# COSMOPOLITAN APPROACHES TO INTERNATIONAL LAW: FINDING THE RIGHT LENS TO VIEW THE FREEDOM OF OUTER SPACE

by

Timiebi U. Aganaba-Jeanty

A thesis submitted to McGill University
in partial fulfilllment of the requirements of
the degree of **DOCTOR OF CIVIL LAW (D.C.L)**

Institute of Air and Space Law
McGill University
Montreal, Quebec
October 2015

# Acknowledgments

*This thesis is dedicated to the men in my life. To my father Dr. Tari Aganaba who encouraged me to apply for the DCL; my husband Jean-Moise Jeanty who ensured I didn't give up; and Kari Joseph Jeanty, my son, who gave me all the motivation I needed to complete the thesis writing process just weeks before he was born.*

First, I must give appreciation to the Erin JC Arsenault Fund for providing me with a fellowship to undertake my DCL and LLM at the Institute of Air and Space Law, McGill University.

I give special thanks to my thesis supervisor, Professor Richard Janda, with whose support I was able to develop my thesis. His ability to take my rough, weak ideas and make them seem like perfectly well thought out and logical arguments carried me along from my LLM day's right through to the DCL. All I can say is thank you!

To my mentor, Professor Ram Jakhu and committee member Professor Narain for being inspirations to me throughout the DCL years, I also say thanks. The same goes to my colleague Pritviraj Sharma for moral support during the thesis writing process.

Special thanks goes out to the staff at Euroconsult and my professional colleagues who ensured that my ideas were not too theoretical by acting as a sounding board and reality check! And, I cannot forget Dr. Tare Brisibe who has been a quiet influence and inspiration from the moment he introduced me to space law back in Nigeria in 2006.

Finally, to God who gives me the strength to do all things, I give you all the glory.

## Abstract

There appears to be a dominant position in interpreting the freedom of Outer Space which has not given much real significance to the idea of common benefit as that which enables this freedom. The reason that this causes difficulty is that there is an ambiguity to the concept of common benefit. This dominant position, however, sees the issue of benefit-sharing in the context of the perceived tension between established space faring nations and emerging and aspirant States and the idea that freedom could take on a different meaning depending on where one is on the scale of development. It fails to recognize that solutions to contemporary and historical space governance challenges have been much less oriented towards the interests of less developed States or new entrants, making the accrual and sharing of benefits dependent on the free will of those States able to carry out a variety of space activities independently. As a result of this, the debate around common benefit is exploited to seek individual benefit derived for a State as opposed to what our effort to use space collectively can generate. In recent times, the issue has not received much attention. This is because it is believed to be partly resolved through normative frameworks such as Article 1 of the Outer Space Treaty and the Space Benefits Declaration. While an attempt to re-address historical contentious issues, asserted to be resolved, may appear illusory or futile; such analysis can be useful depending on the account that the reader believes should be given to the normative character of human nature.

To this end, the writings of legal, political and social theorists and methodologies from Critical Legal Schools may prove insightful for a deeper contextualization of the historical debate, the current understanding of the freedoms of Outer Space as well as unearth future perspectives to aid in addressing the current pressing space related issue of our time: Sustainability of Space Activities. Through the lens of Cosmopolitan Approaches to International Law (CAIL), this thesis proposes to investigate some of the perceived tensions prevalent in global space governance.

## Résume

Il semble exister, dans la manière d'interpréter la liberté spatiale, une opinion dominante qui accorde peu d'importance à la notion d'un bien commun qui rend cette liberté possible. La complexité de la chose vient du fait que la notion de bien commun est elle-même ambiguë en soi. Cependant, cet avis dominant voit le problème du partage du bien commun dans le contexte des tensions évidentes entre les grandes puissances spatiales, les états émergents, et l'idée que la liberté prend un sens particulier dépendamment du niveau de développement. L'idée générale ne tient pas compte du fait que les solutions aux soucis de gouvernance spatiale, qu'ils soient anciens ou récents ont été beaucoup moins garantes des intérêts des petites nations, rendant la gestion des bénéfices accumulés totalement dépendante du libre arbitre de ces états capable d'effectuer de manière indépendante toute une panoplie d'activités spatiales. Par conséquent, à cause de cet état de fait, le débat autour du bien commun est soulevé de manière à rechercher un bénéfice personnel pour chaque nation au lieu de s'axer autour des résultats que peuvent avoir une utilisation collective de l'Espace. Ces derniers temps, la problématique a reçu peu d'attention. C'est parce que l'on croit qu'elle est partiellement résolue à travers des cadres normatifs tels que l'Article 1 du Traité de l'Espace et de la Déclaration des Avantages de l'Espace. Alors qu'une tentative de soulever à nouveau des problématiques associées à des contentieux historiques, censés être résolus, peut sembler illusoire ou futile, telle analyse peut être utile, selon le degré d'importance que le lecteur accorde à l'essence de la nature humaine.

À cette fin, les écrits des théoriciens juridiques, politiques et sociales, ainsi que les méthodologies des écoles juridiques critiques peuvent s'avérer judicieux pour une conceptualisation plus profonde du débat historique, la compréhension actuelle des libertés spatiales, en plus de déterrer des perspectives futures afin d'aider à adresser la problématique actuelle et pressante reliée à l'espace : la pérennité des activités spatiales. À travers les lentilles de la nouvelle école de pensées que l'on appelle « *Cosmopolitan Approaches to International Law* » (CAIL), cette thèse propose des domaines à investiguer afin de trouver des solutions à certaines des tensions courantes perçues dans la gouvernance spatiale globale.

# Tables and Figures

# Table of Contents

# INTRODUCTION: The Quest for Common Benefit

This thesis is a manuscript based thesis. Adapted versions of four of the chapters of this thesis have been published in peer reviewed journals as follows:

- Timiebi Aganaba-Jeanty (2016) "Space Sustainability and the Freedom of Outer Space" 14:1 Astropolitics 1: Introduction Chapter of this thesis.
- Timiebi Aganaba-Jeanty (2015) "Common Benefit from a Perspective of "Non-traditional Partners": A Proposed Agenda to Address the Status Quo in Global Space Governance" 117:1 Acta Astonautica 172: Chapter 1 of this thesis.
- Timiebi Aganaba-Jeanty (2016) "Introducing the Cosmopolitan Approaches to International Law (CAIL) Lens to Analyze Governance Issues as they Affect Emerging and Aspirant Space Actors" Space Policy, In Press, Corrected Proof: Chapter 3 of this thesis.
- Timiebi Aganaba (2013) "Precursor to an African Space Agency: Commentary of Dr. Peter Martinez "Is there a need for an African Space Agency?"" 29:1 Space Policy 168: Chapter 4 of this thesis.

## 0.1 The Problem

This thesis presupposes that there is a dominant position in interpreting the freedom of Outer Space that has not given any real significance to the idea of common benefit as an enabling outcome.[1] With no clear defined conception of common benefit, the dominant position requires that we see the world and its inhabitants as a system connecting space, time, need and desire and oriented toward an unidentified set of individual benefits. The dominant position might at most correlate to the principle of sustainable development defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[2] That is, every nation is free to determine how to meet its own needs and accrue its own benefits as long as it does not prejudice the ability of future generations to do the same.

---

[1] Kai-Uwe Schrogl, "Legal Aspects Related to the Application of the Principle that the Exploration and Utilization of Outer Space Should be Carried out for the Benefits and in the Interest of All States Taking Into Particular Account the Needs of Developing Countries" in Marietta Benko & Kai-Uwe Schrogl eds, *International Space Law in the Making*, (France: Editions Frontiers, 1993) 219; Stephan Hobe, "Article I", in Hobe et al. eds, *Cologne Commentary on Space Law: Volume 1*, *Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009) 25.

[2] World Commission on Environment and Development (WCED), *Our Common Future* (Oxford: Oxford University Press, 198) at 43.

When it raises the issue of benefit-sharing at all, the dominant position encounters a tension between established space faring nations and emerging and aspirant States and the idea that freedom could take on a different meaning depending on where one is on the scale of development. It fails to recognize that solutions to contemporary and historical space governance challenges have been much less oriented towards the interests of less developed States, making the accrual and sharing of benefits dependent on the free will of those States able to carry out a variety of space activities independently. Unfortunately, the exercise of free will appears to be constrained for some.

Ross[3] highlights a set of relics of western colonial domination that affect the working relationship between established and aspirant space actors and play a large role in how and whether benefits of space activities are shared. Specifically these relics all give rise to barriers to entry, namely:

1. Time: Timeline for accrual of benefit is controlled by the ability to access assistance;
2. Notions/definitions and values: Lack of definitions, opacity and indeterminacy of legal norms;
3. Domestic laws of source or donation countries: The regulation of State action in Outer Space is a strong factor influencing national activities and legislation of commercial activities;
4. Cost: In reality, Outer Space is used for the benefit of all States that can afford to pay for access, which depends upon either the internal markets for space products or the accessibility to international markets for space products.

Paying homage to these relics, the debate around common benefit is currently exploited to protect individual benefits derived for established States as opposed to determining what the effort to use space collectively can generate for the common good. This is a problem on two levels; legally and socially. On the first level, the dominant position goes against the cardinal principle of Article 1 of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer

[3] Sara Ross, "Potent Cultural Objects and the Right to Culture: Repatriation, Return, and Res Extra Commercium" (Paper delivered at the Dean Maxwell and Isle Cohen Doctoral Seminar, McGill University, Montreal, Canada, 23rd August 2014), [unpublished].

Space, Including the Moon and Other Celestial Bodies,(hereinafter Outer Space Treaty or OST)that exploration and use of Outer Space "must be carried out for the benefit and interests of all countries irrespective of their degree of economic or scientific development, and shall be the province of all mankind", that freedom to explore and use outer space exists "without discrimination of any kind", and "on the basis of equality".[4] In short the dominant position either amounts to a general breach of international law, or to the proclamation of a legal regime that is unachievable and out of touch with reality. On the second level, socially speaking, the dominant position perpetuates the serious divide between states, and gives rises to the perception that legal rules designed to promote equality and equity are simply disguises to ensure that forms of hegemony are maintained.

Nevertheless, the ambiguity or indeterminacy of the concepts "common benefit" and "freedom of outer space" may still retain some promising possibilities for future consensus. As French[5] argues,

> "consensus will often develop around a general principle much quicker than around a detailed plan of action, and even when debates over implementation become contentious and acrimonious, there is always the refuge of hiding behind maintaining—or, at least not undermining—the overarching principle in question."

General principles, he argues, if they do little else, can at least ensure the continuation of a dialogue. Moreover, even if holding on to a principle hides a deep divergence in the disparate understanding of stakeholders, the very existence of a principle can be significant because it can lead to positive change. As French concludes, such principles might have a conceptual autonomy to develop in ways that the actors most responsible for their inception, usually States, had not foreseen. Their very ambiguity can render such evolution more likely.

This thesis seeks to promote the possibility of an evolution in the general principles of common

---

[4] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, 27 January 1967, 610 UNTS 205, 18 UST 2410, TIAS No 6347, 6 ILM 386 (entered into force on 10 October 1967) [Outer Space Treaty/OST].

[5] Duncan French, "Global Justice and the (Ir)relevance of Indeterminacy" (2009) 8:3 Chinese Journal of International Law 593.

benefit and freedom of outer space. In recent times, the issue has not received much attention. Perhaps this is because it is believed to be partly resolved. However, the problem appears both generic and unique at the same time with differing consequences. It appears generic due to the persistent North and South divide that exists in space benefit-sharing. Common benefit and freedom of outer space are dealt with like other North-South issues, which is to say pondered and discussed with little or no practical ramifications. At the same time, the general principles of space law are viewed as unique and thus generally inconsequential due to the niche and specific nature of space exploration and the sense that there are far more pressing development issues for the majority of the world's citizens. But, due to this generic/unique dichotomy, allowing the general principles to evolve could actually have substantial consequences for space law and space governance by revealing the significance and consequences of problems in space governance that have both a generic and unique character to them.

According to Drucker,[6] all events but the truly unique require a generic solution like a rule, a policy, or a principle. However, truly unique events must be treated individually as one cannot develop rules for the exceptional. In essence, therefore, a threshold problem for this thesis is that the nature of the issue is not absolutely clear: is it unique or is it generic? Is it a serious unique issue that calls for a response of new rules, policies and principles or is there simply a need for a better understanding of root general issues that could influence our reaction to or prevent future events that could negatively impact the way space is explored and benefits are shared? That aspirant States or users may need to be enabled to bridge the widening gap of technology and knowledge may be generic, but the consequences that non enablement may have for the goal of space sustainability may be unique and require a unique approach. To think about this is to think about the foundations of Global Public Goods (GPG) and the role of market forces in the goal of global governance. GPG's are understood here as not only the common resources of Outer Space but also the preferred social condition of benefit-sharing and the common institutions, policies and system of rules by which the common good is achieved.[7]

---

[6] Peter Drucker, *The Essential Drucker: The Best of Sixty Years of Peter Drucker's Essential Writings on Management* (Collins Business Essentials, 2008).
[7] Inge Kaul, et al. eds., *Global Public Goods: International Cooperation in the 21st Century* (NY: Oxford University Press, 1999).

Though the space technology and space exploration system is complex, the logic of the global space governance problem calling for space sustainability is relatively simple to describe. Acknowledging but putting aside the focus purely on technical risks, a review shows that the following issues constitute the greatest risk to space activities:

1. Space debris and collisions;
2. Lack of international space situational awareness;
3. Purposeful interference (such as jamming) and unintentional harmful interference;
4. Effects of space weather and radiation;
4. Aggressive action/behavior and their geopolitical causes;
5. Human error and lack of capacity as a substantial cause of risk;
6. Failure to meet societal needs and reduced space budgets.

Yet this simple list of material risks belies the enormous complexity of devising a means of mitigating and/or adapting to their consequences. For instance,, while there is broad consensus on the increasing importance of space debris, there are a number of uncertainties and complicating factors that restrict our ability to make straightforward policies to address the problem and the social/political obstacles to addressing same can hardly be overestimated.

## 0.2 Hypothesis

Space exploration contributes to the goal of international cooperation *(understood from the dominant perspectives as international stability*) knowledge generation, and inspiration - instrumental outputs for common benefit. This entails that all of humanity have access to the network that produces cooperation and science and technology so as to produce a halo effect. Yet contrary to the way man and Outer Space were envisaged to coexist toward the beginning of the spacefaring era, with the adoption of the Outer Space Treaty in 1966, common benefit has been constructed as a property claim (*give me my part*) instead of a distributive justice claim (*access to fair share derived from a common pool resource*). Developing States are unfairly disadvantaged because there has been a disproportionate accrual of benefits and those capable of meeting

common benefit obligation appear to view it as a soft norm and express sentiments of good intention. The difficult question is "what would proportionality look like?" The goal of distributive justice would be focused on common outcomes, while acknowledging that some actors and users would need more assistance on the way to achieving those common outcomes, paying close attention to the relics of domination earlier referred to. This could pave the way for an evolution in the general principles, allowing all actors to think more coherently and systematically about cooperation in Outer Space at a time when impacts are asymmetrically felt most by the aspirant States. Such an evolution may be opportune as well at a time when cooperation is needed to produce greater capacity to share and manage collective goods.

The effort to prompt an evolution in thinking in turn calls for undertaking an assessment of the range and organization of possible space benefits taking account of where potential partners are in their development, what can be enabled through relationships and on a practical level how these participants have been and can be enabled. The framework for analysis produced from such an assessment might remain open textured with a significant margin of appreciation, Nevertheless, there could be a breach of the overriding obligation to apply such a framework, thereby bringing hard and soft law together. Developing such a framework requires a turn to theory because we have to know something about how actors involved in global space governance and benefit-sharing might or should think and act, and theory helps us to see dynamics and events in new ways and to generate insights that are unavailable by just describing "what's going on."

This thesis seeks to draw on a combination of insights from the writings of legal, political and social theorists[8] and methodologies from Critical Legal Schools in order to contextualize the historical ideological debate about common benefits as well as the current understanding of the freedoms granted by the Outer Space Treaty. It does so as well in order to unearth future perspectives to help address the current pressing space-related issue of our time: *Space Sustainability*. A main outcome of this work is to provide guidance to actors engaged in space exploration who attempt to fulfill their treaty obligations and who seek an understanding of issues of concern to emerging space users and actors. Third World Approaches to Law (TWAIL) is an

[8] Including Isaiah Berlin, Gerald MacCullum Jr. Duncan Kennedy, Abraham Maslow, Judith Butler, G.W. Hegel, Jacques Derrida, and Amartya Sen.

interesting and useful starting point; however, the shortfalls of TWAIL become quite obvious in the space context. The review of TWAIL methodology explored below reveals that it leads to affirmation that those on the margins can make a claim upon the public good without reciprocity. Once it is acknowledged that there is reciprocity and a degree to which all Third World claims must be brought into relation with existing claims, the thesis proceeds to reassess TWAIL. It embraces instead what I call Cosmopolitan Approaches to International Law (CAIL) as the lens to analyze and understand common benefit, freedom of outer space and space sustainability.

The space race of the 1950's/60s played to the whole world's imagination. What began as fear ultimately subsided and is now remembered as hope and inspiration. While there are many vantage points upon the challenges of our times, that from space can help observe, overcome and manage the effects of our growing collective impacts. The vantage point from space reveals four main priorities of all established or aspirant space actors:

1. The need to be connected;
2. The need to be data rich and to be informed;
3. The need to be respected; and
4. The need for security.

The objective of deriving common benefit from any given space activity sets these four priorities in constant interaction. I refer to as the Space Benefits Constant. However, when understood as a hierarchy of needs, the objective is to move up the needs hierarchy going from a focus on meeting individual basic needs to the collective goal of common actualization, which is mainly understood around issues of global security.[9] One can draw an analogy to the needs and priorities of an individual. At birth, we seek to meet basic needs and start on the path to self-actualization. As we develop and grow to become adults, and go on to get married and have children, we realize that individual needs and goals cannot be met or fulfilled without also the attempt to meet the needs of the collective narrowly or broadly defined: namely as formed between spouses, with children, with aging parents, with friends, with co-workers and indeed with the wider community. The point

[9] Nancy Gallagher, "Space Governance and International Cooperation" (2010) 8:2 Astropolitics 13.

would be to help actors understand the logic behind cooperation and to switch from a debate between the haves and have nots to a discussion of how best to enable space activity for all and to reduce barriers to cooperation for everyone.[10]

The hypothesis here is essentially that the existing emphasis on some topics of national or individual concern obscures the larger issues of international structural inequalities—lack of access, barriers to capacity building and technology transfer/absorption—while simultaneously magnifying issues related to market protectionism which are actually disguised as security issues. I claim that it is possible to correct this distortion while safeguarding the focus on global issues such as space sustainability. CAILian tools should express forms of cooperation that actually help to produce of reciprocal obligations to enable all participants.

## 0.3 Research Questions and Methodology

I, therefore, approach my hypothesis by questioning underlying philosophical and political assumptions: namely, the understanding of freedom of Outer Space for the benefit of all countries[11] that appears to provide the foundation for the whole issue, arguing that the provision of Article I OST may possibly be flexible enough to allow an interpretation in accordance with the current needs of the international community. I identify that the real issue with the current interpretation of the common benefit principle under Article I OST is that it is viewed as a *limitation* to the freedom of Outer Space instead of as a *condition* of freedom. While this distinction may appear to be semantic or a matter of perspective, failure to draw it is consequential because it makes discussion about equity and fairness circular, and implies that benefit-sharing as something of a burden rather than a positive obligation to fulfill to ensure that all can benefit. Some of the

[10] Jennifer Nedelsky, *A Relational Theory of Self, Autonomy, and Law* (New York: Oxford University Press, 2011).

[11] Despite that Article I OST refers to "countries," as the beneficiaries, I discuss throughout this thesis of States, to reflect the potential that the totality and multiplicity of actors that can be attributed to a State without being the government, as non-governmental actors are gradually being recognized and considered as vital participants of space governance.

perspectives of scholars such as Hobe[12] and Schrogl[13] are seen as particularly problematic in this regard because they appear to stress the dominant understandings of this underexplored obligation, without fully considering some underlying nuances.

There are five questions relating to general notions of freedom that are central to this thesis:

1. How are the freedoms of Outer Space used to gain benefits from space activities?
2. What can freedom mean when it is conjoined with common benefit?
3. What is the understanding of freedom granted from the perspective of both those exercising the freedom of Outer Space and those expecting that the freedom is exercised for their benefits or interests?
4. Which issues of contention continue to block the effort to lend significance to the notion of common benefit? and
5. What principles ought to govern the relationship of political units seeking to generate common benefit?

Cooperation is at the heart of all these questions; however, any form of collective action is beset with problems of strategic behavior and free riding. It is therefore inherent to any attempt to promote sustainability that the possible breakdown of cooperation be addressed; because a "realist" will claim that no one will take an obligation to cooperate seriously. Nonetheless, the contemporary context arguably provides relatively favorable conditions for solidifying an obligation to cooperate since:

1. The number and class of actors have increased and diversified. With more actors, there is increased opportunity for forms of cooperative behavior;

[12] Stephan Hobe, "Article I", in Hobe et al. eds, *Cologne Commentary on Space Law: Volume 1, Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009) 25
[13] Kai-Uwe Schrogl, "Legal Aspects Related to the Application of the Principle that the Exploration and Utilization of Outer Space Should be Carried out for the Benefits and in the Interest of All States Taking Into Particular Account the Needs of Developing Countries" in Marietta Benko & Kai-Uwe Schrogl, eds., *International Space Law in the Making* (France: Editions Frontiers, 1993) 219.

2. The threat of the cold war has subsided; and
3. The ascendency of the BRICS creates a situation of more polycentric governance underscored by the broader availability of technology. New cooperative networks such as the Inter-Islamic Network on Space Sciences and Technology (ISNET),[14] or new agencies such as the African Space Agency[15] are being proposed. The result is a gain for cooperation because it is difficult to have cooperation if one is dealing with a monopoly or duopoly. In the context where Africa and other emerging regions become space players, it makes sense to revisit the prospects of cooperation.

Despite these potentially favorable condition, one of the main ideas investigated in this thesis is that increasingly polycentric approaches to global space governance still require effective central institutions.[16] Ineffective multilateral institutions bear some responsibility for the current inadequacy of global space governance and benefit-sharing. Opposition has emerged in recent years to the centralized, but stalemated, mega-multilateral process I refer to here as *mono*centricism. Nevertheless, certain problems have a scale that is more amenable to one-off solutions in order to gather the resources to make a public good available. The idea is that by specializing and breaking down tasks into manageable pieces, perhaps a more effective decentralized global response to many governance issues will emerge. In other words, the perceived inadequacy of global institutions like the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) have in part led to the advent of *poly*centrism and it is important to see how

[14] Inter-Islamic Network on Space Sciences and Technology (ISNET) is an inter-state, non-political and non-profit agency. It is an independent, autonomous and self-governing institution under the umbrella of the Organization of Islamic Conference (OIC) Standing Committee on Scientific and Technological Cooperation (COMSTECH). Pakistan Space & Upper Atmosphere Research Commission (SUPARCO) is the host organization of ISNET. See Online: <http://www.isnet.org.pk/>.

[15] Timiebi Aganaba-Jeanty (2013) "Precursor to an African Space Agency: Commentary of Dr. Peter Martinez "Is there a need for an African Space Agency?"" 29:3 Space Policy 168; Peter Martinez, Is there a need for an African Space Agency, (2012) 28:3 Space Policy 142.

[16] See Scott Shackelford (2013) "Governing the Final Frontier: A Polycentric Approach to Managing Space Weaponization and Orbital Debris" American Business Law Journal, Forthcoming. Online; SSRN< http://ssrn.com/abstract=1972308 or http://dx.doi.org/10.2139/ssrn.1972308>; Joan Johnson-Freese & Brian Weeden (2012) "Application of Ostrom's Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit" 3:1 Global Policy 72.

networks can produce maximization of space benefits. It is proposed that this can only be achieved through a connection between strengthened global institutions and plural local initiatives through which all converge polycentrically upon a more CAILian approach.

Pogge[17] analyzes this possibility through his concept of *institutional cosmopolitanism* and the interplay of centralization and decentralization. The idea that people should be governed through a number of political units of various sizes without one being dominant is a version of sovereignty that he argues would lead to peace and security, reduction of oppression, global economic justice and respect for ecology and democracy. This understanding is instructive when new regional institutions such as the African Space Agency are proposed that could seek to strengthen access to space and other goods inadequately addressed or protected at the global level that affect emerging space nations.

Of consequence, the legal subcommittee of UNCOPUOS, where space governance issues are deliberated, has now finally recognized that it is in a state of flux and should re-invent itself. A new agenda on working methods of the committee is currently under discussion and proposals are in the process of development. However, according to its current chairman this much-needed discussion engendered scepticism from the African group.[18] There might indeed be some merit in scepticism, leading one to act with caution and question the ideas and motives of the powers that be. However, where a latecomer to the table attempts to contribute meaningfully to a system that appears flawed, the heart of the issue is how to respond to the philosophical Problem of the Criterion. In essence, the latecomer is trying to answer the question, "what is the extent of my knowledge and what the criterion for knowing is?" If we do not know what we do not know, how can we meaningfully engage?[19]

---

[17] Thomas Pogge (1992) "Cosmopolitanism & Sovereignty," 103:1 Ethics 48.
[18] Kai-Uwe Schrogl, "The New Debate on the Working Methods of the UNCOPUOS Legal Subcommittee" 105:1 Acta Astronautica 101.
[19] Timiebi Aganaba-Jeanty, "Why Africa Must Move beyond Sceptism to Influence International Law", *BusinessDay* (26 August 2014) Online<http://businessdayonline.com/2014/08/why-africa-must-move-beyond--scepticism-to-influence-international-law/#.VUOyECqF9sE>.

It is suggested that one of the causes of this state of flux in global space governance and particularly in implementing international space cooperation to the satisfaction of all, is that we do not know the scope and meaning of the "legal right" to benefit from space activities. An important question to ask therefore is "what do we make of principles or obligations that on their face appear to be indeterminate and unfulfilllable?" Does that place them outside the law or instead give broad resonance to the law? French[20] recognizes three levels of uncertainty to global justice: indeterminacy of scope (to what is it relevant?), of content (what does it require?) and of application (is such a concept something that can even be understood at the global level? These levels of indeterminacy give rise to additional questions concerning the means, methods and operational principles that might otherwise comprise a framework of implementation. In the space law context all three levels of indeterminacy are present. There is in short a relationship between justice and law but law will never completely fulfilll justice. This doesn't mean that law is not orientated towards justice; instead the law will sometimes announce what it is seeking to do to contribute to justice. In other words, "while the recourse to principle in political and legal debate can never anticipate the attainment of justice, this should not marginalize the significance [or the] relevance of striving for fairness at the global level, particularly between economically divergent States".[21] Article I (1) OST announces the form of justice that is sought and it is the aim that space benefits should be available to all that orients the justice outcome of the law.

The lens that this thesis seeks to use to analyze the problem of contemporary space governance is a Cosmopolitan Approaches to International Law (CAIL). Unlike classic Cosmopolitism, this lens is shaped by the Third World Approaches to International Law (TWAIL) School, which seeks to bring the perspectives of marginalized actors to the foreground. There are, however, limits to TWAIL that CAIL seeks to address. Cosmopolitanism is by now a well-worn concept. However, the way I link cosmopolitanism with a school of thought that I am sympathetic to (TWAIL) becomes the novel idea of this thesis. While CAIL will not be free from power asymmetries because there will always be polarity, it still chooses to focus on possible middle grounds rather than on extremes. Importantly, however, this thesis purposely does not delve specifically into a socio-legal assessment of third world perspectives (through interviews or questionnaires) but relies

[20] Duncan French, *supra* note 5.
[21] *Ibid*.

on a summary of the general sentiments expressed by marginalized emerging space nations at conferences and in writings. Its goal is to trace how the official discourse can be shaped toward a cosmopolitan outcome.

Another important question emerges from this new methodology or approach. What does one learn specifically from the space law context that prompts us to reorient the frame of analysis from TWAIL to CAIL? The reciprocity of relationships is not just about emerging nations wanting "in" but also about modes of cooperation and forms of enablement that will be multidirectional. It doesn't seek to empower just one group but acknowledges particular vantage points to ask how to assure sustainable space resources look to all. The CAIL test is whether international instruments enable participation. It is not a mechanical test but one that takes account of different levels of capacity. The answer to the "so what" question sometimes put to space law is that the law can help to foster a deeper commitment to translating our common sentiments of wonder and forging common obligations of stewardship. In the space context, everyone cannot be "in" in the same way, but bearing in mind the different places that actors come in, this thesis seeks to describe the processes through which enabling tools can be produced.

## 0.4 The Advent of Sustainability as a Concept Applicable to Space

In this thesis, space sustainability is explored as a justice claim that would unconditionally provide for the enablement of present and future others to ensure that benefits are shared from the use of space. "Sustainability" is now a widely invoked concept but there is as yet no consensus on the precise meaning of the term. The ordinary meaning of the word "*sustain*" is to maintain or endure, and bearing in mind that all conceptions of sustainability consider the future, sustainability can be simply defined as "the ability to maintain or support an activity over the long term."[22] In assessing the concept of sustainability, it must be realized that many bad programmes, practices and behaviors are sustainable and the idea that present circumstances and their present societal arrangements might be sustained is, in reality, the unsustainable thought for the majority of the

[22] Jana Robinson, "Space Sustainability: The Basis for Responsible Use of Space" (Paper delivered at the International Workshop on Space Policies, Beijing, 18-19 May 2011).

world's people.[23] Therefore, the cynical or *real politik* position would be that in fact, the concept of sustainability is simply a new label to hide:

1. The imposition of the will of a particular state or small group of states on others;[24]
2. A lowest common denominator dynamic;[25]
3. An attempt to erode and limit or elevate the powers of some states vis-a-vis others;[26]

4. The legitimation and maintenance of the unequal structures and processes that manifest themselves in the growing north and south divide. [27]

Marcuse[28] calls the pursuit of sustainability a delusion stating that getting to the "long run" entails conflicts, controversies, issues of power and redistribution of wealth: namely, conflicts that the sustainability slogan hides instead of revealing. Bell and Morse,[29] however, note that flexibility to the meaning of the term can be a strength in a diverse world, and that it is no surprise that there is still diversity in viewpoints regarding its meaning despite the often quoted World Commission on Environment and Development definition of sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." [30] They conclude, in agreement with Kidd[31], that there is no wrong definition and that the search for the "proper" definition of sustainability is futile. Kidd states that the key to avoiding controversy is for all who use the term to describe clearly what they mean by sustainability in the context of the specific problem being dealt with.

---

[23] Peter Marcuse (1998) "Sustainability is not Enough" 10:2 Environment and Urbanization 103.
[24] Daniel Bodansky (2000) "What's so Bad about Unilateral Protection to Protect the Environment" 11:2 European Journal of International Law 339 at p.342.
[25] Walter Carlsnaes et al. eds., *Handbook of International Relations* (London: Sage, 2002) at 539.
[26] Taylor Dinerman, "Sustainability: Just Another Excuse for UN Power Grab" online:(2009) Space Review <http://www.thespacereview.com/article/1358/1>.
[27] B.S. Chimni (2006) "Third World Approaches to International Law: A Manifesto" 8 International Community Law Review 3.
[28] Peter Marcuse, *supra* note 23.
[29]Simon Bell & Stephen Morse, *Sustainability Indicators: Measuring the Immeasurable*? 2nd edition (London: EarthScan, 2008) at 6.
[30] World Commission of Environment and Development, *supra* note 2.
[31] Charles V. Kidd (1992) "The Evolution of Sustainability" 5:1 Journal of Agriculture and Environmental Ethics 1.

That said, there are some broad underlying themes that cut across the sustainability literature such that some of the roots of sustainability can be identified as producing what might be called a baseline for definition. Kidd suggests that the contemporary view of sustainability in a broad sense has originated from the following six lines roots of thought:

1. Ecological/Carrying Capacity Root;
2. Resource/Environment Root;
3. Eco-development Root;
4. Biosphere Root;
5. Critique of Technology Root;
6. No Growth-Slow Growth Root.

It is suggested that the ecological core of the concept of sustainability is crucial and permeates the other roots.[32] The basis of the ecological root is the notion that an ecosystem can only contain a certain density of individuals because each individual utilizes resources in the system. Too many individuals (overshooting the carrying capacity) results in overuse of the resources and eventual collapse in the population.[33] As sustainable development involves a delicate balancing of competing environmental, social and economic interests, the claim is that without ecology and carrying capacity at the core, environmental, social and economic interests have no space to share.

At the conceptual level sustainability is said[34] to be represented by a change in a property referred to as "system quality." It equates a situation where quality either remains the same or increases and if quality declines, the system can be said to be unsustainable. This is in line with its definition from one legal perspective whereby it is proposed[35] that a deeper meaning of sustainability is systemicity.[36] According to the systemic view, sustainability is the self-evident term for the

[32]Simon Bell & Stephen Morse, *supra* note 29 at 7.
[33] *Ibid*
[34] *Ibid* at 12.
[35] Micheal Decleris, *The Law of Sustainable Development: General Principles* (Luxembourg: Office for Official Publications of the European Communities, 2000) at 63.
[36] *Ibid* at 64.

dynamic equilibrium between man and nature and for the co-evolution of both within the Gaia[37] mega-system. On a practical level this can be understood as a requirement of "harmonization of all public policies and social practices and their convergence towards ensuring the co-evolution of manmade systems and ecosystems."[38] It is this harmonization and convergence that makes it a modern conception of justice, "focused on social justice, justice towards nature and future generations and justice between private individuals." [39]

**Definitions of Space Sustainability**

The Secure World Foundation[40] defines space sustainability as "*ensuring* that all humanity can *continue* to use outer space for peaceful purposes and socioeconomic benefit." It is also described as "the *ability* of all humanity to *continue* to use outer space for peaceful purposes and socio-economic benefit over the long term" [emphasis added]. It is proposed that read together these broad definitions seem to take as their premise that:

1. All humanity has thus far been using space for peaceful purposes and for socio-economic benefit;
2. This use is being or has the potential to be threatened;
3. That measures must be taken to protect it; and
4. That *all humanity* currently has the ability (in the sense of having a skill or the capacity) to ensure space sustainability for peaceful purposes.

[37] The Gaia system is understood as a compound of the geosphere and Biosphere. The Gaia theory proposes that all organisms and their inorganic surroundings on Earth are closely integrated to form a single and self-regulating complex system, maintaining the conditions for life on the planet. See James Lovelock, *The Vanishing Face of Gaia: A Final Warning* (London: Basic Books, 2009) at 255.
[38] Micheal Decleris, *supra* note 35 at 76-77.
[39] *Ibid* at 77.
[40] Secure World Foundation is private operating foundation that promotes cooperative solutions for space sustainability and the peaceful uses of outer space. The foundation is extremely active in international discourse regarding space. *See* Secure World Foundation, "Space Sustainability: A Practical Guide" Online: Secure World Foundation <http://swfound.org/media/1808/space_sustainability_booklet.pdf>.

Under this conceptualization, the negative effect of not using space sustainably is primarily economic.[41] Bearing in mind the governmental origins of space exploitation, where market economics did not play a primary role in decision-making, the growing focus on the economic perspective in space affairs seems to acknowledge Carolyn Deere's opinion that problems can emerge in the international domain from an absence of powerful economic interests.[42] Of course, as more space applications are developed, economic interests become more prevalent in that market protectionism then underlies the rationales for many positions taken.

Space sustainability has also been conceptualized as *defining* good behavior, its boundaries, and disincentives for negative behavior in space.[43] Space sustainability then becomes a much more limited political concept calling for specific measures to strengthen norms, including[44]:

1. An International Code of Conduct – The European Union have proposed a non-binding voluntary code whose purpose is "security, safety, sustainability" for all space activities providing for general measures on space operations and space debris;[45]
2. The Scientific and Technical Subcommittee of UNCOPUOS working group objective of establishing guidelines for the long term sustainability of outer space activities;

[41] It is stated on the website that "If we do not use space sustainably, the cost of using space will increase, which could make it too expensive to continue to use space" – Online: Secure World Foundation <http://swfound.org/our-focus/space-sustainability>.
[42] Carolyn Deere, "Sustainable International Natural Resources Law" in Marie-Claire Cordonnier Segger & Ashfaq Khalfan eds., *Sustainable Development Law Principles, Practices, & Prospects* (New York: Oxford University Press, 2004) at 301.
[43] Theresa Hutchins, "Space Sustainability: International Efforts to Bound Space Activity" (Paper delivered at CSIS –Space Enterprise Council, 21 July 2008) Online: CDI <http://www.cdi.org/pdfs/csisjuly08.ppt>.
[44] *Ibid*. See also Dumitru-Dorin Prunariu, Space Sustainability: Setting a Technical Baseline for New Regimes, (Presentation at UNIDIR Space Security Conference 2011: Building on the Past, Stepping Towards the Future, 4 April 2011); UN Committee on Peaceful Uses of Outer Space, *Long Term Sustainability of Outer Space Activities: Preliminary Reflections*, UN Doc. AC105/C1_2010/CRP.3 (2011); Theresa Hutchins (2015), "Forwarding Multilateral Space Governance: Next Steps for the International Community" CISSM Working Paper.
[45] European Union, *Revised Draft Code of Conduct for Outer Space Activities* (2010) Online: Council of European Union < http://www.consilium.europa.eu/uedocs/cmsUpload/st14455.en10.pdf>.

3. Proposed "ICAO for Space"[46] – The establishment of an international organization focused on space safety and the establishment of binding safety standards similar to the International Civil Aviation Organization (ICAO);
4. Industry efforts for a global Space Situational Awareness database.
5. Group of Governmental Experts (GGE) on Transparency and Confidence Building Measures

Depending on the forum for discussion and in line with the above-mentioned initiatives, the concept of space sustainability is therefore also often used interchangeably with the following notions:

1. Space Security[47] - entails access to space and freedom from threats;
2. Space Stability[48] - entails having space situational awareness;

[46] T. Sgobba, "An ICAO for Space?" (Presentation of the IAASS, 2007) Online: CDI <http://www.cdi.org/pdfs/Sgobba.pdf> .

[47] The Space Security Index Report defines space security as "the secure and sustainable access to, and use of, space and freedom from space-based threats" Space Security Index, *Space Security 2011: Executive Summary* (Ontario: Pandora Press, 2011) at 1.This definition is in line with European and Atlantic perspectives to space security, see Xavier Pascoe, *A European Approach to Space Security* (Cambridge: American Academy of Arts and Sciences, 2009) and Nancy Gallagher, "A Reassurance Based Approach to Space Security" ( Prepared for the International Security Research and Outreach Programme International Security Bureau, October 2009), Online: CISSM < http://www.cissm.umd.edu/papers/files/a_reassurance_based_approach_to_space_security.pdf>. The United Nations Institute for Disarmament Research also hold an annual conference on space security but has a narrower conception of space security as it is more focused on arms control and confidence building measures necessary for space security. For selected publications and activities relating to space security, see Online: UNIDIR < http://www.unidir.org/bdd/focus-search.php?onglet=3>. Also said to be about preserving the safety of the space environment for space actors, so that they may continue to use outer space for their purposes. See Peter Martinez, "Current International Space Security (Sustainability) Activities/Initiatives" (Paper delivered at ISU SSP 2010 - Space Security Theme Day, 2010) Online: SWF <http://swfound.org/media/31123/Martinez-Space%20Security%20initiatives.pdf>.

[48] Frank A. Rose, "Strengthening Stability in Space" ( Remarks given at United Nations Institute for Disarmament Research (UNIDIR) Space Security Conference 2011: Building on the Past, Stepping Towards the Future, Geneva, Switzerland, 4 April 2011) Online: US Department of State < http://www.state.gov/t/avc/rls/159671.htm>.

3. Space Safety[49] - entails protection from all unreasonable level of risk (primarily protection of humans or human activities);
4. Responsible Use of Space. [50]

These all reflect the two components of space sustainability as described by the founder of Secure World Foundation:[51] "the first is the physical environment, which includes management of space debris, electromagnetic and physical crowding and congestion, and space weather…The second component is the political environment, and includes promoting stability and preventing conflict between nations." Bearing the above in mind and notwithstanding the potential confusion caused by the interchangeability of terms used, at the core of all proposals conceptualizing space sustainability or related concepts is the notion that:

1. Space assets should be kept safe/secure and harm should not be caused to them or by them;
2. Peaceful space activities should continue as they are free from purposeful/intentional or unintentional harmful interference;
3. The space environment must be preserved;
4. International cooperative efforts are required.

These four points are understood to be the current core conditions for and of space sustainability. It must be acknowledged that space sustainability is therefore severed from the ecological roots of the idea of sustainable development.

**Rationale for Space Sustainability**

The proposed baseline conditions for the current conception for space sustainability coincides with Gallagher's analysis of the logic for space cooperation as "Space Governance for Global Security" where all space actors seek "to secure the space domain for peaceful use; to protect space assets

[49] Tommas Sgobba, "Space Safety in a Globalized World" ( Paper delivered at ESRIN, 20 October 2008) Online: IAASS < www.iaass.org/files/pdf/ESRIN%20-Safety-Lecture.pdf>.
[50] Wolfgang Rathgeber et al,. eds, *The Fair and Responsible Use of Space: An International Perspective* (Germany: Springer, 2010).
[51]Quote attributable to Cynthia Arsenault in Megan Ansdell et al., (2011) "Analyzing the Development Paths of Emerging Space Nations: Opportunities or Threats for Space Sustainability" Online: SWF< http://swfound.org/media/46125/emergingspaceactors_report-august2011.pdf>.

from all hazards; and to derive maximum value from space for security, economic, civil, and environmental ends."[52] Based on this understanding therefore, the current conception of and rationale for space sustainability ties more clearly to global security than to sustainable development. This logic emphasizes that "the more different countries, companies, and individuals depend on space for a growing array of purposes, the more they need equitable rules, shared decision-making procedures, and effective compliance mechanisms to maximize the benefits that they all can gain from space, while minimizing risks from irresponsible space behaviors or deliberate interference with legitimate space activities."[53] Important to note that this differs from the manner in which the concept of security is structured in international law, namely the application of UN Charter 2(4) and Art 51 plus the customary right of self-defense.

While it is acknowledged that such a need exists, the difficulty in reaching agreement on how to bring it about may be a reason why some States are more focused on producing a *dialogue* on long term sustainability. This can be seen in the proliferation of reports outlining best practices and options that could enhance sustainability through increased information sharing as well as a focus on technical issues rather than on the creation of any new legal regimes. To minimize some of the risks of non-sustainable space use, Weeden proposes a three pillar technical approach to space sustainability has arisen: debris mitigation, debris removal and space traffic management. [54] This is conjoined with an immediate need for data in support of conjunction assessment and collision avoidance. This emphasis on data sharing/collection includes enabling research into potential solutions to the problem of space debris, and enhancing transparency and cooperation among States. Weeden also suggests that this apparently narrow approach to space sustainability could serve both to educate space actors about the severity of the space debris problem and to provide stability so as to reduce the likelihood of conflict. A common approach to data could also serve as verification for a potential Code of Conduct in space, setting the stage for future space governance models.

