griffin, *Asteroid Mining Made Legal After Barack Obama Gives US Citizens the Right to Own Parts of Celestial Bodies*, INDEPENDENT, Nov. 26, 2015, available at <https://www.independent.co.uk/news/science/asteroid-mining-made-legal-after-barack-obama-gives-us-citizens-the-right-to-own-parts-of-celestial-a6750046.html> (last accessed Apr. 20, 2020).

¹²¹ *Id.* at § 51302 (a) (2).

¹²² Jacob Gershman, *The Moon Is a Huge Potential Resource. But Who Owns It?*, THE WALL STREET JOURNAL, July 14, 2020, available at <https://www.wsj.com/articles/the-moon-is-a-huge-potential-resource-but-who-owns-it-11563152580> (last accessed Apr. 20, 2020).

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ Jeff Foust, *Congress Defends Commercial Space Bill's Resource Rights Provisions*, SPACE NEWS, Dec. 11, 2015, available at <https://spacenews.com/congress-defends-commercial-space-bills-resource-rights-provisions/> (last accessed Apr. 20, 2020).

As technology further improves and moon mining becomes a full blown industry, the above type of conflicting interpretations of laws pertaining to the natural resources on the Moon will continue to increase. Hence, the need to address the issue now. This chapter will seek to answer to several queries: who actually owns the Moon's natural resources? As a corollary, if ownership can be established, who should benefit from such ownership?

A. Current legal regime governing property rights on the Moon.

The 1967 OST, on its face, seemed to have put to rest the debate regarding the legal status of outer space, the Moon, and other celestial bodies in relation to ownership. Article II of the treaty states that “[o]uter space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”¹²⁶

The prohibition against states from appropriating title to the Moon extends to the citizens of each state. As Dr. Tronchetti¹²⁷ submits:

In order to exist, indeed, property needs a superior authority to enforce it, be it in the form of a State or some other recognized entity. Thus, following from the fact that sovereignty and sovereignty rights in outer space are outlawed, landed private property rights on the celestial bodies cannot exist on such a territorial basis either.¹²⁸

Indeed, the OST specifically made state parties responsible for any activity on the Moon carried out by its nationals or other non-governmental agencies. Such activity includes, by extension, extraction activities. This is can be gleaned from Art. 6 of the OST:

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

¹²⁶ OST, *supra* note 1 at art. 2.

¹²⁷ Ph.D. in International Law (Leiden University), advanced LL.M in International Relations (Bologna University, Italy). Co-Director of the Institute of Space Law and Strategy and as a Zhuoyue Associate Professor at Beihang University, Beijing (China), available at <https://law.olemiss.edu/faculty-directory/fabio-tronchetti/>

¹²⁸ TRONCHETTI, *supra* 50 100 at 199 – 200.

are carried out in conformity with the provisions set forth in the present Treaty.¹²⁹

Thus, any private claim of “ownership” over the Moon or any celestial body is legally void and, as Von Der Dunk put it, “a matter of fraud.”¹³⁰ Currently, the above legal regime is, as Pop puts it, *De lege lata*, the extraterrestrial realms belong to “everybody and nobody”, pertaining to the legal category of *res communis*, whereby use is permitted yet title is denied.¹³¹

However, it is submitted that such legal regime will likely be challenged when the first moon miner starts extracting minerals from the Moon. This is because, while the OST has prevented national - and private - appropriation of outer space and the celestial bodies, it is silent as to the ownership of the natural resources found in the said bodies. The following discussion as to the ownership of the Moon’s natural resources will elaborate the legal conundrum facing the future of any lunar mining activities.

B. Who really owns Luna’s riches?

To answer the above question, we must differentiate between those resources *in situ* and those resources that are extracted. It is submitted that the answer to the former is humankind, as a whole. To the latter, any entity that liberates such resource from their natural place, provided that compensation is paid to the former, being the owner of such resource.

Nonetheless, the above answers are controversial. The controversy stems from the fact, as some argue, that *humankind* is not a subject of international law for the simple fact that no entity can represent it. Individual states may represent a group of humans, but they cannot be regarded as the whole of humankind as a group.¹³² Nor is/was there a right of ownership of the Moon created in favor of mankind, as was rhetorically asked by some delegates during the subcommittee deliberations for the Moon Agreement, “[w]ho died and left the Moon to mankind?”¹³³

¹²⁹ *Id.* at Art. 6.