---

[52] Nancy Gallagher, *supra* note 9.
[53] *Ibid*.
[54] Brian Weeden, "Space Sustainability: To Preserve and to Protect" *Satmagazine* (March 2009) 17. Online: Satmagazine < http://www.satmagazine.com/2009/SatMag_Mar09.pdf>.

These proposals are all in line with the logic of sustainability for global security, while this logic is in line with the dominant conceptualization of benefit-sharing and freedom of outer space, the position taken in this thesis is that it does not adequately speak to sustainability from the perspective of aspirant space States. To do so requires a significantly broader discussion and solutions aimed towards aligning space law and policy with the sustainable development paradigm.

A systemic, sustainable development law approach calls for a conscious engagement with the web of overlapping social environmental, cultural and legal frameworks as well as cultural considerations, economic policies, expectations, players and interests.[55] Bearing in mind current U.S. Space Policy,[56] such a broad overarching objective may not be achievable as part of the dialogue on the "Long Term Sustainability of Outer Space Activities" but U.S. policy regarding preservation of the space environment nevertheless offers insights because international initiatives in line with it may be likely to garner the most support.

Schrogl has proposed[57] that sustainability is rendered operational focusing its application to threats and risks to satellite operations. This apparently narrow approach nevertheless acknowledges the intersection of multiple issue areas:[58] environment, security, mobility, knowledge, resources and energy. This intersection of issue areas is more akin to the wider discourse of sustainability development of and on the Earth, and prompts a discussion of value to emerging and aspirant space actors. Otherwise, the dominant conceptualization of space sustainability removes any focus upon providing for the needs of those not among the most advanced space nations.[59] This problem is highlights in Peter and Rathgeber's definition of space sustainability:

---

[55] Marie-Claire Cordonier Segger & Ashfaq Khalfan eds., *Sustainable Development Law Principles, Practices, & Prospects* (New York: Oxford University Press, 2004).
[56] US, *National Space Policy of the United States* (28 June 2010) Online: White House <http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf>.
[57] Kai-Uwe Schrogl et al.,eds.,*Threats, Risks & Sustainability – Answers by Space* (Austria: Springer, 2009).
[58] *Ibid*.
[59] Nicholas Peter & Wolfgang Rathgeber, "How to Raise the Space Sustainability Consciousness of Emerging Space Actors, (Paper delivered at the International Astronautical Congress, Hyderabad, India 24-28 September 2007) Online: ESPI< http://www.espi.or.at/images/stories/dokumente/presentations/2007/peter-rathgeber-iac07.pdf>.

> "Sustainable space activities can be seen as activities (in space, from space, through space and towards space) that *meet the needs of the **present** space actors* without comprising the ability of future generations to meet their own needs of performing space related operations safely." [60]

Peter and Rathgeber claim[61] that the emergence of new institutional space actors, particularly from the "South", is putting a greater pressure on the space environment and that the participation of the South in space sustainability efforts is unsatisfactory. Yet the role of less advanced nations in sustainability initiatives seems mostly to be on the "receiving end" in that advanced nations seek with engage newcomers to space during the early phase of the development of future directives and codes of conduct for sustainable space activities, not really to seek input but to ensure that their compliance.[62] Their space activities are judged as either threats to or consistent with space sustainability rather than as part of articulating the content of space sustainability.[63] This suggests that for national space programs of established space nations, a truly international focus to space sustainability will take a back seat.

It is interesting to note at this juncture is that a fundamental provision (Principle V) proposed by a group of developing States during the development of the Space Benefits Declaration[64] went from the final draft. It is worth stating in full for emphasis:

> "1. All States should pursue their activities in Outer Space with due regard to the need to preserve Outer Space, in such a way as not to hinder its continued utilization and exploration.
> 2. States should pay attention to all aspects related to the protection and preservation of the Outer Space environment, especially those potentially affecting the Earth's

[60] *Ibid*.
[61] *Ibid*.
[62] *Ibid*.
[63] Megan Ansdell et al, *supra* note 51.
[64] UNGA, *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries*, GA res. 51/122, UN Doc. A/AC.105/572/Rev. 1 (1996).

environment.

3. States with relevant space capabilities and with programmes for the utilization and exploration of outer space should share with developing countries on an equitable basis the scientific and technological knowledge necessary for the proper development of programmes oriented to the more rational utilization and exploration of Outer Space."[65]

Paragraph 3 here is fundamental and truly revealing when read in the light of the analysis of Schrogl.[66] Schrogl claims that Principle V takes up the problem of space debris, which might endanger future space utilization to a significant extent. However, he also states that "the wish [of the Developing countries] to be informed about debris prevention measures voiced in para. 3 is ***reasonable but actually needs no mentioning*** since these technological developments are discussions and documented publicly to the greatest extent."

Andsell et al. have suggested[67] that forging an understanding of the rationale and development paths of all space actors, in particular emerging ones, is critical to engaging these actors in the promotion of space sustainability, and Peter and Rathgeber[68] have proposed bridging the participatory gap through cooperation and other forms of exchange with the "North" and "established space actors" including data sharing, knowledge transfer and discussion fora/core groups. While such proposals at least open the door to a broader conception of space sustainability in the North, it is important to ask whether actors have indeed oriented themselves toward fulfilling the responsibility inherent in the existing space law regime. Are they holding themselves accountable for inadequacies of their own procedures? How well has a cooperation ethic been internalized? After all, aspirational norms are best tested by the extent to which agents and legal subjects have made them part of their identity.

The rhetoric of inclusion is pervasive in that all actors purport to pursue it and can point to instances of adherence. Even positions articulated by developing States today can be read to suggest that the

---

[65] UNCOPUOS*, Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes*, UN Doc A/AC.105/C.2/L.182 (9 April 1991).
[66] Kai-Uwe Schrogl, *supra* note 13 at 207.
[67] Megan Ansdell et al, *supra* note 51.
[68] Nicholas Peter & Wolfgang Rathgeber, *supra* note 59.

status quo is adequate since there are limits to what the law can require.[69] Nesiah has even gone so far as to argue that in the current landscape, a focus on what States can do for each other is misguided because it contributes to the production of legitimacy for empire.[70] She also argues that it is not enough to situate critique outside existing normative structures, suggesting that it is important to enable developing States to produce real change taking account of the existing framework. In other words, how can the existing framework enable all countries to foster capabilities in a way that is of mutual benefit to all?

Lopez[71] succinctly offers insights on the space sustainability concerns and priorities of three emerging space nations in Latin America, asking how these actors define space sustainability, what actions they are taking to address it, and their views on space sustainability mechanisms under development. The common themes that emerge are threefold. First that space sustainability has clear linkages with parallel concerns over sustainability on Earth namely the issue of access and that the need to ensure that the interests, needs and limitations of developing countries is duly recognized in sustainability discussions. Secondly, Lopez highlights that involvement at the multilateral international level is an important priority shared by these actors.

One way to address this is through better understanding of the benefits of cooperation. The North American Aerospace Defense Command, a collaboration between Canada and the United States that conducts aerospace warning, aerospace control, and maritime warning in the defense of North America, provides an example of collaboration at the highest level which acts as a fruitful model for cooperation on space sustainability issues. The proposed pathway is for potential partners to start from sharing information to creating conditions of interoperability, to full integration of projects and, finally, partnership on mission goals. In order to get to this point, it is instrumental that there is an effort to enable partnerships where capacity differs.

---

[69] Luis F. Castillo Arganaras (2000) "Benefits Arising from Space Activities and the Needs of Developing Countries" Proceedings of the 43rd Colloquium of Outer Space 50.
[70] Vasuki Nesiah (2006) "Resistance in the Age of Empire: Occupied Discourse Pending Investigation" 23:5 Third World Quarterly 903.
[71] Laura Delgado Lopez (2016) "Space Sustainability Approaches of Emerging Space Nations: Brazil, Colombia, and Mexico" Space Policy, In Press, Corrected Proof.

Bearing in mind these insights, Dennerley[72] also highlights an important consideration from emerging nations perspective that is very relevant in the development of technology and responses to space sustainability, largely that what often occurs in the realm of international standard setting is that countries aim to embed their technology into international regimes, essentially making their technology the industry standard. This he highlights causes a potential inequality between emerging and established space nations which he suggests can be offset through education and capacity building in space law, establishing and maintain an increased international presence in various for a, thus becoming engaged at the standard setting table pushing for standards that are informed by principles of open access, interoperability and non-discrimination and increased cooperation.

This thesis, therefore, undertakes to analyze closely the hierarchy of possible benefits and to propose how we might imagine a positive feedback loop to build increasing cooperation between those on the margins of space activity and those gaining the greatest benefit from space. A CAILian conceptual tool (the Space Benefits Hierarchy) is proposed[73] that pushes us in the direction of seeing how multiple actors relate to each other.

## 0.5 So What Approach Will Save the Day? Thesis Format

So is it polycentric or monocentric approaches that will address these issues and save the day? Can one avoid the negative aspects of a regime complex,[74] whereby clusters of efforts are neither integrated nor fully fragmented, but rather loosely coupled and linked in a variety of ways, sometimes conflicting or mutually enforcing. Keohane & Victor[75] underscore that such a regime complex arises from three generic forces that have led to the failure to govern sustainability and common benefit issues under one centralized authority:

---

[72] Joel A. Dennerley (2016) "Emerging Space Nations and the Development of International Regulatory Regimes," Space Policy, In Press, Corrected Proof.
[73] See Chapter 3 of this thesis below.
[74] Xavier Liao, "Consolidate the global space governance with regional cooperation mechanisms as building blocks" (Paper delivered at SWF 2012 Beijing Space Sustainability Conference, 8-9 November 2012).
[75] Robert O. Keohane & David G. Victor (2011) "The Regime Complex for Climate Change" 9:1 Perspectives on Politics 7.

1) distribution of interests;

2) uncertainty among countries about the benefits of action and compliance in the face of costly commitments; and

3) the struggle to find productive linkages among issue areas.

The challenges involved in resolving these forces are compounded by problem diversity, political difficulties and path dependence. This thesis seeks to make a case for why it is important for both polycentric and monocentric governance approaches to be developed as there are benefits to both, as a CAILian theoretical lens will help us to see.

The options for format of this DCL thesis as either a manuscript- (article-) based thesis or a classic thesis serves as an analogy. Inspired by the work of Professor Rod Macdonald,[76] I acknowledge that forms of presentation are important; and through my choice of thesis format, I seek to do for space law what he did for the law of secured transactions. Monocentric governance is analogous to the traditional thesis and polycentric governance is analogous to a manuscript-based thesis. I have chosen to present my thesis as a manuscript-based thesis. According to McGill rules "As an alternative to the traditional thesis format, the thesis research may be presented as a collection of scholarly papers of which the student is the author or co-author; that is, it can include the text of one or more manuscripts, submitted or to be submitted for publication, and/or published articles reformatted according to thesis requirements."[77] I find this effective because each of the chapters of this thesis stand-alone independently and tell their own story. Much like polycentricism, once a small-self-sufficient well-structured manuscript is formulated and published, the author is in a position to play with ideas from other works, eventually fostering a larger scale body of work that has coherence but can speak to different audiences. Five of the chapters of this thesis are either published in or have been submitted to reputable journals geared to the space sector.

Interestingly, however, from the monocentric perspective:

---

[76] Roderick Macdonald & Jason Maclean (2005) 50 "No Toilets in the Park" McGill Law Journal 721.

[77] Instruction for a manuscript based thesis, Online: McGill University: <http://www.mcgill.ca/gps/thesis/guidelines/preparation#manuscript>.

> "Manuscripts for publication are frequently very concise documents. The thesis is expected to be a more detailed, scholarly work than manuscripts for publication in journals, and must conform to general thesis requirements. Note: These papers cannot alone constitute the thesis; the thesis must contain additional text that will connect them, producing a cohesive, unitary focus, and documenting a single program of research. A Manuscript- (or Article-) based thesis will be judged by the examiners as a unified, logically-coherent document in the same way as a traditional thesis is judged."[78]

Therefore, despite all the ideas of polycentricism and the manuscript approach, if there is no "cohesive unitary focus (which) document(s) a single program of research" there is no thesis. In essence both thesis styles have the same final objective as do both of these approaches to global space governance.

## 0.6 Barriers for Implementation of Proposal/Limitations

This thesis is epistemological as well as ontological. It is epistemological because it asks what we know about the certain justice claims related to space benefits and how we come to frame what we know. It is ontological as well because it deals with questions concerning what entities exist or can be said to exist, and how such entities can be grouped, related within a hierarchy, and subdivided according to similarities and differences. Here I acknowledge my own subjectivity because my engagement in space activities began from a developing country perspective, as a legal affairs and international cooperation trainee at the Nigerian Space Research and Development Agency (NASRDA), despite the fact that I was born in England and the majority of my academic education and social orientation is European/Canadian. This declaration frees me to step back and say that I attempt to speak from an understanding of both sides of the development divide, without being a true master of either. This centrist position is therefore subject to substantial destabilization by those on either side of the ideological divide and in part explains my quest for cosmopolitanism.

[78] *Ibid*.

Despite my experience in Nigeria, one particular limitation already alluded to is that this thesis does not present a socio-legal methodology for defining who is an emerging space actor, a developing country or "Non-traditional partner" or assembling from their direct views through techniques such as interviews or surveys. That had been an original intention of the thesis, but it encountered difficulties of practical implementation. Instead, I relied on the perspectives of authors such as Danielle Wood[79] and Torsten Kriening[80] who had engaged in substantial interviewing of non-classical emerging space actors from States such as Oman, Nigeria and Saudi Arabia. While this freed me to focus on my analysis, I nonetheless acknowledge that in this regard I have relied in some measure on third party interpretations.

Due to the approach taken to the thesis (manuscript-based) there are some areas of duplication in the chapters, where it was necessary to re-explain concepts previously mentioned. However, in each case, prior arguments were built upon, and therefore it is important not to skip parts which may seem repetitive as there are nuances in the arguments relevant to the issue discussed in that chapter.

## 0.7 Roadmap for Thesis

This introduction has presented the problem of giving legal significance to the common benefit of outer space and space sustainability. It has as well identified its hypothesis, research questions and methodology for addressing the problem. An adapted version of this introduction was published in *Astropolitics* journal under the title "Space Sustainability and the Freedom of Outer Space".

Chapter one gives a theoretical foundation to the common benefit/interest principle in Article I (1) of the Outer Space Treaty and outlines the issues facing non-traditional partners, understood as emerging and aspirant States, who are new actors in the space endeavor. This chapter is published in *Acta Astronautica* journal and is titled "Common Benefit from a Perspective of "Non-traditional

[79] Danielle Wood & Annalisa Weigel (2012) "Charting the Evolution of Satellite Programs in Developing Countries-The Space Technology Ladder" 28:1 Space Policy 115; "Building Technological Capability within Satellite Programs in Developing Countries " (2011), 69:1 Acta Astronautica 1100.
[80] Torsten Kriening, *Space Training for Emerging Markets* (MSc Thesis, International Space University, 2012) [unpublished].

Partners": A Proposed Agenda to Address the Status Quo in Global Space Governance."

Chapter two provides an in-depth analysis of conceptions of freedom as they apply to the international space law regime. It also centers the claims of the developing States in the development of that regime and proposes conceptual tools, namely the Space Benefits Constant and Space Benefits Hierarchy, to assist in finding solutions to cooperation problems.

Chapter three presents the foundations of Cosmopolitan Approaches to International Law (CAIL) by exploring strengths and weakness of the Third World Approaches to International Law (TWAIL) School. This chapter was originally written for the Dean Maxwell and Isle Cohen Doctoral Seminar, McGill University, Montreal, Canada, 23rd August 2014 and has been adapted for journal publication. It has been published in the *Space Policy Journal* and is titled "Introducing the Cosmopolitan Approaches to International Law (CAIL) lens to analyze governance issues as they affect emerging and aspirant space actors."

Chapter four explores an example of a polycentric initiative by assessing the development of an African Space Agency. This chapter seeks to explore whether benefit-sharing would make more sense if implemented regionally so that a region like Africa can speak with a stronger voice at the global level. It concludes that if a justice outcome is sought, a CAILian approach will have to elaborate a practice of hospitality among plural legal orders, understood as polycentricism. Properly understood, cosmopolitanism must seek to sustain the development of pluralist institutions that can continue to be refashioned for a future justice. This entails that there will be a practice of cosmopolitan law and not simply a perspective that is cosmopolitan. A version of this chapter was published in the *Space Policy Journal* in August 2013 in a viewpoint titled "Precursor to an African Space Agency: Commentary on Dr. Peter Martinez "Is there a Need for an African Space Agency?" For the purposes of this thesis, the chapter is retitled, "The Case for a Polycentric Approach to Global Space Governance: The Example of the Proposed African Space Agency."

Chapter five presents the conclusions of the thesis, namely that despite the plurality of orders developed to address space governance issues, there also needs to be priority placed on ensuring that global institutions are strong. While polycentric initiatives can indeed strengthen the

elaboration of global public goods such as benefit-sharing and space sustainability, a strong coordinating institution serves as to avoid the negative aspects of a space regime complex.

# CHAPTER 1: Common Benefit from A Perspective of "Non-Traditional Partners": A Proposed Agenda to Address the Status Quo in Global Space Governance

## 1.1 Introduction

In its report on Government Space Programs[1], Euroconsult tracks and reports on over 80 countries that are investing in or have announced future plans to invest in space technology development. For the majority of these countries, International Cooperation is one of the cornerstones of the national space program. However, in assessing cooperation initiatives ranging from those of established space-fairing nations such as the U.S., to new entrants such as Ghana, it appears that cooperation between entities of varied technical capability may not be as widespread as the increasing numbers of space capable/aspirant countries would lead us to believe. For example, in 2011 50% of NASA's cooperation was with only 8 partners,[2] with many of the other established space nations only cooperating with traditional partners.

In a bid to increase its cooperation with non-traditional partners, NASA acknowledges that its cooperation guidelines may need modification. According to Ciccarelli[3], space cooperation with developing countries requires three main actions:

1. Capacity building, education and training;
2. Access to information and data sharing;
3. Technical assistance and technology transfer.

[1] Euroconsult, Profiles of Government Space Programs, 2014 Edition.
[2] Michael O Brien, "International Cooperation at NASA" (Paper delivered at the Asia Pacific Regional Space Agency Forum, Singapore December 8, 2011).
[3] Silvia Ciccarelli, Space Cooperation with Developing Countries: The Case of Morocco, 2006, Online: <http://ojs.uniroma1.it/index.php/JMEG/article/viewFile/3130/3114>.

Of relevance to these emerging nations primarily interested in capability development, NASA's guidelines dictate that cooperation be structured to protect against unwarranted technology transfer. In a similar light Blasano[4] states that in cooperation with non- member states, the European Space Agency (ESA) adopts a minimum technology transfer approach only transferring information and data necessary for carrying out a particular project. However, she posits that" it is clear that in the case of cooperating with developing countries, the minimum technology transfer approach will have to be adapted as it makes no sense to cooperate on a quid pro quo basis with countries which do not have the minimum technology needed to derive benefit from ESA's space technology."

As highlighted by Sadeh,[5] while technology transfer is not traditionally allowed, it would be allowed if it is within the scope of the actor's policy preferences and if it is necessary to technical functions. However, in the face of acknowledgements that adaption and modification in cooperation guidelines is required and as the need for know-how technology transfer and training opportunities is an increasingly important criterion for emerging space nations, can established space nations be encouraged to view the need for more favourable conditions for the benefit of non-traditional partners as more in line with policy objectives?

To answer this question and if nations are true to their objective of wanting to cooperate more with non-traditional partners, there must be an acknowledgment that some legal aspects of concern are consistently overlooked because foundational disciplinary issues remain unexplored. This article proposes that an assessment of the legal framework governing international cooperation in space activities calls for a re-reading of space law that promotes increased space cooperation between States and various actors that encourages the spread of space benefits to all. It argues that the Declaration on International Cooperation (the Space Benefits Declaration)[6] develops only part of

---

[4] Anna Maria Balsano (1994) "Technology Transfers and Public International Research Organizations: The Example of ESA" Proceedings of the 37th Colloquium on the Law of Outer Space 121.

[5] Eligar Sadeh, *Dynamics of International Space Cooperation* (Ph.D. Dissertation, Colorado State University, 1999) [unpublished].

[6] UNGA, *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries*, GA res. 51/122, UN Doc. A/AC.105/572/Rev. 1 (1996).

the significance of the common interest/common benefit principle in Article 1(1)[7] of the Outer Space Treaty[8], thus there is still opportunity to fill in the meaning of the "legal right" to international space cooperation and space benefit.

## 1.2 Sources of Law

According to Jakhu and Freeland,[9] the Outer Space Treaty is not the constitution of Outer Space, but a principal (framework) treaty laying down important principles for outer space governance "that may be confirmed, developed upon, or varied". The work of Duncan Kennedy,[10] a Critical Legal Studies Scholar, is instructive in analyzing this point. Kennedy's thesis is that the main barrier to social transformation is the reification and "fetishization" of the law that society has, and that fundamentally, there are two important issues that arise from the indeterminate character of the law that is portrayed by "the system" and society as largely determinate. First, the pretense that law is determinate mystifies social life encouraging people to think that the practices codified in law are fixed and frozen, and that so long as their immediate or fundamental rights are protected they cannot/ should not complain. This, in turn, discourages them from political action aimed at transforming the content of rights so as to realize the emancipatory potential of law.

Secondly, it maintains the status quo which is to the benefit of capitalism and the bourgeoisie because "the system" knows how to hide or use that indeterminacy to its advantage. The system has created "discipline" in the Foucault[11] sense in that most people are not willing to challenge it as they have been conditioned to accept the ideologies of capitalism. Thus, despite the

---

[7] "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."

[8] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, 27 January 1967, 610 UNTS 205, 18 UST 2410, TIAS No 6347, 6 ILM 386 (entered into force on 10 October 1967) [Outer Space Treaty/OST]..

[9] Ram Jakhu & Steven Freeland (2013) "The Sources of International Space Law" Proceedings of the 56th IISL Colloquium on the Law of Outer Space 4.

[10] Duncan Kennedy, *Legal Reasoning: Collected Essays* (Davies Group Publishers, 2008).

[11] Michel Foucault, *Surveiller et Punir* (Paris: Gallimard, 1975) ; *Discipline and Punishment*, Trans. Alan Sheridan (New York: Random House, 1977).

acknowledgement that Article I OST appears indeterminate, that it is in a legal form makes it appear determinate so no one knows what to do and thus subject to the very problem that Kennedy is highlighting.

The more obvious way to address this issue is to direct exploration efforts towards identifying any unseen bottlenecks in the Space Law that is preventing International Cooperation in Space and suggesting corrective measures. However, it is clear that finding direct bottlenecks in the text and wording will be difficult because the wording was left purposefully vague. I, therefore, approach this problem by questioning underlying philosophical and political assumptions: namely, the understanding of freedom of Outer Space for the benefit of all countries[12] that appears to provide the foundation for the whole issue, arguing that the provision of Article I OST may possibly be flexible enough to allow an interpretation in accordance with the current needs of the international community.

I identify that the real issue with the current interpretation of the common benefit principle under Article I OST is that it is viewed as a *limitation* to the freedom of Outer Space instead of as a *condition* of freedom. While this distinction may appear as simply semantics or a matter of perspective, the effect of this misnomer is consequential because it makes discussion about equity and fairness circular, and benefit-sharing as something of a burden rather than a positive obligation to fulfill to ensure that all can benefit. Some of the perspectives of some notable space law scholars are seen as particularly problematic in this regard because they appear to stress the dominant understandings of this underexplored obligation, without fully considering some underlying nuances. It could be as a result of some of these analyses, of which this current piece could also be guilty that Jakhu and Freeland state that "the contemporary practice of the international judicial bodies shows a noteworthy reluctance to use scholarly writings as a means to search for the *lex lata* of international law".[13]

[12] Despite that Article I OST refers to "countries," as the beneficiaries, I discuss throughout this thesis of States, to reflect the potential that the totality and multiplicity of actors that can be attributed to a State without being the government, as non-governmental actors are gradually being recognized and considered as vital participants of space governance.
[13] Jakhu & Freeland, *supra,* note 9.

## 1.3 Conditions of Cooperation

According to Jasentuliyana[14], the matter of access to space benefits is "ultimately a question of the nature of international cooperation among states." Underdal,[15] however, highlights that the important question in the study of International Cooperation is to determine under which conditions cooperation will be effective.

Historically, there has been little need to even discuss know-how technology transfer opportunities when an assessment is undertaken of the forms of cooperation between established space nations such as the U.S. and developing countries. NASA's cooperative activities historically were placed neatly into four categories: information exchange, personnel exchange, operations support and cooperative projects.[16] While NASA credits itself that the other 50% of its cooperation agreements are undertaken with over 100 other countries, Hudiburg's[17] study found that International Cooperation between NASA and the majority of developing countries was predominantly caused by "mere latitude and longitude of a foreign nation". Essentially, the only requirement for the type of cooperation NASA was engaging in with developing countries was based on an "appropriate global position". Anecdotal evidence shows that there was plenty of enthusiasm by countries to be involved in operational support for NASA programs because countries could associate themselves with the space age even though they contributed little but their territory. [18]

Today, an assessment of the space related cooperation agreements with developing countries currently published by the U.S. State department on its website[19] predominantly show standardized

---

[14] Nandasiri Jasentuliyana, "Ensuring Equal Access to the Benefits of Space Technology for all Countries" in Chia-Jui Cheng, ed., *The Use of Airspace and Outer Space for all Mankind in the 21st Century* (The Hague: Kluwer Law International, 1995) 207 at 217.
[15] Arild Underdal (1992) "The Concept of Regime "Effectiveness"", Working Paper 2.
[16] Don Kash, *The Politics of Space Cooperation* (West Lafayette, IN: Purdue Research Foundation, 1967) at 50.
[17] John Hudiburg (2006) "Techno-Political Space Cooperation: A Longitudinal Analysis of NASA's Bilateral and Multilateral Agreements" Proceedings of the 49th Colloquium on the Law of Outer Space.
[18] Don Kash, *supra*, note 16.
[19] Online: <http://www.state.gov/s/l/treaty/tias/>.

agreements for initiatives such as access to Landsat data and access to networked activities such as the GLOBE initiative. However, as more technical cooperation is required, Hudiburg therefore asks "what are the conditions that influence the amount of NASA's international cooperation with often developing country partners?" His answer is centered on the collective good nature of space products.

The collective good rationale can be better explained through Sadeh's[20] concept of structural conditioning which he argues happens when a powerful state government entity extends cooperative benefits to others. This process is structurally generated because a dominant national space agency influences others on the basis of an asymmetric distribution of resources and knowledge to adopt cooperative policies that are congruent with its preferences. Hernades[21] highlights that the possible benefits for established space nations to cooperate with new comers in space include:

1. Access to new brains, new ways of thinking, new cultures;
2. Development of "new markets";
3. Improved projects;
4. Better political links.

In line with point 2 above, some emerging space nations still hold the view that established space nations *simply* cooperate to sell technology to developing countries instead of to share knowledge. For instance,, assessment of some MOU's with the UK Space Agency reflects agreements towards this aim.[22] As stated by Leister[23] "a true transfer of know how does not take place. This policy is unsatisfactory for developing countries that want to participate in space research and exploration not only as recipients of the benefits to be derived but as partners in formulating decisions which have international implications."

---

[20] Eligar Sadeh*, supra* note 5.
[21] Daniel Hernades (2004) "Promoting North-South Partnership in Space Research and Applications" 34: 10 Advances in Space Research 2190.
[22] See MOU's with Mexico and Kazakhstan.
[23] Valnora Leister (1981) "International Cooperation in Outer Space: Extending the European Model" Proceedings of the 24th Colloquium on the Law of Outer Space (1981) 207 at 208.

Over the past 20 years, private industry has sought to step in to provide the much desired Know-How Technology Transfer (KHTT) services. Despite commercial initiatives such as the UK government supported Surrey Satellites Ltd. KHTT Program, perspectives from some emerging space nation commentators[24] maintain that the benefits of these initiatives have been limited thus far and real technology transfer is not achieved, rather dependence is breed. Surprisingly little studies exist as to the effectiveness of these KHTT programs. However, based on the results of a survey by Buhl et al,[25] of 20 governments KHTT programs with four companies,[26] five programs were successfully completed, four are ongoing, there has been a host change five times and two programs have been stopped. They have identified a number of reasons for what they call the low success rate in technology transfer programs with small satellites, namely: Conflicting goals of client stakeholders, overly complex missions (all in one go), and conflicting goals of host and client (business model).

Conflicting goals, however, reflects the competitive nature of space engagement between countries. According to space power theory, which is derived from the realist school of thought, "the proliferation of space technology is a foe rather than a friend, because it contributes to military and economic competition; and, above all, it empowers the exercise of the threat of force in, through and from outer space." [27] The rivalry for leadership between the U.S. and the USSR at the dawn of the space age arguably was not based on their desire to increase their knowledge of outer space but their common aim to gain power-political advantages. Von Welck[28] highlights that the most important means of political space power is information and knowledge of outer space, autonomous space transportation systems, human presence in space and the self-determination and willingness to use outer space for the maintenance and extension of a country's status as a world power. When the U.S. had a monopoly on the market for space technology, it

[24] Peter Martinez (2012) "Is There a Need for an African Space Agency" 28:3 Space Policy 142.
[25] Matthias Buhl et al., "BST Training Program - A New Paradigm for Successful Technology Transfer" (Paper delivered at the 8th IAA Symposium on Small Satellites for Earth Observation., Berlin, Germany, 24 – 28 April 2017).
[26] SSTL (UK), TU Berlin (Germany), Astrium (FR), Satrec Initiative (South Korea).
[27] Anna Burzykowska (2009) "Smaller States and the New Balance of Power in Space" 25:3 Space Policy 187
[28] Stephan .F. von Welck (1986) "Outer Space and Cosmopolitics" 2:3 Space Policy 200.

used its monopoly in the area of space transportation systems to hamper the entry of other states into the market for communications and remote-sensing satellites and services. Von Welck[29] details several examples of this policy including the conditions NASA attached to the launch of the Franco-German communications satellites Symphonie 1 and 2 in the 70's whereby NASA only agreed to launch the satellites on the condition that France and Germany undertook not to use the satellites for commercial purposes.

Such behavior even among allies has in part led to calls for increased South-South cooperation between emerging actors who are more closely aligned with similar objectives. However, apart from extensive discussion of the CBERS earth observation satellite cooperation between China and Brazil,[30] there is little literature on South-South cooperation. Cooperation between Thailand's Geo-Informatics and Space Technology Development Agency (GISTDA) and the National Space Organization (NSPO) of Taiwan aims to promote technical activities, human resources development as well as infrastructure development in both countries. However, according to the proponents[31]"extending the project beyond cooperation of ground station and technology workshop and training, to technology transfer project and IPR partnership can be very beneficial" and may be more likely than with more established space partners.

In assessing cooperation agreements presumably based on "mere latitude and longitude" such as those for the use by NASA of foreign territory for space shuttle abort landing sites; according to Nakatani[32] the agreements with the developing countries are more favorable to the U.S. than other agreements with its more traditional partners and reciprocity does not exist. For instance,, while the U.S. shall notify the landing states in advance of the launch, unlike the other countries, Spain

[29]Stephan.F. von Welck, (1987) "The Export of Space Technology: Prospects and Dangers" 3:3 Space Policy 221.
[30] Yun Zhao (2005) "The 2002 Space Cooperation Protocol Between China and Brazil" 21:3 Space Policy 213; Laura Delgado (2012) "Sino-Latin American Cooperation: A Smart Move" 28:1 Space Policy (2012) 7.
[31] Pirada Techavijit & Ravit Sachasiri (2012) "Towards International Cooperation and Capacity Building between Space Agencies: A Case of GISTDA and NSPO" 33 Proceedings of the Asia-Pacific Advanced Network 15.
[32] K. Nakatani (1997) "Bilateral Agreements on Shuttle Contingency Landing Sites: Practical Application of the Basic Concepts and Provisions of the Outer Space Treaty and other Agreements in Air and Space Law" Proceedings of the 40th Colloquium on the Law of Outer Space 205.

shall reply following request meaning that it can refuse the request for possible landing and France also reserves the right to refuse access to its territory or to terminate visit of the persons for reasons of law order or security. Secondly, while the Senegalese Government shall be held responsible for damage or loss to persons associated with the space shuttle program in Senegalese territory in case of gross negligence or an act or omission committed with malicious intent, the Government of the U.S. shall waive any claims against the French government for any damage that could be caused to its own personnel and equipment or those of its contractors. Nakatani concludes, however, that while no apparent reciprocity exists it is easily conceivable that the favourable agreements are in exchange for economic aid.

## 1.4 The Space Benefits Declaration

What is rarely assessed, however, is the role interpretation of the legal framework plays in encouraging increased International Cooperation between countries of disparate technological experience?

Frustrated that developing countries were not fully participating in space activities and in a bid to attempt to create a legal regime that would ensure that more of the benefits of space would reach the developing countries through increased international cooperation, in 1986, the Venezuelan delegation proposed a new agenda item for the Legal Subcommittee of COPUOS titled "Equitable access by States to the benefits derived from space technology." The primary objective was to give meaning to Article I of the Outer Space Treaty through codifying the rights and responsibilities of States with respect to equitable sharing of space benefits and international cooperation in outer space activities. The ideological debate the agenda item engendered led to adoption of the *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All Sates, taking into Particular Account the Needs of Developing Countries* in 1996.[33]

The majority of the adopted provisions are neutral, having no direct preferential bias towards the developing countries. The most substantial and determining provisions in the Declaration, namely

[33] Declaration on International Cooperation, *supra*, note 6.

that states are free to determine all aspects of their cooperation and would choose the most efficient and appropriate mode of cooperation consolidates the view of the developed countries and appeared to put an end to the objective of the developing countries of a regime that would ensure and obligate developed countries to share benefits in a way that was more meaningful to them.

According to Benko and Shrogl,[34] the Declaration had three broad impacts, namely: to provide an authoritative interpretation of Article I of the Outer Space Treaty; to cement the freedom of outer space while reminding space powers to fulfill their obligation and it paved the way for the avoidance of future ideological debate. But, that it provides an authoritative means of interpreting the Treaty is debatable considering that no specific mention of agreed intent to make the Declaration an authoritative interpretation appears in the text of the Declaration or in the drafting records.[35] Lepard[36] queries, but does not answer the question, "To what extent have the political and ethical objectives of the Space Benefits Declaration achieved?" Carpanelli and Cohen`s[37] examination of State practice following adoption of the Declaration indicates consistency between States actual conduct and the principles enshrined in the Declaration, as evidenced through the various bilateral agreements and affirmation in multilateral contexts such as UNISPACE, however, in agreement with Tronchetti, [38] it is evident that even if the Declaration represented an important contribution to the development of international space law it did not solve the doubts related to the interpretation of Article I(1) OST. In fact according to Djapo, [39]the all-important goals of the developing countries in creating indigenous capability in space science and technology, as well as to secure the transfer of space technology were missing and in sum "this document adds very little,

[34] Marietta Benkö & Kai-Uwe Schrogl (1997) "History and Impact of the 1996 UN Declaration on 'Space Benefits'" 13:2 Space Policy 139.
[35] Elena Carpanelli & Brendan Cohen (2012) "A Legal Assessment of the 1996 Declaration on Space Benefits on the Occasion of its Fifteenth Anniversary" 38:1 Journal of Space Law 1-38 at p26.
[36] Brian Lepard, "The Legal Status of the 1996 Declaration on Space Benefits: Are Its Norms Now Part of Customary International Law" in Irmgard Marboe ed., *Soft Law in Outer Space* (Bohlau Verlag, 2012) 289 at 290.
[37] Elena Carpanelli & Brendan Cohen, *supra*, note 35.
[38] Fabio Tronchetti, *The Exploitation of Natural Resources of the Moon and Other Celestial Bodies* (Martinus Nijhoff: Leiden, 2009).
[39] Gordana Milinic Djapo, *Outer Space Activities, International Cooperation and the Developing Countries* (LLM. Dissertation, McGill University, 1998) at 82 [unpublished].

if anything, to the body of international law and state practice." More interestingly, upon assessment of the first developing country draft of the Space Benefits Declaration[40], it emerges that a fundamental provision (Principle V) is missing from the final draft of the Space Benefits Declaration adopted that the developing States had deemed important in their draft and it is stated in full for emphasis:

> "1. All States should pursue their activities in Outer Space with due regard to the need to preserve Outer Space, in such a way as not to hinder its continued utilization and exploration.
> 2. States should pay attention to all aspects related to the protection and preservation of the Outer Space environment, especially those potentially affecting the Earth's environment.
> 3. States with relevant space capabilities and with programmes for the utilization and exploration of outer space should share with developing countries on an equitable basis the scientific and technological knowledge necessary for the proper development of programmes oriented to the more rational utilization and exploration of Outer Space."

Paragraph 3 here is fundamental and ground-breaking revelation when read in the light of the analysis of Schrogl.[41] Schrogl highlights that Principle V takes up the problem of space debris which might endanger future space utilization to a significant extent, however, he also states that " the wish (of the Developing countries) to be informed about debris prevention measures voiced in para. 3 is reasonable but *actually needs no mentioning* since these technological developments are discussions and documented publicly to the greatest extent.

---

[40] UNGA, *Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes*, UN Doc A/AC.105/C.2/L.182 (9 April 1991). The working paper is annexed in Kai-Uwe Schrogl, "Legal Aspects Related to the Application of the Principle that the Exploration and Utilization of Outer Space Should be Carried out for the Benefits and in the Interest of All States Taking Into Particular Account the Needs of Developing Countries" in Marietta Benko & Kai-Uwe Schrogl, eds., *International Space Law in the Making*, (France: Editions Frontiers, 1993) 219.
[41] Kai-Uwe Schrogl, *ibid*.

It is important to stress here that I do not highlight developing States perspectives to push for one side of the divide versus the other, due to my acceptance of convergence hypothesis, which acknowledges that what emerging space nations will want from the global system will eventually come to more closely match the preferences of today's established players. Any analysis that relies on the category "Developing State" must necessarily subject its own categories to constant critique and scrutiny, revision, interrogation, deconstruction, and reconstruction. As highlighted by Narain, [42]categories structure the questions asked and inevitably, the conclusions reached. The importance of reinserting developing States interests into the dialogue becomes critical to reconstructing an understanding of law that can take into account their experiences, but doesn't seek to let those experiences dominate.

As such Hafner's[43] view is acknowledged that following adoption of the Space Benefits Declaration, the (established) spacefaring nations are no longer the only ones obliged to ensure benefit-sharing, as a positive duty exists to all States even if benefit-sharing is carried out by other States. While this acknowledges that an obligation did exist for benefits to flow from industrialized to developing States under Article I OST, he argues that it no longer limits activities but ensures positive affirmative action by all, including the developing State. From the developing State perspective, this interpretation creates a burden on the recipient country that did not appear apparent under Article I OST, but it is proposed by this research was always there and these countries helped to express that through their first draft of the Space Benefits Declaration.

This position calls for an opportunity for a re-reading of Article 1 of the Outer Space Treaty that can be used to explain the meaning of the Declaration in a more meaningful way. In essence; an opportunity to read the Declaration in a manner consistent with a positive account for the benefit of all countries. To so requires answering the questions, what is the understanding of the liberty granted to explore Outer Space from the perspective of both those exercising the freedom of Outer Space and those expecting that the freedom is exercised for their benefit and interest?

---

42 Vrinda Narain (2013) "Muslim Women's Equality in India: Applying a Human Rights Framework" 35:1 Human Rights Quarterly 91.

[43] Gerhard Hafner, "The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States" in Irmgard Marboe ed., *Soft Law in Outer Space* (Bohlau Verlag, 2012) at 268.

## 1.5 Freedom of Outer Space

First, Article 1 OST should be understood to be hierarchical and a nested provision that goes from general to specific obligations. Article 1 (1) OST sets the general principle to apply to exploration and use – that it should be for the benefit and interests of all. Then, given that activities are carried out for this purpose the provision states how it should be carried out in Article I (2) OST – equality of access to public good in accordance with law. Then in Article I (3) OST it states the specific form that should be the focus of cooperation is scientific investigation.

While States generally agreed that the way Article I OST is to be realized is through International Cooperation, scientific investigation is the only area that a direct and clear pleading for International Cooperation is made within the provision. According to Hafner,[44] the Outer Space Treaty therefore *restricted* the legal obligation of cooperation to scientific investigation and did not apply it to use and exploitation. It is clear that in cases where the problems sought to be addressed are either non-political with little economic interests such as planetary and space sciences, cooperation outcomes are enabled, however, Hafner's position is rejected here to enable assessment of a general obligation to cooperate.

Bourbonniere[45] argues that the freedom of use of outer space has been consistently interpreted as a negative freedom, namely the freedom from constraints in international law to physically achieve and maintain orbit, but that's not the only reason. The dominant understanding of common benefit/interest principle under Article 1(1) OST is that it is a *limitation* on the freedom of outer space granted in Article 1(2) OST. Here the common benefit/interest principle is seen in a negative light as a condition placed on the free will of the state that desires to engage in space activity.

[44] Gerhard Hafner, *Ibid.*

[45] Michel Bourbonnière, *Commercialisation of Remote Sensing, U.S. and International Law: Towards a Liberalization of Economic Regulations* (LLM. Dissertation, McGill University, 1997) [unpublished].

Several authors have emphasized this negative conception. According to Jasentiluyana,[46] Article 1(2) OST establishes the freedom to explore and use outer space conditional upon the limitation that the benefits of such exploration and use shall accrue to all countries. In a similar light, Hobe[47] states that Article 1(1) OST is to be interpreted as a limitation to the freedoms granted subsequently with due regard to the existing state practice. He argues that limitations are evident in the use of the common benefit clause and specific language including "for the benefit and in the interests of all countries" and "the province of mankind". From these perspectives, the focus is on the curtailment of the rights of the established space-faring nations and places a negative condition on space exploration and use.

As Benko and Schrogl[48] conceptualize it, the dichotomy is "Free Use of Outer Space vs. Space Benefits" and these two concepts are mutually exclusive and are pitted against each other. If an interpretation is taken that this limitation refers to a *means* of conducting space activities, then the legal requirement would be no more than a negative prohibition on States conducting activities that are detrimental to the interests of other countries.