¹³⁰ Frans G. Von der Dunk, *Private Property Rights and the Public Interest in Exploration of Outer Space*, 13 (2) BIOLOGICAL THEORY SPACE 142, 146 (2018).

¹³¹ VIRGILIU POP, WHO OWNS THE MOON? EXTRATERRESTRIAL ASPECTS OF LAND AND MINERAL RESOURCES OWNERSHIP v (2009).

¹³² Gorove, *supra* note 79 at 397.

¹³³ POP, *supra* note 131 at 122.

Another point of controversy is the fact the OST, the main space treaty, prohibits the appropriation of the Moon and does not, as earlier mentioned, provide for any regime of property rights.¹³⁴ Finally, the MA which specifically addressed the status of the natural resources of the Moon is considered as a “failed treaty” as the states, specially affected (major space faring nations), refused to ratify the instrument. These controversies will be addressed below against the framework of the CHM principle.

1. Applying the CHM principle.

Some scholars note that there has been (and still ongoing) revival of the idea of “humankind” or the collective whole of the human race as a subject of international law.¹³⁵ The “explosion” or the re-evaluation of different corpus of international law instruments with the term “humanity” found in the principles and legally binding texts of such instruments, especially in the framework of international criminal laws, international environmental law, and international human rights law, reinforces such idea.¹³⁶

The above developments have led some to conclude that there is an ongoing “slow and modest” shift towards recognition of humanity as having personality or can be a subject of international law. As Judge Trindade¹³⁷ puts it, “humankind has gradually come also to appear as subject of contemporary international law, of the new *jus gentium* of the XXIst century.” As subjects of law, mankind has rights and duties that are conferred upon it and has the capacity to act.¹³⁸ As early as in 1972, Gorove, observed that “...perhaps the time has come for the law to move in the direction of recognizing mankind’s interests, its rights and obligations, as distinct from those of the nation state...”¹³⁹

From its formal articulation by Pardo in the 60’s in the context of the high seas and seabed all the way to its eventual incorporation in legally binding treaties and transformation into a customary norm, CHM has always recognized

¹³⁴ TRONCHETTI, *supra* note 50 at 3 – 4.

¹³⁵ TRINDADE, *supra* note 67 AT 281, 285.

¹³⁶ *Id.*

¹³⁷ Member of the Court (International Court of Justice) since February 6, 2009. <https://www.icj-cij.org/en/current-members>

¹³⁸ TRINDADE, *supra* note 67 at 281, 286.

¹³⁹ Gorove, *supra* note 79 at 393.

humankind's interests, its rights and obligations in areas designed as "common heritage of mankind" which no other entity (states or private individuals) may appropriate.¹⁴⁰

As an example, UNCLOS III reserves ownership of the seabed to humankind. It mandates the *duty* to equitably share the benefits from the seabed with all nations, specifically the developing nations, by humankind as a whole.¹⁴¹ And finally, that humankind should act through an international regime, in the case of the seabed, the International Seabed Authority (ISA), which *represents humanity* in issues regarding common heritage areas. Under Art. 137 (2) of the UNCLOS, "all rights in the resources of the Area are vested in mankind as a whole on whose behalf the [International Seabed] Authority shall act."¹⁴²

Applying the above discussion to the Moon in relation to the OST and the MA, it will be seen that the idea of humankind's exclusive ownership of the Moon's natural resources has always been embodied in legally binding treaties.

a. "Mankind" under the OST and related UNGA Resolutions.