**Rejecting the Dominant Conception**

It is proposed that this conception of the freedom should be rejected for four main reasons. First, Jakhu[49] states that "the 'common interest' in outer space is *reinforced* by other principles of international space law, including the 'freedom of outer space' and 'non-appropriation of outer space." By saying Article 1(1) OST is *reinforced* by further provisions itself reinforces the idea of supremacy of the concept and not its view as a negative limiting factor to a greater right. Secondly, taking an objective and teleological approach to interpretation of the provision, to say that Article

[46] Nandasiri Jasentuliyana (1989) "Article I of the Outer Space Treaty Revisited "15:2 Journal of Space Law, (1989) at 139.
[47]Stephan Hobe, "Article I", in Hobe et al. eds., *Cologne Commentary on Space Law: Volume 1*, *Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009) 25 at 36-39.
[48] Marietta Benko & Kai-Uwe Schrogl, "Article I of the Outer Space Treaty Reconsidered After 30 Years "Free Use of Outer Space vs. Space Benefits"" in G. L. Laferranderie & D. Crowther, eds., *Outlook on Space Law over the next 30 Years* (The Hague: Kluwer, 1997) at 67.
[49] Ram Jakhu (2006) "Legal Issues Relating to the Global Public Interest in Outer Space" 32:1 Journal of Space Law 31 at 38.

1(1) OST is a merely a limitation of Article 1(2) OST does not follow as the placement of the benefit principle in para. 1 and the freedom of Outer Space principle in para. 2 signifies that para 1 should be taken as the primary liberty. As pointed out by Hobe, the provision has a lead function and is designed not so much through the ambit of the freedoms of respective activities but rather through its respective limitations. Benko and Shrogl[50] highlight that the developing States had an objective to raise the statement of para 1 over para 2, acknowledging its importance. Thirdly, as the wording expressly states the reason for space activity; that "exploration and use...*shall be carried out for* the benefit and in the interests…" it thus gives a rationale for engaging in space activity rather than simply expressing a limitation to space activity, driven by the desire to curb self-interest. Fourthly, express limitations outside Article 1 OST are of a different nature to common benefit. Hobe states these limitations outside Article I OST have a different outlook and function and are aimed at the *consequences* of space activities.

**The Alternative Conception is Positive**

The alternative conception thus should be a positive conception of the freedom of outer space for the benefit and interests of all countries. That is to say that the apparent limitation (or rather condition) is nested in and is inherent in the freedom. Condition here is understood as something that has a significant influence on or determines the manner or outcome of something or which is indispensable to the existence of something else. This is as opposed to limitation understood as a restriction. As Hobe states, the freedoms get their shape through the conditions (which he calls limitations). The freedom exists through fulfilllment of and 'because of" the condition. It cannot exist "irrespective of" the condition so as to say that one can choose to exercise the freedom while contravening the condition and choose to pay the consequence. An entity cannot be said to explore and use outer space if it does so purely for its own interest, in that case, it is doing something else and not exercising the freedom of Outer Space. However, the rhetoric has always been that acting unilaterally in space is simply an extension of national policies on Earth that should be avoided

[50] Marietta Benko & Kai-Uwe Schrogl (1997) "History and Impact of the 1996 UN Declaration on Space Benefits" 13:2 Space Policy 139.

while cooperative action makes a substantial contribution towards "perfecting peace."[51] According to Djapo[52] "regrettably neither the United States nor the Soviet Union, at that time the only space capable nations, followed in practice this wise and humane recommendation".

The positive conception is in line with Latipulhayat`s[53] view that ``the common benefit clause appears to be an "enabling" clause in the sense that space faring countries should enable the non-space faring countries to participate more actively in space exploration and use. `` However, this positive conception of the freedom of outer space does not settle the argument as to whether there is a moral or legal obligation inherent in Article I. The idea of Article I in practice as being no more than a moral obligation is held by authors including Gorove[54]who states that the common benefits requirement is simply "an expression of desire that the activities should be beneficial in a general sense". [55] Even authors sympathetic to developing country concerns have taken a similar position.[56] Others have stressed its legally binding nature; [57] however, according to Ferrier,[58] in concurrence with Hobe, it is State practice that must be seen as the strongest indicator of whether

[51] U.S. Congress, Senate Special Comm. On Space & Astronautics, 85th Cong., Space Law – A Symposium, 558 (Dec 31, 1958).
[52] Gordana Milinic Djapo, *supra*, note 39.
[53] Atip Latipulhayat, "Privatization of Space Law-Negotiating of Commercial and Benefit-Sharing Issues in the Utilization of Outer Space" Proceedings of the 55th Colloquium on the Law of Outer Space 243.
[54] Stephen Gorove (1982) "Implications of International Space Law for Private Enterprise" 7 Annals of Air & Space Law (1982) at p.319; Bin Cheng, *Studies in International Space Law* (Oxford: Clarendon Press, 1998) at 234-235.
[55] Stephen Gorove, *ibid*, at 32; See also B. Maiorsky (1986) "A Few Reflections on the Meaning and Significance of 'Province of All Mankind" and "Common Heritage of Mankind" Notion" Proceedings of 29th Colloquium of the Law of Outer Space 58, 59; V. M. Postyshev (1990) "On the Question of Space Exploration for the Benefit of Humanity: A Modest Proposal" Proceedings of 33rd the Colloquium of the Law of Outer Space 236, 238.
[56] Luis F. Castillo Arganaras (2000) "Benefits Arising from Space Activities and the Needs of Developing Countries", Proceedings of the 43rd Colloquium of Outer Space 50 at .57.
[57] Marco G. Markov (1975) "Implementing the Contractual Obligation of Article 1, Par. 1 of the Outer Space Treaty 1967" Proceedings of the 17th Colloquium of the Law of Outer Space 136, 137.
[58] Jill Ferrier, *The Development of International Space Law: International Cooperation in Outer Space: Meeting the Needs of the Developing Countries* (LLM Thesis, McGill University, 1995) [unpublished].

such an obligation exists. Brisibe[59] highlights an approach[60] by selecting State practice from "both physical and verbal acts; the practice of the executive, legislative and judicial organs of a State; the practice of international organizations; the negotiation and adoption of resolutions by international organizations or conferences, together with the explanations of voting…" [61]

In analyzing State practice, Hobe[62] concludes that the provision is understood to be of a generally utilitarian nature whereby the equitable sharing means that any advantage derived for the space powers is considered to bring also advantages for the other states. Hobe's conclusion highlights how the positive conception of freedom can be divided into strong and weak variants, with his stance signifying the weak variant. This variant, which is the dominant position, acknowledges that there is a general obligation to ensure common benefit but holds that by the simple act of access, benefit is produced. As the space-fairing nation engages in space activity which generally adds to development and furthering science, all countries are said to benefit. The opposite variant, however, is the strong variant. This holds that as there is an obligation to produce benefit, unless it is demonstrated that benefit has been produced, the freedom is not exercised in accordance with the law. In effect, there must be a literal and practical demonstration of benefit for all space activities.

**The Weak Variant**

This variant argues that the simple act of access produces benefit. Through making the results of scientific space missions' available, as well as creating markets for space applications, space-

[59] Tare Brisibe (2009) "Customary International Law, Arms Control and the Environment in Outer Space" 8:2 Chinese Journal of International Law 375 at 383.
[60] Based on a methodology set out by the International Court of Justice in the North Sea Continental Shelf Cases, Judgement, 20 February 1969, ICJ Reports, 1969, 3.; Jean Marie Henckaerts & Louise Doswald-Beck, Customary International Humanitarian Law (2005), ICRC, Volume I—Rules, xxxii–xlii.;
[61] Tare Brisibe, *supra* note 59.
[62] Stephen Hobe, *supra* note 47 at 42.

fairing nations argue that the benefits of space are in fact made available to all countries.[63] Sadeh[64] explains it that the concept of structural conditioning earlier mentioned, is a "positive sum concept that is premised on the idea that *all states benefit* due to the actions of a hegemon. More generally, it is related to realism which sees cooperation as dependent upon the structure of interstate power: to provide benefits to others. The process is explicit, causal and externally generated in that the hegemon influences other states, based on power asymmetries to follow its policies".

Lee and Bourbonniere[65] argue that if Article 1(1) OST indeed would be operative, the legitimacy of the space activity would be conditional on it being "carried out for the benefit and interests of all countries," however, it does not create a presumption of illegitimacy simply because the space object has not been specifically designed to bring benefit and interests to the international community in general.

**The Strong Variant**

On the opposite spectrum, this variant argues that direct benefits to all countries, particularly developing countries, through special programs and funds is necessary to fulfilll the obligation. During the debate of the 1991 session of the Legal Subcommittee, several developing States introduced a working paper[66] with a draft set of principles to give meaning to Article I (1) OST. Hafner[67] states that the provisions required "obligatory cooperation, automatic transfer of financial

[63] Bryon Bittingham (2010) "Does the World Really Need New Space Law" 12:1 Oregon Review of International Law 31 at 39.
[64] Eligar Sadeh et al. (1996) "Modeling International Cooperation for Space Exploration" 12:3 Space Policy 207 at 211.
[65] Michel Bourbonniere & Ricky Lee (2007) "Legality of the Deployment of Conventional Weapons in Earth Orbit" 18:5 European Journal of International Law (2007) 873.
[66] UNCOPUOS, *Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes*, Working Paper Submitted by Argentina, Brazil, Chile, Mexico , Nigeria, Pakistan, Philippines, Uruguay and Venezuela, UN Doc. A/AC.105/C.2/L.182 of 9 April 1991. The working paper is annexed in Kai-Uwe Schrogl, "Legal Aspects Related to the Application of the Principle that the Exploration and Utilization of Outer Space Should be Carried out for the Benefits and in the Interest of All States Taking Into Particular Account the Needs of Developing Countries" in Marietta Benko & Kai-Uwe Schrogl eds., *International Space Law in the Making* (France: Editions Frontiers, 1993) 219.
[67]Gerhard Hafner, *supra* note 43 at 271.

and technological resources from North to South and obligatory access to relevant knowledge and information." While the sponsors of the working paper stated that the paper was not intended to limit the freedom of States to enter into cooperative agreements, much of the academic (western) analysis of the first draft of the working paper is predicated on the misinterpretation that the provisions would negatively affect state sovereignty despite that other delegations defended the draft principles as consistent with sovereignty. What these analyses fail to highlight are the qualifications to some of the so-called unacceptable "demands".

Ultimately, the developing States first draft was subsequently rejected. Shrogl[68] posits that the only constructive but simple reason that this draft was dropped should have been that "international cooperation should not be forced upon countries, because without shared interests cooperation cannot be fruitful". Following the submission of a new working paper by France and Germany[69] which sought to break the impasse between divergent views of the developing countries on the one hand and industrialized countries on the other, the final text developed from a merger[70] of the two proposals during the Legal Subcommittee session in 1996 resulting in Space Benefits Declaration discussed above.

**Rejecting Weak and Strong Variants**

Both the weak and strong variants of the positive conception of the freedom of outer space must be rejected because each variant benefits greater either the established space-faring nations on the one side or the developing or emerging nations on the other.

That is to say that the weak variant, which is dominant, is favored by space nations who would continue to argue that 1) many benefits have been recorded from their space activity and 2) as a

[68] Kai-Uwe Schrogl, *supra* note 66.
[69] UNCOPUOS, *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interests of All States, Taking info Particular Account the Needs of the Developing Countries*, Working Paper Submitted by Germany and France, U.N. Doc AéAC.105ÉC.2éL.197 of 24 March 1995.
[70] UNCOPUOS, Draft Resolution, Working Paper Submitted by the Chairman of the Working Group, U.N. Doc A/AC.105/C.2/L.202 of 27 March 1996.

practical matter, no state has asserted claims under the Treaty to results obtained through its space activities. This notion, however, fails to take into consideration that embedded in this idea that the simple act of access produces benefit is that it is entirely dependent on the will of the established space-faring nation how and whether benefits flow and what structural biases it may develop to prevent access. This is acknowledged by authors such as Jakhu[71] and Hurewitz.[72] Jakhu posits that states possessing launch technology attempt to control its proliferation not only for military reasons but also to maintain their political and economic hegemony whilst Hurewitz argues that the strict U.S. implementation of the Missile Technology Control Regime (MTCR) has led to restrictive, discriminatory access to outer space and a de facto appropriation of outer space for the benefit of a few nations. Following this same line of analysis Filho[73] argues that the MTCR sets up a system of discrimination without the consent of the international community.

These arguments reveal certain realities regarding the relationship between established space faring nations and aspirant countries: that certain countries are able to have access to space technology while others are not so as to "protect" the world from irresponsible users. This idea is apparent in U.S. imposition on launcher development programs of different countries including South Africa[74] and India. While existing debates focus on how U.S. industry has been affected by implementation of these rules, a non- traditional partner perspective seems to demand a focus on the use of international regimes to further imperial policies and reveals links between the U.S. security arguments and enduring structural bias in the regime. As highlighted by Jakhu[75] "from a legal perspective, it is strange to accuse States that are not parties to the MTCR of violating it, especially when this so-called regime is only an 'understanding' amongst third States."

---

[71] Ram Jakhu, *supra*, note 49.
[72] Barry Hurewitz (1994) "Non-Proliferation and Free Access to Outer Space: The Dual-Use Conflict between the Outer Space Treaty and the Missile Technology Control Regime" 9:2 Berkeley Technology Law Journal 211.
[73] Jose Monserrat Filho (1993) "The Place of the Missile Technology Control Regime" Proceedings of the 36th Colloquium on the Law of Outer Space 89.
[74] Henri Sokolski, "Ending South Africa's Rocket program: A Non Proliferation Success" NPEC, Online:<http://npolicy.org/article_file/Ending_South_Africas_Rocket_Program-A_Nonproliferation_Success.pdf>.
[75] Ram Jakhu, *supra*, note 49 at 28.

The strong variant must also be rejected as the developing States particularly could lay claim to the fact that all missions must be designed specifically to produce direct benefits to be shared, which may go contra to the freedom of states to decide their own activities. While Article I OST imposes the positive duty to ensure that the benefits of space exploration and use are made available to all countries, there is a lack of clarity as to what all countries are to benefit from, which could be taken advantage of, resulting in unrealistic demands. This is an important issue in the context of understanding if it's feasible to say there is a "legal right" to space benefit. What kind of right is it? What does it mean to have access to space benefit guaranteed by law? For whom and against who is it claimed?

Lee[76] questions whether it is the means of conducting space activities or the ends derived or ends achieved that is subject to the benefit obligation. To Jasentuliyana, [77]the term "benefits" would appear to be all inclusive and to relate to any kind of information or results obtained which have some usefulness for Earth-oriented applications. While this understanding would appear to exclude activities which are not specifically "Earth-oriented"[78], the importance of "space oriented" activities such as space situational awareness, space weather monitoring or space tourism could become increasingly important. However, in the near term, the important criteria of usefulness can be understood to mean that all States make meaning and do something with the information and results of space activity, such that States with the most benefits cannot just share information that adds little value, and do so at the time that is convenient for them.

To this end, it is unclear if there would be substantial differences between demonstration and sharing of direct, indirect and induced economic benefits; catalytic effects and social benefits. Essentially and obviously, direct economic benefit and social benefits related to defense and security would be the most complex to share, and would go contra to the general operation of most

[76] Ricky Lee, *Law and Regulation of Commercial Mining of Minerals in Outer Space* (Dordrecht: Springer, 2012) at 157.
[77] Nandasiri Jasentuliyana, *International Space Law and the United Nations* (The Hague: Kluwer Law International, 1999) at 175.
[78] Examples could include space situational awareness, space weather monitoring or space tourism.

of today's activities, both in governmental and commercial contexts.[79] One of the few contexts in which I can think of the sharing of direct benefits is under Impact and Benefit-sharing Arrangements, for well protected indigenous native Indian groups with treaty rights, but this, of course, applies nationally and is not an international obligation.

Secondly, the strong position fails to convey what is at stake regarding the view of the benefit principle as a contractual condition. It could be absurd that any signatory to the OST (which arguably has customary status and thus is applicable to the world at large) could stop a project that they are not directly involved in where they cannot find some other standing to be able to assert breach of condition. Finally, if the whole idea of positive freedom is to enable an actor to participate and become a full participant, this would need to involve a process with a series of steps. In essence, a test would be required to show that one has been enabled and has met various milestones. There cannot just be a right to benefit, but it must be acknowledged where the beneficiary stands in relationship to the right to be enabled; a situation which a strong variant position may reject.

It is proposed that failure of the initial developing States draft of the Space Benefits Declaration comes primarily from the calls for preferential treatment to the developing States with no reciprocity from the countries benefiting from such special treatment. The developing States requested "special and differentiated treatment." As pointed out by Ferrier,[80] objection to the wording was made on the basis that the idea of no reciprocity being asked from developing States benefiting from special and preferential treatment was inconsistent with the concept of cooperation being based on a mutuality of interests among all States. Secondly, the developing countries appeared to make property right like claims which appeared as *entitlements* as opposed to distributive justice claims which would be for the interests of all. Entitlements here are defined by

[79] Increasingly countries are engaging in socio-economic benefit assessments of national and international space programs and sectors to determine the benefits derived. As these benefits are more systematically quantified and standardized, the case of the strong variant position becomes easier to formulate. See Oxford Economics, "The Case for Space: Impact of Space Derived Services and Data", Online: Oxford Economics <http://www.oxfordeconomics.com/my-oxford/projects/129029> .

[80] Jill Ferrier, *supra* note 58.

Schlicht as:

> "Rights, as perceived by the individual. They are not, however, abstract legal rights. Rather they denote the subjectively perceived rights that go along with a motivational disposition to defend them. Obligations are the counterparts of entitlements. They refer to claims of others that are subjectively accepted, and go along with a motivational disposition to respect these claims."[81]

However, in defending this right to preferential treatment, it is clear that what is controversial under the Treaty is seeking a legal property right but in this case, the entitlement amounts to a moral property right that exists independently of a legal right, possibly bringing it within the purview of the provision. As such, even if the claims seem infeasible, they can be an effective device to influence negotiation processes.[82]

This idea may be caused in part by the link between Article 1 of the Outer Space Treaty and the concept of the Common Heritage of Mankind (CHM) found in the Moon Agreement.[83] However, bearing in mind that the concept has been rejected by the many nations, linking Article 1(1) OST to the Common Heritage Principle may not be overly helpful. Secondly, the confusion sometimes between the concept of "Province of Mankind" in Article 1(1) OST and CHM in Article 11 Moon Agreement should be clarified so that the distinction is clear. Authors including Schmidt[84] add to this confusion by positing that "the term "for the benefit and interests of all countries" in Article 1(1) OST *refers* to the concept of the Common Heritage of Mankind."

While the CHM in the Moon Agreement was meant to *build* on Article 1(1) OST, the two concepts must be distinguished to find a useful interpretation that moves away from the deadlock of the

---

[81] Schlicht Ekkehart, *On Custom in the Economy* (Clarendon Press, Oxford, 1998).
[82] Simon Gächter & Arno Riedl (2005) "Moral Property Rights in Bargaining with Infeasible Claims" 51:2 Management Science 249.
[83] *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, Dec. 5, 1979, G.A. Res. 34 68, 34 U.N. GAOR Supp. (No. 46) at 77, U.N. Doc. A 34 46 (1979).
[84] Yvonne Schmidt, "International Space Law and Developing Countries" in Christian Brünner & Alexander Soucek eds., *Outer Space in Society, Politics and Law* 1st Edition, (Springer Verlag, 2011).

Common Heritage of Mankind Principle. Tronchetti[85] highlights that `as a matter of fact, the Treaty introduces the principle of Province of Mankind as substantially differing from the Common Heritage of Mankind concept.`` Gabryonowicz[86] posits that the Province of Mankind provision of the Outer Space Treaty is not a specific legal maxim and a strategic distinction exists between the two concepts, specifically that the Province of Mankind provision refers to *"activities"* (exploration and use) and that the Common Heritage provision refers to *"material objects."* This "activities vs materials" distinction, according to Gabryonowicz provides a natural rationale to advance real activities such as the establishment of INTELSAT, an intergovernmental organization established to ensure access to satellite communication to all countries and heralded as a great example of implementation of Article 1(1) OST. However, with the claim[87] that the eventual privatization of INTELSAT could be contrary to Article 1 OST, it appears that neither the weak and strong variants to the positive conception are fully adequate positions. What is required therefore is a middle ground variant of the positive conception of the freedom of Outer Space acceptable to all parties.

## 1.6 A Proposed Agenda

Trying to find a middle ground position between the strong and weak variants of the positive conception of the freedom of Outer Space forces us to switch from the initial question posed (what is the understanding of the liberty granted from the perspective of both those exercising the freedom of outer space and those countries expecting that the freedom is exercised for their benefit and interests?) to answering the practical question; how can we better understand the conflicting positions between those on the margins of space activity and those gaining the greatest benefit from space? It recognizes that an emphasis on a one sided and non- reciprocal "legal right" to space benefit-sharing is not effective and must be looked at holistically.

---

[85] Fabio Tronchetti, *supra*, note 38.
[86] Richard Lewis, *Space in the 21st Century* (New York: Columbia University Press, 1990) at 157-158 citing Joanne Gabryonowicz.
[87] Francis Lyall (2000) "On the Privatization of INTELSAT" 28 Journal of Space Law 101.

A middle ground position proposes the three main issue areas to investigate to find solutions to some of the perceived tensions prevalent in space governance:

1. Who are the "Non Traditional Partners", who is speaking for them and what are their actual issues if any? My interest is not only in dramatizing disparities between countries or actors but in producing capacity in a domain that has classically been dominated by technically advanced countries. I want to move beyond the direct and important claim that "thou shall share benefit" and move it to an enabling mode that seeks to take the claim to enable partnership and participation. It, however, recognizes reciprocal obligations. I seek to develop a new lens and conceptual tools to analyze this. I call it Cosmopolitan Approaches to International Law (CAIL), inspired by the Third World Approaches to International Law (TWAIL) School of Thought. A CAILian approach can deconstruct the existing agenda in light of it obscuring the idea of shared benefits without attributing blame, scepticism or negativity. This is fundamental because TWAIL can be a polarizing position that can be quickly discounted or rejected. Because of this negative quality, TWAIL fails to produce constructive change as its characteristic seems to marginalize the very people it seeks to speak for. It is proposed that everyone may eventually have to shift centrically and adopt a more CAILian approach.

2. The Potential of Space for "Non Traditional Partners" and others. Space is not just some distance otherness but is important for the ability for us to perceive ourselves, manage our resources and inspire our potential. It is not simply a tool to show dominance or as part of a hubris of activities that show "development". But, it must be recognized that there are certain conditions that must be fulfilled as there is no free lunch. Ultimately, to maximize benefits, emerging participants have to be prepared to consider the following issues:

a) It is fundamental to focus on the ability to conceptualize first before looking for technology solutions otherwise technological projects will fail and look like white elephant projects;
b) There must be a willingness to "pay to play" at certain times because essentially space is a business/industry/sector where profit is an objective
c) Small players may first focus on developing niche strategies and technologies because "space" is a small and competitive sector and the average population will not understand "big" space projects in a challenging financial environment

d) There must be recognition that space is no longer just a domain for governmental activity. There must be a multiplicity and diversity of actors ready, willing and enabled to engage. This includes encouraging grassroots initiatives and taking note of the words of Abiodun[88] that "the acquisition of fundamental scientific knowledge and the evolution of the technologies needed to initiate, develop, design, fabricate, build and test, locally, a variety of hardware and software components, some of which may end up in a variety of products including space-related ones." In other words, for emerging nations, the immediate focus should be on investing in knowledge generation in the enabling technologies;

e) Perseverance is required!

These issues do not just apply to developing Countries in the global South as similar advice is given even in the European context.[89]

3. Assessment of South-South cooperation, regional cooperation and other forms of collective collaboration. For example, what will be the effect of the African Space Policy and the proposed African Space Agency[90] on African regional cooperation and the spread of space benefits to African countries and the world at large? This is a fundamental question because it reflects the practical implementation of the issue of monocentric vs polycentric forms of space governance[91] and which one is most ideal. When talking about monocentrism (Centralized governance institutions such as the United Nations), we must recognize that we are not simply in a monocentric setting with a top down governing institution like UNCOPUOS in one place as this may lead to a legitimacy crisis. It is therefore necessary to understand the limits of monocentricism and necessity of polycentrism.

---

[88] Abiodun Adigun Ade (2013) "Trends in the Global Space Arena - Impact on Africa and Africa's response" 28:4 Space Policy 283.

[89] *See* Erich Klock &Marco Aliberti (2014) "ESA Enlargement: What Interested Countries Can Do to Prepare Themselves for Ultimate Accession – With a Special Focus on the CEE Region" ESPI Report 47.

[90] Timiebi Aganaba-Jeanty (2013) "Precursor to an African Space Agency: Commentary of Dr. Peter Martinez "Is there a need for an African Space Agency"" 29:3 Space Policy 168.

[91] Scott Shackelford (2013)"Governing the Final Frontier: A Polycentric Approach to Managing Space Weaponization and Orbital Debris" American Business Law Journal, Forthcoming. Online at SSRN: <http://ssrn.com/abstract=1972308>;Joan Johnson-Freese & Brian Weeden (2012) "Application of Ostrom's Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit" 3:1 Global Policy 72.

In discussing polycentrism (de-centralized nodes of governance such as regional bodies) we recognize that the character of public goods are in favour of polycentrism but this can lead to a space regime complex[92] because there is control through devolution which could occur with no direction or concept of common benefit. Certain problems have a scale amenable to either one solution or multiple solutions but how is this played out in regional space collaboration? This assessment could highlight and identify the limits of polycentrism. An important feature of this to recognize is that international trends start with *bilateral* agreements, particularly through a relinquishment of rights, bold decisions of state actors and setting new standards,[93] however, at the global level access and benefit-sharing arrangements in existing central organizations like International Civil Aviation Organization could provide good models.[94]

## 1.7 Conclusion

One of the central claims of this thesis is that confusion exists due to the indeterminate nature of the idea of a" legal right" to benefit from space activities, however, a one-sided conception of a right to benefit is not feasible. But what do we make of principles or obligations that on their face appear to be indeterminate and unfulfilllable? Does that place them outside the law or give resonance for the law? French [95] in the context of global justice recognizes three levels of uncertainty: indeterminacy of scope (to what is it relevant?), of content (what does it require?) and of application (is such a concept something that can even be understood at the global level? What are the means, methods and operational principles which might otherwise comprise a framework

[92] Xavier Liao, "Consolidate the Global Space Governance with Regional Cooperation Mechanisms as Building Blocks" (Paper delivered at SWF 2012 Beijing Space Sustainability Conference, 8-9 November 2012).
[93] Lauren Small-Pennefather & Yu Takeuchi, "Space Debris Removal as a First Step to Realizing a Legal Framework for Space Traffic Management" (Paper delivered at 3rd Annual Manfred Lachs Conference, Montreal, Quebec, 16-17 March 2015).
[94] ICAO facilitates assistance through the Cooperative Development of Operational Safety and Continuing Airworthiness Programmes (COSCAPs) and supports Regional Safety Oversight Organizations (RSOOs), through which groups of States can collaborate and share resources to improve their safety oversight capabilities. The TrainAir plus programme is also a great benefit-sharing initiative as well as the "No Country Left Behind" initiative.
[95] Duncan French (2009) "Global Justice and the (Ir)relevance of Indeterminacy" 8:3 Chinese Journal of International Law 593 at 593.

of implementation)? In recognizing the uncertainty, it is still clear that there is a relationship between justice and law but law will never completely fulfill justice. This doesn't mean that law is not orientated towards justice and that the law will sometimes announce what it is seeking to do to contribute to justice. In other words, "while the recourse to principle in political and legal debate can never anticipate the attainment of justice, this should not marginalize the significance—the relevance—of striving for fairness at the global level, particularly between economically divergent States". Article I (1) OST announces the form of justice that is sought and it is the aim that space benefits should be available to all that orients itself to a justice outcome.

It is important to ask if the actors have oriented themselves to fulfill this responsibility. Are they looking for inadequacies of their own procedures? How well has this ethic been internalized? Aspirational norms are tested by the extent to which the agent/legal subject has made it part of their identity. However, it is clear that the rhetoric of inclusion is pervasive to the extent that all actors purport to uphold the obligation because they can point to instances of adherence. Even positions from developing States today could uphold this view through acknowledgement that there is a limit to the law. It is proposed that based on the current landscape, a focus on what other States can do for another contributes to the production of legitimacy for empire. It proposes that it is not enough to situate critic on the outside of normative structures but important to enable developing States to produce real change to take account of the existing framework. In other words, how can the existing framework enable all countries to foster capabilities in a way that is of mutual significance to all? It is proposed that this leads us to analyzing closely the hierarchy of possible benefits and how we can imagine a cycle of positive feedback to build increasing cooperation between those on the margins of space activity and those gaining the greatest benefit from space.

Today, no one current method or one radical solution can work 100% effectively by its self to change society, its views and its legal structures. The important thing therefore, is to educate society that change is within its power. Despite its appearance, the law has not fixed and frozen what one can hope to achieve. The law has immense emancipatory potential and if society acknowledges that it has been conditioned to think that so long as basic rights are protected, there can be no change, and that individually if we increase our efforts, then society can be transformed through the law! As such, there is still room to interpret Article I OST in a way that establishes a

middle ground between the strong and weak variants of the positive conception of the freedom of Outer Space, which fulfills the objectives of space sustainability. That is that all of us today and future generations can continue to benefit from space activities, while acknowledging that the creation of legal meaning to the concept entails the subjective commitment to an objectified understanding of the demand.

However, even if the relationship to the obligation is perceived as a failure, it is the effort to the approach that makes it worthwhile. The goal is so important that even if it is never fulfilled, we must continually orient ourselves towards the task. As expressed by Matte96 "even if the benefits derived do not meet expectations, the common efforts made towards the distribution of the benefits on an equitable basis may well prove to be gigantic steps on the path to establishing a new order of international cooperation." In conclusion and in moving forward we must not fail to alert ourselves to Derrida[97] and Negri/Hardt[98] who explained the need to understand and show reverence and acknowledgment to the past and our heritage and that our society has already shaped us to the extent that potentially any new ideas we have may come from that society that we are trying to change and the initial ideas from the original empire may be strong enough to creep into our new consciousness such that what we think are new ideas are jut old ideas explained in a different way. Here I acknowledge my own subjectivity because my engagement in space activities began from a developing country perspective, as a legal affairs and international cooperation trainee at the Nigerian Space Research and Development Agency (NASRDA), however, I was born in England and the majority of my academic education and social orientation is European/Canadian. This declaration frees me to step back and say I attempt to speak from an understanding of both sides of the development divide, without being a true master of either.

[96]N.M. Matte, *Aerospace Law, Telecommunications Satellites* (Toronto, 1982) at 215.
[97] Jaques Derrida, *Les Spectres deMarx* (Paris: Galilée, 1993); *Specters of Marx* Trans. Peggy Kamuf (New York: Routledge, 1994).
[98] Micheal Hardt & Antonio Negri, Empire (Harvard University Press, 2000).

# CHAPTER 2: Benefit-sharing and International Cooperation under the Outer Space Treaty and Space Benefits Declaration

## 2.1 Introduction

It is presupposed that there is a dominant position in interpreting the freedom of Outer Space which has not given much real significance to the idea of common benefit as an enabling outcome. The reason that this causes difficulty is that there is an ambiguity to common benefit. With no clear defined conception of common benefit, in the context of the freedom of Outer Space, it requires that we see the world and its inhabitants as a system that connects space, time, need and desire but does not identify individual benefit. To that end, it correlates to the principle of Sustainable development defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs,"[1] That is, every nation is free to determine how to meet its own needs and accrue its own benefits as long as it does not prejudice the ability of future generations to do the same.

This dominant position, however, sees the issue of benefit-sharing in the context of the apparent tension between established space faring nations and emerging and aspirant States and the idea that freedom could take on a different meaning depending on where one is on the scale of development. Despite all the focus on "access to space" issues for developing States, it fails to recognize that solutions to contemporary and historical governance challenges have been much less oriented towards the interests of these less developed States and new entrants, making the accrual and sharing of benefits dependent on the free will of those States able to carry out a variety of space activities independently. Unfortunately, the exercise of free will appears to be constrained. Ross[2] highlights time, notions, definitions and values, domestic laws of source or donation countries; and cost factors as primarily western relics of colonial domination that in this instance

[1] World Commission on Environment and Development (WCED), *Our Common Future* (Oxford: Oxford University Press, 198) at 43.
[2] Sara Ross, "Potent Cultural Objects and the Right to Culture: Repatriation, Return, and Res Extra Commercium" (Paper delivered at the Dean Maxwell and Isle Cohen Doctoral Seminar, McGill University, Montreal, Canada, 23rd August 2014), [unpublished].

are instrumental practical considerations in the working relationship between established and aspirant space actors and play a large role in how and if benefits of space activities are shared. Specifically the relics are all sources for barriers, namely:

1. Time: Timeline for accrual of benefit is controlled by the ability to access assistance;
2. Notions/definitions and values: Lack of definitions, opacity and indeterminacy of legal norms;
3. Domestic laws of source or donation countries: The regulation of State action in Outer Space is a strong factor influencing national activities and legislation of commercial activities;
4. Cost and market structures: In reality, Outer Space is used for the benefit of all States which can afford to pay for access, which depends upon either the internal markets for space products or the accessibility to international markets for space products.

These issues do not appear to be new issues for discussion. An attempt to re-address historical contentious issues, asserted to be resolved, may appear illusory or futile; however, such analysis can be useful depending on the account that the reader believes should be given to the normative character of human nature. To this end, the writings of legal, political and social theorists[3] and methodologies from Critical Legal Schools may prove insightful for a deeper contextualization of the historical debate, the current understanding of the freedoms of Outer Space as well as unearth future perspectives to aid in addressing the current pressing space related issue of our time that must be addressed through international cooperation: space sustainability.[4]

[3] Isaiah Berlin, Gerald MacCullum Jr. Duncan Kennedy, Abraham Maslow, Judith Butler, G.W Hegel, Jaques Derrida, Micheal Hardt & Antonio Negri, Amartya Sen, Matthew Hoffman.

[4] The Secure World Foundation defines Space Sustainability as "ensuring that all humanity can continue to use outer space for peaceful purposes and socioeconomic benefit." It is also described as "the ability of all humanity to continue to use outer space for peaceful purposes and socio-economic benefit over the long term". Secure World Foundation is private operating foundation that promotes cooperative solutions for space sustainability and the peaceful uses of outer space. The foundation is extremely active in international discourse regarding space. *See* Secure World Foundation, "Space Sustainability: A Practical Guide" Online: SWF <http://swfound.org/media/1808/space_sustainability_booklet.pdf>.

The point would be to help actors understand the logic for the cooperation argument and to switch the debate from the haves and have nots to a situation where everyone has the same need to ensure that space activity is possible and that barriers to cooperation are barriers to everyone. The hypothesis is essentially that the shift from a politics of structural difference to an emphasis on some topics of national or individual concern obscures the larger issues of international structural inequalities—lack of access, barriers to capacity building and technology transfer/absorption—while simultaneously magnifying issues related to market protectionism which are actually disguised as security issues. There is a need to correct this while safeguarding the focus on global issues such as space sustainability. Understanding cooperation systems is central to this but it is acknowledged that any form of cooperation behavior/common action is set with strategic behavior and free riding so it is inherent to the nature of sustainability to discuss the breakdown of cooperation and exploitation because the realist stance is that no one will take a cooperation obligation seriously.

However, the inadequacy of rights discourse to address the need for greater access to the benefits of space or to account for the nuances of convergence theory and the fact that Ferrier[5] proposes it is better to pursue it on a bilateral or smaller multilateral basis and to focus on initiatives that instigate change from the bottom up. This would call for a new theoretical approach which I call Cosmopolitan Approaches to International Law (CAIL)[6]. Practical tools developed under this framing include the Space Benefits Constant and the Space Benefits Hierarchy are described herein to better explain the necessary conditions of such an approach in the development context.

## 2.2 Conceptions of Freedom: A Theoretical Exposition

Some space law authors have previously attempted to make the tenuous link between general notions of freedom and the freedom of Outer Space,[7] but have not fully developed the argument

[5] Jill Ferrier, *The Development of International Space Law: International Cooperation in Outer Space: Meeting the Needs of the Developing Countries*, (LLM Thesis, McGill University, 1995) [unpublished].
[6] See Chapter 3 of this thesis.
[7] C.Wilfred Jenks, *Space Law* (London: Stevens and Sons, 1965) at 193,256,259; Ram Jakhu, *Outer Space Law and Law of Telecommunications*, (DCL Thesis, McGill University, 1983) at 146

or the concept, which I will herein attempt to do. According to Isaiah Berlin,[8] there are two concepts of liberty (or freedom)[9] that can be seen as rival, incompatible interpretations of a single political idea: Negative and Positive Liberty. The state of nature of negative liberty is the absence of obstacles, barriers or constraint; one is truly free when there is no interference from other persons. Positive liberty on the other hand, is the possibility or fact of acting in such a way as to be in control of one's life. A decision depends on the individual and not on external forces and it requires the presence (contra the absence) of something. These conceptions are understood to distinguish between a "freedom from" something or a "freedom to" do something, which is an important distinction because according to Berlin we use both these concepts to answer two pertinent questions. First, the negative concept of liberty attempts to answer the question; "what is the area within which the subject — a person or group of persons — is or should be left to do or be what he is able to do or be, without interference by other persons?". The positive concept is used in attempting to answer the question; "what, or who, is the source of control or interference that can determine someone to do, or be, this rather than that? However, Berlin presents this as an antinomy that cannot be overcome. Others have tried to find a way past this and this thesis is situated within that attempt.

Rejecting Berlin's conception of liberty, MacCallum's[10] claim is that making a distinction between "freedom from" and "freedom to" is flawed because freedom is always both freedom from something and freedom to do or become something. In essence, freedom is a relation between three things: an agent, certain preventing conditions and certain doings or becoming's of the agent,

---

[unpublished]. Nicolas. M. Matte, *Space Activities and Emerging International Law* (CRASL, Montreal: 1984) at 80-81., M.G. Markoff (1976) "The International Space Agency Project, the Declaration of Bogotá and the Common Interests Rule" 15 Dirito Aereo 80, Jiefang Huang, *The Common Principle in Space Law,* (LLM Thesis, McGill University, 1985) at 170; *Commercialisation of Remote Sensing, U.S. and International Law: Towards a Liberalization of Economic Regulations* (LLM. Dissertation, McGill University, 1997) at 32 [unpublished] and Michel Bourbonniere (2005) "National-Security Law in Outer Space: The Interface of Exploration and Security", 70 J. Air L. & Com. 3.

[8] Isaiah Berlin, "Two Concepts of Liberty" in Isaiah Berlin, *Four Essays on Liberty* (Oxford: Oxford University Press, 1969).

[9] Liberty and Freedom are used interchangeably.

[10] Gerald C MacCallum Jr (1967) "Negative and Positive Freedom" 76:3 Philosophical Review 312.

referred to as triadic relation theory.[11] To use the theory, certain assumptions would have to be made about what counts as an agent, what counts as a constraint or limitation on freedom, and what counts as a purpose that the agent can be described as either free or unfree to carry out.[12] Based on this understanding, there is no real delimitation. The distinction at best can serve only to emphasize one or the other of two features of every case of the freedom of agents.

Thinkers such as these are rarely, if ever, referenced to advance projects related to human rights improvement, benefit-sharing and democratization in the global context because of the two sided nature of liberalism. However, taking these two opposing claims of Berlin and MacCullum as a starting point, two positions can thus be accepted:

1. That there are differing features of the two notions, whether seen as two distinct kinds of liberties or two features of the same liberty; and
2. The perspective from which the liberty is analyzed can and does impact the meaning given or the way in which limitations or barriers to that liberty are understood.

Consistent with the teachings of noted Indian development economist Amartya Sen[13], the distinction is no longer where the restriction or limitation is but towards what is it oriented. While Sen is still coming from a tradition close to dominant libertarian views, he begins to push towards a middle ground because he acknowledges that those who have been allowed to spur the capabilities to allow for development are those who have gained benefits and to spread freedom is to enable development. As such, the pertinent question that emerges in the context of Outer Space activities becomes “what is the understanding of freedom granted from the perspective of both those exercising the freedom of Outer Space and those expecting that the freedom is exercised for their benefit and interests, as subjects subsumed under the umbrella of "all countries"?” On a

[11] The central claim is that there is actually a *single* concept of freedom, which focuses on the triadic relation and interaction of agents, conditions and ends, understanding from this perspective can help us understand the range of issues separating ideologies that treat freedom differently. This is important because the sincerity of proponents of differing perspectives is often in question. *Ibid,* at p.314.

[12] V. Sriranjani, "Liberty" in R. Bhargava & A. Acharya (eds.), *Political Theory: An Introduction* (New Delhi: Dorling Kindersley, 2008) at 52.

[13] Amartya Sen, *Development as Freedom* (Oxford University Press, 1999).

practical level actors can use this information to assess the effort to meet the obligation and the effort to be a good recipient.

Based on the theories aforementioned, a conceptual breakdown of the perceived components of freedom inherent in the current normative framework;[14] namely Article I of Outer Space Treaty/OST and the Space Benefits Declaration, and an assessment of the different positive and negative perspectives that the provisions can be understood from attempts to shed light on the foundational basis from which benefit-sharing through international cooperation and collaborative space activities are undertaken. However, the focus must not become who is right or whose concept of freedom is the correct one but instead must remain on determination of how can we move forward from stagnant debates to a point of mutual understanding.

### 2.2.1 Negative Freedom: The Benefit and Common Interest Principle as a Limitation on Freedom

According to Hobe[15], freedom in the context of Outer Space means that "any entity that benefits from the freedom of exploration and use need not ask for permission from other governments. The dominant understanding of the first paragraph of Article I OST, (hereinafter Article I (1)), which states that "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", is that it is a limitation on the freedom of Outer Space granted in the second paragraph of Article I, where Hobe has defined freedom. Here the common benefit/interest principle is seen in a negative light as a potentially cumbersome limitation placed on the free will of the State which desires to engage in

[14] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, 27 January 1967, 610 UNTS 205, 18 UST 2410, TIAS No 6347, 6 ILM 386 (entered into force on 10 October 1967) [Outer Space Treaty/OST]; UNGA, *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries,* UNGA Res 51/122, UN Doc A/RES/51/122 (13 December 1996).
[15] Stephan Hobe, "Article I", in Hobe et al. eds, *Cologne Commentary on Space Law: Volume 1, Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009) 25at 36-39.

space activity. However, to understand the implications of this, under MacCallum's triadic relation theory and taking the format "x is (is not) free from y to do (not do, become, not become) z", the important criteria and real query is to specify *what* is free or unfree, *from what it* is free or unfree, and what it is free or unfree *to do or become*.[16] Essentially, through the dominant understanding, a State is free from - the interference of all States to explore and use outer space subject to the *limitation* that its activities are used for the benefit and interest of all countries. I understand this as a focus on the negative conception of the freedom of Outer Space[17]. Several authors have emphasized this negative conception. According to Jasentiluyana,[18] Article I (2) OST establishes the freedom to explore and use Outer Space conditional upon the *limitation* that the benefits of such exploration and use shall accrue to all countries. In a similar light, Hobe[19] states that Article I (1) OST is to be interpreted as a *limitation* to the freedoms granted subsequently with due regard to the existing State practice. By this he means that the practice has shown an insistence on the State's freedom of action particularly with regards to sharing benefits derived from space activities. Where this gets confusing is that he says this insistence does not focus on concrete elaboration of clauses limiting freedom of action. From my understanding, where he argues that limitations are evident in the use of the common benefit clause and specific language including "for the benefit and in the interests of all countries" and "the province of mankind" and he starts from the position that the goal of Article I OST is to impede any State monopolization, his claim is that State practice dictates that limitations are evident so there is no need to elaborate on them.

From these perspectives, there is apparently a negative limitation on space exploration and use. As Benko and Schrogl[20] conceptualize it, there is a dichotomy between "Free Use of Outer Space vs. Space Benefits"; two concepts that are mutually exclusive and are pitted against each other. If

---

[16] V. Sriranjani, *supra* note 12 at 51.
[17] Bourbonniere also argues that the freedom of use of outer space has been consistently interpreted as a negative freedom, namely the freedom from constraints in international law to physically achieve and maintain orbit.
[18] Nandasiri Jasentuliyana (1989) "Article I of the Outer Space Treaty Revisited" 17 Journal of Space Law129 at 139.
[19] Stephan Hobe, *supra*, note 15 at 36-39.
[20] Marietta Benkö & Kai-Uwe Schrogl, "Article I of the Outer Space Treaty Reconsidered After 30 Years "'Free Use of Outer Space vs. Space Benefits'" in GL Laferranderie & D Crowther eds., *Outlook on Space Law over the next 30 Years* (The Hague: Kluwer, 1997) 67.

an interpretation is taken that this limitation refers to a *means* of conducting space activities, then the legal requirement would be no more than a negative prohibition on States conducting activities that are detrimental to the interests of other countries. Even under Berlin's conception, to promote negative freedom is to be subject only to the constraint that one respect the spheres of others, [21]which it is conceded does not appear dissatisfactory at face value. Huang[22] in fact argues that a series of principles and rules have been worked out by States to elaborate, clarify and implement Article I (1) OST. Granted, Huang's analysis was undertaken in the 80's, but it is clear that some of those principles no longer exist, have had little impact or are still being debated today.

The implication of this according to Bourbonniere[23] is that:

> "The freedom is therefore contingent upon their technological and economic capacities to sustain space research and development. Small States cannot claim any benefits from this convention despite the supposedly idealistic wording of Article l OST. In reality, Outer Space is now being used for the benefit of all States which can afford to pay for access."

While there is nothing wrong with the concept of "pay to play", as Bourbonniere puts it, "affordability is in tum contingent upon either the internal markets for space products or the accessibility to international markets for space products."

### 2.2.2 Rejecting the Dominant Conception

It is proposed, however, that this dominant conception of negative freedom should be rejected for five main reasons.

First, Jakhu states that "the 'common interest' in Outer Space is *reinforced* by other principles of

---

[21] Ian Carter, Positive and Negative Liberty, in Edward N Zalta ed., *The Stanford Encyclopedia of Philosophy* (Spring 2012 Edition), Online: Stanford Encyclopedia of Philosophy <http://plato.stanford.edu/archives/spr2012/entries/liberty-positive-negative/>.
[22] J. Huang, *supra* note 7.
[23] Michel Bourbonniere, *supra* note 7 at 33.

international space law, including the 'freedom of outer space' and 'non-appropriation of Outer Space.'"[24] By saying that Article I (1) OST is *reinforced* by further provisions, this in itself reinforces the idea of supremacy of the concept, rather than the view that it is a negative limiting factor to a greater right. Secondly, taking an objective and teleological approach to interpretation of the provision, it does not follow to say that Article I (1) OST is a merely a limitation of Article I (2) OST, since the placement of the benefit principle in the first paragraph and the freedom of Outer Space principle in the second paragraph signifies that the first should be taken as the primary liberty. As pointed out by Hobe, the provision has a lead function and is designed not so much through the ambit of the freedoms of respective activities but rather through its respective limitations,[25] which I will subsequently argue are not limitations but *conditions* of freedom.

Thirdly, as the wording expressly states that "exploration and use...*shall be carried out **for*** the benefit and in the interests…", it thus gives a rationale for space activity rather than simply expressing a limitation to space activity driven by the desire to curb self-interest. Fourthly, express limitations outside Article I are of a different nature to common benefit. Hobe states these limitations outside Article I OST have a different outlook and function and are aimed at the consequences of space activities and not directly related to possible benefits.[26] A negative reading would suggest that the common benefit idea is simply aimed at preventing monopolization. But, if there was only a negative freedom case for space exploration and use, then all that would be required would be Article II OST, which prevents national appropriation of outer space. It is accepted, however, that the two provisions go together with the purpose of Article II being to strengthen Article I OST.[27] Fifthly, there is no apparent "limitation" to the freedom of scientific investigation as it is drafted. If read in the negative, this could mean that scientific investigation could be undertaken totally free of so-called limitations, which would go against the logic of the provision and treaty.

---

[24] Ram Jakhu (2006) "Legal Issues Relating to the Global Public Interest in Outer Space" 32:1 Journal of Space Law 31 at 38.
[25] Stephan Hobe, *supra* note 15 at 27.
[26] Stephan Hobe (2007) "Outer Space as the Province of Mankind-An Assessment of 40 Years of Development" 50 Proceedings of the Colloquium on the Law of Outer Space 444.
[27] Michel Bourbonniere, *supra* note 7 at 31.

### 2.2.3 The Alternative Conception is Positive: The Benefit and Common Interest Principle as a Condition of Freedom

The alternative conception is a positive conception of the freedom of Outer Space for the benefit and interests of all countries. That is to say that the apparent limitation, which I call a *condition*, is nested in the freedom. The distinction here between "limitation" and "condition" is important for three reasons. First, using the literal rule of interpretation, a limitation is understood as a restriction on something, however, condition as a noun refers to a state of affairs that must exist or be brought about before something else is possible or permitted or if understood as a verb, refers to a set of prior requirements on (something) before it can occur or be done. Secondly, a limitation is something that one seeks to *avoid* while a condition is something that one seeks to *fulfill,* words which themselves imply strong connotations of negativity and positivity. Finally, if it is the correct interpretation that the Lotus case held that restrictions (limitations) upon the sovereignty of States cannot be presumed, here we have express declarations of the justice outcome that is sought: namely, common benefit as a condition of freedom.

Using this interpretation, as Hobe states, the freedoms gain their shape through the conditions, which Hobe is erroneously referring to as limitations. [28] The freedom exists through fulfilllment of and "because of" the condition. It cannot exist "irrespective of" the condition, so as to say that one can choose to exercise the freedom while contravening the condition and choose to pay the consequence. An entity cannot be said to explore and use Outer Space if it does so purely for its own interest, in that case, it is doing something else and not exercising the freedom of outer space. Worthy of note is that under English contract law, breach of a condition has substantial consequences because a condition is the essence of the contract. Such breach would entitle the infringed party to terminate the contract in total.[29]

---

[28] It is unclear why Hobe and other authors focus on limitations instead of conditions; likely they have not fully averted their minds to the phenomenology of the various classes of users of outer space and aspirant space nations, but are focused on the experience of the established States where they have the most experience.

[29] Ines Scharlach, "Performance and Warranty Articles in Space Industry Contracts" in Lesley Jane Smith & Ing Baumann eds., *Contracting for Space: Contract Practice in the European Space Sector* (Ashgate: England, 2011) at 258.

This positive conception of the freedom of Outer Space does not settle the argument as to whether there is a moral or legal obligation inherent in Article I OST. The idea of Article I OST as being in practice no more than a moral obligation is held by some authors[30] including Gorove who states that the common benefits requirement is simply "an expression of desire that the activities should be beneficial in a general sense". [31] Even authors sympathetic to the concerns of developing States have taken a similar position.[32] However, according to Ferrier,[33] in concurrence with Hobe, it is State practice that must be seen as the strongest indicator of whether such an obligation exists. Brisibe highlights an approach[34] by selecting State practice from "both physical and verbal acts; the practice of the executive, legislative and judicial organs of a State; the practice of international organizations; the negotiation and adoption of resolutions by international organizations or conferences, together with the explanations of voting; and the practice of armed opposition groups." [35] In analyzing State practice, however, Hobe concludes that the provision is understood to be of a generally utilitarian nature whereby equitable sharing means that any advantage derived for the space powers is considered to bring also advantages for other States.[36]

Hobe's conclusion highlights how the positive conception of freedom can be divided into strong and weak variants (figure 1), with his stance signifying the weak position. This variant, which is the prevailing understanding of the positive conception, acknowledges that there is a general obligation to ensure common benefit, but holds that by the simple act of access, benefit is produced. When a space-fairing nation engages in space activity which generally adds to

---

[30] Stephen Gorove (1982) "Implications of International Space Law for Private Enterprise" 7 Annals of Air & Space Law 319; Bin Cheng, *Studies in International Space Law* (Oxford: Clarendon Press, 1998) at 234-235.
[31] *Ibid* at 321.
[32] Luis F Castillo Arganaras (2000) "Benefits Arising From Space Activities and the Needs of Developing Countries" 43 Proceedings of the Colloquium of Outer Space 50 at 57.
[33] Jill Ferrier, *supra* note 5.
[34] Based on a methodology set out by the International Court of Justice in the North Sea ContinentalShelf Cases, Judgement, 20 February 1969, ICJ Reports, 1969, 3; Jean Marie Henckaerts and Louise Doswald-Beck (2005) "Customary International Humanitarian Law" ICRC, Volume I—Rules, at xxxii–xlii.
[35] Tare Brisibe (2009) "Customary International Law, Arms Control and the Environment in Outer Space" 8:2 Chinese Journal of International Law 375 at 383.
[36] Stephan Hobe, *supra* note 15 at 42.

development and furthering science, all countries are said to benefit. Sadeh explains it through the concept of structural conditioning as a:

> "Positive sum concept that is premised on the idea that all states benefit due to the actions of a hegemon. More generally, it is related to realism which sees cooperation as dependent upon the structure of interstate power: to provide benefits to others. The process is explicit, causal and externally generated in that the hegemon influences other states, based on power asymmetries to follow its policies".[37]

Lee and Bourbonniere[38] highlight that Article I (1) OST does not create a presumption of illegitimacy simply because the space object has not been specifically designed to bring benefit and interests to the international community in general.

The opposite variant is the strong position. This holds that as there is an obligation to produce benefit, unless it is demonstrated that benefit has been produced, the freedom has not been exercised in accordance with the law. In effect, there must be a literal and practical demonstration, and ultimately *sharing* of benefit from space activities, such that all exploration and use must prove itself. Consequently, considering the effect of breach of condition under English law, if the infringed party has the right to repudiate the contract, who in this instance could be all the signatories to the Outer Space Treaty; this could lead to a situation where actors who perceive that they are not benefitting from given space activities can attempt to stop projects, even where they are not direct participants.

[37] Eligar Sadeh et al (1996) "Modeling International Cooperation for Space Exploration" 12:3 Space Policy 211.
[38] Michel Bourbonniere & Ricky Lee (2007) "Legality of the Deployment of Conventional Weapons in Earth Orbit" 18:5 European Journal of International Law 873.

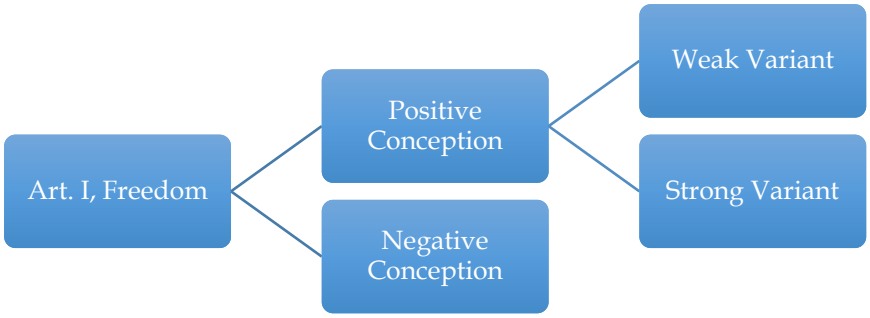


**Figure 1: Current Framing of Freedom for Common Benefit**

### 2.2.4 Rejecting Weak and Strong Variants

Both the weak and strong variants of the positive conception of the freedom of Outer Space must be rejected as extreme viewpoints because each variant disproportionately benefits either the established space-faring nations on the one side or the developing, emerging or *rouge - purposely disruptive* actors on the other.

That is to say that the weak position, which is the prevailing one, is favored by space nations who would continue to argue that:

1. Many benefits have been recorded from their space activity; and
2. As a practical matter, no State has asserted claims under the treaty to results obtained through its space activities.

This notion, however, fails to take into consideration that embedded in this idea that the simple act of access produces benefit is that it is entirely dependent on the will of the space-faring nation how and whether benefits flow and what structural biases it may develop to prevent access. This is

acknowledged by authors such as Jakhu[39] and Hurewitz.[40] Jakhu posits that States possessing launch technology attempt to control its proliferation not only for military reasons but also to maintain their political and economic hegemony whilst Hurewitz argues that the strict U.S. implementation of the Missile Technology Control Regime (MTCR) has led to restrictive, discriminatory access to Outer Space and a de facto appropriation of Outer Space for the benefit of a few nations. While we all accept and welcome the prevention of proliferation of Weapons of Mass Destruction (WMD),[41] new and aspirant entrants continue to face challenges and barriers towards their goal of entering the space industry.

For example, even in the European context, the established space nations have declared that niche areas should be the focus for new European entrants with no competition in set areas like current launchers. This despite that few of them are not satisfied with going simply for niche markets but aiming at entering the upstream market of technology development.[42] As Pakistan have argued[43] the MTCR is not a negotiated multilateral treaty but is a cartel; it has been selectively implemented by supplier States and faces a legitimacy crisis. International power politics have always tended to deny other nations the ways and means of exercising political power and influence by monopolizing the instruments of power. As highlighted by Von Welck,[44] where these instruments of power depend on the application of specific technologies, the transfer of such technologies is frequently restricted by classification and the limitation of scientific and technical exchanges.

From the perspective of the strong position, Article I OST imposes the positive duty to ensure that

---

[39] Ram Jakhu, *supra* note 24.
[40] Barry Hurewitz (1994) "Non-Proliferation and Free Access to Outer Space: The Dual-Use Conflict between the Outer Space Treaty and the Missile Technology Control Regime" 9:2 Berkeley Technology Law Journal 211.
[41] Michael Beck et al., *To Supply or to Deny: Comparing Non-proliferation Export Controls in Five Key Countries* (Kluwer Law International: The Hague, 2003).
[42] Kai-Uwe Schrogl et al. (2009) "Governance of Space Activities in an Evolving European Framework – How to Achieve Coherence and Effectiveness?" ESPI Perspectives No 18.
[43] Permanent Representative of Pakistan to the United Nations, Missile Technology Control Regime - Its Destabilizing Effect on South Asia (July 23, 1997), Online:< http://www.un.int/pakistan/13970723.htm>.
[44] Stephan F. von Welck (1986)"Outer Space and Cosmopolitics" 2:3 Space Policy 200; (1987) "The Export of Space Technology: Prospects and Dangers" 3:3 Space Policy 221.

the benefits of space exploration and use are made available to all countries. However, there is a lack of clarity as to what all countries are to benefit from, which could be taken advantage of, resulting in unrealistic demands. Lee[45] questions whether it is the means of conducting space activities or the ends derived or ends achieved that is subject to the benefit obligation. To Jasentuliyana, [46]the term "benefits" would appear to be all inclusive and to relate to any kind of information or results obtained which have some *usefulness* for Earth-oriented applications.

While this understanding would appear to exclude activities which are not specifically "Earth - oriented"[47], the importance of "space oriented" activities such as space situational awareness, space weather monitoring or space tourism could become increasingly important. However, in the near term, the important criteria of *usefulness* can be understood to mean that all countries can make meaning and do something with the information and results of space activity, such that States with the most benefits cannot just share information that is convenient for them to share with little value. To this end, it is unclear if there would be substantial differences between demonstration and sharing of direct, indirect and induced economic benefits; catalytic effects and social benefits.

Essentially and obviously, direct economic benefit and social benefits related to defense and security would be the most complex to share, and would go contra to the general operation of most of today's activities, both in governmental and commercial contexts.[48] One of the few contexts in which I can think of the sharing of direct benefits is under Impact and Benefit-sharing Arrangements, for well protected indigenous groups with treaty rights, but this of course applies

[45] Ricky Lee, *Law and Regulation of Commercial Mining of Minerals in Outer Space* (Dordrecht: Springer, 2012) at 157.
[46] Nandasiri Jasentuliyana, *International Space Law and the United Nations* (The Hague: Kluwer Law International, 1999) at 175.
[47] Examples could include space situational awareness, space weather monitoring or space tourism.
[48] Increasingly countries are engaging in socio-economic benefit assessments of national and international space programs and sectors to determine the benefits derived. As these benefits are more systematically quantified and standardized, the case of the strong position becomes easier to formulate. See Oxford Economics, "The Case for Space: Impact of Space Derived Services and Data", Online: Oxford Economics <http://www.oxfordeconomics.com/my-oxford/projects/129029>.The Canada-US NORAD agreement is a very good example of bilateral benefit-sharing.

nationally and is not an international obligation.[49]

Secondly, the strong position fails to convey what is at stake regarding the view of the benefit principle as a contractual condition. It could be absurd that any signatory to the OST (which arguably has customary status and thus is applicable to the world at large) could stop a project that they are not directly involved in where they cannot find some other standing to be able to assert breach of condition. Finally, if the whole idea of positive freedom is to enable an actor to participate and become a full participant, this would need to involve a process with a series of steps. In essence, a test would be required to show that one has been *enabled* and has met various milestones. There cannot just be a right to benefit, but it must be acknowledged where the beneficiaries stand in relationship to the right to be enabled; a situation which a strong position may reject. In fact, by asserting this strong variant legal right, the entity looking to benefit seeks the laws attention and must make out a legitimate but difficult claim on laws terms. To do there must be a relationship to enablement.

*What is required therefore is a middle ground position between the weak and strong variants that takes into account certain realities.*

Article I should be understood to be hierarchical in nature, and to be a nested provision that goes from general to specific obligations. Article I (1) OST sets the general principle applicable to exploration and use – that it should be for the benefit and interests of all. Then, given that activities shall be carried out for this purpose, the provision states how it should be carried out in Article I (2) OST – equality of access to public good in accordance with law, or in other words, the mechanism through which one can get to the benefit. Then in Article I (3) OST, it states that the specific form that should be the focus of cooperation is scientific investigation.

Important to note is that not all authors distinguish between the freedom of exploration in Article I (1) OST and the freedom of scientific investigation in Article I (3) OST. For instance,, while

[49] Richard Janada & Juan C. Pinto, "Fiduciary Governance of Impact and Benefit Agreements" in Roderick Macdonald & Veronique Fortin eds., Autonomie Economique Autochone: Dimensions Multiples/Dimensions of Indigenous Economic Autonomy (Montreal: Themis, 2015).

Tronchetti[50] and Lee[51] only speak of three rights (access, exploration and use), Marboe[52] also speaks of only three rights (exploration, use and scientific investigation) but contra the other author's, she exchanges right of access for the right of scientific investigation. This deletion of *access* as a right could be because access is not really seen as a space activity, (if Hobe's summary of the Interpretation is followed[53]). But this is an erroneous position because access is primarily about Launch Vehicles as will be argued in the following paragraph. This interpretation would be in agreement with Jakhu,[54] who argues that *access* is synonymous with *use.*

Reverting back to the initial point to be noted, is the question of the difference between exploration and scientific investigation an important one? While States generally agreed that the way Article I OST is to be realized is through international cooperation, scientific investigation is the only area that a direct and clear pleading for international cooperation is made. According to Hafner,[55] the Outer Space Treaty *restricted* the legal obligation of cooperation to scientific investigation and did not apply it to use and exploitation. Hobe, however, defines exploration as the "general finding of something yet to be explored, which may or may not include scientific activity". [56] In other words, he is said to declare that there is an apparent redundancy in the provision declaring that scientific investigation is subsumed under exploration and that it is an addition to the text that is a superfluous remnant of earlier drafts. [57]

It seems evident that there may be overlap but the text in question could also refer to different

---

[50] Fabio Tronchetti, *The Exploitation of Natural Resources of the Moon and Other Celestial Bodies: A Proposal for a Legal Regime* (Leiden: Martinus Nijhoff, 2008) at 22-23.
[51] Ricky Lee, *supra* note 45 at 154.
[52]. See Irmgard Marboe (2010), "Hobe, Stephan / Schmidt-Tedd, Bernhard / Schrogl Kai-Uwe (eds.), Cologne Commentary on Space Law (CoCoSL), Volume 1, Outer Space Treaty, Carl Heymanns Verlag, Koln, 2009" 59:4 ZLW at 664.
[53] Stephan Hobe, *supra* note 15 at 41.
[54] Ram Jakhu, "Access to and Equity in Aerospace Transportation" (Paper delivered at the ICAO UNOOSA Aerospace Symposium, Montreal, Canada, 18-20 March 2015).
[55] Gerhard Hafner, "The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States" in Irmgard Marboe ed., *Soft Law in Outer Space* (Cologne: Bohlau Verlag, 2012) at 268.
[56] See Stephan Hobe, *supra* note 15 at 34.
[57] Gerardine M. Goh (2008) "The Cologne Commentary on Space Law: First Authors Workshop, 10-11 January, 2008, Vienna, Austria: 57:2 ZLW at 240-241.

activities. That Article I (3) OST reiterates scientific investigation may highlight its significance, though this significance is not immediately apparent in the *travaux préparatoires*. Goh[58] posits that in the context of the regimes of other shared spaces such as Antarctica, the reference to scientific investigation may point to the *method* of international cooperation shared in those shared spaces. On closer inspection of space law, Article 6(2) of the Moon Agreement[59] substantiates this freedom of scientific investigation to include the ability to collect and remove mineral samples which would remain with the collecting State for scientific purposes.

It also grants the use of minerals and other substances of the Moon in quantities appropriate for the support of the mission. The same provision thus extends the permissible use by allowing the State to utilize the benefits of Outer Space for its own purposes, referred to as uses in "support". As Jakhu and Buzdugan[60] have argued, these benefits need not be shared, which is contra to the provision of the Outer Space Treaty regarding scientific investigation, as well as use and exploration. While this interpretation of the Moon Agreement cannot be read into the Outer Space Treaty, it signifies that the distinction between exploration and scientific investigation may be meaningful and requires further investigation.

For instance,, it may imply that international cooperation is primarily about the process of discovering science, and where there is use as opposed to scientific investigation, it is open for States to produce common benefit *without* international cooperation. This opens up the idea that common benefit actually only applies to exploration and use. This interpretation would have major implications because it would imply that benefit-sharing as currently understood may not refer exclusively to international cooperation contra Jasentuliyana's[61] assertion that the matter of access to space benefits is "ultimately a question of the nature of international cooperation among States."

---

[58] *Ibid.*

[59] *Agreement governing the Activities of States on the Moon and Other Celestial Bodies*, 5 December 1979, 1363 UNTS 3 (entered into force 11 July 1984) [*Moon Agreement*].

[60] Ram Jakhu & Maria Buzdugan (2008) "Development of the Natural Resources of the Moon and Other Celestial Bodies: Economic and Legal Aspects" 6:3 Astropolitics.

[61] Nasandri Jasentuliyana "Ensuring Equal Access to the Benefits of Space Technology for all Countries" in Chia-Jui Cheng ed*., The Use of Airspace and Outer Space for all Mankind in the 21st Century*, (The Hague: Kluwer Law International, 1995) at 217.

It could also present a very realist stance when one considers the activities of private or commercial actors in space. From a developing State perspective, the good thing about common benefit being applicable more to exploration and use than international cooperation is that this would link benefit with *useful* space applications instead of simply scientific investigation. It opens up benefit to economic and non-economic uses of space that have some *usefulness* that Jasentuliyana refers to above.[62]

Even if scientific investigation is subsumed under exploration, the focus is not so much on facilitating the *method* of space benefit-sharing (international cooperation) but on spreading the *actual ends* of science, or the tangible benefits. This leads to an interesting discussion about the distinction between the Global Public Interest (GPI) proposed by Jakhu and the idea of Common Benefit. Often used interchangeably, there is an important distinction between the concepts. GPI is a broader concept whereby Jakhu considers it "to be the constitution of Outer Space and the foundation of the international legal regime governing all outer space activities."[63] Much in the same way common benefit in Article I OST is described - inclusive interest of the international community — that is, the global public interest — in Outer Space by assuring all States the right of free access to Outer Space without discrimination of any kind. However, it is broader in scope and contains other provisions/components that must be protected and adhered to while the Common Benefit is actually seen as a *means to an end* because the only obligation is to achieve it through international cooperation. There is no determination as to what it actually is.

The *right to be enabled* mentioned above as a potential requirement to uphold the strong position is an interesting point because it is a double edged sword that can be used both to empower and to destroy weaker parties. This is similar to the freedom of access granted in Article I (2) OST. Hobe[64] argues that there are two aspects to this: an implicit and explicit right. The implicit right is a negative freedom case again of not requiring permission to reach a celestial body "after launch" and the explicit right is actually contained in the provision that one may have access to celestial bodies. But to stimulate the implicit right, a State that does not have its own launch capability must

[62] Nandasiri Jasentuliyana, *supra* note 46.
[63] Ram Jakhu, *supra* note 24.
[64] Stephan Hobe, *supra* note 15 at 33, 36.

be empowered or enabled to access Outer Space and celestial bodies. The right is empty if *permission* is not granted to be able to launch. And fundamentally, this is applicable to all the other freedoms to as there is no exploration, use or scientific investigation if there is no implicit access to space. As such, Launching States have all the power. As Filho[65] argues, export control regimes that are used as unfair swords set up a system of discrimination without the consent of the international community and permits an exclusive status for some technologically advanced States, hindering the use of Outer Space by other States.

This idea is apparent in U.S. imposition on the launcher development programs of different countries including India. In the mid-1980's, India decided to develop its own Geosynchronous Satellite Launch Vehicle (GSLV) to launch geostationary satellites. India needed a second stage engine for its Polar Satellite Launch Vehicle to convert it into a GSLV and issued international tenders for acquiring cryogenic engines and technology. Following a successful bid, the Indian Space Research Organization (ISRO) selected Russian company Glavkosmos. Both parties signed a contract on 11 January 1990 under which Glavkosmos undertook to supply two cryogenic engines and to build the third one in India, thereby transferring the required technology. On 11 May 1992, the U.S. imposed sanctions against Glavkosmos and ISRO as the U.S. State Department believed that this Indo-Russian deal would violate MTCR, despite that neither country was a member of MTCR. Russia seemed determined to honor its agreement with India; however, U.S. threats to make the two-year sanctions permanent if Russia did not cancel its deal with India forced cancellation of the contract.

While existing debates focus on how U.S. industry has been affected by implementation of these rules, a CAIL approach seems to demand a focus on the use of international regimes to further imperial policies and reveals links between the U.S. security arguments and enduring structural bias in the regime. As highlighted by Jakhu,[66] "from a legal perspective, it is strange to accuse two States that are not parties to the MTCR of violating it, especially when this so-called regime is only an 'understanding' amongst third States." If as I asserted above that "the provision states how

[65] J. Monserrat Filho (1994) "The Place of the Missile Technology Control Regime in International Space Law" 10:3 Space Policy (1994) 223.
[66] Ram Jakhu, *supra* note 24.

it should be carried out in Article I (2) OST – equality of access to the public good in accordance with law" appears obvious, upon close inspection of Article I (2) OST it is actually *exploration and use* that is the right to be upheld without discrimination of any kind, on a basis of equality and in accordance with international law. There is no such requirement with respect to the explicit access to all areas of celestial bodies or implicit right of access to Outer Space, except that it should be "free". What free means here is once again unknown, but it is proposed that Hobe would assert the negative freedom case again, which would, in the end, mean that there is no such thing as "free" access in reality.

Likely as a result of these aforementioned grey areas and hidden problems, in the mid-1980's there was an increasing dissatisfaction among the developing States that many of the developed States had not been respecting Article I (1) OST and that the provision, whether seen as moral or legal, was no longer sufficient to ensure that space activities were carried out for the benefit and interest of all countries.[67] They felt the indeterminate and immeasurable nature of the provision called for stronger legal guarantee and certainty.

This dissatisfaction led to the push for the addition of a new agenda item of the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space.[68] The primary objective was to give meaning to Article I through codifying the rights and responsibilities of States with respect to equitable sharing of space benefits and international cooperation in outer space activities. The conclusion was the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of the Developing Countries (Space Benefits Declaration),[69] which ultimately did not create any new rights for the developing States but reinforced that countries are free to choose how and with whom they will cooperate. It essentially produced the semblance of an opportunity without directly producing any new outcomes.

---

[67] Fabio Tronchetti, *The Exploitation of Natural Resources of the Moon and Other Celestial Bodies*, (Martinus Nijhoff: Leiden, 2009) at 64.
[68] Jitendra Thaker (1997) "The Development of the Outer Space Benefits Declaration" XXII: 1 Annals of Air & Space Law 537.
[69] UNGA, *supra* note 14.

The Declaration leaves many questions unanswered. Lepard[70] queries, but does not answer the question, "to what extent have the political and ethical objectives of the Space Benefits Declaration been achieved"? According to Benk*ö* and Shrogl[71] the declaration had three broad impacts, namely: it provided an authoritative interpretation of Article I; it cemented the freedom of outer space while reminding space powers to fulfill their obligation; and it paved the way for avoidance of future ideological debate. However, as Tronchetti states, it is evident that even if the Declaration represented an important contribution to the development of international space law, it did not solve the doubts related to the interpretation of Article I (1) OST.

Worthy of note as pointed out by Boulle[72], obligations framed in general rather than precise terms are characteristic of high-level soft law cooperative agreements. The text on responsibilities is not intended to provide a contractual level of detail. This is a necessary constraint especially where new technology is being developed because at the time the international agreement is reached, for instance, in a project, the design phases will be incomplete as will the negotiations with the various contractors and sub-contractors therefore In the midst of all these 'unknowns', the Parties strive to define the lines of the agreement with sufficient clarity and certainty to enable them to enter the agreement in the first place. That notwithstanding, the Space Benefits Declaration only developed part of the significance of Article I OST and there is therefore still scope for further interpretation, which a middle ground position of the positive conception would satisfy.

## 2.3 Reconsidering the Developing Country Claims as a Precursor to Finding a Middle Ground

Trying to finding a middle ground forces us to switch from the initial question posed (what is the understanding of the liberty granted from the perspective of both those exercising the freedom of

[70] Brian Lepard, "The Legal Status of the 1996 Declaration on Space Benefits: Are Its Norms Now Part of Customary International Law" in Irmgard Marboe ed., *Soft Law in Outer Space* (Cologne: Bohlau Verlag, 2012) 289 at 290.
[71] Marietta Benkö & Kai-Uwe Schrogl (1997) "History and Impact of the 1996 UN Declaration on 'Space Benefits' "13:2 Space Policy 139.
[72] Edmond Boulle, "Reproducibility: A New Phenomenon in Space Barter Agreements" (Paper delivered at the IISL 57th Colloquium on the Law of Outer Space in Toronto, Canada ,2014).

outer space and those countries expecting that the freedom is exercised for their benefit and interests?) to answering the practical question; how can we better understand the conflicting positions between those on the margins of space activity and those gaining the greatest benefit from space?

During the debate of the 1991 session of the Legal Subcommittee, several developing States introduced a working paper[73] with a draft set of principles to give meaning to Article I (1) OST. The sponsors of the working paper stated that the paper offered them a chance to explain what they expected from exploration and use of Outer Space and to search for provisions acceptable to all parties. It was not intended to limit the freedom of States to enter into cooperative agreements. However, much of the western academic analysis of the first draft of the working paper is predicated on the *misinterpretation* that some of the provisions would negatively affect State sovereignty despite the fact that other delegations defended the draft principles as consistent with sovereignty. Citing Tronchetti, Hafner[74] states that the provisions required "obligatory cooperation, automatic transfer of financial and technological resources from North to South and obligatory access to relevant knowledge and information." Also problematic is the analysis of Schrogl,[75] who declares that Principle II of the first draft demanded the application of the same conditions to every cooperative partner and called for forced cooperation among the space-faring countries. What these analyses fail to highlight are the qualifications to some of the so-called unacceptable "demands", which if understood from a neutral position could have created some positive outcomes for the benefit of all.

### 2.3.1 The Lens to Analyze the Developing Country Claims

[73] UNCOPUOS, *Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes*, UN Doc A/AC.105/C.2/L.182 (9 April 1991). The working paper is annexed in Kai-Uwe Schrogl, "Legal Aspects Related to the Application of the Principle that the Exploration and Utilization of Outer Space Should be Carried out for the Benefits and in the Interest of All States Taking Into Particular Account the Needs of Developing Countries" in Marietta Benko & Kai-Uwe Schrogl eds., *International Space Law in the Making* (France: Editions Frontiers, 1993) 219.
[74] Gerhard Hafner, *supra* note 55 at 271.
[75] Kai-Uwe Schrogl, *supra* note 73.

The work of Duncan Kennedy[76] a Critical Legal Studies Scholar, is instructive before engaging in analysis of those "demands". Kennedy's thesis is that the main barrier to social transformation is the reification and "fetishization" of the law that society has, and that fundamentally, there are two important issues that arise from the indeterminate character of the law that is portrayed by "the system" and society as largely determinate. First, the pretense that law is determinate mystifies social life encouraging people to think that the practices codified in law are fixed and frozen, and that so long as their immediate or fundamental rights are protected they cannot/ should not complain.

This, in turn, discourages them from political action aimed at *transforming the content of rights* so as to realize the emancipatory potential of law. Secondly, it maintains the status quo which is to the benefit of capitalism and the bourgeoisie because "the system" knows how to hide or use that indeterminacy to its advantage. The system has created discipline in the Foucault sense in that most people are not willing to challenge it as they have been conditioned to accept the ideologies of capitalism.[77] Thus, despite the acknowledgement that Article I OST appears indeterminate, that it is in a legal form makes it appear determinate so no one knows what to do and thus subject to the very problem that Kennedy is highlighting.

Kennedy uses Hart and Kelsen's theories on legal interpretation[78] to situate his work because he finds a loophole in the positivist theory that Critical Legal Studies (CLS) speaks to. Kennedy argues that whilst Hart and Kelsen acknowledge that some form of indeterminacy is inevitable in the legal order and in norm interpretation, they give no account as to why this should be so. Whilst their analysis presupposes that there is a schema according to which each a case is determined by pure cognition (a core issue) or using by discretion (a Penumbral issue), they do not theorize this framing.

---

[76] Duncan Kennedy*, Legal Reasoning: Collected Essays* (Davies Group Publishers, 2008).
[77] M. Foucault, *Surveiller et Punir* (Paris: Gallimard, 1975) ; *Discipline and Punishment* Trans. Alan Sheridan (New York: Random House, 1977).
[78] H.L.A Hart, *The Concept of Law* (Oxford, OUP: 1961); Hans Kelson, *Introduction to the Problems of Legal theory* (B. Paulson & S. Paulson, trans. Oxford 1992).

Kennedy attempts[79] to give an account of the process by which legal situations are constituted as ones in which all is required is the application of a norm or one where something more is required. His approach is phenomenological in that it seeks to describe the experience of legal reasoning whilst suspending the question of the essence – so it asks "what is the law that truly applies?"[80] Kennedy explains that the C L S claim was[81] that principles, policies and rights, and indeed worldviews are all part of commonly deployed sources of law which are in ineradicable conflict within each of us as well as between us. He argues that the valid legal norms of the system, therefore, comprise of rules made up from complex compromises of those conflicts. As such, any foundation established through compromise rather than one created through a coherent working out of one or another over-arching principle is obviously much more open to destabilizations.

Kennedy also acknowledges that law is sometimes determinate and sometimes indeterminate. He posits that in some cases of apparent determinacy we can predict a result because we anticipate that no destabilizing work will be done (especially if there is agreement with the initial apprehension or the outcome is not worth destabilizing) or we anticipate that work done to destabilize the initial apprehension will fail, particularly where the time and resources expire. In this instance as the weak variant of the positive conception argues that many benefits have been recorded from the space activity of established players and no State has asserted claims under the Treaty to results obtained through the space activities of States, it makes the provision appear ever more determinate and not worth attempting to destabilize the status quo. However, a clear understanding of the nature of destabilizing work vital as well as an understanding of the characteristics of those who will carry out this work. According to Kennedy, legal work aims to transform an initial apprehension of what the system of norms requires, given the facts, so that a new apprehension of the system, as it applies to the case, will correspond to the extra-juristic preferences of the interpretive worker.[82] When performing legal work, the worker strategically

[79] Duncan Kennedy, "A Left Phenomenological Alternative to the Hart/Kelsen Theory of Legal Interpretation" in Duncan Kennedy, *Legal Reasoning, Collected Essays* (Aurora CO: The Davies Book Publishers, 2008).
[80] *Ibid* at p.1.
[81] It is unclear why Kennedy uses the past tense here. Possibly because the CLS arguments are diverse and so may have evolved through time with this possibly being the initial claim!
[82] Duncan Kennedy, *supra* note 79 at 158.

pursues a goal and it is the combination of *time, strategy, skill* and of the essential *attributes* of the rule that one is trying to change, as those *appear in the context* of the facts presented that will determine how successful one will be to achieve his goal (whether an outcome seems self-evident or not.)

Whilst this is an acceptable proposition, the confusing aspect for the author is that if there is still an unknowable quality to the rule, then despite all our best efforts, it clearly will be difficult to change how anything works! Kennedy does not answer this instead gives the very unsatisfactory answer that:

> "The legal worker performs the classic phenomenological reduction or "bracketing" [epoche] (Husserl) of the question of whether the resistance of the rule to reinterpretation is a result of what it "really" is or merely an effect of time, strategy and skill. *The worker proceeds by trying to change things, without a pre-commitment one way or another to an ontology of the norm*"[83]

But who is willing to go through these pains for the good of society: the weak or the oppressed? Well perhaps he is arguing that we, *the common man*, can take on the role of legal workers. After all, Kennedy has given us an insider's guide into how "the system" works in some of his other works. He has given us the strategies for lawyers (through his text **A Semiotics of Legal Argument**), and he has given us the interpretative strategies of judges (through his text **Freedom and Constraint in Adjudication**)...so we have all the tools to change the system all by ourselves! But before we go into what that means first we would have to openly admit that "the system" has been telling a huge lie all this time and bare the truth for everyone to see. Accordingly, this is where the argument turns back into itself and suffers from the challenge of the hermeneutic nature of ideas.

[83] Duncan Kennedy, *supra* note 79 at 161.

Whilst arguably it is great that CLS seeks to unmask just how plastic and contextualized any norm is so as to open up the possibility of seeing other possible orders – is this too much for the common man? Perhaps as so well stated by Jack Nicholson in the movie **A Few Good Men,** – we cannot handle the truth! Could the truth lead to a legitimacy crisis? This crisis may be just what Kennedy is seeking following his assertion[84] that the intensity of the common man s wish to be governed by law is tantamount to fetishism and is a huge obstacle to social transformation! Whilst Kennedy acknowledges that this unveiling faces a problem of infinite regress[85] in deciding whether a judge has destabilized the norm using conventional judicial techniques, he seems to think it's a better solution to just get everything out in the open because " the alternatives that condemn judicial work a priori are worse, because they are incoherent"[86.] The effect therein at best would be an open acknowledgment that we can all contribute to what the law is. As Kennedy puts it, it would be pluralist "from the Jacobean point of view that locates legal legitimacy solely in the will of the people"![87]

But, say we accept this new truth and encourage everyone including judges to use strategies to work towards ideological outcomes, or to let individuals like you and I explore our subjectivities and become law constituting citizens, the pros and cons must be considered

### 2.3.2 Areas of Contention

There are five main areas of contention between the largely western scholarly analysis of the working paper of developing States towards a new legal regime on the one hand, and a reading of the draft in a light that seeks to uphold the objectives of the draft on the other.

First, Shrogl took issue with the title of the agenda declaring that despite that the co-sponsors came up with a proposal for shaping the overall field of international cooperation in the peaceful uses of Outer Space, their expectations were exaggerated as the agenda item only covered the narrow issue how to let developing countries participate in a better way in space utilization. Now in reliance of

[84] Duncan Kennedy, *supra* note 79 at 5/6.
[85] Duncan Kennedy, *supra* note 79 at 163.
[86] *Ibid.*
[87] *Ibid.*

Hobe and his future perspectives, it is clear that to the developing States, through guarantees of cooperation, they would be enabled to bridge the widening gap of technology and knowledge but this would not only be important for future development of these States but would also contribute to worldwide stability. Ultimately in agreement with Hobe, if bridging the technological gaps helps countries to become self-sustainable, this may well be in the interest of all making, meaning that this would shape the overall field as unconsciously intended.

Secondly, Principle I (2) of the first draft of Principles (1991) states that:

> "States with relevant space capabilities and with programmes for the utilization and exploration of outer space bear special responsibility in promoting and fostering international cooperation in outer space science and technology and in their applications."

While it has been posited that the use of the word "responsibility" in Principle I (2) is an attempt to impose an obligation to force the industrialized countries to cooperate, the "special responsibility" placed on industrialized countries is simply to *promote and foster* international cooperation and not to actually force international cooperation. The real problem with Principle I (2) is that it did not specify *how* the responsibility would be respected. For example, under the African Charter on Human Rights, State parties shall have the duty to promote human rights "*through* teaching, education and publication."[88] In the context of citizen security, an obligation to promote is understood as a "duty to *create conditions* so that the holder of the right can have access to the enjoyment of the right." [89] Applying that to the "special responsibility" to promote international cooperation, the obligation would in fact be to *create equitable conditions* amenable to cooperation and in the spirit of the right to be enabled, it would be conditional on the recipient of the benefit to meet the criteria of those conditions leading to access to cooperative ventures and not an automatic right to be a partner for international cooperation. To that end, all participants

[88] *African Charter on Human and Peoples' Rights,* 21 ILM 58 (1982), Article 25.
[89] Inter-American Commission on Human Rights, Report on Citizen Security and Human Rights, Online: Inter-American Commission on Human Rights, Organization of American States <http://www.cidh.oas.org/countryrep/Seguridad.eng/CitizenSecurity.IV.htm>.

would have a part to play.