In the same year as the Soviet spacecraft "Lunik 2/Luna 2," was deliberately crashed on the Moon – the first time a human made spacecraft reached another celestial body - in September 1959,¹⁴³ the UNGA adopted *Resolution No. 1472/XIV* (1959) which recognized outer space as "the common interest of mankind as a whole...that the exploration and use of outer space should only for the betterment of mankind..."¹⁴⁴ Afterwards, in 1961, through *Resolution No. 1721/XVI* (1961), the UNGA re-emphasized the recognition that mankind has a common interest in the peaceful uses of outer space and that space exploration and use should only be for the betterment of mankind.¹⁴⁵

In 1963, the UNGA adopted what would be the basis for the OST. *Resolution No. 1962/XVIII* (1963) entitled "*Declaration of Legal Principles Governing the*

¹⁴⁰ Alexandre Kiss, *The Common Heritage of Mankind: Utopia or Reality?* 40 (3) INTERNATIONAL JOURNAL 423, 431 (1985).

¹⁴¹ *Id.* at 424.

¹⁴² Wolfrum, *supra* note 76 at 319.

¹⁴³ NASA, Luna 02, available at <https://solarsystem.nasa.gov/missions/luna-02/in-depth/> (last accessed Sept. 10, 2020).

¹⁴⁴ G.A. Res 1472 (XIV) A, at ¶2, U.N. Doc A/4351 (Dec. 12, 1959).

¹⁴⁵ Ernst Fasan, *The Meaning of the Term "Mankind" in Space Language*, 2 JOURNAL OF SPACE LAW 125, 126 (1974).

Activities of States in the Exploration and Use of Outer Space” in no uncertain terms stated that, “the exploration and use of outer space should be carried on for the betterment of mankind and for the benefit of States irrespective of their degree of economic or scientific development.”¹⁴⁶ Thus, when the UNGA repeatedly made references to “mankind,” in its resolutions, and especially in the legally binding OST, the UN body really meant that it is mankind as a collective whole that must be the beneficiary of developments in outer space.¹⁴⁷

Thus, the OST and the resolutions that preceded it granted rights and obligations to humankind with regard to outer space and the celestial bodies; rights as to exclusive claim of ownership under Art. 1 and Art. 2 of the OST. Dr. Fasan observed that when the framers of the OST meant for the phrase “province of mankind” to mean “[o]nly mankind, acting collectively, by way of international cooperation, has the right to enjoy the benefits derived from space activities and to establish how to share them among all nations.”¹⁴⁸

As to duties, humankind is to ensure that the “exploration and use of outer space” be conducted “exclusively for peaceful purposes” and should be “for the benefit of all peoples” and “for the benefit and in the interests of all countries.”¹⁴⁹

i. The Moon: *Res Communis*?

Some have argued that, under the OST, the Moon is *res communis* – “objects or things that are available to all and cannot be owned by anyone, not even a State (such as the air and the seas).”¹⁵⁰ Being *res communis*, anyone, by his or her own labor, may take from it, and gain ownership, of whatever he or she took.¹⁵¹ An analogy used is that of a fisherman catching fish (resources) in the ocean (a common area). The act of the fishermen removing the fish from the ocean turns the fish into his property and no longer part of the commons.¹⁵² As they argue, the same is applicable to the Moon.

¹⁴⁶ Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, G.A. Res. 1962 (XVIII), U.N. Doc. A/RES/1962(XVIII) (Dec. 13, 1963).

¹⁴⁷ Fasan, *supra* note 145 at 127.

¹⁴⁸ TRONCHETTI, *supra* note 50 at 23 – 24.

¹⁴⁹ OST, *supra* note 1 at Preamble, Art. 1 and 3.

¹⁵⁰ TRONCHETTI, *supra* note 50 at 11.

¹⁵¹ POP, *supra* note 131 at 141.

¹⁵² *Id.*

However, it is submitted that such appropriation of movables run counter to the non-appropriation principle found in the OST. The language of the OST permits only “exploration and use...for peaceful purposes;” “free access to celestial bodies” for “scientific investigations”¹⁵³ and does not speak nor make allusions to exploitation of the Moon and other celestial bodies. More importantly, it prohibits “national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”¹⁵⁴ Certainly appropriation through extraction of resources would fall under the last phrase “by any other means.”