In order to understand some examples which promote international cooperation, Articles X and XI of the OST are instructive. "Promotion" here is first to consider, on the basis of equality, any requests by other State parties to the Treaty to be afforded an opportunity to observe a launch[90] and secondly to inform[91] the Secretary General, public and scientific community, of the nature, conduct, location and result of space activities.[92] While this appears unsatisfactory because it limits the respective obligation of the launching State by stating that relevant requests shall be considered on the basis of equality, and it is added that an agreement between the States concerned shall establish the conditions of such observations, a CAIL interpretation would be that in effect, to promote is to both inform and positively create opportunity (to the greatest extent feasible or under agreement).

Thirdly, Principle II (2) proposes access to knowledge and applications derived from space programs; however, this is would be through programmes of international cooperation specifically designed for that purpose. It would not be reasonable to propose that *al*l space programmes are open; rather through the qualification of *specific design*, States would still reserve the right to choose which programmes to close to external access and there would need to be agreement on which programmes should be specifically dedicated towards the objective of knowledge sharing for the purposes of the Declaration. Several examples of such programmes designed specifically for such a purpose include the NASA Globe (Global Learning and Observations to Benefit the Environment) Program which seeks to promote the teaching and learning of science[93] and the UK Space Agency Global Collaborative Space Programme (GCSP)[94] which seeks to foster projects of

---

[90] *Outer Space Treaty*, *supra* note 14, Article X.
[91] Mayence and Reuter highlight that to inform is at the same time a means of cooperation and the object of cooperation: a means because information on the activities and their modalities aim to foster participation and an object because results of the activities constitute valuable resources for the co-operating States. See Jean-Francois Mayence & Thomas Reuter, "Article XI" in Hobe et al eds.,*Cologne Commentary on Space Law: Volume 1, Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009) 189 at 191.
[92] *Outer Space Treaty*, *supra* note 14, Article XI.
[93] Online<https://www.globe.gov/>
[94] Online<http://www.barsc.org.uk/wp-content/uploads/2014/02/Introduction-to-GCSP.pdf>

mutual interest with other countries, for development purposes. From the strong variant position, there could be problems with the “specific design” concept.

Fourthly, while Shrogl appears to object to what he calls the "most favored nation principle", which proposes that conditions offered to one State in a specific programme of cooperation should be extended to other countries; this requirement only applies where a similar programme of international cooperation is established. It is proposed that this would be subject to obvious qualifications such as the skill or added value that the proposed participant would is bring to the cooperation or how the proposed participants have offset their right to be enabled, subject to equitable considerations, bearing in mind Article 1(2) of the initial Soviet draft of the OST which focused on the concepts of “without discrimination” and “on the basis of equality” as corresponding to the “most favored nation“ clause that would be necessary for assure international cooperation among States.[95]

Lastly, while Principle III (2) and Principle III (3) calls for exchange of expertise and technology transfer, it is misleading to refer to this as "forced" technology transfer, since the developing States recognize that such technology transfer is a strategic and commercial asset, calling for these "within just and equitable parameters of price and payment."[96] This preoccupation or narrative of the established States having to *protect* technology and that States want to forcibly take it away is something that continues today in various guises, as for instance, NASA’s guidelines dictate that cooperation must be structured to protect against unwarranted technology transfer.[97] In a similar light Blasano[98] states that in cooperation with non- member states, the European Space Agency (ESA) adopts a minimum technology transfer approach only transferring information and data necessary for carrying out a particular project. However, she posits that” it is clear that in the case of cooperating with developing countries, the minimum technology transfer approach will have to

[95] Stephan Hobe, *supra* note 15 at 30.
[96] Principle III (3), See UNCOPUOS, *supra* note 73.
[97] Michael O Brien, “International Cooperation at NASA” (Paper delivered at the Asia Pacific Regional Space Agency Forum, Singapore, December 8, 2011).
[98] Anna Maria Balsano (1994) “Technology Transfers and Public International Research Organizations: The Example of ESA” Proceedings of the 37th Colloquium on the Law of Outer Space 121.

be adapted as it makes no sense to cooperate on a quid pro quo basis with countries which do not have the minimum technology needed to derive benefit from ESAs space technology."

### 2.3.3 Getting to the Real Issue

The first draft of the working paper was subsequently rejected. Shrogl posits that the only constructive but simple reason that this draft was dropped should have been that "international cooperation should not be forced upon countries, because without shared interests cooperation cannot be fruitful". The developing countries eventually softened the language of their demands through several revisions of their working paper.[99] However, following the submission of a new working paper[100] by France and Germany which sought to break the impasse between divergent views of the developing States on the one hand and industrialized Countries on the other, the final text developed from a merger[101] of the two proposals during the Legal Subcommittee session in 1996. The final document titled Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All Sates, taking into Particular Account the Needs of Developing Countries (Space Benefits Declaration) adopted provisions that could be considered beneficial to both sides of the ideological divide.

For the developing States, the Declaration called for particular attention to developing States, particularly through focus on States with relevant space capabilities contributing to promoting and fostering international cooperation and the development of relevant space capabilities in interested

---

[99] UNCOPUOS, *Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes*, Working Paper Submitted by Argentina, Brazil, Chile, Colombia, Mexico , Nigeria, Pakistan, Philippines, Uruguay and Venezuela, UN Doc. A/AC.105/C.2/L.182/Rev.1 of 31 March 1993; and UNCOPUOS, *Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes*, Working Paper Submitted by Brazil, Chile, Colombia, Egypt, Iraq, Mexico , Nigeria, Pakistan, Philippines, Uruguay and Venezuela, UN Doc. A/AC.105/C.2/L.182/Rev.2 of 23 March 1995

[100] UNGA, *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interests of All States, Taking info Particular Account the Needs of the Developing Countries*, Working Paper Submitted by Germany and France, U.N. Doc AéAC.105ÉC.2éL.197 of 24 March 1995.

[101] UNCOPUOS, Draft Resolution, Working Paper Submitted by the Chairman of the Working Group, U.N. Doc A/AC.105/C.2/L.202 of 27 March 1996

States. The majority of other terms of the provision are neutral, having no direct preferential bias towards the developing States. On the other hand, the most substantial and determining provisions in the Declaration, namely that States are free to determine all aspects of their cooperation and would choose the most efficient and appropriate mode of cooperation consolidate the view of the developed States and put an end to the objective of the developing States of a regime that would ensure and obligate developed States to share benefits in a way that was more meaningful to them. According to Djapo[102] the all-important goals of the developing States in creating indigenous capability in space science and technology, as well as to secure the transfer of space technology were missing and in sum, "this document adds very little, if anything, to the body of international law and State practice."

The fundamental flaws in the strategy and argumentation of the developing States that prevented their goal from materializing must be assessed. A CAIL agenda questions whether the developing States averted their mind to Kennedy's idea of the destabilizing legal work described above that needed to be done: that the initial apprehension of what the system of norms required, given the facts, would result in a new apprehension of the system, as it applies to the case. Or, in reality, did the legal workers have the time, strategic wherewithal, and skill to understand the essential attributes of Article I OST as it appeared in the context of the facts presented to them, bearing in mind one assertion overheard that the OST possibly was a nail in the coffin for these countries. After all, according to one interpretation highlighted by Brisibe,[103]"That treaty was described, at its conclusion, as a rigidly contractual instrument—in essence, a bilateral agreement between the principal space users.

**Where Did the Developing States Go Wrong?**

It is therefore asserted here that failure of this draft comes not from the aforementioned provisions but from Principle II (4) that calls for preferential treatment of the developing States *with no reciprocity* from the Countries benefiting from such special treatment. Diverging from Shrogl's "most favoured nation principle", the developing States requested "special and differentiated

[102] Gordana Milinic Djapo, *Outer Space Activities, International Cooperation and the Developing Countries* (LLM. Thesis, McGill University, 1998) at 82.
[103] Tare Brisibe, *supra* note 35 at 384.

treatment." As pointed out by Ferrier,[104] objection to the wording was made on the basis that the idea that not asking reciprocity from developing countries benefiting from special and preferential treatment was inconsistent with the concept of cooperation as being based on a mutuality of interests among all States.

Secondly, by claiming nonreciprocal benefits, the developing States were treating the use of Outer Space as Common Heritage of Mankind (CHM) which it is not. Authors including Schmidt[105] add to this confusion by positing that "the term "for the benefit and interests of all countries" refers to the concept of the Common Heritage of Mankind," but in reference to Article I (1) OST, Outer space benefits are referred to as "the province of mankind' and not the CHM, therefore the two concepts must be distinguished. Tronchetti highlights that `as a matter of fact, the Treaty introduces the principle of province of mankind as *substantially differing* from the common heritage of mankind concept.``[106] The CHM principle is contained in Article 11 of the 1979 Agreement Governing the Activities of States on the Moon and other Celestial Bodies (The Moon Agreement). Gabryonowicz[107] posits that the Province of Mankind provision of the OST is not a specific legal maxim and a strategic distinction exists between the two concepts, specifically that the Province of Mankind provision refers to "activities" (exploration and use) and that the CHM provision refers to "material objects." [108] As Huang[109] explains Article I (1) OST secures equitable *utilization* of Outer Space. This "activities vs materials" distinction, according to Gabryonowicz provides a natural rationale to advance real activities such as Intelsat. [110]

---

[104] Jill Ferrier, *supra* note 5.
[105] Yvonne Schmidt, "International Space Law and Developing Countries" in Christian Brunner & Alexander Soucek eds., *Outer Space in Society, Politics and Law* (Springer: Verlag/Wein, 2011) at 696.
[106] Fabio Tronchetti, *supra* note 67 at 9.
[107] Joanne Gabrynowicz, "The "Province" and "Heritage" of Mankind Reconsidered; A New Beginning"(Paper delivered at the 2nd Conference on Lunar Bases and Space Activities of the 21st Century, NASA Conference Publication 3166:1, 1992).
[108] B Maiorsky (1986) "A Few Reflections on the Meaning and the Interrelation of "Province of Mankind" and "Common Heritage of Mankind" Notions", Proceedings of the 29th Colloquium on the Law of Outer Space.
[109] J. Huang, *supra* note 7 at 166.
[110]Francis Lyall (2000) "On the Privatization of INTELSAT" 28 Journal of Space Law 101.

Preferential treatment is in and of itself recognized in international law. In the context of the WTO, Part IV of the General Agreement on Tariffs and Trade (GATT) includes provisions on the concept of non-reciprocal preferential treatment for developing States, namely that when developed States grant trade concessions to developing States they should not expect the developing States to make matching offers in return. However, such phrasing does not in practice contain any obligation for the developed State, but rather highlights what should be expected when a given action is undertaken. In other cases of international law, in cases of non- reciprocal preferential treatment, there is some kind of benefit gained even if it's not reciprocal, since the preference-giving State facilitates the developing State to provide exports, which in turn benefit the preference giving State.

There are also instances where differential treatment favours industrialized States, namely international arms control and disarmament law and international institutional law. According to Lavanya Rajamani[111] norms of differential treatment in favour of developing States are designed to limit rather than further inequality, seeking to redress the balance, however, differential treatment in favour of industrialized States is a reflection of power and it is used to further rather than limit inequality. That said, what is important here is to acknowledge that in this instance of space benefit-sharing, non-reciprocity amounted to making property rights claims, similar to private property right claims, contra common interest claims for the benefit of mankind, which in itself would be contra to the principle because of the inconsistency of the entitlement. Entitlements here are defined by Schlicht as:

> "Rights, as perceived by the individual. They are not, however, abstract legal rights. Rather they denote the subjectively perceived rights that go along with a motivational disposition to defend them. Obligations are the counterparts of entitlements. They refer to claims of others that are subjectively accepted, and go along with a motivational disposition to respect these claims."[112]

[111] Lavanya Rajamani, *Differential Treatment in International Environmental Law* (Oxford Scholarship Online, 2006).
[112] Ekkehart. Schlicht, *On Custom in the Economy* (Clarendon Press: Oxford, 1998).

However, in defending this right to preferential treatment, it is clear that what is controversial under the Treaty is seeking a *legal* property right but in this case, the entitlement amounts to a *moral* property right that exists independently of a legal right, possibly bringing it within the purview of the provision. As such, even if the claims seem infeasible, they can be an effective device to influence negotiation processes.[113]

**Where Did the Developing States Get It Right But Were Ignored?**

A fundamental provision is missing from the final draft of the Space Benefits Declaration adopted that the developing States had deemed important in their draft and it is stated in full for emphasis:

> "1. All States should pursue their activities in Outer Space with due regard to the need to preserve Outer Space, in such a way as not to hinder its continued utilization and exploration.
> 2. States should pay attention to all aspects related to the protection and preservation of the Outer Space environment, especially those potentially affecting the Earth's environment.
> 3. States with relevant space capabilities and with programmes for the utilization and exploration of outer space should share with developing countries on an equitable basis the scientific and technological knowledge necessary for the proper development of programmes oriented to the more rational utilization and exploration of Outer Space."

Paragraph 3 here is fundamental and groundbreaking revelation when read in the light of the analysis of Schrogl, who highlights that Principle V takes up the problem of space debris which might endanger future space utilization to a significant extent, however, he also states that "the wish (of the Developing States) to be informed about debris prevention measures voiced in para. 3 is ***reasonable but actually needs no mentioning*** since these technological developments are discussions and documented publicly to the greatest extent. This viewpoint fails to take into account a real issue that despite the dearth of information apparently available, accessibility issue

[113] Simon Gächter & Arno Riedl (2005) "Moral Property Rights in Bargaining with Infeasible Claims" 51:2 Management Science 249.

to *relevant* information still remained: An issue that continues today in many different contexts where information sharing is apparently implemented.

It is important to stress here that I do not assess developing States perspectives to push for one side of the divide versus the other, due to my acceptance of convergence hypothesis, which acknowledges that what emerging space nations will want from the global system will eventually come to more closely match the preferences of today's established players. Any analysis that relies on the category "Developing State" must necessarily subject its own categories to constant critique and scrutiny, revision, interrogation, deconstruction, and reconstruction. As highlighted by Narain, [114]categories structure the questions asked and inevitably, the conclusions reached. The importance of reinserting Developing States interests into the dialogue becomes critical to reconstructing an understanding of law that can take into account their experiences, but doesn't seek to let those experiences dominate. As such Hafner's[115] view is acknowledged that following adoption of the Space Benefits Declaration, the (established) spacefaring nations are no longer the only ones obliged to ensure benefit-sharing, as a positive duty exists to all States even if benefit-sharing is carried out by other States. While this acknowledges that an obligation did exist for benefits to flow from industrialized to developing States under Article I OST, he argues that it no longer limits activities but ensures positive affirmative action by all, including the developing State. From the developing State perspective, this interpretation creates a burden on the recipient country that was did not appear apparent under Article I OST, but it is proposed by this paper was always there and they helped to express that through their first draft of the Space Benefits Declaration. But, If the obligation applies to all equally, could it be thus that Hobe's line of thinking was correct regarding Article I OST as prevention of monopolization? Common Benefit could simply be an affirmation of a commons that can't be appropriated. It is not about asserting what we use the commons for or what we can get, but what does it allow us to produce as a collective good.

But then, if there are no specific benefits, it's easy to show disproportionate drawing of benefits from the established players and since some States are deriving so much benefit, there is actually

[114] Vrinda Narain (2013) "Muslim Women's Equality in India: Applying a Human Rights Framework" 35:1 Human Rights Quarterly 91.
[115] Gerhard Hafner, *supra* note 55.

a breach of Common Benefit condition occurring at present. The failure to address the concerns that assistance and information would be needed to ensure prevention of degradation of the Outer Space environment appears to amount to that breach. However, a middle ground position inspired by CAIL thinking does not focus on blame and scepticism but on moving forward under good faith conditions because we need to work to heal divisions and not polarize people.

## 2.4 CAIL Considerations

### 2.4.1 The Space Benefits Constant

Reconsidering the claims of the developing States from a more neutral and objective perspective is the first step towards a better understanding of Article I OST. As Kennedy[116] teaches, norms are always and unpredictably subject to destabilization by future ideologically orientated work strategies and this understanding/realization is key to demystification of the law. The capabilities idea[117] is a kind of middle ground. It is not connected firmly to a specific outcome or enabling idea but is a kind of step between the absence of constraint and the production of some positive end. When developed with a Cosmopolitan Approaches to International Law (CAIL)[118] agenda in mind, it presupposes looking for positive feedback loops, in the face of constant and stable scenarios.

While global issues seem in a flux, four constants do emerge, which highlight the foundational nature of the goal of space benefit, the basic and inherent features, character or quality that makes it what it is. Characteristics or elements that remain the same are referred to as constant. In the context of space benefit, the objective of deriving common benefit from any given space activity sets these four priorities in constant interaction (The need to be connected, informed, respected and secure). I refer to as the Space Benefits Constant. Regardless of where a given State is on its development path, the components of the constants are the desires and needs that exist in every potential space actor or user. The table below highlights the method of acquisition, the proposed outcomes and limitations of each of the referred needs.

---

[116] Duncan Kennedy, *supra* note 79.
[117] Amartya Sen, *supra*, note 13; Jennifer Nedelsky, *Law's Relations: A Relational Theory of Self, Autonomy, and Law* (New York: Oxford University Press, 2011).
[118] See Chapter 3 of this thesis.

Table 1: Components of the Space Benefits Constant

| GOAL | METHOD | OUTCOME | LIMITATIONS |
|---|---|---|---|
| **Be Connected** | Meet basic needs through infrastructure | Sharing and building community, access | Fast expansion but focused on urban, educated populace |
| **Be Informed** | Stimulation of knowledge generation | To be informed and to contribute to society | Infinite but limited by current understanding and technology barriers |
| **Be Respected** | Innovation, Inspiration and wonder | Local and International prestige | Appears to meet limited needs |
| **Be Secure** | Create opportunities though increased collaboration | Safety, peace and opportunity to thrive | Complex because of lack of sincerity |

Abraham Maslow's seminal work on the hierarchy of needs[119] inspires and is reflected in this table of needs because the most basic level of needs must be met before an individual will strongly desire the second level or higher level of needs. In Maslow's hierarchy, after fulfilling basic needs of esteem, friendship, love, security and physiological needs, Maslow's top level need for mankind is self-actualization, which requires what he calls "meta-motivation".

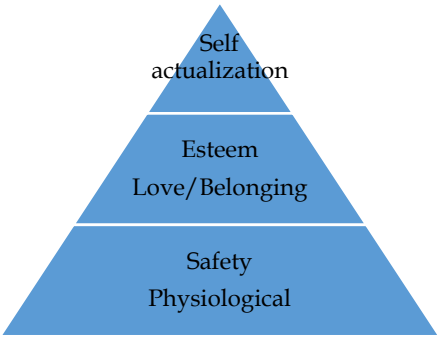


Figure 2: Maslow's Hierarchy of Human Needs

[119] Abraham. Maslow (1943) "A Theory of Human Motivation:" 50:4 Psychology Review 370.

The components of the Space Benefits Constant in themselves will not produce benefit but the act of ensuring the spread and sharing of benefit is the way the benefits will manifest themselves towards desired outcomes and to reach "actualization". At this point, there is true and "full" benefit-sharing for mankind, which is to focus on ensuring that space can also be used for the benefit of all, including future generations. In essence, all prior needs (the need to be connected, informed, respected and secure) must be fulfilled in order to achieve actualization of common benefit. While the Space Benefits Constant components, as with Maslow's hierarchy, begins individualistically, taking into consideration human nature; for actualization of common benefit to be achieved the end goal must always be collectivist to fulfill the purview of the law that suits the purposes of humanity. As Montgomery[120] highlights, Maslow's hierarchy overlooked the level above the need for self-actualization: the need for collective actualization. In order words, contra Maslow's objective of self-actualization, the goal here of climbing up the Space Benefits Constant hierarchy is collective actualization of common benefit, leading to space sustainability.

As such the flow is upwards and outwards, representing increasing time and an expanding universe. To that end, it may be easier to visualize if we turn the Maslow Hierarchy image upside down to reflect the position of the steps of the Space Benefits Constant Hierarchy.

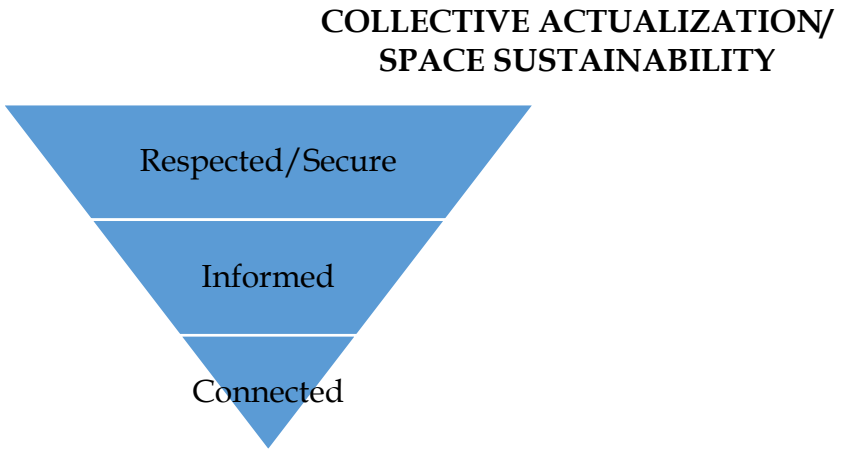


**Figure 3: Space Benefits Constant Hierarchy**

[120] John Montgomery, *Great from the Start; How Conscious Corporations Attract Success* (Morgan James Publishing, 2012).

If self-actualization is seen as an ongoing and continuing process and not an end goal, however, the real question becomes how can we balance these two seemingly conflicting objectives: self and common actualization, and can we see the effort to attain both, one and the same objective? This is an open-ended question.

### 2.4.2 The Challenge of Market Structures

One important observation follows. Is it that as you move up the hierarchy and get greater capacity on the receiving end that heightened market incentives come into play? So even though basic individual needs have been met, the goal of collective actualization is still elusive because the height of self-actualization appears to be space commerce? Mey[121] states that probably the most "pragmatic" way to sustain space exploration is bringing space exploration into the economic sphere, just as Earth-orbit space activities such as satellite communication, remote sensing, and satellite navigation. Given the prevalence of "market mechanisms" shaping almost all facets of life, the inclusion of market mechanisms in the global response to space exploration and the desire for entry into the space sector appears entirely natural. Yet in some very important ways, addressing development issues through the creation of space markets is a grand experiment in and of itself and the structure of the market from the perspective of emerging nations and new players appear to suffer from teething problems.

The concept of a market structure is understood as those characteristics of a market that influence the behaviour and results of the firms working in that market. Focusing on this recognizes that distributive justice and space benefit-sharing from a CAIL perspective actually is interested in the design of the economic ground rules that regulate cooperation and exchange, calling for the emergence of set standards in the market such as the Know-How Technology Transfer (KHTT) markets. The main aspects that determine market structures are: the number of agents in the market, both sellers and buyers; their relative negotiation strength, in terms of ability to set prices; the degree of concentration among them; the degree of differentiation and uniqueness of products; and the ease, or not, of entering and exiting the market. Imperfect competition market structure is

[121] Jan Mey, "Law and the Extension of the Human Presence with Moon 2.0 - Update to Global Compact 2.0?" (LLM Thesis, McGill University, 2008) [unpublished].

where the firms that operate in a market have a lot of control over the good or service they produce. This will happen when the numbers of firms that produce that good or supply a certain services are very few in the market. In the absence of perfect competition, three basic approaches can be adopted to deal with problems related to the control of market power and an asymmetry between the government and the operator with respect to objectives and information: (a) subjecting the operator to competitive pressures, (b) gathering information on the operator and the market, and (c) applying incentive regulation. The problem, however, may be that this new market is an imperfect market structure and gives rise to unfair market practices.

For example, licensing procedures that affect the structuring of the market within which the space industry operates, particularly with regards to agreement concerns that are centered on the asymmetric information paradox, (whereby the customer needs to understand the technology before purchasing) recipient states do not know what information they need or are lacking and can easily receive less than they need.[122] According to Buhl et al.,[123] the business model of today's Know-How Technology Transfer (KHTT) programs does not support training success as the hosts do only have a business case during the training program. It is likely that the training program is extended unnecessarily either by keeping essentials secret / inaccessible or by implementing over complex missions that require multiple cycles in Level 1, thus ensuring a long dependence of the client to the host. Generally speaking, the interest of client and host do interfere. Although more than 20 governments KHTT programs with four companies[124] have been conducted commercially since 1984, according to Buhl et al's analysis, five programs were successfully completed, four are ongoing, there has been a host change five times and two programs have been stopped. They have identified a number of reasons for what they call the low success rate in technology transfer programs with small satellites, namely: Conflicting goals of client stakeholders, overly complex missions (all in one go), and conflicting goals of host and client (business model). Only a few of the participants are already able to independently run and a sustainable space program. That means

[122] Abigail Katz, "Technology Transfer Agreements Containing Tacit Knowledge" (LLM Dissertation, University of Toronto, 2011) [unpublished].
[123] Matthias Buhl et al., "BST Training Program - A New Paradigm for Successful Technology Transfer" (Paper delivered at the 8th IAA Symposium on Small Satellites for Earth Observation., Berlin, Germany, 24 – 28 April 2017).
[124] SSTL (UK), TU Berlin (Germany), Astrium (FR), Satrec Initiative (South Korea).

that most training programs of the various training companies apparently fail to deliver what the clients want.

**Technology Transfer or Technology Absorption? The Case of Brazil**

One interesting case study, however, has emerged in Brazil.[125] The first Brazilian Geostationary Defense and Strategic Communications Satellite – SGDC and the Brazilian Government established a consultant multidisciplinary group whose consensus indicated that the contract for the construction of SGDC by a foreign company should include binding plans of technological absorption, as well as of transfer of technology. The group proposed the creation of a mixed-capital company, where the state company Telebras (of the Ministry of Communications) would perform the public part. Due to its commercial success in the global market of airplanes, the Brazilian private company Embraer was invited to join the SGDC Project. The company called "Visiona Space Technology" acted as a prime contractor of the SGDC Project and signed the contract for the management and construction of SGDC. French company Thales Alenia Space was selected for the development of SGDC and its ground segment and agreed to provide technological absorption to Brazilian professionals, mostly engineers, involved in the national space program, nominated by the Ministries of Communications and Defense, Telebras, the Brazilian Space Agency (AEB), the National Institute for Space Research (INPE) and Visiona. Because of this contract, AEB and Thales Alenia Space signed a Memorandum of Understanding to regulate the transfer of technology to the Brazilian industries, during the SGDC's development.

This strategy represents a substantial change in the development of satellites in Brazil. The SGDC Project will allow to professionals from Visiona and from governmental institutions follow, systematically, all phases of project's development, including management, design, integration and tests of the geostationary satellite (technology absorption). AEB is in charge of coordinating, monitoring and evaluating the results from the proposed strategy and will own the intellectual

[125] Álvaro Fabricio dos Santos, "A New Experience on the International Transfer of Space of Technology" (Paper delivered at the 65th International Astronautical Congress, Toronto, Canada, October 2014); Peter Spelding, Thales Alenia Space Details Elaborate Tech Transfer Deal with Brazil ( 22 April 2015) *Space News* Online:<http://spacenews.com/thales-alenia-space-inks-elaborate-tech-transfer-deal-with-brazil/>; Email communication dated 26 May 2015 with Petrônio Noronha de Souza Director of Space Policy Brazilian Space Agency.

property rights derived from the transfer of technology. The SGDC satellite is to be built in France because the Brazilian industries are not yet able to fulfilll this work. However, as a result of the transfer of technology to national industries, Brazilian companies will be able to carry out other coming projects. Taking into account the future interests of the Brazilian space developments, AEB has negotiated with Thales Alenia the areas where the transfer of technology would be feasible, including in systems of communication, attitude & orbit control, ground control, payloads and software. Thales Alenia stipulated the prices for each of them, including the criteria for updating the values, if necessary.

The procedures for the transfer of each technology will involve AEB, Thales Alenia, and a Brazilian company selected by AEB through a public process. The selected Brazilian company will receive the transfer of technology in a specific area. Among the criteria for selecting the company, AEB will consider its legal and fiscal regularity, in accordance with the Brazilian legislation, as well as its experience in the chosen area. With a view to enabling the transfer of technology, the contract signed among AEB, Thales Alenia and the Brazilian company may foresee the solution of a technical specific problem, the development of an innovative process, or even the delivery of a product. In all of these hypotheses, AEB will pay the price specified in the MOU to Thales Alenia as well as it will support the expenses of the Brazilian company. In essence, this is not a charity exercise as Brazil is willing to "pay to play".

It is important to emphasize that the absorption of technology established in the contract signed between Visiona and Thales Alenia has no relationship with the transfer of technology foreseen in the MOU signed between AEB and Thales Alenia and the Brazilians find it important to highlight that there are sound differences between absorption and transfer of technology. The first – the absorption – is applied to individuals, while the second – the transfer – is directed to companies. The absorption of technology will be provided to a Brazilian team from public institutions, as well as to the employees of Visiona, in the scope of the SGDC Project while the end users of the transfer of technology will be the employees of the companies selected by AEB. In both cases, the Brazilian professionals will be submitted to "non-disclosure agreement" clauses. However, those who will absorb technology may use their knowledge to improve management of the Brazilian space projects as well as the technical requirements of space assets. Therefore, absorption of technology will enhance the role of the Brazilian space public institutions in defining and guiding the priorities

in the space area. The transfer of technology will contribute to the development of the Brazilian space industries, with a view to enabling them to attend the future needs of the Brazilian National Space Program.

### 2.4.3 The Space Benefits Hierarchy: Introducing Framework to Evaluate Conditions for Benefits to be Shared

It emerges from assessment of the Space Benefits Constant and the issue of the market structure for KHTT programs that here should be some sort of duty to investigate the different conditions and availability to different States of Common Benefit and a way to account for one's own self, perhaps through seeing ourselves as trustees of this common resource for Common Benefit. The question must be asked of all, how does my use relate to all others? There is a point in the Space Benefits Constant Hierarchy where looking down you generate responsibility, but looking up you may be the beneficiary of stewardship of others. But how do we extract general principles from case by case examples? The Courts can give us an answer here.

Courts balance between contextualization and general principles in a field such as company law. While there is discretion in the business judgement rule,[126] the judges would have to see that in decision-making the decision maker has oriented himself to the question, "What is in the best interests of the corporation?" While the answers will vary it must be shown that there is a process of analysis and assessment of that overriding principle in the context of the preconditions to the application of the rule (a business decision, disinterestedness, due care, no abuse of discretion, good faith and best interests). In the case of common benefit, it must be shown that the assessment of a given context bears upon the general obligation to share use/benefit. The necessary questions include:

- How did you go about it?
- What was the frame of reference?

[126] Zeeshan Ashraf, "The Position of the Business Judgment Rule in Different Corporate Cultures and Structures: A Study and Analysis" (LLM Dissertation, McGill University, 2001) [unpublished].

- Did you look at the right questions?
- Did you consult with diverse actors?
- How did you pay attention to the range of interests involved?

These sorts of questions coincide with Corporate Social Responsibility (CSR) initiatives of organizations, essentially the development of frameworks of codes of conduct to guide behaviour. Some codes go beyond just showing that benefits are shared but the impacts of use could also be considered. What this tells us is that even in the absence of provisions as clear as Article I OST; there are efforts to develop frameworks for assessing impacts of activities, so how much more in the space context? Non-State Actors particularly find it difficult to be subject to public obligations as they do not see themselves as fiduciary to others, but the development of Indexes (e.g. human development index, corruption index) for instance,, is a non-invasive way for States and Non-State Actors to self-regulate.

This thesis, therefore, creates a balance between a soft law framework for assessing benefits that could have more impact than the Space Benefits Declaration, because it forces users to use tools to assess their behavior, but that also allows us to give shape and significance to the hard law norm under Article I OST. I, therefore, propose the development of a dynamic perspective of reciprocal relationship that arises when use/benefit is shared that is in the character of the middle ground CAILian position, called the Space Benefits Hierarchy (SBH). The SBH should present a conceptual framework for the assessment of areas of consideration for space benefit-sharing for the benefit of all as envisaged by the Space Benefits Declaration, which takes into consideration the needs as expressed by the Space Benefits Constants. It is a project of deconstruction involving a renewal in the way reciprocal obligations are proposed. (See Chapter 3).

## 2.5 Conclusion

At this juncture, the hermeneutic nature of ideas and ideology brings me full circle to find a consensus ad idem, or a meeting point with Hobe[127] with his concept of "self-enlightened

[127] Stephan Hobe, *supra* note 15.

sovereignty" where he argues that in view of the growing interdependence of all States, in the era of globalization and with a particular view of global challenges, the prohibition of monopolization of the benefits derived from space activities becomes an important concept of sovereignty of the future. Hobe acknowledges to this end, the Province of Mankind concept has a certain aspect of preservation of the environment to it, albeit it is very roughly hinted at. He inevitably concludes that the real focus in this regard would be an exploration of the CHM concept under the Moon Agreement. Despite that this thesis has thus far sought to avoid too much discussion of the Moon Agreement because it is believed that the impasse caused by its controversial nature is too much to make discussion in this useful and meaningful, Huang' s[128] analysis is instructive here. He argues that the political considerations underlying both the Moon Agreement and Article I OST are the same.

That the non- space powers wanted to have a share of the fruits of space exploration and exploitation and that State parties undertook in the Moon Agreement to establish an international regime including appropriate procedures to govern the exploitation of natural resources of the moon as such time exploitation is about to become feasible. He points out that Article 11.7 of the Moon Agreement calls for 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. He argues that even if the value of the Moon Agreement per se is open to serious doubt, the tacit or express reaffirmation of the common interest principle by the two space powers and other countries during the entire process of negotiation can hardly be repudiated. He concludes therefore that the Moon Agreement is an existing international legal instrument which strengthens the force of the Common Benefit/ Interest principle in Article I OST. By this assessment, to really understand the application of space sustainability as a tool to create a justice outcome both for aspirant and established space actors as well as future generations, perhaps a better understanding of the Moon Agreement would be required through future works. If benefit-sharing as an application of the goal towards sustainability is to b oriented to a justice outcome, the CAIL approach will have to elaborate a practice of "hospitality" among plural legal orders. Through conceptions such as the Space Benefits Constant and Space Benefits Hierarchy to

[128] J. Huang, *supra* note 7.

help interpretation of the law, thus there should be a practice of cosmopolitan law and not simply a perspective that is cosmopolitan.

The point is that we will eventually need to move from one geopolitical context to a different context as we look back on the emergence of time to understand how to produce cooperation around public goods because we would have reached the boundary of our ability to manage the Earth together. So 50 years from now we will have come to a point where we are no longer thinking about resources as who is possessed with the most freedom or the most benefits, but the discussion must move towards space sustainability which is one sort of justice outcome.

I end this chapter with two thoughts. First, the more obvious way to address this issue would have been to direct exploration efforts towards identifying any unseen bottlenecks in the Space Law that is preventing Benefit-sharing and International Cooperation in Space and suggesting corrective measures. However, it is clear that finding direct bottlenecks in the text and wording and even in the statements of States would have been difficult because the wording of the law was left purposefully vague as are outcomes of cooperative activities. I, therefore, approached this problem by questioning underlying philosophical and political assumptions: namely, the understanding of freedom of Outer Space for the benefit of all countries[129] that appears to provide the foundation for the whole issue, arguing that the provision of Article I OST may possibly be flexible enough to allow an interpretation in accordance with the current needs of the international community. I identified that the real issue with the current interpretation of the Common Benefit principle under Article I OST is that it is viewed as a *limitation* to the freedom of Outer Space instead of as a *condition* of freedom. While this distinction may appear as simply semantics or a matter of perspective, the effect of this misnomer is consequential because it makes discussion about equity and fairness circular, and benefit-sharing as something of a burden rather than a positive obligation to fulfill to ensure that all can benefit. Some of the perspectives of some notable space law scholars are seen as particularly problematic in this regard because they appear to stress the dominant understandings of this underexplored obligation, without fully considering some underlying nuances. It could be as a result of some of these analyses, of which this current piece could also be

[129] Despite that Article I OST refers to "countries," as the beneficiaries, I discuss throughout this thesis of States, to reflect the potential that the totality and multiplicity of actors that can be attributed to a State without being the government, as non-governmental actors are gradually being recognized and considered as vital participants of space governance.

guilty that Jakhu and Freeland state that "the contemporary practice of the international judicial bodies shows a noteworthy reluctance to use scholarly writings as a means to search for the lex lata of international law".[130]

Secondly, even if the relationship to the obligation is perceived as a failure, it is the effort to the approach that makes it worthwhile. The goal is so important that even if it is never fulfilled, we must continually orient ourselves towards the task. As expressed by Matte[131] "even if the benefits derived do not meet expectations, the common efforts made towards the distribution of the benefits on an equitable basis may well prove to be gigantic steps on the path to establishing a new order of international cooperation."

In conclusion and in moving forward we must not fail to alert ourselves to Derrida[132] and Negri/Hardt[133] who explained the need to understand and show reverence and acknowledgment to the past and our heritage and that our society has already shaped us to the extent that potentially any new ideas we have may come from that society that we are trying to change and the initial ideas from the original empire may be strong enough to creep into our new consciousness such that what we think are new ideas are jut old ideas explained in a different way. Here I acknowledge my own subjectivity because my engagement in space activities began from a developing country perspective, as a legal affairs and international cooperation trainee at the Nigerian Space Research and Development Agency (NASRDA), however, I was born in England and the majority of my academic education and social orientation is European/Canadian. This declaration frees me to step back and say I attempt to speak from an understanding of both sides of the development divide, without being a true master of either.

---

[130] Ram Jakhu & Steven Freeland, "The Sources of International Space Law" (Paper delivered at the IISL56th Colloquium on the Law of Outer Space, 64th International Astronautical Congress 2013, Beijing, China)

[131]Nicolas.M. Matte, *Aerospace Law, Telecommunications Satellites* (Toronto, 1982) at 215.

[132] Jaques Derrida, *Les Spectres deMarx* (Paris: Galilée, 1993); *Specters of Marx* Trans. Peggy Kamuf (New York: Routledge, 1994).

[133] Micheal Hardt & Antonio Negri, *Empire* (Cambrdige: Harvard University Press, 2000).

# CHAPTER 3: Overcoming the Danger of a Single Story of Space Actors: Introducing the Cosmopolitan Approaches to International Law (CAIL) Lens to Analyze Governance Issues

**Abstract**

Third World Approaches to International Law or TWAIL is a useful starting point to assess space governance issues from the perspective of emerging or aspirant space actors and users because it helps to highlight imbalances and asymmetry around the supposed "legal right" to space benefit under Article I(1) of the Outer Space Treaty. However, a new analytical lens focused on Cosmopolitan Approaches to International Law or CAIL is proposed that can deconstruct the existing agenda in light of it obscuring the idea of shared benefits without attributing blame, scepticism or negativity.

In the quest to ensure fairness to all, including aspirant emerging space actors, largely from developing States, this thesis asks what does one learn from the space law context that prompts us to reorient the frame of analysis that Third World Approaches to International Law (TWAIL) perspective brings to bear and focus on a CAILian perspective? Primarily that a TWAILian approach is too one sided and polarized. A CAILian approach, however, acknowledges reciprocal responsibilities.

> *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.*
>
> *Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.*

*There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.*

Article I *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*[1]

## 3.1 Introduction

Article I of the Outer Space Treaty (OST) is understood as the clause granting the four freedoms of Outer Space, namely: the freedom of *exploration*, freedom of *use* (scientific and commercial activities), the freedom of *access* to outer space and the freedom of *scientific investigation*. In exercising these freedoms, Article I states that exploration and use "must be carried out for the benefit and interests of all countries", that freedom exists "without discrimination of any kind", "on the basis of equality", "in accordance with international law" and that "States shall facilitate and encourage international cooperation" in scientific investigation.

The fundamental provision here is “benefit and interest of all countries,” the objective of which was to ensure that all would benefit from space activities. However, debates surrounding the freedoms of Outer Space and space benefit-sharing have been largely ideological, and therefore it is apparent that there is no neutral analysis, and the history of the debates is all there is. As such, the importance of narratives in framing law and approaches to law cannot be underestimated because dominant narratives where powerful feed into and influence similar dominant representation in the law, obscuring legal reality. Cover[2] argues that the codes that relate our normative system to our social constructions of reality and to our visions of what the world may

[1] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, 27 January 1967, 610 UNTS 205, 18 UST 2410, TIAS No 6347, 6 ILM 386 (entered into force on 10 October 1967) [Outer Space Treaty/OST].
[2] Robert M Cover (1983) “The Supreme Court, 1982 Term -- Foreword: Nomos and Narrative”, Paper 2705 Faculty Scholarship Series. Online <http://digitalcommons.law.yale.edu/fss_papers/2705>.

be are narrative. His concept of the *nomos* (a present world constituted by a system of tension between reality and vision) is but the process of human interaction stretched between vision and reality. With this idea of narratives, I am reminded of my favorite author.

When she began to write at the age of seven, she wrote exactly the kinds of stories she was reading. All her characters were white and blue-eyed. They played in the snow and ate apples. They talked a lot about the weather, how lovely it was that the sun had come out. All this despite that Chimanada Ngozi Adiche lived in Nigeria and had never been outside Nigeria. There was no snow, she ate mangoes and they never talked about the weather because there was no need to. What this demonstrates, she argues, is how impressionable and vulnerable we are in the face of a story. And therein lays the danger of a single story.[3]

In 2013, global government spending for space was estimated at $72.2 billion. Out of over 80 countries engaged in space programs or who had indicated an interest in space engagement, the U.S. national budget for space was an estimated $38.7 billion; that is $28 billion more than Russia's $11 billion investment and $34 billion more than China, the number three country in terms of space spending.[4] Despite that no other country comes close to the U.S. or Russia in terms of investment, Space is not just about NASA, the Department of Defense (DoD) and remnants of cold war tensions. But, if that proposition is true, then why the lack of awareness and understanding of the space programs and development objectives of new "space capable" countries such as Laos, Chile, Ghana and Azerbaijan? This is because, as I argue, there is a single story about who can engage in space exploration.

In investigating this question, I sought to find a theoretical or conceptual school of thought to understand the nature and features of the debates. A Third World Approaches to Law (TWAIL) methodology emerged as one way to assess this scenario because of its focus of "centering the rest, not the west"! However, in my encounter with TWAIL, I could not get past the resistance it engendered and concluded that it actually marginalizes further those it seeks to speak for.

---

[3] Chimamanda Adichi, "The Danger of a Single Story" (July 2009), online: TED: Ideas Worth Spreading, <http://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story>.
[4] *Ibid*.