Thus, the OST prohibits the ownership of movables, and all rights stemming therefor, through mining activities, except those specifically allowed under the treaty. Butler points out, “[b]y leaving only a right of access to the Moon, the United Nations has stripped away the most important [ownership] rights, thereby ensuring that the celestial bodies will not be exploited and their resources will be preserved and protected.”¹⁵⁵

To reiterate, the OST only allows states the right to access celestial bodies for peaceful purposes and/or scientific investigations. Nothing in the OST allows for activities that exploit the Moon’s or other celestial bodies’ natural resources save those lunar resources that will be used by scientific missions to the Moon. What is forbidden as to the states necessarily includes prohibition to juridical entities given life by a state through a charter and its nationals acting as “private adventurers.”¹⁵⁶

b. The “failed” Moon Treaty/Agreement.

The Moon Treaty was important in the development of the principle of CHM. As Cheng pointed out, the MA “has the distinction of being the first treaty to give effect in international law to the concept of the ‘common heritage of mankind.’”¹⁵⁷

Comparing the OST and the MA, it would be readily seen that the latter echoed the same principles found in the former.¹⁵⁸ However, the latter directly addressed the legal status of the ownership of the natural resources of the Moon and other celestial bodies. Art. 11 of the MA, in no uncertain terms, dictates that the

¹⁵³ OST, *supra* note 1 at Art. 1.

¹⁵⁴ *Id.* at Art. 2

¹⁵⁵ Dennison A. Butler, *Who Owns the Moon, Mars, and Other Celestial Bodies: Lunar Jurisprudence*, 82 (3) CORPUS JURIS SPATIALIS 505, 509 – 510 (2017).

¹⁵⁶ POP, *supra* note 131 at 65.

¹⁵⁷ *Id.* at p. 357

¹⁵⁸ SHAW, *supra* note 77 at 548.

Moon and its natural resources are the “common heritage of mankind” and “neither [they] shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person.”¹⁵⁹ Thus, the MA recognized the ownership of the natural resources of the Moon by all of humankind.

The MA should have answered the legal issue of the ownership of the Moon’s natural resources, except for one problem: many consider it as a failed treaty because only 18 countries, including the Philippines, have ratified the treaty with 4 countries as signatories as of 2019. Of those 18, only France and India with none of the other major space-faring nation (US, Russia, China, Japan, etc.) signed, ratified, or acceded to the treaty.¹⁶⁰ As Erlank points out, “[T]he Moon Agreement is for all intents and purposes regarded as an ineffective and failed treaty, since the convention has not been and is not being ratified by the main space-faring powers.”¹⁶¹

The main disagreement by the major space-faring nation to the treaty was the “CHM provisions” under Art. 11 which pertains to the ownership of the Moon’s natural resources and the beneficial sharing of any resources extracted therein for the benefit of all humankind.¹⁶² Meanwhile, the developing states argued that the treaty did not protect their interest enough.¹⁶³ Such disagreement resulted in few industrialized and developing states to ratify the MA. The failure of the MA may be summed up as such:

The industrialized states refused to be part of any intergovernmental system that set a precedent for international taxation, while the developing States did not want any agreement that did not clarify the extent of their rights and benefits derived from the common heritage of mankind, which from their perspective must be both financial and substantial in character.¹⁶⁴

¹⁵⁹ Moon Agreement, *supra* note 110 at art. 11.

¹⁶⁰ UN Disarmament affairs, *supra* note 104.

¹⁶¹ Wian Erlank, *Property Rights in Space: Moving the Goal Posts so the Players Don't Notice*, 19 POTCHEFSTROOM ELECTRONIC LAW JOURNAL, 5, available at <https://journals.assaf.org.za/per/article/view/1505> (last accessed Apr. 20, 2020)

¹⁶² TRONCHETTI, *supra* note 50 at 40 – 41.

¹⁶³ *Id.*

¹⁶⁴ RICKY J. LEE, LAW AND REGULATION OF COMMERCIAL MINING OF MINERALS IN OUTERSPACE, 287 (2012).

i. The utility of the MA.

While the MA may only have a few states as parties thereto, it would not be prudent to label the MA as a “failed treaty” as it contributed to the development of space law and possible legal framework to guide future lunar industrialization and development.