This thesis, therefore, attempts to move beyond the apparent pessimism of classic TWAILIAN thought. A new approach inspired by TWAIL reveals the Cosmopolitan Approaches to International Law (CAIL) proposed in this paper which moves beyond global citizenship and sovereignty issues of Cosmopolitanism and is in line with the faction of TWAIL that questions how to transform international law to be more sensitive to the concerns of all, without having a false notion of Third World innocence and first world guilt or dominance. Khosla[5] has proposed the emergence of a new phase to TWAIL discourse, possibly a TWAIL III. While in agreement that a new phase of TWAIL could be emerging, I am re-framing this phase as an approach that I call CAIL to take into consideration the realities that I do not think current framing devices account for.

This chapter begins with the story of new entrants to the "space game", highlighting that in recent years there has been an increase in the number of countries investing in space activities. However, there is an untold story in this growth, whereby barriers continue to exist for later entrants. The chapter questions if this has been as a result of structural biases in the international legal and policy regime that acts against the interests of the emerging (mostly developing) States. Part II introduces the Third World Approaches to International Law (TWAIL) as theoretical lens in which to determine the role of developing States in the development of the international space law regime and to highlight how the law could act to the disadvantage of those expecting to access the benefits of space exploration. It also argues that there is a justice outcome expected from the existence of international space law even in the face of its indeterminacy and TWAIL is limited in its ability to expose that justice outcome. Part III introduces the CAIL approach as the new phase of TWAIL.

While this chapter is just the beginning, requiring further exploration, it presents the foundational ideas behind CAIL and particularly its application to International Space Law issues.

## 3.2 Part 1: The Story of New Entrants

As stated by Adiche, It is impossible to talk about the single story without talking about power. Are we all equally vulnerable in the face of all stories? Does it depend on the ideational/ideological

[5] See e.g. Madhav Khosla (2007) "The TWAIL Discourse: The Emergence of a New Phase" 9 International Community Law Review 291.

power of the story-teller? According to space power theory, which is derived from the realist school of thought, "the proliferation of space technology is a foe rather than a friend, because it contributes to military and economic competition; and, above all, it empowers the exercise of the threat of force in, through and from Outer Space."[6] The rivalry for leadership between the U.S. and the USSR at the dawn of the space age was not based on their desire to increase their knowledge of Outer Space but their common aim to gain power-political advantages.

The great maritime powers of the past used specific means and instruments to achieve and maintain their power position and in the same way major space powers use a wide range of instruments in order to maintain dominant position in Outer Space. Von Welck[7] highlights that the most important means of political space power is information and knowledge of Outer Space, autonomous space transportation systems, human presence in space and the self-determination and willingness to use Outer Space for the maintenance and extension of a country's status as a world power. When the U.S. had a monopoly on the market for space technology, it used its monopoly in the area of space transportation systems to hamper the entry of other States into the market for communications and remote-sensing satellites and services.

Von Welck[8] details several examples of this policy including the conditions NASA attached to the launch of the Franco-German communications satellites Symphonie 1 and 2 in the 70's whereby NASA only agreed to launch the satellites on the condition that France and Germany undertook not to use the satellites for commercial purposes. What emerges from the examples is a profile far from that of any of today's developing States such that it explains why the dominant narrative suggests that only super powers can be spacefaring nations.

Throughout the 1990 and 2000's there was an unprecedented increase in the number of spacefaring nations, largely stimulated by the emerging commercial and national space programmes in regions like the Middle East, Africa and Asia. According to Burzykowska[9] "the success of new technology partnerships and the availability of commercial off-the-shelf equipment has already proved that

---

[6] Anna Burzykowska (2009) "Smaller States and the New Balance of Power in Space" 25:3 Space Policy 187.
[7] Stephan F. von Welck (1986)"Outer Space and Cosmopolitics" 2:3 Space Policy 200.
[8] Stephen .F. von Welck, (1987) "The Export of Space Technology: Prospects and Dangers" 3:3 Space Policy 221.
[9] Anna Burzykowska, *supra* note 6.

the cold war habit of attempting to deny cooperation…may be elusive, if not counterproductive." Even then, little attention was focused on the space programmes of developing States; however, in recent years, analysis and scholarship on these programs have emerged, with a focus on the role of International cooperation and small satellites. [10]

Burzykowska attributes the success of new technology partnerships in space exploration and activities and the existence of commercial off-the-shelf equipment related to these, to the "openness of the economic system." However, new and aspirant entrants continue to face challenges and barriers towards their goal of entering the space industry. For example, in the European context, the established space nations have declared that niche areas should be the focus for new Eastern European entrants with no competition in set areas like current launchers. This is so, despite the fact that a few of the relevant States are not satisfied with going simply for niche markets but aim at entering the upstream market of technology development.[11] That the established European space faring States should seek to limit the opportunities available to later entrants in this way should not surprise, since International power politics have always tended to deny other nations the ways and means of exercising political power and influence, by monopolizing the instruments of power. For instance,, as highlighted by Von Welck,[12] where these instruments of power depend on the application of specific technologies, the transfer of such technologies is frequently restricted by classification and the limitation of scientific and technical exchanges.

What the increasing numbers of studies on emerging space programs do not address fully is the role played by international space law in the emergence of space programs and the development of the relevant capabilities in developing States. Space law is credited as the basis of cooperation and benefit-sharing that has resulted in the introduction of new space players. However, if as it

[10] For example, see Dannielle.Wood & Annalisa Weigel (2012) "Charting the Evolution of Satellite Programs in Developing Countries-The Space Technology Ladder" 28:1 Space Policy 15; (2011) "Building Technological Capability within Satellite Programs in Developing Countries" 69 Acta Astronautica 1100; Megan Ansdell et al. (2011) "Analyzing the Development Paths of Emerging Space Nations: Opportunities or Challenge for Space Sustainability?" Secure World Foundation; Euroconsult, Trends and Prospects for Emerging Space Programs, 2013.

[11] Kai-Uwe Schrogl et al (2009) "Governance of Space Activities in an Evolving European Framework – How to Achieve Coherence and Effectiveness?" ESPI Perspectives No 18.

[12] Stephen. F. von Welck, *supra* note 7.

has been argued,[13] the concept of international cooperation in space law has not been as successful as it should have been, how do we understand space law in a way that it will have an enabling effect that will impact both those on the margins of space activity and those drawing the greatest benefits from the space endeavor?

### 3.2.1 The Root of the Problem

It is presupposed that there is a dominant position in interpreting the freedoms of Outer Space under Article I (2) Outer Space Treaty, which has not given much real significance to the idea of common benefit in Article I(1). This dominant position sees the issue of benefit-sharing in the context of the broader issue of the relationship between established space faring nations and emerging and aspirant States and the idea that freedom can take on a different meaning depending on where one is on the scale of development. The relationship between the common benefit/interest principle and express freedoms have been considered only by a handful of jurists[14] but acknowledging Isaiah Berlin's seminal work distinguishing between negative and positive liberty,[15] the prevailing view of the freedom of Outer Space is best explained as negative freedom: an absence of constraint rather than the enabling of an outcome. As such, the idea that space should be used for the benefit and interest of all countries is viewed as a *limitation* on freedom and according to Huang, [16]any loss of balance between the freedom and its limitation would possibly result in irreparable damage to the international legal system. But this perspective fails to acknowledge the possible reality of the view that the benefits of space were being reaped only by a handful of developed States as most of the developing States and newly independent countries

[13] Chukeat Noichim, "The ASEAN Space Organization: Legal Aspects and Feasibility" (Ph.D. Dissertation, Leiden University, 2008 at XXII [unpublished].
[14] Jiefang.Huang, "The Common Interest Principle in Space Law"( LLM Thesis, McGill University, 1985) [unpublished]; C.Wilfred Jenks, *Space Law* (London: Stevens and Sons, 1965) at 193, 256, 259; Ram .Jakhu, "The Legal Regime of the Geostationary Orbit" (DCL Dissertation, McGill University, 1983) at 146.
[15] I. Berlin, "Two Concepts of Liberty" in Isaiah Berlin, *Four Essays on Liberty* (Oxford: Oxford University Press, 1969).
[16] J. Huang, *supra* note 14 at 159.

remained "curious spectators" and had drawn no benefits from it. [17] Article I of the Outer Space Treaty therefore may not have been fulfilled to the satisfaction of these emerging and developing States. Third World Approaches to International Law (TWAIL) seemed a natural approach to use to investigate this problem.

TWAIL begins with positivist legal rules but determines their ultimate acceptability based on the resistance to or acceptance of those rules by third world people. While developing and emerging space nations used resistance to challenge the effectiveness of Article I (1) Outer Space Treaty,[18] the result of the resistance was a General Assembly Declaration[19] (the Space Benefits Declaration), which failed in its objective to secure a binding legal regime ensuring benefit-sharing. The failure appeared to put an end to resistance efforts leading to the possible claim that international law is ineffective at addressing third world concerns. On the other hand, it is argued that the historical acceptance of the status quo and current interpretation does not make the obligation of common benefit and interest in Article 1(1) Outer Space Treaty meaningless. Even if the relationship to the obligation is perceived as a failure, it is the effort to the approach that makes it worthwhile.

The goal is so important that even if it is never fulfilled, we must continually orient ourselves towards the task. As expressed by Matte,[20] "even if the benefits derived do not meet expectations, the common efforts made towards the distribution of the benefits on an equitable basis may well prove to be gigantic steps on the path to establishing a new order of international cooperation."

### 3.2.2 Indeterminacy

One of the central claims that led to the resistance efforts of the developing States is the indeterminate nature of the idea of a "legal right" to space benefit. But what do we make of

[17] UNCOPUOS, Legal Subcommittee, Summary Records of the 537th Meeting, 29th Sess., 537th Mtg., UN Doc. A/AC.105/C.2/SR.537 (190) para 33 at p.9; Bryon Bittingham (2010) "Does the World Really Need New Space Law" 12:1 Oregon Review of International Law 31.
[18] See Chapter 2 of this thesis.
[19] UNGA, *Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries*, GA res. 51/122, UN Doc. A/AC.105/572/Rev. 1 (1996).
[20] Nicolas.M. Matte, *Aerospace Law, Telecommunications Satellites* (Toronto: University of Toronto Press, 1982) at 215.

principles or obligations that on their face appear to be indeterminate and unfulfilllable? Does that place them outside the law or give resonance to the law? Duncan French[21] in the context of a discussion on global justice recognizes three levels of uncertainty: indeterminacy of scope (to what is it relevant?), of content (what does it require?) and of application (is such a concept something that can even be understood at the global level?).

In recognizing the uncertainty, it is still clear that there is a relationship between justice and law but law will never completely fulfill justice. This doesn't mean that law is not orientated towards justice and that the law will sometimes announce what it is seeking to do to contribute to justice. In other words, "while the recourse to principle in political and legal debate can never anticipate the attainment of justice, this should not marginalize the significance—the relevance—of striving for fairness at the global level, particularly between economically divergent States".[22] Huang[23] states that Article 1(1) Outer Space Treaty does not lose its value because it lacks specificity but contrarily it is important precisely because it is general and acts as a continuing source of authority for new applications of the fundamental concept as further problems come into focus or call for solution on the basis of law.[24] To that end, I argue, Article 1(1) Outer Space Treaty announces the form of justice that is sought and it is the aim that space benefits should be shared to all that orients itself to a justice outcome.

## 3.3 Part II: Investigating the Justice Outcome: Understanding TWAIL as the Foundation of CAIL

According to Makau Mutua,[25] the dominant strains of International law are illegitimate. Its' generally unequal, unfair and unjust character subjects developing States to domination, subordination and serious disadvantage, largely due to its colonial heritage. The broad "dialectic of opposition" to this continued marginalization and domination is referred to as TWAIL, and

[21] Duncan French, "Global Justice and the (Ir)relevance of Indeterminacy" (2009) 8:3 Chinese Journal of International Law 593.
[22] *Ibid.*
[23] Jiefang Huang, *supra*, note 14 at p.166.
[24] C.Wilfred Jenks, supra, note 14 at p.193.
[25] Makau Mutua (2000) "What is TWAIL?" 94 American Society of International Law Proceedings 31.

TWAIL scholarship ultimately seeks to aid in the eradication of the conditions of underdevelopment in developing States, in part through analyzing and revealing how global injustice is created and sustained. While almost all mainstream branches of international law and many of the contemporary issues that it deals with have been analyzed from a TWAIL perspective,[26] the law governing space activity has not thus far been subjected to such analysis. This is likely due to the prevalent misconception that space activities are not a concern or priority for the developing world. But, if as Anghie and Chimini[27] have noted, the story of International law only makes optimal sense when seen through the lens of the lived history and experience of the people of the third world,[28] then since developing States are increasingly becoming space faring, a TWAIL approach to analyzing space law has become ever necessary.

But what constitutes TWAIL analysis? How and with what analytical techniques is it conducted? While TWAIL scholars have adopted diverse range of analytical techniques, they are in general united by a number of such techniques and sensibilities. Okafor[29] points out that the first such technique or sensibility is TWAIL's commitment to taking world history as opposed to merely western history much more seriously than most internationalists tend to. He posits that the concern is to map the continuities and discontinuities in the historical development of international legal norms, structure, claims or rules in order to better understand the ways in which they facilitate the

---

[26] See for instance, J. Kangave (2008) "Taxing TWAIL: A Preliminary Inquiry into TWAIL's Application to the Taxation of Foreign Direct Investment" 10:4 International Community Law Review 389; A. Dhir, "Shareholder Engagement in the Embedded Business Corporation: Investment Activism, Human Rights and TWAIL Discourse" in P. Zumbansen & C. Williams eds., *The Embedded Firm: Labour, Corporate Governance and Finance Capitalism* (Cambridge: Cambridge Univ. Press, 2010); E. Duruigbo (2006) "Exhaustion of Local Remedies in Alien Tort Litigation: Implications for International Human Rights Protection" 29 Fordham International Law Journal. 1245; J.T. Gathii, "Third World Approaches to International Economic Governance" in *International Law and the Third World: Reshaping Justice* (Oxon: Routledge-Cavendish, 2008).

[27] A. Anghie & B.S. Chimini (2003) "Third World Approaches to International Law and Individual Responsibility in Internal Conflicts" 2:1 Chinese Journal of International Law 77.

[28] The terms "Developing Country" and "Emerging Nation" are used interchangeably through this thesis. While the concept of the "Third World" also applies to the countries discussed when using the first two terms it is apt to recognize that TWAIL scholarship rejects the use of those terms as "Third World" has a distinct and structural meaning. See Remi Bachand, "Critical Approaches and the Third World: Towards a Global and Radical Critique of International Law" (Paper delivered at the McGill Legal Theory Workshop, Montreal, Canada, 2010).

[29] Obiora Okafor (2005) "Newness, Imperialism and international Legal Reform in Our Time: A TWAIL Perspective" 43:1/2 Osgoode Hall Law Journal 171.

disadvantages that third world people now suffer. TWAIL scholars therefore seek to map the techniques and devices used by global powers in the past to not only recognize the presence of similar techniques in contemporary international relations; reveal how those techniques continue today and ultimately write the third worlds' shared historical experiences into the processes and outcomes of international thought and action.

Okafor also highlights the insistence among TWAIL scholars on thinking through the various ways of offering epistemic and ideational resistance to the global hegemonies that their work explains and the effects that such resistance has had on law and institutions.[30] In this particular vein, Buchannan[31] questions whether "third world resistance [has] the potential to transform international law, moving us in the direction of a more just international order?" As argued by Natarajan,[32] a TWAIL counter reading can not only help explain how a system based on equality can co-exist alongside increasing inequalities in power but using a TWAIL approach can guard against taking legal concepts at face value urging instead the deconstruction of meaning and examining the underlying premises of disciplinary debate.

Returning to space law itself, it should be noted at the outset that not every scholar of this area of law would agree entirely with the possible TWAIL critique that it has worked to the disadvantage of the developing States. For example, Christol[33] argues that developing countries have not been inhibited by their condition in playing an active role in the formulation of international space law

[30] Rajagopal Balakrishnan, "International Law and Third World Resistance: A Theoretical Inquiry" in Anthony Anghie et al. eds., *The Third World and International Order: Law, Politics and Globalization* (Leiden: Martinus Nijhoff, 2003) at145.
[31] Ruth Buchanan (2008) "Writing Resistance into International Law" 10:1 International Community Law Review 1.
[32] Usha Natarajan, "The 2003 Iraq Invasion and the Nature of International Law: Third World Approaches to the Legal Debate" (Ph.D. Thesis, Australian National University School of Law, 2008) [unpublished].
[33] C. Christol (1976) "International Space Law and the Less Developed Countries" Proceedings of the 19th Colloquium on the Law of Outer Space 243, 244.

and policy while Jakhu[34] and Huang[35] posit that as developing countries actively participated in the development of space law they secured legal protections and necessary safeguards for their interests in the exploration and utilization of outer space. On his own part, Jasentuliyana[36] highlights that the main contributions of developing countries included ensuring absolute liability for damage caused by States which launch objects into space, introducing the concept of the Common Heritage of Mankind into space law, and attempting to ensure that the benefits of space exploration would be distributed equitably through international cooperation.

Fast forward to today: the fact is that as over half of the countries investing in space are from developing States, it's clear that space governance is indeed a developing country concern. To that end then, could it be said that international space law is a model in response to the TWAIL critique of international law in general? Is it one area where instead of developing States simply being recipients and subjects of the law, have had an opportunity to create the law and shape it in a way that protect their interests and which could prevent their marginalization and domination? This line of thinking would be in line with the first generation TWAIL approach known as contributionism.[37]

From an African perspective, contributionists such as Taslim Elias Olawale emphasized how Africa has been a co-equal player participant and shaper of international norms. In essence, as the historical record evidences the expressed views of developing States such as Nigeria, India and Brazil in the development of international space law, it was arguably a more inclusive regime than is usually the case in international relations.

---

[34] Ram Jakhu, "Developing Countries and the Fundamental Principles of International Space Law" in Girardot, R.G., et al. eds., *New Directions in International Law: Essays in Honour of Wolfgang Abendroth* (Frankfurt, 1982) 351.
[35] Jiefang Huang, "The Common Interest Principle in Space Law" (LLM Thesis, McGill University 1985) at 128.
[36] N. Jasentuliyana (1995) "The Role of Developing Countries and the Formulation of Space Law" XX:I1 Annals of Air & Space Law 105.
[37] J.T. Gathii, "Africa" in B. Fassbender, A. Peters eds., *The Oxford Handbook of the History of International Law* (Oxford: Oxford University Press, 2012).

However, the contrary may in fact be true. Even developing States that appeared active in the development of space law continue to declare that there was little that they could do based on lack of capacity.[38] Modern TWAIL Scholarship, characterized as TWAIL II[39] argues that contributionism overstates the involvement of diverse parties in the creation of global norms, and understates the biases that determine the overriding interests during the implementation of international legal norms.[40] TWAIL I scholarship is believed to be not only weaker than TWAIL II but also counter-productive as it does not, speaking broadly, challenge the status quo nearly as much as TWAIL II does, but might inadvertently allow and strengthen the injustices in the prevailing system.[41]A deeper inquiry therefore suggests that international space law may not have adequately delivered on its promise to developing States and that despite its assertions of universality; some of these States have in fact been subject to some measure of disadvantage by international law in their effort to reach the goal of space utilization.

This has occurred not only through the disparate interpretation of space law provisions (something that is allowed by its indeterminacy), but also through the unfair implementation of secondary agreements such as the Missile Technology Control Regime (MTCR)[42] and export control regulations. This is acknowledged by authors such as Jakhu[43] and Hurewitz.[44] Jakhu posits that States possessing launch technology attempt to control its proliferation not only for military reasons but also to maintain their political and economic hegemony, whilst Hurewitz argues that

---

[38] See the statement of Nigeria, COPUOS, Unedited Transcript, 643rd Meeting, Monday 4th April 2001, Vienna at 7.

[39] For distinction between TWAIL I and TWAIL II see especially, A. Anghie et al., *The Third World and International Order: Law, Politics, and Globalization* (Leiden: Martinus Nijhoff, 2003); A. Anghie & B.S. Chimini (2003) "Third World Approaches to International Law and Individual Responsibility in Internal Conflicts" 2:1 Chinese Journal of International Law 77.

[40] J.T. Gathii (2008) "A Critical Appraisal of the International Legal Tradition of Taslim Olawale Elias", 21 Leiden Journal of International Law 317.

[41] J.T. Gathii (1998) "International Law and Eurocentricity" 9 European Journal of International Law 184 at 191.

[42] *Canada-France-Federal Republic of Germany-Italy-Japan-United Kingdom-United States: Agreement on Guidelines for the Transfer of Equipment and Technology Related to Missiles, exchange of letters announced April 16, 1897*, 26 I.L.M 599 (1987).

[43] Ram Jakhu (2006) "Legal Issues Relating to the Global Public Interest in Outer Space" 32:1 Journal of Space Law 31.

[44] Barry J. Hurewitz (1994) "Non-Proliferation and Free Access to Outer Space: The Dual-Use Conflict between the Outer Space Treaty and the Missile Technology Control Regime" 9:2 Berkeley Technology Law Journal 211.

the strict U.S. implementation of the MTCR has led to restrictive, discriminatory access to Outer Space and a de facto appropriation of Outer Space for the benefit of a few nations. Following this same line of analysis Filho[45] argues that the MTCR sets up a system of discrimination without the consent of the international community and permits an exclusive status for some technologically advanced states, hindering the use of outer space by other States.

Certain realities regarding the relationship between established space faring nations and aspirant countries are highlighted when TWAIL's analytical construct of the "civilizing mission"[46] is pressed into service. This conceptual framework has been used historically to justify the continuous intervention by the West in third world affairs and has provided a supposedly moral basis for the exploitation of the third world. Here, the concept justifies the attitude that certain States are able to have access to space technology while others are not so as to "protect" the world from irresponsible users.

This idea is apparent in U.S. imposition on the launcher development programs of different countries including India. In the mid-1980's, India decided to develop its own Geosynchronous Satellite Launch Vehicle (GSLV) to launch geostationary satellites. India needed a second stage engine for its Polar Satellite Launch Vehicle to convert it into a GSLV and issued international tenders for acquiring cryogenic engines and technology. Following a successful bid, the Indian Space Research Organization (ISRO) selected Russian company Glavkosmos. Both parties signed a contract on 11 January 1990 under which Glavkosmos undertook to supply two cryogenic engines and to build the third one in India, thereby transferring the required technology. On 11 May 1992, the U.S. imposed sanctions against Glavkosmos and ISRO as the U.S. State Department believed that this Indo-Russian deal would violate MTCR, despite that neither country was a member of MTCR. Russia seemed determined to honor its agreement with India; however, U.S. threats to make the two-year sanctions permanent if Russia did not cancel its deal with India forced cancellation of the contract. [47]

---

[45] J. Monserrat Filho (1994) "The Place of the Missile Technology Control Regime in International Space Law" 10:3 Space Policy 223.

[46] V. Sripati, "UN Constitutional Assistance (UNCA): A Third World Approaches to International Law Perspective" (Ph.D.Thesis, Osgoode Law School, York University, 2010) [unpublished].

[47] See Ram Jakhu, *supra*, note 43.

While current debates focus on how U.S. industry has been affected by implementation of these rules, a TWAIL approach seems to demand a focus on the use of international regimes to further imperial policies and reveals links between the U.S. security arguments and enduring structural bias in the regime. As highlighted by Jakhu,[48] "from a legal perspective, it is strange to accuse two States that are not parties to the MTCR of violating it, especially when this so-called regime is only an 'understanding' amongst third States."

## 3.4 The Limits of TWAIL

One of the big problem's today with the TWAIL School and technique is epistemological. As Bachand has argued,[49] the first consideration relates to the use of the "Third World" as a concept. He defends the use of the term because alternate concepts are inadequate to demonstrate the social realities at the center of the historical development of the Situation and conceal the fact that the situation of the Third World is largely due to its colonial history and to its relations with the West. He further argues that the term correctly captures the oppositional dialectic between the European and the non-European, and identifies the plunder of the latter by the former and that alternative terms implicitly assume that the "underdevelopment" is a temporary situation because these countries are developing and that it is simply a matter of time before they "take off", reach maturity, and finally arrive at the age of mass consumption. He posits that the concept of "Third World" shows greater potential, insisting as it does on the fact that the reality experienced by people in the regions covered by the term is explained by a whole contingent of dialectical social relations based on the oppression and exploitation of those areas by the West. He therefore concludes that the use of the term "Third World" is therefore justified by its heuristic value larger than other terms.

While the argument is indeed persuasive, it does not take away the ordinary imagery that the concept "Third World" denotes; that of the "Afropessimistic" sentiments of the 90's, where continents like Africa were depicted simply as places of famine, disease and war. As much as

[48] *Ibid*. at p.28

[49] Remi Bachand, "Critical Approaches and the Third World: Towards a Global and Radical Critique of International Law" Online<https://www.mcgill.ca/files/legal-theory-workshop/Bachand-3rd-world-critical-approaches.pdf>.

academic and philosophical thinking tries to explain that that is not what it means, the power of suggestion, imagery and semantics[50] engraved in the average mind prevent the use of the term having a positive meaning in today's climate. It is clear from earlier TWAIL assertions above that Scholars that identify with the TWAIL School often take a sceptical approach to international law issues. But perhaps there is a more positive way to look at problems identified by TWAIL and a new approach can deconstruct the existing agenda in light of it obscuring the idea of shared benefits without attributing blame, scepticism or negativity! Despite that I agree with the basic tenets of TWAIL, TWAIL scholarship cannot in its current form adequately address this issue because, despite assertions I may have made to the contrary in my enthusiasm, the topic of space engagement may still be too nuanced and "out-there" for the mind-set of the majority of those thinking of Third World issues. TWAIL can be a polarizing position with ideological baggage that can be quickly discounted or rejected without engaging and because of this negative quality, fail to produce constructive change. Its characteristic therefore seems to marginalize the very people it seeks to speak for.

Secondly, TWAIL needs to be reformulated and combined with new approaches (NAIL)[51] in the space context because it is vital that the idea of understanding and exploring normative frameworks relating to Outer Space recognizes that Earth, and all systems internal to it, forms part of a greater system. Earth has a place in a system that *includes* Outer Space and as such the concept of "space law" and common benefit, in this context, is the *promotion of the adherence of positive norms in the totality of spheres in which mankind exists or conducts activity*. Pop[52] argues that "Outer Space encompasses the terrestrial and the interplanetary space of the universe, whereby the delimitation of the Earth space around the Earth to outer space starts at least 110km above sea level." I conclude, however, that despite the infinite nature of Outer Space, to the extent that mankind can conduct

[50] Adrian Bueckling (1979) "The Strategy of Semantics And The "Mankind Provisions" Of The Space Treaty" 7:1 Journal of Space Law 15.

[51] NAIL aims to rethink the foundations of international law without fitting neatly into traditional academic disciplines. However, many who identify with this school are interested in European social and legal theory and are influenced by the American tradition of identity politics, and cultural studies. But the links remain to be made to scholars working both outside the geographic limits and intellectual traditions of Europe and North America on "new approaches", which is unsatisfactory for this theoretical exploration.

[52] Virgil Pop (2001) "A Celestial Body is a Celestial Body is a Celestial Body" Proceedings of the 44th Colloquium on the Law of Outer Space.

activity in its realm, it is part of the mankind's overall environment, and all together encapsulates the Universal. In support of this claim, Hewitt and Edmonds[53] argue that the 21st century is actually the advent of "Universalization" making the case for an academic focus on "universal studies" and "space relations" in the preparation of the next generation of leaders in diplomacy, trade and commerce. In the space law context, such a proposition must take into consideration that if a decision is made to act, then basically only two alternatives exist – the debates around this topic of space benefits, and many others including the air and space boundary debate continue unresolved, which seems unsatisfactory, or the establishment of a new lens to use to think about ideological space law issues for the benefit of all, which seems to be the more feasible idea. To that end, a theoretical exposition as to the concept of common benefit and freedom is situated within that second alternative.

Worthy of note however is the warning of Hobe[54] that "any manmade normative regulation of space activities cannot be applicable to the entire Universe…for the very simple reason that not all the Universe is known." He argues, citing Stott et al.[55] that "we must limit ourselves to two "levels" of the Universe: the terrestrial lunar system and the interplanetary space system of the Sun." Other warnings come from the Human Rights domain where it appears that western universalism may be a means to protect the world from Universalist projects.[56] In reference to Kennedy,"[57] if ideology is, "a Habermasian/Mannehemian "universalization project"" that asserts a controversial conception of justice alleged by some to be mere rationalization of partisan interests, then I reject this notion and revert my focus to Cosmopolitanism instead of the Universalism as I had originally intended. Also I cannot fail to highlight the link between Cosmopolitan and the Cosmos, on both

---

[53] Ted Hewitt & Lorna Edmonds "The 21st Century Advent of Universalization" (Paper delivered at the 2nd Manfred Lachs International Conference on Global Space Governance, Montreal, Canada, 29-31 May 2014) Online: < https://www.mcgill.ca/iasl/files/iasl/mlc-2014-edmonds_hewitt.pdf>.

[54] Stephan Hobe, "Article I" in Hobe et al. eds., *Cologne Commentary on Space Law: Volume 1, Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009) 25 at 32.

[55] Chris Stott & C Twist, *Space Facts* (DK pub, London, 1995); E Chaisson & S McMillan, *Astronomy Today* (Prentice Hall, New Jersey, 2007).

[56] Olivier Barsoau, "The Diplomacy of the Universal: The Cold War and the Rise of an American Conception of Human Rights, 1945-1948" ( Paper delivered at the Dean Maxwell and Isle Cohen Doctoral Seminar, McGill University, Montreal, Canada, 23rd August 2014).

[57] Duncan Kennedy, *Legal Reasoning, Collected Essays* (Aurora CO: The Davies Book Publishers, 2008) at 162.

a physical level and theoretical one. In the first instance Cosmos is defined as "the universe seen as a *well-ordered whole"*[58]and in the second instance, Law's *Cosmos* is defined as a "pre-occupation of laws essence that explains law as a social phenomenon."[59]

Thirdly, the impact of TWAIL is that it forces one to acknowledge a specific voice and set of perspectives that need to be reflected, from one particular sort of demographic. However, I do not want to just think about individual claims or benefiting one group over another. Therefore a new test is needed to establish whether institutional engagements enable participant involvement to the benefit of all. The test that is required is not a mechanical test but one that takes account of different levels of capacity.

## 3.5 Introducing the CAIL Approach

Here, I seek to introduce a new lens[60] that I call CAIL, or *Cosmopolitan Approaches to International Law*. While NAIL (*New Approaches to International Law*) is a recognized school,[61] as is Cosmopolitanism; this new CAILian approach I propose is inspired primarily by TWAIL while trying to avoid the shortfalls of TWAIL and theories of classic Cosmopolitanism. Section 3.4 above described the limits of TWAIL. Herewith, this section discusses the limits of classic Cosmopolitan theory.

### 3.5.1 Differentiating CAIL from classic Cosmopolitanism

The concept of Cosmopolitanism has been around for centuries. According to Nussbaum, it's focused on the understanding that "we should regard our deliberations as, first and foremost, deliberations about human problems of people in particular concrete situations, not problems

---

[58] Oxford Dictionaries: Online < http://www.oxforddictionaries.com/definition/english/cosmos>.
[59] Nicholas Kasirer (2002) "Bijurism in Law's Empire and in Law's Cosmos" 52: 1/2 Journal of Legal Education 29.
[60] In defining what CAIL is, it faces the same issues as TWAIL? Is it a method, approach or theory? Lens is used here not only because of the space context, but a jurist needs something to assist in magnifying of an issue, particularly the visualization of justice – See Obiora Okafor (2008), "Critical Third World Approaches to International Law (TWAIL): Theory, Methodology, or Both?" 10:4 International Community Law Review 371.
[61] David Kennedy & Chris Tennant (1994) "New Approaches to International Law: A Bibliography" 35:2 Harvard International Law Journal 417.

growing out of a national identity that is altogether unlike that of others".[62] The starting point here that I take is the philosophical Kantian and Derridian concept of Cosmopolitism, [63]which speaks to a middle ground variant of the positive conception of freedom. The Kantian position is that Cosmopolitanism is "universal hospitality". However, according to Derrida there is an interplay of forms of hospitality: conditional and unconditional. The unconditional right is derived from common possession of the surface of the earth…similar to the Art 1 OST positive conception of freedom for benefit of all that is derived from the fact that no one can own Outer Space. However, a middle ground conception acknowledges Janda's[64] account that "access to that public good is itself conditional since it operates in infinite space and does not permit infinite dispersion". The access to space benefit is indeed conditional but the conditions are on both sides (those with technology and those seeking benefit) because in the midst of a common good one comes to it with finite needs, capabilities and outcomes which should be aligned. There are therefore conditional relationships which Cosmopolitan ideas understand.

More broadly speaking, according to Pogge,[65] all theories of Cosmopolitanism have three components in common. The ideas of *individualism, universality and generality,* neatly distinguished into two categories of legal cosmopolitanism and moral cosmopolitanism. While legal cosmopolitanism is committed to a concrete political ideal of a global order under which all persons have equivalent rights and duties and are fellow citizens of a global republic, the literature focuses on moral cosmopolitanism, a more abstract and weaker strain that holds that all persons stand in certain moral relations to each other and thus should respect one another's status as ultimate units of moral concern.[66] While CAIL accepts the foundational ideas of Cosmopolitanism and Pogge speaks of an institutional conception of moral cosmopolitanism that CAIL borrows ideas from, I am not persuaded fully by existing conceptions of Cosmopolitanism. Using Pogge's

---

[62]Martha Nussbaum, "Patriotism and Cosmopolitanism", online: (1 October 1994) Boston Review <http://bostonreview.net/martha-nussbaum-patriotism-and-cosmopolitanism>.

[63] Immanuel Kant, *Perpetual Peace: A Philosophical Essay*. Trans by M. Campbell Smith (New York: Garland, 1972); Jaques Derrida, *Cosmopolites de tous les pays, encore un effort!* (Paris : Galilee, 1997).

[64] Richard Janda (2005) "Toward Cosmopolitan Law" 50 McGill Law Journal 967.

[65] Thomas Pogge (1992) "Cosmopolitanism & Sovereignty," 103:1 Ethics 48.

[66] *Ibid* at p.49.

classification of individualism, universality and generality, CAIL differs from Cosmopolitanism in respect to the space dialogue in two significant ways:

1. ***Individualism*:** The uses of "Space" may be too vast a topic to talk of individualism of human beings, despite emerging activities such as space tourism. However, in looking at diverse range of actors, CAIL does recognize the role of the individual to a certain limited extent, primarily as an agent of change. Ross[67] citing Ewick and Silbey[68] highlights categories that reveal three distinctive schemas of how individuals define their relationships to the law, how they view themselves in the world and how they participate in the construction of legality. They suggest that three narratives, or forms of legal consciousness, will demonstrate the experience of law as (1) b*efore the law*, where law is separate and discontinuous from everyday life and is a "formally ordered rational and hierarchical system of known rules and procedures" that is fixed impartial and objective[69] (2) *with the law*, where law is to be engaged with, is interlaced with everyday life, and is a game that may be played strategically for particular gains,[70] with lawyers as highly skilled experts in the game,[71] and where there is an effective and powerful benefit to collective/team action;[72] or (3) *against the law*, where law is to be passionately resisted or fleetingly avoided and where respite must be sought from its power in order to maintain a sense of dignity.[73] CAIL proposes a fourth schema, that there is an emancipatory potential to the law that individuals can effect, that I will call to be truly *in the law.* In being *in the law,* what is important to note is that the goal towards emancipation is a two phased process from individual empowerment and personal visioning to the need for collective visioning. While personal visioning is

[67] Sara Ross (2014), "From the Octagon to the Courtroom: The Right to Fight, Subaltern Cosmopolitanism, and Public Interest Litigation as Tool for Mixed Martial Arts as a Community/Cultural Normative System" Online: SSRN <http://ssrn.com/abstract=2441590>.
[68] Patrick Ewick & Susan S Silbey, *The Common Place of Law: Stories from Everyday Life* (Chicago: University of Chicago Press, 1998) at 45-47.
[69] *Ibid* at 47.
[70] *Ibid* at 48.
[71] *Ibid* at 152-56.
[72] *Ibid* at 156-58.
[73] *Ibid* at 48-49.

powerful, as Stout[74] posits, it does not lead to collective action, which is required for contemporary issues such as space sustainability.[75] In effect, to be *in the law* means the focus is on how the regime and individual effort can be used to maximize collective action. To add a collective dimension to Cosmopolitanism nuance is to say that one can take an orientation to individual claims and connect it to an unconditional collective vision that all must share and benefit. Therefore, I do not want to think of benefit-sharing as an individual right but a collective set of claims.[76]

2. ***Universality*:** Regarding universality and the goal of equality of humans, "space" is an expensive venture and to be successful one has to be prepared to "pay to play'. To that end, he who brings the most to the table tends to be able to achieve the greatest depth of results and thus there is no "equality" of space programs. This does not mean that only the most expensive programs have value, just that it is necessary to understand if the focus should be going for a niche or low cost strategy vs. a broad strategy and the acknowledgement if intendant costs involved to make impact in a given technology area. While Parekh[77] advocates for the reason for assigning equal value to all, as a concept for space development, it does not necessarily enable States to realize their potential, particularly if they do not understand the true rational or objectives for space engagement. However, it is true that equality is about "giving equal consideration to (the) claim (of all) to the basic requirements of a good life".[78]

---

[74] Linda Stout, *Collective Visioning: How Groups Can Work Together for a Just and Sustainable Future* (Berrett-Koehler Publishers, 2011).

[75] The Secure World Foundation defines Space Sustainability as "ensuring that all humanity can continue to use outer space for peaceful purposes and socioeconomic benefit." It is also described as "the ability of all humanity to continue to use outer space for peaceful purposes and socio-economic benefit over the long term" [emphasis added]. Secure World Foundation is private operating foundation that promotes cooperative solutions for space sustainability and the peaceful uses of outer space. The foundation is extremely active in international discourse regarding space. *See* Secure World Foundation, "Space Sustainability: A Practical Guide" Online: SWF <http://swfound.org/media/1808/space_sustainability_booklet.pdf>.

[76] Richard Janda, *supra* note 64.

[77] Bhikhu Parekh (2003) "Cosmopolitanism & Global Citizenship" 29:1 Review of International Studies 3.

[78] *Ibid* at 4.

As much as we asked of TWAIL above, what then really constitutes CAIL analysis and approach? How and with what analytical techniques is it conducted? The CAIL technique is the application of theoretical concepts using legal, social and political theory to develop practical analytical tools to assess scenarios that contribute solutions to issues facing the universe at large on the one hand (such as space sustainability) and the immediate issues of new or aspirant space actors (Access and benefit-sharing). It is this marriage of deep theoretical exploration that is forward looking with the quest to answer concrete practical questions that affect all including aspirant countries that forms the essence of CAIL Approach. While it's foundational tenets are still to be developed, at its core it recognizes that Outer Space is not just some distance otherness but is important for the ability for us to perceive ourselves, manage our resources and inspire our potential. It is not simply a tool to show dominance or as part of a hubris of activities that show "development". As such it must be recognized that there are certain conditions that must be fulfilled as there is no free lunch. Ultimately, participants have to be prepared to consider a myriad of issues that call for reciprocal obligations as highlighted in table 2 below.

**Table 2: Considerations for Established and Emerging Actors**

| Established Players | Emerging Players |
|---|---|
| 1. Procedural Principles: How do we look at interconnectedness and common ideals through for instance, the way we look at membership in groups, organizations and institutions and how effective are the mechanisms of collective decision-making;<br>2. Practicality Issues: How do we ensure collective functionality to actually achieve aims - in other words - taking cognizance of the barriers to operating in the space domain, both obvious and non-obvious;<br>3. Politicization and the avoidance of same to the greatest extent: How do we ensure actions are not undertaken to frustrate objectives but to assist and support true cooperative initiatives;<br>4. Process of Feedback: How do we make sure that feedback loops and mechanisms are designed into processes, projects and decision-making to ensure that lip service is not paid to obligations? | 1. Conceptualize: It is fundamental to focus on the ability to conceptualize first before looking for technology solutions otherwise technological projects will fail and look appear as white elephant projects;<br>2. Developing a Space Sector: There must be a willingness to "pay to play" at certain times because essentially space is a business/industry/sector where profit is an objective<br>3. Focus: Small players may first focus on developing niche strategies and technologies because "space" is a small and competitive sector and the average population will not accept "grand" space projects in a challenging financial environment<br>4. Inclusiveness: There must be recognition that space is no longer just a domain for governmental activity. There must be a multiplicity and diversity of actors ready, willing and enabled to engage. This includes encouraging grassroots initiatives and ensuring that, for emerging nations, the immediate focus should be on investing in knowledge generation in the enabling technologies. |

## 3.6 A CAILian Tool: The Space Benefits Hierarchy

The CAIL approach therefore creates a balance between a soft law framework for assessing benefit-sharing, because it forces users to use tools to assess their behavior, but that also allows us to give shape and significance to the hard law norm under Article I OST. I, therefore, now present the foundations of a dynamic perspective of reciprocal relationship that arises when use/benefit is shared that is in the character of the middle ground CAILian position, called the Space Benefits Hierarchy (SBH). The SBH provides a framework[79] for understanding the range of activities which form the basis of benefit-sharing. It serves as a means to demarcate important consideration between the established space players, (usually owners of technology) and emerging, aspirant space users and actors.

Methodology: The literature was reviewed to determine what emerging nations require or barriers by assessing how current space engagement and cooperation is structured. This led to a deductive classification of activities, roles and values. Cooperation agreements that were available online were also assessed (the main criteria of selection was accessibility) to get an idea of what some of the conditions of cooperation are between countries. The following classification presents 1) the classic activities which form the basis of cooperation 2) the conditions to make the activity possible from perspectives of technology owners and recipients. The model depicted in figure 4 is presented below step by step.

[79] Inspired by I.S. Mayer et al, "Perspectives on Policy Analyses: A Framework for Understanding and Design", 4:2 International Journal of Technology Policy and Management 169.