First and foremost, it *is* still a UN multi-party treaty, having reached the minimum number required for it to be considered as such. Hence, it may be regarded as evidence in the emergence of the principle of CHM as customary international law or the principle’s codification. As Wolfke points out:

The fact that a treaty has been concluded in a specific way constitutes...an element of practice that contributes to the emergence of customary law of treaties...if a treaty contains express, or even an indirect, recognition, of an already existing customary rule, such recognition constitutes additional evidence of the customary rule in question.¹⁶⁵

Indeed, as Wood states, “even multipartite conventions signed but not brought into force are frequently regarded as having value as evidence of customary international law.”¹⁶⁶ He continues on by stating, “treaties may codify pre-existing rules of customary international law...the framers of the treaty identify rules of customary international law existing at the commencement of the drafting of the codification treaty...”¹⁶⁷ Hence, the MA being a UN treaty, it may be used as evidence that the principle of CHM as an emerging (or arguably has already emerged) customary international norm.

Second, two of the state parties to the MA are now space fairing nations, France and India, while 3 others (Belgium, the Netherlands, and Romania)¹⁶⁸ are members of the European Space Agency (ESA). Meanwhile, Australia – the 5th state to sign the MA, just celebrated the 1st year anniversary of its own space agency.¹⁶⁹ It is submitted that, while only a few in number – at least for now - these “specially

¹⁶⁵ KAROL WOLFKE, TREATIES AND CUSTOM: ASPECTS OF INTERRELATION IN ESSAYS ON THE LAW OF TREATIES: A COLLECTION OF ESSAYS IN HONOUR OF BERT VIERDAG 36 (Jan Klabber & Rene Leferber eds., 1998).

¹⁶⁶ Third Report, *supra* note 116 at ¶ 32.

¹⁶⁷ *Id.* at ¶ 36.

¹⁶⁸ ESA, Welcome to ESA, available at https://www.esa.int/About_Us/Welcome_to_ESA/New_Member_States (last accessed Apr. 20, 2020).

¹⁶⁹ Australian Government Department of Industry, Innovation and Science, Australian Space Agency, available at <https://www.industry.gov.au/strategies-for-the-future/australian-space-agency> (last accessed Apr. 20, 2020).

affected” state parties to the MA have recognized the binding principle of CHM as to the ownership of lunar resources by humankind and is beneficial sharing thereof to the whole of humankind.

Third, the MA was an attempt by the international community to create a semblance of international order as how to go about future lunar mining activities. As Christol puts it, “[t]he Moon Treaty, by extending the detailed rule of law to the moon and to other celestial bodies, will afford stability to governments and to private enterprise so that worthwhile exploitative activities may be initiated.”¹⁷⁰

Finally, and arguably the most important, the MA introduced the concept of *territorium commune humanitatis* or *res communis humanitatis* (common heritage of mankind) in international law as a new category of territory. As Cheng states, “for the first time in the history of international law, a genuine ‘*territorium commune humanitatis*’ belonging to an entirely new category of territory has been created.”¹⁷¹

Such new concept of territory was added to the three traditional categories, namely: (1) territories within the jurisdiction of states; (2) territories that belongs to no one - juridical or natural persons but is susceptible to appropriation (*territorium nullius* or *res nullius*), and (3) territories that belong to no state, but the resources therein may be appropriated (*territorium extra commercium* or *res communis omnium*).¹⁷²

C. CHM: Obligations of the owner.

The central idea of the principle of CHM has always been the just and equitable distribution of resources with special attention given to developing states.¹⁷³ As Pop points out, “[t]he key tenet of the CHM is the distribution of benefits. As an attribute of property *jus fruendi* embodies the right to enjoy the income (fruits) derived from an asset.” The principle was to make right the horrors of the world’s colonial past to which the developing world was still emerging from by redistributing the wealth derived from areas designated as CHM.¹⁷⁴ Thus, while the CHM principle, arguably grants the right of ownership of CHM areas to humankind, the principle also has obligated humankind as to how such areas should be used and/or exploited.

¹⁷⁰ Christol, *supra* note 62 at 432.

¹⁷¹ CHENG, *supra* note 100 at 405.

¹⁷² *Id.* at 476.

¹⁷³ Christol, *supra* note 62 at 452-453.

¹⁷⁴ POP, *supra* note 131 at 127.

Such obligation may also be derived from the fact that the principle has extended a right over the benefits to humankind especially those from the developing world. The principle's elevation to a customary norm has given rise to a so called "fourth generation rights."¹⁷⁵ As Zieck elaborated, "[t]hese rights strive...to secure formal equality and participation [of the developing states] on the basis of formal equality, albeit, of states in the international community...consist of the right to benefit from the common heritage of mankind and possibly of the right to development..."¹⁷⁶ And the benefits, at its most basic, referred to by Zieck and others is material benefit and its equitable distribution thereof.¹⁷⁷

Thus, it is submitted that humankind, as the owner of the natural resources of the Moon, has the obligation to distribute the material benefit derived from any extractive activities on the Moon equitably. Such obligation is to be understood with special consideration given to developing states when it comes to the equitable distribution of the *jus fruendi* from such activities. This is to keep in line with the ideals embodied in the CHM principle.

However, as earlier mentioned, the idea of equitable sharing of benefits is one of the most controversial aspect of the CHM. The controversy stems partly because no agreed upon definition as to what "equitable sharing of benefit" entails under the principle has been accepted. If benefits meant profits, then no sane for profit private entity would go mine the Moon if half or maybe more of the profits it makes therein will be taken away in the name of "equitable sharing." As Dr. Tronchetti points out, "several developed states as well as private entrepreneurs claim that the common heritage of mankind introduces anti-competitive measures and is detrimental from an economic perspective."¹⁷⁸

On the other hand, some critics of CHM principle argue that it reeks of "freeloading" by developing states that has not contributed (or will not have contributed) to the mining of the Moon in terms of both technology and money.¹⁷⁹ In other words, "why share at all?"

¹⁷⁵ Marjoleine Y.A. Zieck, *The Concept of "Generations" of Human Rights and the Right to Benefit from the Common Heritage of Mankind with Reference to Extraterrestrial Realms*, 25 VERFASSUNG UND RECHT IN ÜBERSE/LAW AND POLITICS IN AFRICA, ASIA AND LATIN AMERICA 161, 176 – 177 (1992).

¹⁷⁶ *Id.*

¹⁷⁷ *Id.* at 162 – 163.

¹⁷⁸ TRONCHETTI, *supra* note 50 at 14.

¹⁷⁹ POP, *supra* note 131 at 127-128, 133.

Such criticisms are sound and, as the author submits, stems from the fact that, at the time the OST and the MA were drafted, the development of space law and the CHM principle were such novel ideas leading to a lot of differing opinions. It also stems from the inadequacy of the current legal regime that deals with property regime in space. Such inadequacy and criticism shall be addressed in the next chapter.

*The point in history at which we stand
is full of promise and danger. The
world will either move toward unity
and widely shared prosperity – or it
will move apart.*

- Franklin D. Roosevelt

CHAPTER V: A NEW PATH FORWARD

As can be gleaned from the discussion of the preceding chapter, the current status quo of space law regarding space resources, especially the Moon's, is inadequate. The desire and motivation is there to commercialize and industrialize the Moon. What is currently needed is a new path to break the impasse between the developing and developed nations as to what legal regime would govern. However, any legal regime must and still be based on the principle of CHM as it is customary norm.

A. The principles to guide the new treaty.

While there are many points of disagreements regarding the application of the CHM principle in regard to the Moon, three concerns are recognized to be the most contentious, to wit: the inclusion of the principle of CHM; differing interests between the parties concerned; the sharing of benefit; and the powers and functions of an international body to oversee lunar extraction activities.¹⁸⁰

The author believes that the MA is a good treaty, albeit, hobbled by the details. As earlier mentioned, the principles contained in the MA are mere reiteration of the OST; hence, it did not stray too far from the accepted norms at the time. Nonetheless, there is a stigma attached to the MA as a “failed treaty” and a mere amendment to its provisions may not be enough to encourage other states to be more receptive to an amended treaty. Thus, a new path forward is needed while being mindful of the foundation that the MA had tried to establish.