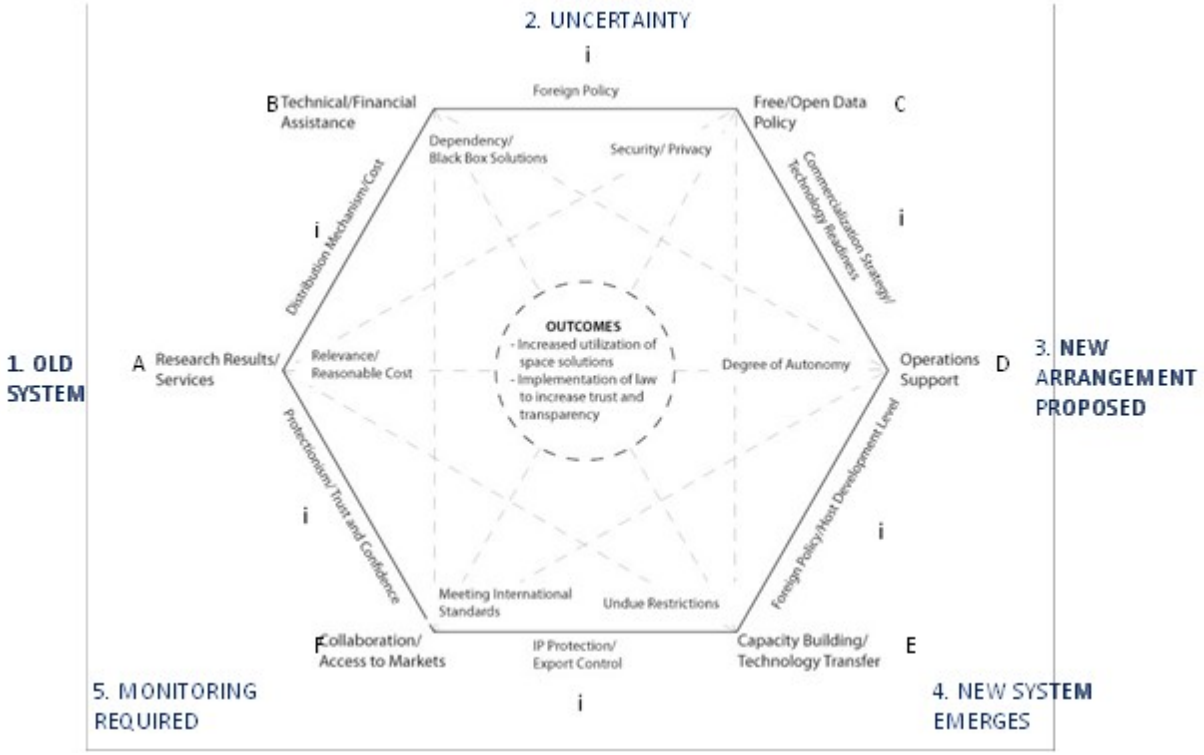


Figure 4: The Space Benefits Hierarchy

## Part 1-5: Feedback Dynamics

Hoffman[80] suggests that feedback mechanisms are exhibited as relationship between government context and actors. The feedback dynamics create a dialectical environment for social systems that can be destabilized allowing for erosion of old systems and creation of new governance contexts. In the SBH (2) refers to the fact that Phases of instability arise where there is uncertainty leading to novel government arrangements. In (3) However, as the new system's emerges, it will be necessary to look back (4) and assess because early identification of the risk of further destabilization is paramount. Reciprocal responsibilities are required to enable and be enabled when each phase is identified.

[80] Matthew Hoffman, *Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto* (New York, OUP: 2011).

**Part A-F: A Set of Activities**

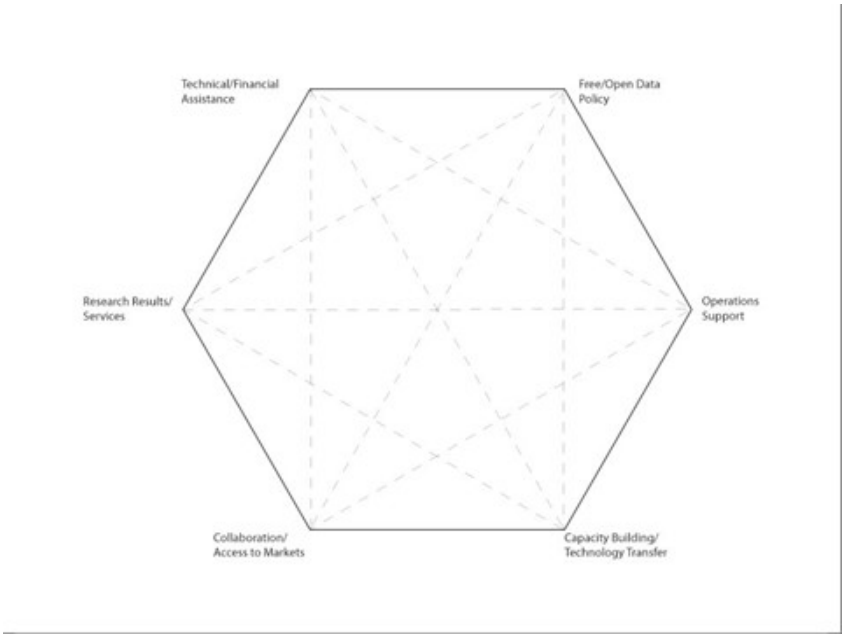


Figure 5: A Set of Activities

The core of the SBH framework comprises 6 steps, A-F in figure 5 above. First it acknowledges the importance the following activities:

(A) The need for effective Information exchange, through the spread of research results and accessibility to space and satellite services.

(B) Technical and Financial Assistance: It emphasizes the importance of effective technical assistance that makes space solutions available to developing States. This implies certain foreign policy objectives. Secondly, it emphasizes the need to take inventory and classification of established forms of data democracy projects from those that increase reliance on established data/service providers to encouraging self-sufficiency and development of capabilities. An interesting example from the aviation sector is the Safety Collaborative Assistance Network (SCAN), which facilitates and coordinates the sharing of safety information on financial and technical assistance projects. It provides a channel for discussions amongst donors and assistance providers regarding ongoing projects, as well as for planning future assistance endeavors.

SCAN also supports the identification of potential projects in need of funding enhance assistance projects through close coordination of efforts with the aim of avoiding duplications and maximizing their results. To facilitate the sharing of information, a website developed includes a SCAN projects database and assistance intelligence tools. The SCAN projects database contains information on assistance projects conducted by the International Civil Aviation Organization (ICAO), its Member States and aviation safety partners. For each project, information is included regarding the recipient State or group of States, the project provider and a summary of the project objective. The database also lists proposed projects in need of funding. This feature allows assistance providers and donors to search and analyze specific technical areas where assistance or support is needed.

The coordination achieved through SCAN helps to avoid costly and time-consuming duplication of efforts. It also provides greater transparency in defining and evaluating areas of highest priority in terms of technical assistance for the enhancement of aviation safety. In a polycentric environment, Tailored Assistance Plans could be developed whereby State-specific assistance Plans of Action to help some States to resolve space development deficiencies could be developed. As is done within ICAO there is more focus on State's capacity building, Partnering with Contracting States, industry and other aviation safety partners for coordinating and facilitating the provision of financial and technical assistance to States, regional and sub-regional aviation safety oversight bodies, in order to enhance safety and strengthen safety oversight capabilities.

(C) Thirdly is the requirement to understand how open and free data policy ensures sharing of space benefits to all countries. For example “the Indonesian government has set up a forecasting and management center for marine resources. The INDESO center enables the Indonesian authorities and other relevant stakeholders to predict changes in their fishery resources, and to protect (mainly from illegal fishing) and further develop them. The value-added information and modelling outputs from the Copernicus Marine Environment Monitoring service, and the free and open data from the Copernicus Sentinel-1 and Sentinel-3 satellites, could contribute to efforts to

observe, protect and sustainably manage the invaluable marine resources of the Indonesian archipelago."[81]

(D) Fourthly, Provision of operations support is required for a successful program and this applies broadly to the provision of territory as Shuttle TAL landing sites[82], to access to launch services and ground stations.

(E)Fifthly is the identification of structures of know-how technology transfer and technology absorption towards development of an industrial capability. This depends on many factors and is an increasingly important factor in development and in international cooperation. While such assistance developed local capacity in many countries, it is increasingly commercialized with market-based mechanisms and a need for standards is evident. However, cases such as the Brazilian SGDC project profiled above show that if the principle of "pay to play" is respected, useful initiatives can be agreed upon.

(F) Finally is the need for assessment of cooperative mechanisms as partnerships. This depends on many factors including foreign policy and risk aversion. Polycentric and local initiatives between varied actors are proposed as important for development. Partnership ideas include formation of Alliances, [83]and Networks.[84]Worthy of note is that there is indeed a process and chain that is desired from collaboration, which imbibes many of the phases discussed above, making the hierarchy circular, from sharing information to creating conditions of interoperability to full

[81] European Commission (2015) "Free and open access to Sentinel-1 and Sentinel-3 data would contribute to the preservation and development of Indonesia's marine resources" 9 Copernicus Observer, Online:< http://newsletter.copernicus.eu/issue-09-february-2015/article/free-and-open-access-sentinel-1-and-sentinel-3-data-would-contribute>.

[82] K. Nakatani (1997) "Bilateral Agreements on Shuttle Contingency Landing Sites: Practical Application of the Basic Concepts and Provisions of the Outer Space Treaty and other Agreements in Air and Space Law" Proceedings of the 40th Colloquium on the Law of Outer Space 205.

[83] Zeeshan Ashraf, *supra*, note 126. Benefits of Alliances include – integrated product lines, competitive advantage, risk an cost sharing, entry into international markets, less hostile legal regulations. Disadvantages include lack of total control more managerial time and resources limited scope and flexibility.

[84] See ASIN Network, proposed in Timiebi Aganaba-Jeanty (2013) "Precursor to an African Space Agency: Commentary of Dr. Peter Martinez "Is there a need for an African Space Agency"" 29:3 Space Policy 168.

integration of projects and partnership on mission goals. The final stage and rarest form of partnership and collaboration is a collaborative infrastructure such a Canada-US NORAD, which is interdependent. This is where true value is.

**Part i: Conditions that Create Barriers**

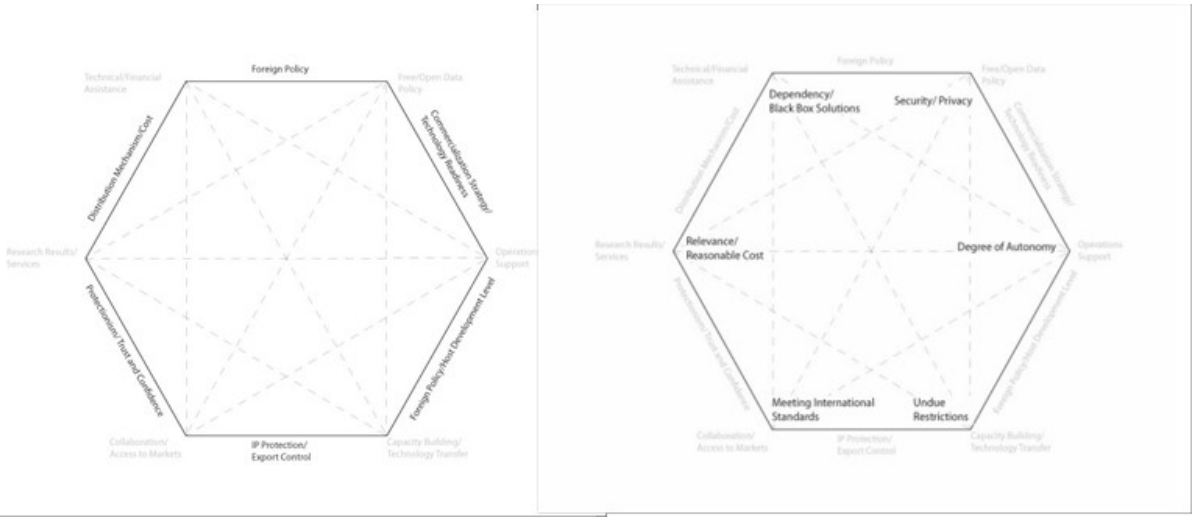


Figure 6: Reciprocal Obligations

These reciprocal relationships are recognized in the outer part of the graphic (i) in reference to considerations of the more established owners of technology and the inner points of the graphic represent the issues and considerations of those on the margins of space activity or new entrants. These include: Issues of distribution mechanisms, Cost factors, foreign policy, commercialization strategy, technology readiness, host development level, protectionism and export control, trust and confidence issues, dependency and black box solutions, security and privacy concerns, degrees of autonomy etc. These represent many of the areas in which States must consider if unnecessary barriers to cooperation are upheld.

## 3.7 The Need to Apply the CAIL Approach to Global Space Governance

Where Classic Cosmopolitanism and CAIL meet is regarding the third element of *generality* in that there is recognition of a global force. This therefore recognizes the role of global and central institutions. In the space context, the UN Committee on the Peaceful Uses of Outer Space

(COPUOUS) is the ultimate global space governance "Scene of Address."[85] Comprised of two subcommittees, it is proposed that the UNCOPUOS should begin operating under a CAILian conceptual framework. The legal subcommittee has now finally recognized that it is in a state of flux and is required to reinvent itself. A new agenda on working methods of the subcommittee is currently under discussion and proposals are in the process of development.[86] This much needed discussion according to its current chairman engendered scepticism from the African group.

From a TWAIL perspective there could be some merit in scepticism, leading one to act with caution and question the ideas and motives of the powers that be. But my initial feeling was that, in the face of a system that may be flawed and with the goal to meaningfully contribute to the development of the law in a field where one is are a late comer to the table, the heart of the issue is how to respond to the philosophical Problem of the Criterion. In essence, answering the question, what is the extent of our knowledge and what is the criterion for knowing? If we do not know what we do not know, how can we meaningfully engage?[87] However, it appears that there's a lot that's not been said, including a lack of support from either Russia or China amongst others, besides the fact that the ploy to decimate the legal subcommittee in the past, may in fact have been hatched by the very same people currently advocating a change in procedure and working methods.

## 3.8 Conclusion

What does one learn from the space law context that prompts us to reorient the frame of analysis that TWAIL brings to bear and focus on CAIL perspective? First, it is important to ask the following question: if all the relevant actors have oriented themselves to fulfill the responsibility posed by Article I (1) of the Outer Space Treaty. Are they looking for the inadequacies in their own procedures? And, how well has this ethic been internalized? For aspirational norms are tested by the extent to which the agent/legal subject has made it part of their identity. However, it is clear

[85] Judith Butler (2001) "Giving an Account of Oneself" 31:4 Diacritics 22.
[86] Kai-Uwe Schrogl (2015) "The New Debate on the Working Methods of the UNCOPUOS Legal Subcommittee" 105:1 Acta Astronautica 101.
[87] Timiebi Aganaba-Jeanty (26 August 2014) Why Africa Must Move Beyond Sceptism To Influence International Law, *BusinessDay* Online <http://businessdayonline.com/2014/08/why-africa-must-move-beyond--scepticism-to-influence-international-law/#.VUOyECqF9sE>.

that the rhetoric of inclusion is pervasive to the extent that all actors purport to uphold the obligation because they can point to instances of adherence. However, it is proposed that based on the current landscape, a singular focus on what the developed States can do for developing States contributes to the production of legitimacy for empire.[88] However, to understand where one stands they must first ask themselves how they envision the capacity to produce space infrastructure as part of Derrida's unconditional public good.

As such, it is not enough to situate critic on the outside of normative structures. Account of the existing framework must be taken if developing States are to produce real change. In other words, how can the existing framework enable aspirant and emerging space actors to foster capabilities in a way that is of mutual significance to all? Reciprocity of relationships is not just about developing States wanting in, but the development of cooperation and forms of enablement that will be multidirectional. In essence, it's not just empowering one group. It is proposed that this leads us to developing tools, such as the Space Benefits Hierarchy, to assist us to imagine a cycle of positive feedback to build increasing cooperation between those on the margins of space activity and those gaining the greatest benefit from space. As far as one has to "pay to play" there must be a deeper commitment to reciprocity that acknowledges common but differentiated responsibility. This is analyzed through the construction of a new conceptual framework, called Cosmopolitan Approaches to International Law (CAIL). Everyone can not be in in the same way and this cycle of enablement describes the process through which CAIL tools have been produced. Subsequent research however must investigate if there is a need to possess private goods in order to benefit from the public good!

In conclusion, I am not making a claim here that my CAILian concept has never been articulated before, however, the way I link the concept of Cosmopolitanism with a school of thought that I am sympathetic to (TWAIL) is where this thesis provides a novel idea. My specific version of Cosmopolitanism bears in mind the importance of collective ideas. While CAIL will not be free

[88] V. Nesiah (2006) "Resistance in the Age of Empire: Occupied Discourse Pending Investigation" 23:5 Third World Quarterly (2006) 903.

from power asymmetry's because there will always be polarity; it still chooses to focus on the middle ground and not to focus on extremes.

# CHAPTER 4: The Case for a Polycentric Approach to Global Governance: The Example of the Proposed African Space Agency


**Abstract**

Polycentricism has become the new focus of global space governance because a monocentric approach, or focus on centralized global institutions such as UNCOPUOS reveals that global space governance is in a state of flux and according to certain factions, ineffective. Limits to the monocentric approach of space governance have given rise to concerns as to the effective regulation of space activities.

Perhaps therefore, what is needed to ensure adequate benefit-sharing is creating smaller nodes of governance, perhaps at the regional level, or a polycentric approach? The theory behind a polycentric approach is that large-scale cooperation can be amassed gradually from below. Development of effective large-scale governance ab-initio, without first forming smaller-scale governance, is more difficult, especially if the goal is to ensure inclusion and adequate representation from all potential actors. However, once a small-scale group has a well-functioning set of rules, it is in a position to collaborate with other such groups, eventually fostering cooperation on a larger scale and ensuring that all participants are engaged and accepting of the frameworks devised.

Applying it to global space governance therefore suggests a model for global space governance that is built from the local to the regional to the global. The most likely scenario is a middle ground where the regional system and the multilateral system will co-develop, at times in parallel and at times interacting. This would not be a diminishing of the significance of either focus. While the thesis focuses on promotion of the idea that central institutions should not be ignored and must be functioning, the existing international organizations and institutions can and should encourage and support the creation of many small and medium scale institutions that will serve as a sound base for global scale governance.

The concept of polycentricism is tested through analyzing the case of a regional space organization: The African Space Agency.

## 4.1 Background to African Space Activities

Over the decade, African investment in space science and technology has grown driven by development of earth observation development programs in Algeria, Egypt, Nigeria, Gabon and South Africa and investment into satellite telecommunications in countries such as Angola and Congo. Encouraged in part by the successful South African bid to host the Square Kilometer Array global astronomy project; new entrants have emerged in the African space arena. In 2013, investment in space science was driven by development of radio telescopes and astronomy as African countries including Ghana and Ethiopia seek to accomplish two primary objectives; first to develop and upgrade existing infrastructure and to invest in new scientific tools to boost science capacity in the region. These activities are primarily driven by African agendas linked to development goals, and with a few exceptions, national space programs are largely financed through national budgets and not foreign aid as popularly believed. With the emergence of an increasing number of developing countries engaging in space activities, greater awareness exists of the development paths of these African national programs, however, little is known about the development of African space projects at the regional level.

However, Abiodun[89] highlights several initiatives with substantial African participation that have been proposed. but, the lack of opacity around African regional cooperation may be explained by

[89] • 1995 UN project involving 13 African countries to develop a base station in Geneva which failed due to lack of consensus
• The African Remote Sensing Council and Program which failed because the concept was dominated by other interests
• 1980 Guinea Large marine ecosystem project with 16 African countries which is ineffective as little is done on a national/local basis
• The RASCOM project which has not provided full range of expected benefits
• 1979 proposal for the development of a land based telescope in Kenya between India, Nigeria, Egypt, Iran and Kenya which failed due to lack of funding
• Giant Equatorial Radio Telescope (GERT) 1979 construction in Kenya for the benefit of developing countries – was the most comprehensive regional proposal for fundamental basic science and technology research in Africa with an estimated cost of $15 million.. Remarks during

several historical factors. First, the majority of space related projects at the regional level do not appear to be African driven and are primarily donor-dependent. Secondly, projects have suffered from a lack of coordination at the African Union level as well as with national space programs making it unclear from a governance perspective how the space projects would be managed so as to benefit from synergies. Thirdly the lack of visibility and ownership of regional programs expresses the apparent lack of political will to fully engage with the process as well as a lack of capacity to adequately address issues.

In 2012 a working group was established to formulate the African space policy and strategy which would lead to the establishment of an African Space Agency (ASA). Dr. Peter Martinez asserts in his article "Is there a need for an African Space Agency?"[90] that the arguments that have been posited in support of an ASA are flawed; namely the arguments of the existing example of the European Space Agency (ESA), and that an ASA would lead to fostering competition, synergy, industrial development and capacity building. This chapter was published in the Space Policy Journal in response to Dr. Martinez as a viewpoint. It agrees that all the perfect conditions may not exist at present for the creation of an ASA; however, it addresses some of the issues raised by Martinez, and proposes ideas to foster intra-regional cooperation.

## 4.2 Introduction

The case for an African Space Agency (ASA) was strongly articulated by South African Professor Keith Gottschalk in 2008.[91] The reasoning behind proposing such an agency was in part the fact that the continent *already* had the following space related regional activities/institutions: a regional discussion forum - the African Leadership Conference on Space Science and Technology for Sustainable Development (African Leadership Conference), a regional space organization -

---

the African Leadership Conference on Space Science and Technology for Sustainable Development (African Leadership Conference) held in Accra, Ghana, December 2013.

[90] Peter Martinez (2012) "Is there a Need for an African Space Agency" 28:3 Space Policy 142.

[91] Keith Gottschalk (2008) "The Roles of Africa's Institutions in Ensuring Africa's Active Participation in the Space Enterprise: The Case for an African Space Agency (ASA)" 12 African Skies 26.

Regional African Satellite Communications Organization (RASCOM)[92] and the idea of a regional multilateral space project -African Resource Management Satellite Constellation (ARMS-C), which has now been formalized. Following earlier discussions within the African Union (AU) on a proposed ASA, the AU's 2009-2012 strategy affirmed Gottschalk's view that "through the launch of [an] African Union Space Agency, Africa will be able to negotiate better offers for satellite construction, space launches and technology transfer; and share data, scarce facilities and infrastructure much more than individual small countries can do on their own."[93]

There has been support for the development of an African Space Agency from Europe. Following a 2010 High Level Political Meeting on Space and Africa, "Space for the African Citizen", Vice President Tajani, European Commission, and Commissioner Ezin, African Union Commission, issued a joint statement stating that "the establishment of an African Space Agency would be a positive development, indicating a willingness of African nations to speak with one voice for the benefit of the whole continent."[94] Such a proposal clearly has benefits for Europe (through expansion of the user market) as the European Commission, the European Space Agency and EUMETSAT indicated their readiness to offer the benefit of their expertise and experience to assist the AU Commission in the development of the agency, including the provision of training and possible funding from the European Commission. Despite calls for an ASA from other entities such as the African Association of Remote Sensing of the Environment (AARSE)[95] and UN-SPIDER,[96] Martinez[97] is of the view that the facts on the ground do not support the establishment

---

[92] Stanford G, Mukasa (1992) "Towards Pan African Cooperation in Satellite Communication: An Analysis of the RASCOM Project" 6:2 Africa Media Review.

[93] African Union Commission, "Strategic Plan 2009-2012" (May 19, 2009). Online: <http://www.au.int/en/sites/default/files/Strategic_Plan2009-2012.pdf>.

[94]European Union, Press Release, "Joint Statement of Vice President Tajani, European Commission and Commissioner Ezin, African Union Commission" (15 September 2010) Online: <http://europa.eu/rapid/press-release_MEMO-10-414_en.htm?locale=en>.

[95] Since 2007, the AARSE at its international conferences and during joint high level meetings with UNESCO and the AU made recommendations and declarations advocating the creation of an ASA

[96] During the UN-SPIDER regional workshop "Building Upon Regional Space-based Solutions for Disaster Management and Emergency Response for Africa" the main recommendations from this group were that there is a need for a pan-African space policy in disaster management and emergency response supported in the long term by the creation of an ASA.

[97] Peter Martinez, *supra* note 90.

of an ASA at this point in the development of the space arena in Africa, and he does not appear to be alone in this thinking. At the 3rd IAA African Regional Conference "Space for Africa: Joint Participation, Knowledge Development and Sharing" held in Nigeria in 2009, the participants deliberated on the establishment an African Space Agency and concluded that while a vibrant ASA (African Space Agency) is a desirable goal for the development and growth of Africa, they also recognized that African countries would need to establish a firmer foundation in space-related fields before embarking on a regional space entity.[98]

While in agreement that the proposal for an ASA is fraught with challenges, in response to Martinez and other critics of the ASA, this viewpoint will seek to highlight some of the challenges to the implementation of an African space programme, including lack of a supporting industry and the issue of funding. It concludes by offering some suggestions as to the necessary precursors for an ASA.

**Foundations of an African Space Policy**

Abiodun[99] asserts that discussions that have been held between the EU and the AU regarding space in Africa were inconclusive, perhaps because not all relevant actors were invited to the table for the discussions (if the South African and Kenyan reservations regarding the informal "space troika" meetings are anything to go by[100]). It is for this reason that if there is to be an ASA, it should be an African led initiative with *space aware* Africans fully in control of the agenda. Martinez asserts that to this end "the African space community has a key role to play in terms of developing space policy at national and regional level and in terms of providing decision support for political leaders on space issues".[101]

At a meeting in Khartoum, Sudan in September 2012, the African ministers in charge of Communication and Information Technologies recommended, in the Khartoum Declaration 2012,

[98] Communiqué of the 3rd IAA African Regional Conference, Space for Africa: Joint Participation, Knowledge Development and Sharing, Sheraton Hotel, Abuja, Nigeria, 24-26November 2009, Online :< http://iaaweb.org/iaa/Communication/pr_abuja2009.pdf>.

[99] Adigun Ade Abiodun (2012) "Trends in the Global Space Arena – Impact on Africa and Africa's Response" 28:4 Space Policy 283.

[100] 1ST JEG8 MEETING OF ACTION PLAN II (2011-2013) at 10, Online: <www.ist-africa.org/home/files/JEG8Report_Tanzania_May12.pdf>

[101] Peter Martinez, *supra* note 90.

that the AU Commission "develop a space policy for the Continent in collaboration with relevant stakeholders; taking into account remote sensing applications and satellite imagery processing."[102] Following the Declaration, the AU Commission endorsed the establishment of a Working Group on Space Science tasked to develop a draft African space policy and strategy. Comprised of members of the African Leadership Conference and national space agencies,[103] it is expected that a draft policy will be completed by mid-2014 and presented for consideration and adoption by the African Ministerial Committee on Science and Technology (AMCOST VI)[104]

In formulating policy for Africa, the question must be asked, how can space engagement contribute towards the priorities of the region? To answer this question it must first be clear what those priorities are. In March 2013, regional consultation took place to define Africa's position on the post-2015 development priorities, following expiration of the Millennium Development Goals (MDG) agenda in 2015. The high level panel charged with consolidating all the international views and making recommendations for the new agenda focused their recommendations on 5 transformative shifts: a move towards eradicating poverty, putting sustainable development at the core, transforming economies for jobs and inclusive growth, building peace and effective, open and accountable institutions for all and forging a new global partnership.[105] On a more local level, the Third Strategic Plan of the African Union Commission 2014-2017 was adopted in May 2013. It addresses challenges such as peace, stability and governance, growth and transformation, regional integration through the achievement of the Continental Free Trade Area by 2017,

---

[102] African Union, *Khartoum Declaration*, AU/CITMC-4/MIN/Decl.(IV)Rev2, Online: http://www.au.int/pages/infosoc/events/fourth-session-african-union-ordinary-conference-ministers-charge-communication-and-i>.

[103] Mahama Ouedraogo, "Regional Cooperation in Space in Africa: Initiatives of the African Union" (Paper delivered at the UNIDIR Conference, The Role of Norms of Behaviour in African Outer Space Activities 7-8 March 2013), Online: <http://www.unidir.org/files/medias/pdfs/au-space-a-look-at-regional-co-operative-space-programmes-being-carried-out-by-the-african-union-mahama-ouedraogo-eng-0-445.pdf>.

[104] Statement by South Africa, The 50th Session at the Science and Technical Subcommittee, Committee on the Peaceful Uses of Outer Space (11-22 February 2013), Online: <http://www.sacsa.gov.za/COPUOS/UNCOPUOS_February2013_Agenda_item3.pdf>.

[105] A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development, The Report of a High Level Panel of Eminent Persons on the Post-2015 Development Agenda, May 2013, Online: <http://www.un.org/sg/management/pdf/HLP_P2015_Report.pdf.>

innovation, harnessing human and natural resources, mainstreaming women and youth.[106] It is proposed that instead of focus on unrealistic targets such as eradicating poverty, emphasis should be on enablers of MDG outcomes and in Africa there must be a focus on impacts and outcomes rather than just on activities. To that end, policy to support the development and use of space technology and applications could be established to be effective towards achieving the proposed outcomes at the regional level.

The idea of regional space policy, however, leads to a fundamental question raised by Rebbelink: "Does the development of regionally concentrated applications eventually lead to regulation on a regional level instead of at the universal level and would such a development be desirable?"[107] A primary first question, however, would be: What are the shortcomings of the global regime which a regional regime should seek to address? Third World Approaches to Law, a school of thought also known as TWAIL is a political movement that seeks to unmask the unequal, unfair and unjust character of the international legal regime. Such a movement leads to the question of whether legal principles related to outer space activity take into account the interests of all countries, and particularly developing countries. Or, are legal principles being implemented in a way that simply adds to the multitude of schemes which subject the third world to serious disadvantage?

A good example of such a scheme that potentially privileges some countries over others includes the "first come, first served" procedure of the International Telecommunication Union for the allocation of orbital slots, which arguably unfairly benefits developed countries. Another example is the unilateral attempts by some countries to control the development of launch technology capabilities globally under the Missile Technology Control Regime —ostensibly for security reasons, but arguably with implicit economic rationales. According to Jakhu,[108] this is not only contrary to the principle in Article III of the Outer Space Treaty of promoting "international

[106] AU, "Executive Council Adopts the Strategic Plan and 2014 Budget of the AU" ( 23 May 2013) Online: <http://summits.au.int/en/21stsummit/events/executive-council-adopts-strategic-plan-and-2014-budget-au>.
[107] Oliver Rebbelink, "Technological Development and the Development of the Law of Outer Space" in A. C. Kiss, J.G. Lammer, eds., *Hague Yearbook of International Law: Vol. 10:1997.*
[108] Ram Jakhu (2006) "Legal Issues Relating to the Global Public Interest in Outer Space" 32:1 Journal of Space Law 31.

cooperation and understanding" in space activities but consequently to global public interest in Outer Space. Global concerns seeking regulatory action such as Prevention of an Arms Race in Outer Space and the issue of Long Term Sustainability of Outer Space Activities, while of concern to developing countries, are not pressing concerns to all equally and in the same way. From a TWAIL perspective these could even be seen as devices used to preclude developing countries from exploring and using outer space, through the creation of a regulatory and legal structures that privileges and benefits some states over others. An ASA could in part serve to unify and safeguard the interests of developing African countries with regards to their interests in space. [109]

Rathman[110] theorizes that there are a number of rights claims in conflict in the debate between developed and developing countries concerning the allocation of space resources, with conflicting claims having their origins in differing cultural values. She argues that the conflicting right claims demonstrate that the international legal system as it now stands is not adequate for the new ethical and economic dilemmas that space commercialization presents and consequently there is a need for innovative consensus-based approaches to the development of space law and policy. Such dilemmas are in part a justification for regional initiatives such as an ASA, whereby developing countries can act as a united front to ensure that their interests are safeguarded in the international realm and to ensure that they gain access to benefits of space technology in the way that impacts them best.

**An unlikely champion for AfriSpace**

The most outspoken official African view that has emerged in support of AfriSpace (the proposed name of the ASA) since the commissioning of a feasibility study on the subject by the AU is that of the Sudanese president Omar al-Bashir. While an unlikely, and according to some press reports, an unsuitable champion for such a cause, it suggests that it may be the non-space capable nations

[109] Abdul-Hakim Elwaer, "The African Space Agenda: Current and Future Prospects" (Paper delivered at the UNIDIR Space Security Conference, Geneva, Switzerland, 2-3 April 2013) Online: <http://www.unidir.org/files/publications/pdfs/the-role-of-norms-of-behaviour-in-african-outer-space-activities-en-418.pdf>.

[110] Kim Alaine Rathman "Sharing the Harvest of the Skies: Outer Space Commercialization and Third World Development", online (1998) 3:4 Society for Philosophy and Technology < https://scholar.lib.vt.edu/ejournals/SPT/v3n4/rathman.html >.

in Africa that have most to gain from such an initiative. According to Guoxiang of the UN Economic and Social Commission for Asia and the Pacific, "less capable countries need institutionalized regional cooperation for tangible opportunities to benefit from space applications."[111] Martinez, however, argues that cooperating with partners that have very limited space experience could lead to dilution of individual efforts, but it is unclear why this should be so if the current established players are serious about increasing their level of activities in space related fields.

This argument disguises one real concern of the more experienced space states: a dilution of power. For example, according to Harding[112], there is no Latin American Space Agency in part because Brazil, which possessed far superior technology to those of other Latin American countries, did not want to diffuse its power through such an organization. While Latin America hosts the Space Conferences of the Americas, and some bilateral cooperation between Argentina and Brazil has taken place, there is little other regional space cooperation and no programme similar to the African Resource Management Satellite Constellation (ARMS-C) exists, which is said to be open to African countries that are able to meaningfully contribute to the attainment of its objectives.

## 4.3 Towards Space Industrial Development

Martinez points out that instead of bolstering African capabilities; an ASA would simply be an attractive proposition for the global space industry seeking a single point to access African markets. It is inevitable that this will indeed be the case. The only way that such a development can be stemmed is if African countries develop, implement, promote and invest in innovation and industrial policies, plans and strategies that will lead to the creation of industries that can

[111] W.U. Guoxian, "Regional Space Applications Program and Applications, The third Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific" ( Paper delivered at the 13th session of APSRAF, Jakarta, Indonesia, 5-7 December 2006).
[112] Robert C. Harding, *Space Policy in Developing Countries: The Search for Security and Development on the Final Frontier* (New York: Routledge, 2012) at 191.

collaborate (and eventually compete) with western suppliers. This, along with continued efforts towards regional integration will lead to bigger markets with better opportunities for selling goods.

However, Africa continues to lack the basic infrastructure, knowledge generation culture and facilities that are essential to support an innovative knowledge economy[113] and so in the short term analysis of technology acquisition models that ensure the technology comes to Africa should be assessed to determine how best to situate Africa as a continent that can access its own market in the future. The fastest and most cost effective mode of technology acquisition is technology transfer. However, the view stands that Africa needs technology *development* and not technology transfer. To that end Abiodun argues that "Africa consistently fails to alter its preoccupation with only what a given technology can do for the economic upliftment of the continent and it pays little or no attention to gaining the necessary knowledge, understanding and an appreciation of why and how a given technology works the way it does".[114] However, Wood[115] recommends that technology transfer can help increase technological capabilities particularly if satellite technology is utilized, investment in local expertise is undertaken, collaborations are designed carefully and collaboration between developing country partners takes place. The optimum solution seems to be a combination of in-house development and acquisition of foreign technology[116] to bolster African capabilities.

The Nigerian space programme is developed based on this hybrid paradigm which involves the buying of satellite technology as well as investment in research and development to attain proficiency in the technology. The aim of this hybrid solution is that the country involved joins the space faring nations within a short time, cost on research and development is minimized but the country is involved in the development of the technology from beginning to end and has full control of the programme after commissioning. This solution was developed in the form of a

[113] Hopestone K. Chavula & Victor Konde (2011) "Innovation and Industrial Development in Africa" 8:3/4 ATDF Journal 3.
[114] Adigun Ade Abiodun (1998) "Human and Institutional Capacity Building and Utilization in Science and Technology in Africa" 10:1 African Development Review 10.
[115] Danielle Wood & Annalisa Weigel (2009) "International Collaboration on Satellite Enabled Projects in Developing Countries" 1103:1 AIP Conference Proceedings at 414.
[116] C.J. Dahlman, et al (1987) "Managing Technological Development: Lessons from the Newly Industrializing Countries" 15:6 World Development 759.

Know-How Training/Technology Transfer (KHTT) program with Surrey Satellite Technology Limited (SSTL). However, Martinez argues that the benefits of KHTT initiatives have been limited so far; but it is time to question why this is so. Some potential reasons for this include that:

- Due to the information paradox, (whereby the customer needs to understand the technology before purchasing) recipient states do not know what information they need or are lacking and can easily receive less than they need;[117]
- Know-how technology transfer seems to be becoming more limited and much of the knowledge transferred is available on the open market and not specific enough;
- U.S. International Traffic in Arms Regulations (ITAR) restrictions has far reaching effects and consequences, preventing effective technology transfer even where there is no direct link with U.S. technology.
-

Ultimately, according to Legolu and Kocagoglan, "the most important factor in the success of technology transfer is the assimilation capacity of the recipient, which is related to the human capital of the recipient organization and the country, available infrastructure and the efficiency of the organization."[118]

There have been some lessons learned either within Africa or from other countries, such as South Korea, Dubai, Malaysia etc. on how to benefit more from space KHTT and be able to negotiate from a position of strength. Dr. Abiodun offers many insights into lessons learned for African countries including that the current trend of buying microsatellites on the open market may not be the best route to indigenous capability development in space. Instead he recommends "the acquisition of fundamental scientific knowledge and the evolution of the technologies needed to initiate, develop, design, fabricate, build and test, locally, a variety of hardware and software components, *some of which may* end up in a variety of products including space-related ones."[119] In other words, the immediate focus should be on investing in knowledge generation in the enabling technologies.

---

[117] Abigail Katz, *Technology Transfer Agreements Containing Tacit Knowledge* (LLM Thesis, University of Toronto, 2011) [unpublished].
[118] U.M. Leloglu & E. Kocaoglan (2008) "Establishing Space Industry in Developing Countries: Opportunities and Difficulties" 42:11 Advances in Space Research 1879.
[119] Adigun Ade Abiodun, *supra* note 100.

However, to hasten the development of such components, a mechanism could be adopted as part of the development of African space capabilities. An African Space Incubator Network (ASIN) could be established to be managed and certified by the ASA. ASIN would be comprised of companies across Africa who could be potential suppliers for ASA missions. The ASA managed programme (possibly linked to an operational arm of the Agency's R&D programme) would support and promote African space industry through the development of initiatives. South Africa has some good examples of programmes to support the development of local space industry such as the Aerospace Industry Support Initiative (AISI). The role of the AISI is to influence, provide support and enable the aerospace sectors to contribute towards achieving government goals. Its activities include:

- Coordination and streamlining of core activities;
- Supporting and enabling firms in these sectors through various initiatives;
- Increased learning in the sectors;
- Creating a common, high technology, labour pool with academia and industry ;
- Adopt and utilize advanced manufacturing processes;
- Establishing underlying processes and technologies that will benefit all. [120]

Secondly, with the development of ASIN, the ASA could implement local content requirement in its contracts whereby foreign companies are required to procure a minimum amount of equipment and services from local suppliers. An operational example of such an initiative is the South African National Industrial Participation Programme (NIPP) managed by the Department of Trade and Industry. The NIPP obliges a foreign supplier in any South African government contract exceeding US $10 million, to invest at least 30% of the contract value in South Africa's economy. In the case of the ASA, potential foreign suppliers would therefore need to create partnerships with participants of the ASIN on a project basis to fulfilll the local content requirement, including providing training and technology transfer. To that end even if, as the inevitable outcome, foreign

[120] Lulu Makapela & Mari Botha, "Government Initiatives to Support, Develop and Enable the South African Space Industry" (Paper delivered at the 63rd International Astronautical Congress, Naples, Italy, 1-5 October 2012).

entities are gaining access to the market, African counterparts may have an opportunity to be part of a market in a way that they currently are not.

Such a proposal is not without its challenges depending on the willingness of the international markets to collaborate with African industry in this manner. For instance,, Colombia had to revise its tender for the SATCOL communications satellite at least twice as conditions of the tender turned out to be unattractive to satellite operators. Secondly, the question remains if such a proposal would violate international trade law. Moon[121] argues that the World Trade Organization constraints on the use of local content requirements raise general concerns about a narrowing of the range of development strategy options open to developing countries. Finally, it must be determined if space technology development is the most effective and efficient manner to reach the goal of industrial development or whether much needed resources could be diverted towards other priorities.

## 4.4 Funding African Space Programs

The success of the ASA would be hinged upon the development of a coherent implementation plan and long term stable funding to see the plan to fruition. A lack of consistent funding is one of the greatest potential barriers that Martinez highlights. He cites the example of The African Regional Center for Space Science and Technology Education (ARCSSTE), a United Nations supported center which seeks to make space education available to African participants through post graduate diploma programmes. Despite a governing board made up of 13 African member countries and several calls to increase financial contributions, Nigeria is the sole financier having sponsored to date over 200 participants from 17 African countries. Indeed while these countries have all benefited from the regional initiative, through access to space technology education, they are yet to contribute to it.

---

Gillian Moon, "Capturing the Benefits of Trade? Local content requirements in WTO law and the human rights-based approach to development" in L. Chester and M. Johnson eds., *Heterodox Economic Perspectives on Contemporary Issues*, Refereed Papers of the 6th Conference of the Society of Heterodox Economists, December 2007, Sydney, Australia.

Perhaps to stimulate the sense that this is an African regional and not Nigerian initiative, the governance structure of the center should be revisited and ARCSSTE should be separated from the Nigerian Centre for Space Science and Technology Education, an entity of the Nigerian Space Agency. Such an action will "Africanize" the center, hopefully encouraging financial participation from members.

There is no easy answer to the funding issue and while there is the possibility of some "support"[122] from the European Commission, without the support of the African countries who have already shown a commitment to space, the sustainability of such an entity would remain questionable.[123] Worthy of note is Gottschalk's view that "until more than one or two African countries have substantial national space budgets and other facilities, there will not be significant gains in setting up an additional institution."[124] But, what is substantial? According to Euroconsult estimates, national space budgets in Africa from 2009-2012 were not marginal, amounting to a total of over US $900 million in 5 countries as stated in Table 3 below.

**Table 3: Estimated Space Budgets in Africa**

| Country | Space institution | 2009-2012 total budget in US$ Millions |
|---|---|---|
| **South Africa** | SANSA/CSIR | 347 |

[122] Stefano Scarda, "Space for Africa" (Paper delivered at SWF workshop International Relations and Space: The European Approach, Brussels, 13 Sept 2012), Online: < http://swfound.org/events/2012/international-relations-and-space-the-european-approach/>.
[123] Interview of Timiebi Aganaba-Jeanty by Daniel Finnan (7 September 2012) on Radio France International "Does Africa Need a Space Agency?" Online: <http://www.english.rfi.fr/node/137118>.
[124] Keith Gottschalk, "Africa's Space Heritage" Inventory, & Future Possibilities" (Paper delivered at the 62nd International Astronautical Congress, South Africa, October 2011).

| | | |
|---|---|---|
| **Nigeria** | NASRDA | 240 |
| **Algeria** | ASAL | 210 |
| **Angola** | - | 94 |
| **Egypt** | NARSS | 12 |
| **Total Space Budget** | | **903** |

Source: Euroconsult

Newly established national institutions in countries such as Ghana (Ghana Space Science and Technology Centre), Kenya (National Space Secretariat) and Gabon (Gabonese Agency for Space Studies and Observations) will increase that total for 2013 and beyond.[125] It is unclear when these budgets will be enough to satisfy detractors, particularly if compared to more established space programs. Such an attitude may be expounded when African countries rely on foreign sources for the financing of their programs. For example, it is reported that "over the period 2012–2024, Ghana is seeking financial support of US$5 billion to develop infrastructure and human capacity in space science."[126] Some countries, however, are proposing an increase in national space spending. Nigeria currently spends US $55 million per year (on average over 10 years) which amounts to 0.2% of the 2012 federal budget. The Nigerian Space Agency (NASDRA) proposes[127] that this should be increased to 2%, which would put Nigerian spending at close to US $600 million, almost on a par with the UK. Such a proposal is unlikely to materialize bearing in mind current security concerns in the country, however, increases could be justified if more tangible benefits can be realized from the programme and articulated to the general public. Figure b below benchmarks national average space spending in $US Millions and percentage of 2012 federal budget spent on space in several countries.