The author submits the propositions below in order to resolve these contentions by finding common ground for the parties to break the impasse and to

¹⁸⁰ LEE, *supra* note 164 at 276.

enter into a new treaty concerning the ownership and utilization of the Moon's natural resources. The new treaty will be limited only to the Moon and her resources in order to not needlessly complicate matters.

1. Inclusion of the CHM principle in the body of a new treaty.

First and foremost, a new treaty should affirm - or reaffirm - that the Moon and her natural resources (in place) are owned by humankind as a whole and governed by the principle of CHM. The latter must also be given a definition in order to avoid differing interpretations. It is humbly submitted that the author's definition (*see* Chapter III) be used as a starting point. While such a requirement may sound counter intuitive due to the fact that the CHM principle is customary international law, it is important that the principle appear on a legally binding treaty in order to put to rest any legal questions as to who owns what in relation to the Moon and her riches.

Second, it is submitted that humankind's ownership of the Moon and her resources, guided by the principle of CHM, is preferable to an amendment of the OST allowing for the appropriation of lunar real estate and her resources. Such ownership avoids potential conflicts of multiple individual claimants to lunar real estate or its resources.

Third, scrapping the OST, as some writers suggest, would allow for a quicker development of the Moon as it would open the way for the occupation of the Moon to early "homesteaders."¹⁸¹ However, it is submitted that such drastic act would invite catastrophe. Opening the Moon and her riches to state and private occupation on a "first to occupy, first to own" idea would lead to a scramble by the most powerful and most armed nations. Thus, making the Moon a potential flash point for international conflict.

2. Balancing of competing interests.

To enjoin all parties concerned (both public and private), it is important that the new treaty balance the interests between providing for (a) regime of private property rights and the (b) need for a regulation of the any future lunar mining activities.

¹⁸¹ POP, *supra* note 131 at 99-100.

a. Regime of private property rights.

The MA did not prohibit the exploitation of the Moon's resources as can be gleaned from Art. 11, Sections 5 – 7. However, it does not mention the ownership of the said resources once it is extracted through the labors of an entity. The MA, under Art. 11, Sec. 2 only mentions “natural resources in place.”¹⁸²

Therefore, it is submitted that a new treaty should contain provisions to the effect that while such resources are the property of all humankind, if such resources are extracted, and done through and with consent of the international body representing all humankind, then such extracted resource must be considered the property of the extractor. The latter must be understood that such extracted resources comes with it the obligation that it must also benefit all of humankind.

b. Need for a regulation of the any future lunar mining activities.

A concern of industrialized states, especially the US, is that an international centralized body authorized to regulate lunar mining activities would needlessly hamper the development of the Moon.¹⁸³ These states, therefore, advocate a free market approach to the lunar mining activities.¹⁸⁴ While it is admitted that layers of bureaucracy and red tape does slow down the process of any activity, it is submitted that such regulation is important to protect the rights of any claimant to prospect and exploit the Moon while making sure that all parties are following internationally agreed upon rules and regulations.¹⁸⁵ However, such regulatory body must be formed with efficiency in mind as to not needlessly hamper the development of the Moon.

3. Fair sharing of the benefits.

This study does not advocate for “handouts” or, as critics point out, free loading/riding. What this study advocate is that developing nations be given its just share in lunar mining activities. Such is not a handout, for as already mentioned in the earlier chapters, people in developing nations, being part of humanity, the ownership of such resources extends to them. Thus, they have a right to the *jus fruendi* as guaranteed under the principle of CHM, a customary international law. This is only but the *just* thing to do. As for preferential treatment to the developing nations as recipients of such benefit, this is but a dictate of the humanization of the

¹⁸² Moon Agreement, *supra* note 110 at Art. 11, § 2.

¹⁸³ TRONCHETTI, *supra* note 50 at 108.

¹⁸⁴ *Id.* at 113.

¹⁸⁵ LEE, *supra* note 164 at 171.

world economic order - to mitigate the current inequitable state of economic development and access to natural resources by such developing nations.

It is also submitted that sharing of such benefits is compulsory among all the states under the doctrine of *pacta sunt servanda*. Under the OST, states are obliged to “use [...] outer space, including the moon and other celestial bodies, [...] for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development.”¹⁸⁶

However, such benefits afforded to developing nations from such activity must be understood to be used only by them for “peaceful purposes” (i.e. building critical infrastructures such as power and water) to keeping in line with the principles of the OST and CHM. The treaty must also affirm the right of future “moon miners” to a return on their investments. As such, any “fair share” of all humankind must not unduly prejudice the expectations of profits such miners.

As earlier mentioned, such benefit, at its most basic, is material or monetary derived from lunar mining activities. An idea put forth by Lee is the creation of a “Common Heritage Fund or CHF,”¹⁸⁷ wherein monies derived from activities in areas designated as CHM will be pooled together and eventually distributed for infrastructure projects of developing states. Possible sources of funds may be derived from issuance of exploration and production licenses, mining royalties, and mining lease agreements.

4. Creation of an international regulatory body: “Lunar Resources Authority.”

The references contained in the UNCLOS and the MA of an international regulatory body highlight the importance of the creating such body. Indeed, one of the earlier problems with the MA was that no agreed upon body to oversee such space mining activities was set up. Under the MA, the creation of such body was held in abeyance until lunar mining becomes a possibility.¹⁸⁸ Now is the time that such body is needed. As Dr. Tronchetti puts it, “the presence of a legal regime represents the only feasible solution to guarantee the safe as well as orderly development of extraterrestrial exploitative activities.”¹⁸⁹ Hence, any and all

¹⁸⁶ *Id.* at Art. 1.

¹⁸⁷ LEE, *supra* note 164 at 279.

¹⁸⁸ Moon Agreement, *supra* note 110 at Art. 11, § 5.

¹⁸⁹ TRONCHETTI, *supra* note 50 at 236.

activities, either by natural or juridical entities (including states) relating to any lunar extractive activities must be done through the said body.

B. The folly of doing nothing and no international cooperation.

Certainly, states may choose not to change the status quo and leave things the way they are. It is submitted that such thinking forgoes the opportunity of all humankind from benefiting from the riches to be found in space. It also does not put into mind the fact that the genie is out of the bottle. The race to the Moon has already begun and like it or not, entities will eventually start extracting resources from the Moon.

It may also be tempting for states, or through limited treaties with other states, to do it unilaterally and ignore international cooperation. It is submitted that such line of thinking is dangerous. It would lead to a “free for all” approach with each state enforcing their own version of legal regimes to protect their own citizens and interests. Thus, a new possible flashpoint of international conflict would undoubtedly arise. Such scenario is what Ambassador Pardo warned during his 1967 speech before the UNGA. As Roosevelt said, “the world will either move toward unity and widely shared prosperity – or it will move apart.”

Earth is the cradle of humanity, but one cannot remain in the cradle forever.
-Konstantin E. Tsiolkovsky, Father of rocketry and cosmonautics¹⁹⁰

CHAPTER VI: CONCLUSION

The miracles of modern day technology are rapidly moving us to a brave new world. And nothing is braver than journeying to the unknown that is outer space. New discoveries, science, ideas, and riches beyond humanity's wildest imagination. However, it is in this decade, or the next that will decide if only a few would undertake the journey and the many left behind or the uplifting of all of humanity to a multi-planet and space fairing race – with standards of living and material wealth unimaginable to us today.

The Moon, and outer space, has an unconceivable amount of resources. Humanity is at the cusps of opening the doors towards such riches and end material scarcity for all. Imagine a future free from material want; a future where every single human being has access to a standard of living wherein all their basic necessities are met. A future where people pursue higher things instead of how to get their next meal. What kind of future would that be?

Such future is of course premised on the fact that the legal framework is in place that works for the benefit of all concerned. That such legal framework will be just and obligatory for the common observance and benefit of all. Humankind cannot haphazardly or slog its way through in creating the legal framework that will guide future space development. There must be a purpose and goal: liberty and prosperity for all under the rule of law. The optimistic side of the author is ever hopefully that this generation would achieve such purpose and goal. It is time for humanity to leave its cradle.

¹⁹⁰ NASA, Konstanti E. Tsiolkovsky, available at <https://www.nasa.gov/audience/foreducators/rocketry/home/konstantin-tsiolkovsky.html> (last accessed Apr. 20, 2020).