[125] An inventory of African institutions involved in space technology can be found at Zahrah Musa, "An Inventory of Space Technology Applications in Africa" (August 2008) Online: <http://isulibrary.isunet.edu/opac/doc_num.php?explnum_id=200>.

[126] Maxwell Awumah (3 October 2012) "Ghana Opens Space Research Centre" *SciDev net*), Online: <http://www.scidev.net/en/sub-suharan-africa/news/ghana-opens-space-research-centre.html>.

[127] NASRDA, Communique of the National Space Dialogue and Media Conference (28 March 2013) Online: <http://nasrda.gov.ng/Space_Dialogue_Media_Conf_COMMUNIQUE.pdf>.

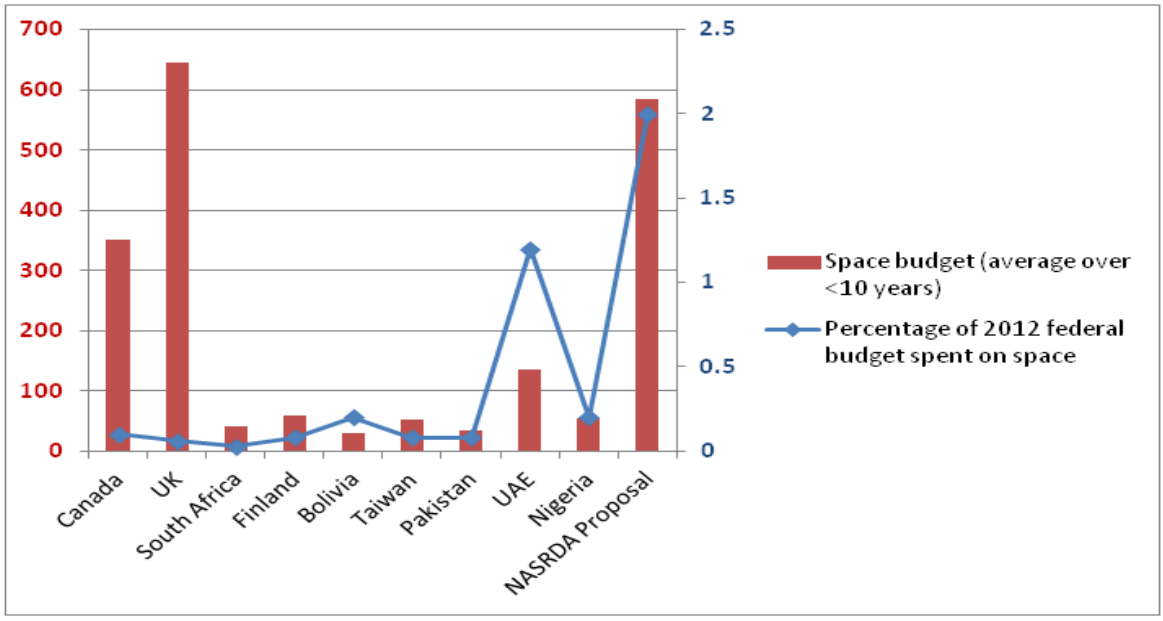


**Figure 7: National average space spending in $USD Millions and Percentage of 2012 Federal Budget Spent on Space**

How the ASA would be funded remains to be seen, but in reality—and largely because of perceived competing economic interests and particularly in the global market—it cannot be expected that another country will subsidize Africa's space ambitions. That said, following the 4th informal space troika between the AU and EU, the EU has allocated 40 million Euros under the African Union Support Programme to support implementation of the priorities of the Joint Africa-EU strategy, which includes the development of a space coordination capability (the Space Platform) within the AU.[128]

Though African space budgets may not be as substantial as their European counterparts, the issue is not the size of the budget but how the available budget is utilized for maximum gain.

## 4.5 A look at the Asian experience

In agreement with Martinez, the European Space Agency (ESA) model may not be the best for Africa for several reasons, most importantly that the preconditions for ESA and rationale for its

[128] European Commission, "Key Facts on the Joint Africa-EU Strategy", Reference Memo/ 13/367(23 April 2013); "A New AUC Space Platform",(14 March 2013) Online: All Africa <http://allafrica.com/stories/201303200734.html>.

establishment do not apply to Africa. Nonetheless, the African Leadership Conference itself recommended that a study be conducted on the formation and evolution process of regional space agencies such as ESA. While recognizing the difference in circumstance and acknowledging that there would need to be a unique model for Africa, perhaps as a more recent example, the regional cooperative models and challenges in Asia should be examined to garner some insights for the African region. It has been proposed[129] that there has been limited cooperation in the Asian region as a result of geopolitical conflicts and the restrictions caused by the Missile Technology Control Regime (MTCR). Nonetheless, cooperation has occurred through both institutional and non-institutional mechanisms.

### 4.5.1 Institutional initiative

Led by China and following establishment of the Asia-Pacific Multilateral Cooperation in Space Technology and Applications (AP-MCSTA), the Asia Pacific Space Cooperation Organization (APSCO) was established in 2008 to foster multilateral space cooperation in order to bring more socio-economic benefits to each of the Member States. This was as a result of deepening institutionalization of the already established AP-MCSTA and following seven workshops and international conferences that it organized from 1994 to 2003. Currently China, Bangladesh, Indonesia, Iran, Mongolia, Pakistan, Peru, Thailand and Turkey are Member States of APSCO. Argentina, Brazil, the Philippines, the Russian Federation and Ukraine have joined as Observers with Malaysia possibly set to also become an Observer. Made up almost entirely of developing countries, it is unclear whether other leading Asian States possessing advanced space faring capabilities will join. Projects include the Data service platform, APSCO applied high resolution satellite project, Asia Pacific ground based optical space observation system and education and training.

### 4.5.2 Non institutional initiative

[129] Sang-Myon Rhee (2006) "Regional Cooperation in Asia Relating to Space Activities – North East Asian Issues" Proceedings of the Asian Cooperation in Space Activities Legal Matters Conference, Bangkok, Thailand.

Two non-institutional space cooperation mechanisms exist in Asia: the ASEAN (Association of Southeast Asian Nations) Sub-Committee on Space Technology and Applications (SCOSA) and the Asia Pacific Space Regional Agency Forum (APRSAF). While bi-annual meetings are held for the SCOSA, the APRSAF is the better known mechanism. Established in 1993 and led by the Japanese Space Agency JAXA, the APRSAF acts as a forum to exchange views and information as well as to discuss future cooperation in space. Participation is broad. As of March 2013, 388 organizations from 40 countries and regions and 26 international organizations have participated. APRSAF was initially mainly geared towards information exchange among space engineers to increase the region‘s understanding of the benefits of space utilization resulting in the identification of a regional common agenda. Through this forum it was concluded that what was required was better networking for data sharing, more earth observation (including the acquisition of micro satellites) and the building of human resources to deal with space applications.[130] Operational projects now include the Sentinel Asia for disaster management, SAFE (Space Applications For Environment) for environmental issues and STAR (Satellite Technology for the Asia-Pacific Region) for capacity building through the development of small satellites.

*What can be gleaned from this?*

First, in each case there is a clear space competent leader championing the cause exhibiting the desire to project soft power and strengthen regional influence. Secondly, several regional discussions were held to determine the space needs of the region before institutionalization in the case of APSCO and before identifying a common regional agenda in the case of APRSAF. Thirdly, membership, observer status and participation are open to entities outside the region. But, according to Chen and Wan “without the participation of other prominent space States *in* the region, such as India, South Korea and Japan, [APSCO] may be relegated to become an international organization dominated by the host State China. This may be detrimental to equitable

[130] Setsuko AOKI (2006) Regional Cooperation in Asia relating to Space Activities (Commentary), Proceedings of the Asian Cooperation in Space Activities Legal Matters Conference, Bangkok, Thailand.

exchanges between Member States (that) the organization was originally intended to facilitate, and cast doubts as to the organization's ability to act independently." [131]

The APRSAF's non institutional model offers a framework for involvement that attracts greater interest and participation than APSCO's existing membership. Interesting to note that space agencies and space-related institutions of China and several members of APSCO are now also part of APRSAF, which begs the question what this overlap in membership will mean for APSCO? Liao[132] theorizes about an Asian Regional Space Regime Complex, explaining that because of historical rivalry alliances, having different cooperative regimes instead of one framework such as ESA could create constructive impacts to regional space governance. To that end instead of seeking to forge political consensus, there could be more than one regional space cooperative mechanism serving sub-regional needs with technical cooperation where there is overlap.

The African Leadership Conference, could be given more influence and evolve into something like APRSAF with operational projects of its own. This kind of cooperation on regional projects could lead to fostering competition, synergy, industrial development and capacity building without the challenges, political and otherwise as faced by the institutional model.

## 4.6 Conclusion

The primary obstacle to the establishment of an ASA is the apparent lack of visible support from space capable African countries. Without champions from countries such as South Africa, Nigeria,[133] Kenya or Algeria, then the sustainability of any pan African initiative remains

[131] David Chen & Stephanie Wan (2009) "Space Cooperation in the Asia-Pacific: The Story (or Stories) of APSCO and APRSAF" Proceedings of the 52nd Colloquium on the Law of Outer Space 42.

[132] Xavier Liao, "Consolidate the Global Space Governance with Regional Cooperation Mechanisms as Building Blocks" (Paper delivered at SWF 2012 Beijing Space Sustainability Conference, 8-9 November 2012).

[133] The Nigerian Minister of Science and Technology was reported to say that "Africa has agreed on modalities for the establishment of the African Space Agency, which Nigeria is a leading member of" See Business Day, "Stakeholders Disagree over Proposed NigComSat Bill" (4 April

questionable. Reliance on European or other outside support whether in money or in kind should not be exclusively relied upon.

Secondly, it appears that those countries with no national space programmes have the most to gain from a pan African initiative; but with so much disparity in capabilities, how can countries cooperate on space matters such that those with more experience, who have invested the most will benefit from the initiative? As stated by Harding, the historical record demonstrates that when states undertake space projects, even cooperative ventures, the unstated goal has usually been to further political, strategic and economic goals of the individual states and not necessarily to promote international cooperation. As some of these countries do not yet have space industries it may be difficult to benefit from an ESA or APSCO style "juste retour" principle. However, there is a possibility that industries could be created, and given access at least to the African market. This article proposes creation of local national champions to form an African Space Incubation Network (ASIN) as well as local content requirements for foreign companies looking to access the ASA market. These requirements would be offset through partnership with an ASIN company. Through such an initiative, those that invest in their national industries would get access to the market.

Thirdly, some African countries, and particularly North African countries, may be more aligned with the newest cooperative space organizations to emerge or be proposed in the developing world - the Inter-Islamic Network on Space Sciences and Technology (which Sudan and Senegal have joined), the proposed Arab League's ASEO satellite project (which brings together Syria, Qatar, Libya, Algeria, Egypt, Tunisia and the Arab League Secretary) and the proposed Pan-Arab Space Agency geared towards Middle East and North Africa. Tunisia is a great example of this, having played a key role in the Arab world in the promotion and growth of satellite technology. With stronger space alliances for some states outside Africa, does a pan African initiative make sense? Bearing in mind the complexity of Africa as a whole, perhaps a sub-regional approach within Africa's Regional Economic Communities (REC's) would achieve some gains. Made up of the

2013) Online; <http://businessdaynigeria.com/stakeholders-disagree-over-proposed-nigcomsat-bill>.

Arab Maghreb Union (UMA), East African Community (EAC), Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS) and Southern Africa Development Community (SADC), the RECs are the implementing arm of the African Union and are the key building blocks of economic integration in their geographic areas. Considering that each of these regions have at least one space agency, identification of needs and cooperation within these bodies could be undertaken with one country leading as opposed to the current situation where there could be leadership competition at the wider regional level, leading to an African Regional Space Regime Complex.[134] As cooperation developed within these frameworks increases the awareness of space to the population, the appetite for a fully African initiative would increase.

Martinez proposes that "initially, collaboration could be in the form of cooperation through alignment of national programmes that still retain their autonomy at a technical and operational level (and)...the next step could be to start exploring cooperative programmes with an element of technical cooperation". However, given that the proposed initial focus of the African space policy is on remote sensing applications and satellite imagery processing, the important question needs to be how the existing regional remote sensing and space institutions in the continent will feature in AfriSpace. To answer this, the first thing that needs to be done is a comprehensive mapping and needs assessment of the many regional and national institutions, organizations, initiatives and networks involved in this field in Africa. Information about African usage of geospatial technologies is lacking and through such mapping, it will be clear where current institutions are lacking, and this gap could be filled by an ASA. As an initial reference point, following assessment of three regional remote sensing centres in Africa[135] as well as input from several other African institutions, initial needs are said to be focused on access to data, (particularly high resolution commercial satellite data) which could be improved through high speed internet access, improved ICT infrastructure, reduced cost and better delivery systems. Human capacity remains a problem in the region despite this multiplicity of existing institutions. There is a lack of appropriate skills to analyze and interpret remote sensing data and to maintain local and regional collaboration. The

[134] See Xavier Liao, *supra* note 133.
[135] Rowland, J et al, *Review of Remote Sensing Needs and Applications in Africa* (Sious Falls, SD: USGS Centre for Earth Resources Observation and Science, 2007).

ASA could develop relationships with universities and tertiary institutions, improve access to regional remote sensing communities, and strengthen and encourage collaboration between institutions through better linkages.

Though it is imperative for Africa to pursue developmental leapfrogs, running too fast can lead to grazed knees. The primary reason that such a regional approach is preferable is because the very limited endowment of most African countries forecloses major independent and effective space programmes. However, the first step towards an ASA, if it is determined that one is needed, should be development and enhancement of mechanisms such as the African Leadership Conference, which should evolve into something like the Asia Pacific Space Regional Agency Forum (APSRAF), with operational projects of its own. That the ARMS Constellation space cooperation agreement between Algeria, Nigeria, Kenya and South Africa was signed at the African Leadership Conference is a good start and should be structured in a way to make it easier for other countries to join such projects.[136] Secondly, African countries should take greater advantage of established frameworks of international cooperation, such as under the UN Space Applications Programme or the Global Earth Observation System of Systems (GEOSS), many of which are already geared towards capability building in Africa.

As a cautionary tale, according to Quirke, a pan-African agency would be beneficial "only if the individual national agencies were each to be strong contributors and reliable."[137] This should be seen as a call to the current and aspirant African space nations including Nigeria, South Africa, Kenya, Ghana and Algeria to become just that. Due primarily to delays in inter-governmental negotiations, and implementing long-promised commitments, if the other African regional space organization RASCOM is anything to go by, it could be some years before a proposed ASA would

[136] Luncedo NgcofeI& Keith Gottschalk (2013) "The Growth of Space Science in African Countries for Earth Observation in the 21st Century", S. Afr. j. sci. 1091-2.
[137] Paul Quirke, "African Space Programmes: Political or Scientific Endeavours?" Consultancy Africa Intelligence, Online: <http://www.consultancyafrica.com/index.php?option=com_content&view=article&id=1124%3Aafrican-space-programmes-political-or-scientific-endeavours&catid=57%3Aafrica-watch-discussion-papers&Itemid=263>.

be operational. On a positive note, those space nations would therefore have the time they need to answer to the call.

# CHAPTER 5: Linking Article I Freedom, Space Sustainability and the CAIL Approach

## 5.0 The Conclusion

The thesis theorizes the freedom of outer space as an analytical category in international space law and analyzes what this mean when it is conjoined with the undefined concept of common benefit. It analyzes freedom in terms of a positive and negative conception and exposes a need for a middle ground position to the weak and strong variants of the positive conception. To find this middle ground position, it constructs a framework from official discourse analysis to determine the right lens to view legal issues divided on ideological grounds through assessing Third World Approaches to International Law (TWAIL) and Cosmopolitan Approaches to International Law (CAIL). The middle ground position broadly speaking questions what are the normative and techno-political conditions for collective action to produce collective social outcomes that serve a wider range of participants in the space endeavor. Using the problematic of global space governance and need for greater inclusion, it assesses institutional arrangements with normative significance that seek to produce the outcome of benefit spreading, if not benefit-sharing, understood as enablement to participate in space exploration and use. On a practical level, it suggests a conceptual model for thinking about common benefit achievable through cooperation and by this, it seeks to expose the intended justice outcome of space law. It seeks to take something fledging and give more substance.

The thesis asked the following questions:

1. How are the freedoms of Outer Space used to gain benefits from space activities? What is the understanding of freedom granted from the perspective of both those exercising the freedom of Outer Space and those expecting that the freedom is exercised for their benefits or interests? In other words, what can freedom mean when it is conjoined with common benefit?
2. Which issues of contention continue to block the effort to lend significance to the notion of common benefit and what principles ought to govern the relationship of

political units seeking to generate common benefit?

3. In the quest to ensure sustainability and fairness to all, including "aspirant" space participants, what does one learn specifically from the space law context that prompts us to reorient the frame of analysis from Third World Approaches to International Law (TWAIL) to Cosmopolitan Approaches to International Law (CAIL)?

Benefit-sharing, in this thesis, is not about how to distribute a given pool of resources or how to improve a distribution as is classically understood, but on how to choose or design the ground rules that regulate the promotion of cooperation and exchange and thereby condition products and distribution. The right conceptual frame is required to categorize and go beyond the ideological debates and complications that arise between those who can independently develop technology and those that require access. To that end, the Space Benefits Constant (SBC) and the Space Benefits Hierarchy (SBH) are introduced. While the SBH tool has not been tested and is merely representative of the types of issues that are relevant, it is an attempt to map out reciprocal relationship of needs and capacities, because it applies to all nation actors not just the established nations. It should, therefore, assist space actors and users to self-reflect and alert themselves to the efforts they are making to fulfill obligations under Article I OST.

The Space Benefits Constant recognizes increasing responsibility as one goes up the hierarchy of needs and proposes that the global system should not only accommodate new entrants but open itself up to the possibility of being transformed by the presence of Non-traditional partners. The important question that emerges, however, is, *"is it that as you move up the hierarchy and achieve greater capacity on the receiving end that heightened market incentives comes into play?"* The growing focus on the economic perspective in space affairs seems to question the opinion that problems can emerge in the international domain from an *absence* of powerful economic interests, and speaks to the interests of current established space nations, who are apparently no longer concerned with prestige but on maintaining market position. The market sees itself as society's leading system but it is proposed that the market is simply a system of activity which is within and subject to the control of the greater ethical and cultural systems, so a focus on economic aspect alone may not speak to the greatest number of actors but must be discussed around a holistic discussion based on the concept of sustainability.

However, the Brazilian example,[1] whereby the challenges of receiving technical capabilities in space technology development are contractually bypassed through a focus on adapting the market structure to be more in line with policy objectives is one to consider. This is achieved through apparently well negotiated market-based mechanisms that consider the attempt towards *true* common benefit-sharing and can serve as instructive for other emerging space nations. In line with Bourbonnière's,[2] proposal that the contextual evolution of the global political climate created a new paradigm based on international economic values in the context of commercialization of remote sensing, emerging actors must focus on ensuring that efforts towards creating a level playing field in market-based mechanisms are a priority alongside expressing the importance of doctrinal principles of "equitable sharing."

The need for a CAILian approach is really about the role and importance of treaty interpretation. Under Article 31 of the 1969 Vienna Convention on the Law of Treaties, "a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose." The thesis argues that the objective towards space for the benefit of all is sidelined as a result of dominant interpretations of freedom under Article 1 OST, which importantly also do not adequately consider amongst other things the principle of fairness. As Frank has argued,[3] the fairness of international law has two aspects, distributive justice and the right process which conflict because the former favors change and the latter stability and order. The tension between stability and change, if not managed, can disorder the system. Legitimacy thus expresses the preference for order, which may or may not be conducive to change. As dominant narratives reflect the position of the most capable space nations,

[1] Álvaro Fabricio dos Santos, "A New Experience on the International Transfer of Space of Technology" (Paper delivered at the 65th International Astronautical Congress, Toronto, 2014), Canada.; Peter Spelding, "Thales Alenia Space Details Elaborate Tech Transfer Deal with Brazil" (22 April 2015) *Space News* Online:<http://spacenews.com/thales-alenia-space-inks-elaborate-tech-transfer-deal-with-brazil/>; Email communication dated 26 May 2015 with Petrônio Noronha de Souza Director of Space Policy Brazilian Space Agency.

[2] Michel Bourbonnière, "Commercialisation of Remote Sensing, U.S. and International Law: Towards a Liberalization of Economic Regulations" (LLM. Thesis, McGill University, 1997).

[3] Thomas Frank, *Fairness in International Law and Institutions* (Oxford: Clarendon Press, 1995).

largely industrialized countries, legitimacy is created through regimes they propagate and efforts at resistance are rebutted through what Duncan Kennedy calls "fetishization" of the law.

Despite the CAILian approach proposed, and the stance I have taken which seeks to stand on both sides of the ideological divide both as a European and an African, I am not a true Cosmopolitanism advocate. A global cosmopolitan citizen who claims to belong to the whole world has no political home and is in a state of what Nussbaum calls "voluntary exile."[4] Parekh[5] points out that a globally oriented citizen has a valued home of his own from which he reaches out to and forms different kinds of alliances with others having homes of their own.

Indeed there are still limitations of the CAILian approach, but the Cosmos that I am interested in requires all sides of the ideological divide to acknowledge the need to develop capacity and find a way for all to move up the development chain. If that is not the starting premise then it is beyond the scope of this thesis. To implement a CAILian utopia it will be necessary to achieve global security as called for by Nancy Gallagher,[6] and to do that entails adequate spreading of benefits. What a CAILian approach means is to conclude that there is value and significance to space engagement and the goal is worth pursuing.

**The Importance of Global Institutions**

Though it has been argued that the limits of the conditional nature of rights is fixed by plurality of laws, just as polycentric approaches seek to fix the address the plethora of issues brought about by the failure of global institutions, if we acknowledge that we have duties to others there is a complex system of interdependence that only global institutions can speak to. They facilitate the exchange of best practices, cooperation and collaboration using a top-down approach—complementing the bottom-up approach of planning by sub-regions, States and industry. The thesis therefore argues that there needs to be a priority placed on ensuring that global institutions are strong. This is

[4] Martha Nassubaum, "Patriotism & Cosmopolitanism" in Joshua Cohen ed., *For Love of Country: Debating the Limits of Patriotism* (Boston MA: Beacon Press, 1996).
[5] Bhikhu Parekh (2003) "Cosmopolitanism & Global Citizenship" 29:1 Review of International Studies 3.
[6] Nancy Gallagher (2010) "Space Governance and International Cooperation" 8:2 Astropolitics (2010) 13.

because while polycentric initiatives can strengthen benefit-sharing, for instance, by focusing on South-South initiatives like a proposed African Space Agency, a strong central institution serves to avoid the negative aspects of a space regime complex.

In such a scenario, clusters of efforts are neither integrated nor fully fragmented, but rather are loosely coupled and linked in a variety of ways, sometimes conflicting or mutually enforcing. As the legal subcommittee (LSC) of the UNCOPUOS seeks new working methods, I can stretch far enough to see this as an opportunity for a region like Africa or other Non-traditional partners to positively influence future development of the law, through the construction and presentation of an alternative normative legal edifice for global space governance.

Along with the effort to institutional reform, it is also the effort required of space actors on their own part to ensure that the principles of the current regime are upheld. Despite the dominant understanding of the freedom of outer space as a negative freedom, in the context of practices, the negative duty not to abuse just practices may also generate positive obligations as when one must act to keep a promise or contract one has made. Once one is a participant in social practices it many no longer be true that negative duties require merely forbearance. In other words, by virtue of accepting Article I OST, even if viewed as a negative freedom, there is a duty to uphold the ideals of benefit to mankind.

In conclusion, the thesis acknowledges the emancipatory potential of law when individuals use their freedom to acknowledge their potential to be truly *in the law*. In effect, to be *in the law* means the focus is on how the regime and individual effort can be used to maximize collective action. Hegel[7] in his rather confusing way dealt with the issue of self-realization and individual freedom. His ideas opened the door to many others to the extent that he has influenced the core message of this thesis to be that understanding the role of the individual in society calls for the recognition that all actors can influence societal change and the law.

Butler's[8] theory is also fundamental to unleashing the individual's capacity to know him-self and

[7] George W. Hegel (1821), *Elements of the Philosophy of Right* (Cambridge: Cambridge University Press, 1991).
[8] Judith Butler, *Giving an Account of Oneself* (New York: Fordham U. Press, 2005).

use his understanding of him-self for the good. But, to know one's self, there is a need to understand the past, our influences and the symbols and behaviors we are conditioned to understand and respond to. Foucault[9] touched upon "discipline" and how society can be conditioned without even knowing it. The far reaching and frightening prospect of this is fundamental to the goal of social transformation but also highlights how all concepts or ideas for social transformation can be used in the negative sense to either maintain the status quo or to create change for the worse – depending on who is looking for the change.

[9] Michel Foucault, *Surveiller et Punir* (Paris: Gallimard, 1975) ; *Discipline and Punishment* Trans. Alan Sheridan (New York: Random House, 1977).

# BIBLIOGRAPHY

## ARTICLES/CONFERENCE PROCEEDINGS


A. Anghie & B.S. Chimini (2003) "Third World Approaches to International Law and Individual Responsibility in Internal Conflicts" 2:1 Chinese Journal of International Law 77.

A. Burzykowska (2009) "Smaller States and the New Balance of Power in Space" 25:3 Space Policy 187.

Abraham. Maslow (1943) "A Theory of Human Motivation:" 50:4 Psychology Review 370.

Abiodun Adigun Ade (2013) 'Trends in the global space Arena - Impact on Africa and Africa's response" 28:4 Space Policy 283.

Abiodun Adigun Ade (1998) "Human and Institutional Capacity Building and Utilization in Science and Technology in Africa" 10:1 African Development Review 10.

Adrian Bueckling (1979) "The Strategy of Semantics and the "Mankind Provisions" Of the Space Treaty" 7:1 Journal of Space Law 15.

Anna Maria Balsano (1994) "Technology Transfers and Public International Research Organizations: The Example of ESA" Proceedings of the 37th Colloquium on the Law of Outer Space 121.

Arild Underdal (1992) "The Concept of Regime "Effectiveness"", Working Paper 2.

Atip Latipulhayat (2012) "Privatization of Space Law-Negotiating of Commercial and Benefit-Sharing Issues in the Utilization of Outer Space" Proceedings of the 55th Colloquium on the Law of Outer Space 243.

B Maiorsky (1986) “A Few Reflections on the Meaning and the Interrelation of “Province of Mankind” and “Common Heritage of Mankind” Notions” Proceedings of the 29th Colloquium on the Law of Outer Space.

Bryon Bittingham (2010) “Does the World Really Need New Space Law” 12:1 Oregon Review of International Law 31.

Barry J. Hurewitz (1994) “Non-Proliferation and Free Access to Outer Space: The Dual-Use Conflict between the Outer Space Treaty and the Missile Technology Control Regime” 9:2 Berkeley Technology Law Journal 211.

B.S. Chimni (2006) “Third World Approaches to International Law: A Manifesto” 8 International Community Law Review 3.

Bhikhu Parekh (2003) “Cosmopolitanism & Global Citizenship” 29:1 Review of International Studies 3.

C. Christol (1967) “International Space Law and the Less Developed Countries” Proceedings of the 19th Colloquium on the Law of Outer Space 243.

C.J. Dahlman, et al. (1987) “Managing Technological Development: Lessons from the Newly Industrializing Countries” 15:6 World Development 759.

Charles V. Kidd (1992) “The Evolution of Sustainability” 5:1 Journal of Agriculture and Environmental Ethics 1.

D. French (2009) “Global Justice and the (Ir)relevance of Indeterminacy” 8 Chinese Journal of International Law 593.

D. K.-W. Chen and S. Wan, “Space Cooperation in the Asia-Pacific: The Story (or Stories) of APSCO and APRSAF” Proceedings of the 52nd Colloquium on the Law of Outer Space.

Danielle Wood (2011) “Building Technological Capability within Satellite Programs in Developing Countrie” 69 Acta Astronautica 1100.

D.Wood & A. Weigel (2012) “Charting the Evolution of Satellite Programs in Developing Countries-The Space Technology Ladder” 28:1 Space Policy 15.

D. Wood & A.Weigel (2009) “International Collaboration on Satellite Enabled Projects in Developing Countries” AIP Conference Proceedings 1103.

Daniel Bodansky (2000) “What’s so Bad about Unilateral Protection to Protect the Environment” 11:2 European Journal of International Law 339.

Daniel Hernades (2004) “Promoting North-South Partnership in Space Research and Applications” 34:10 Advances in Space Research 2190.

David Kennedy & Chris Tennant (1994) “New Approaches to International Law: A Bibliography” 35:2 Harvard International Law Journal 417.

Duncan French, “Global Justice and the (Ir)relevance of Indeterminacy” (2009) 8:3 Chinese Journal of International Law 593.

E. Duruigbo (2006) “Exhaustion of Local Remedies in Alien Tort Litigation: Implications for International Human Rights Protection” 29 Fordham International Law Journal, 1245.

Elena Carpanelli & Brendan Cohen (2012) “A Legal Assessment of the 1996 Declaration on Space Benefits on the Occasion of its Fifteenth Anniversary” 38:1 Journal of Space Law 1.

Eligar Sadeh et al (1996) “Modelling International Cooperation for Space Exploration” 12:3 Space Policy 207.

Francis Lyall (2000) “On the Privatization of INTELSAT” 28 Journal of Space Law 101.

Gerald C MacCallum Jr (1967) “Negative and Positive Freedom” 76:3 Philosophical Review 312.

Gerardine M. Goh (2008) “The Cologne Commentary on Space Law: First Authors Workshop, 10-11 January, 2008, Vienna, Austria” 57:2 ZLW.

Gillian Moon, "Capturing the Benefits of Trade? Local content requirements in WTO law and the human rights-based approach to development" in L. Chester and M. Johnson eds., Heterodox Economic Perspectives on Contemporary Issues, Refereed Papers of the 6th Conference of the Society of Heterodox Economists, December 2007, Sydney, Australia

Hopestone K. Chavula & Victor Konde (2011) “Innovation and Industrial Development in Africa” 8:3/4 ATDF Journal.

I.S. Mayer et al, “Perspectives on Policy Analyses: A Framework for Understanding and Design”, 4:2 International Journal of Technology Policy and Management 169.

Irmgard Marboe (2010) “Hobe, Stephan / Schmidt-Tedd, Bernhard / Schrogl Kai-Uwe (eds.), Cologne Commentary on Space Law (CoCoSL), Volume 1, Outer Space Treaty, Carl Heymanns Verlag, Koln, 2009” 59:4 ZLW.

J. Kangave (2008) “Taxing TWAIL: A Preliminary Inquiry into TWAIL’s Application to the Taxation of Foreign Direct Investment” 10:4 International Community Law Review 389.

J. Monserrat Filho (1994) “The Place of the Missile Technology Control Regime in International Space Law” 10:3 Space Policy 223.

J.T. Gathii (2008) “A Critical Appraisal of the International Legal Tradition of Taslim Olawale Elias” 21 Leiden Journal of International Law 317.

J.T. Gathii (1998) “International Law and Eurocentricity” 9 European Journal of International Law 184.

Jean Marie Henckaerts & Louise Doswald-Beck (2005) “Customary International Humanitarian Law ICRC”, Volume I—Rules.

Jitendra Thaker (1997) “The Development of the Outer Space Benefits Declaration” XXII: 1 Annals of Air & Space Law 537.

Joan Johnson-Freese & Brian Weeden (2012) “Application of Ostrom’s Principles for Sustainable Governance of Common-Pool Resources to Near-Earth Orbit” 3:1 Global Policy 72.

Joanne Gabrynowicz (1992) “The “Province” and “Heritage” of Mankind Reconsidered; A New Beginning” NASA Conference Publication 3166. Vol. 1.

Joel A. Dennerley (2016) “Emerging Space Nations and the Development of International Regulatory Regimes”, Space Policy, In Press, Corrected Proof.

John Hudiburg (2006) “Techno-Political Space Cooperation: A Longitudinal Analysis of NASA’s Bilateral and Multilateral Agreements” Proceedings of the 49th Colloquium on the Law of Outer Space.

Jose Monserrat Filho (1993) “The Place of the Missile Technology Control Regime” Proceedings of the 36th Colloquium on the Law of Outer Space.

Judith Butler (2001) “Giving an Account of Oneself” 31:4 Diacritics 22.

K. Nakatani (1997) “Bilateral Agreements on Shuttle Contingency Landing Sites: Practical Application of the Basic Concepts and Provisions of the Outer Space Treaty and other Agreements in Air and Space Law” Proceedings of the 40th Colloquium on the Law of Outer Space 205.

Kai-Uwe Schrogl et al. (2009) “Governance of Space Activities in an Evolving European Framework – How to Achieve Coherence and Effectiveness?” ESPI Perspectives No 18.

Kai-Uwe Schrogl (2015) “The New Debate on the Working Methods of the UNCOPUOS Legal Subcommittee” 105:1 Acta Astronautica 101.

Keith Gottschalk (2008) “The Roles of Africa’s Institutions in Ensuring Africa’s Active Participation in the Space Enterprise: The Case for an African Space Agency (ASA)” 12 African Skies 26.

Kim Alaine Rathman “Sharing the Harvest of the Skies: Outer Space Commercialization and Third World Development”, online (1998) 3:4 Society for Philosophy and Technology < https://scholar.lib.vt.edu/ejournals/SPT/v3n4/rathman.html >.

Laura Delgado Lopez (2012) “Sino-Latin American Cooperation: A Smart Move” 28:1 Space Policy 7.

Laura Delgado Lopez (2016) “Space Sustainability Approaches of Emerging Space Nations: Brazil, Colombia, and Mexico” Space Policy, In Press, Corrected Proof.

Luis F. Castillo Arganaras (2000) “Benefits Arising from Space Activities and the Needs of Developing Countries” Proceedings of the 43rd Colloquium of Outer Space 50.

Luncedo NgcofeI & Keith Gottschalk (2013) “The Growth of Space Science in African Countries for Earth Observation in the 21st century” S. Afr. j. sci., 109 :1-2 Pretoria.

M. Mutua (2000) ‘What is TWAIL?” 94 American Society of International Law Proceedings 31.

Marco G. Markov (1976) “The International Space Agency Project, the Declaration of Bogotá and the Common Interests Rule” 15 Dirito Aereo.

Marco G. Markov (1975) “Implementing the Contractual Obligation of Article 1, Par. 1 of the Outer Space Treaty 1967” Proceedings of the 17th Colloquium of the Law of Outer Space 136

Madhav Khosla (2007) “The TWAIL Discourse: The Emergence of a New Phase” 9 International Community Law Review 291..

Marietta Benkö & Kai-Uwe Schrogl (1997) “History and Impact of the 1996 UN Declaration on ‘Space Benefits’” 13:2 Space Policy 139.

Megan Ansdell et al. (2011) “Analyzing the Development Paths of Emerging Space Nations: Opportunities or Threats for Space Sustainability” Secure World Foundation.

Michel Bourbonniere & Ricky Lee (2007) “Legality of the Deployment of Conventional Weapons in Earth Orbit” 18:5 European Journal of International Law 873.

Michel Bourbonniere (2005) “National-Security Law in Outer Space: The Interface of Exploration and Security” 70 J. Air L. & Com. 3.

Nancy Gallagher (2009) “A Reassurance Based Approach to Space Security”, Prepared for the International Security Research and Outreach Programme International Security Bureau.

Nancy Gallagher (2010) “Space Governance and International Cooperation” 8:2 Astropolitics 13.

Nandasiri Jasentuliyana (1995) “The Role of Developing Countries and the Formulation of Space Law” XX: II Annals Air & Space Law 105.

Nandasiri Jasentuliyana (1989) “Article I of the Outer Space Treaty Revisited” 15:2 Journal of Space Law.

Nicholas Kasirer (2002) “Bijurism in Law’s Empire and in Law’s Cosmos” 52: 1/2 Journal of Legal Education 29.

Obiora Okafor (2008) “Critical Third World Approaches to International Law (TWAIL): Theory, Methodology, or Both?” 10:4 International Community Law Review 371.

Obiora. Okafor (2005) “Newness, Imperialism and international Legal Reform in Our Time: A TWAIL Perspective” 43:1/2 Osgoode Hall Law Journal 171.

Peter Marcuse (1998) “Sustainability is not enough” 10:2 Environment and Urbanization 103.

Peter Martinez (2011) “Is there a need for an African Space Agency?” 28:3 Space Policy 142.

Pirada Techavijit & Ravit Sachasiri (2012),”Towards International Cooperation and Capacity Building between Space Agencies: A Case of GISTDA and NSPO” 33 Proceedings of the Asia-Pacific Advanced Network 15.

Ram Jakhu (2006) “Legal Issues Relating to the Global Public Interest in Outer Space” 32:1 Journal of Space Law 31.

Ram Jakhu & Maria Buzdugan (2008) “Development of the Natural Resources of the Moon and Other Celestial Bodies: Economic and Legal Aspects” 6:3 Astropolitics.

Richard Janda (2005) “Toward Cosmopolitan Law” 50 McGill Law Journal 967.

Robert M Cover (1983) “The Supreme Court, 1982 Term -- Foreword: Nomos and Narrative” Faculty Scholarship Series, Paper 2705.

Robert O. Keohane & David G. Victor (2011) “The Regime Complex for Climate Change” 9 Perspectives on Politics 7.

Roderick MacDonald & Jason Maclean (2005) “No Toilets in the Park” 50 McGill Law Journal 721.

Ruth Buchanan (2008) “Writing Resistance into International Law” 10 International Community Law Review 1.

Stephan F. von Welck (1986)”Outer Space and Cosmopolitics” 2:3 Space Policy 200

Stephan F. von Welck (1987) “The Export of Space Technology: Prospects and Dangers” 3:3 Space Policy 221.

Sang-Myon Rhee (2006) “Regional Cooperation in Asia Relating to Space Activities – North East Asian Issues” Proceedings of the Asian Cooperation in Space Activities Legal Matters Conference Bangkok, Thailand.

Scott Shackelford (2013)”Governing the Final Frontier: A Polycentric Approach to Managing Space Weaponization and Orbital Debris” American Business Law Journal, Forthcoming. Online at SSRN:<http://ssrn.com/abstract=1972308>.

Simon Gächter & Arno Riedl (2005) “Moral Property Rights in Bargaining with Infeasible Claims” 51:2 Management Science 249.

Stanford G, Mukasa (1992)”Towards Pan African Cooperation in Satellite Communication: An Analysis of the RASCOM Project” 6:2 Africa Media Review.

Stephan Hobe (2007) “Outer Space as the Province of Mankind-An Assessment of 40 Years of Development” 50 Proceedings of the Colloquium on the Law of Outer Space 444.

Stephen Gorove (1982) “Implications of International Space Law for Private Enterprise” 7 Annals of Air & Space Law.

Tare Brisibe (2009) “Customary International Law, Arms Control and the Environment in Outer Space” 8:2 Chinese Journal of International Law 375.

Thomas Pogge (1992) “Cosmopolitanism & Sovereignty,” 103:1 Ethics 48

Timiebi Aganaba-Jeanty, (2016) “Space Sustainability and the Freedom of Outer Space” 14:1 Astropolitics 1.

Timiebi Aganaba-Jeanty (2016)., Introducing the Cosmopolitan Approaches to International Law (CAIL) Lens to Analyze Governance Issues as they Affect Emerging and Aspirant Space Actors, Space Policy, In Press, Corrected Proof.

Timiebi Aganaba-Jeanty (2015) “Common Benefit from a Perspective of “Non-traditional Partners”: A Proposed Agenda to Address the Status Quo in Global Space Governance” 117:1 Acta Astonautica 172.

Timiebi Aganaba-Jeanty (2013) “Precursor to an African Space Agency: Commentary of Dr. Peter Martinez “Is there a need for an African Space Agency?”” 29:1 Space Policy 168.

U.M. Leloglu & E. Kocaoglan (2008) “Establishing Space Industry in Developing Countries: Opportunities and Difficulties” 42:11 Advances in Space Research 1879.

V. Pop (2001) “A Celestial Body is a Celestial Body is a Celestial Body”, Proceedings of the 44th Colloquium on the Law of Outer Space.

V. Nesiah (2006) “Resistance in the Age of Empire: Occupied Discourse Pending Investigation” 23:5 Third World Quarterly 903.

Vrinda Narain (2013) “Muslim Women's Equality in India: Applying a Human Rights Framework” 35:1 Human Rights Quarterly 91.

Walter MacDougall (1985) “Sputnik, the Space Race and the Cold War” 41:5 Bulletin of Atomic Scientists 20.

Yun Zhao (2005) “The 2002 Space Cooperation Protocol between China and Brazil” 21:3 Space Policy.

Vasuki Nesiah (2006) “Resistance in the Age of Empire: Occupied Discourse Pending Investigation” 23:5 Third World Quarterly 903.

## BOOKS

A. Anghie et al., *The Third World and International Order: Law, Politics, and Globalization* (Leiden: Martinus Nijhoff, 2003).

A. Dhir, "Shareholder Engagement in the Embedded Business Corporation: Investment Activism, Human Rights and TWAIL Discourse" in P. Zumbansen &C. Williams eds., *The Embedded Firm: Labour, Corporate Governance and Finance Capitalism* Cambridge: Cambridge Univ. Press, 2010).

Amartya Sen, *Development as Freedom* (Oxford University Press, 1999).

Bin Cheng, *Studies in International Space Law* (Oxford: Clarendon Press, 1998).

Brian Lepard, "The Legal Status of the 1996 Declaration on Space Benefits: Are Its Norms Now Part of Customary International Law" in Irmgard Marboe ed. *Soft Law in Outer Space* (Bohlau Verlag, 2012) 289.

C. Stott & C. Twist, *Space Facts* (DK Pub, London, 1995).

C.Wilfred Jenks, Space Law (London: Stevens and Sons, 1965).

Carolyn Deere, "Sustainable International Natural Resources Law" in Marie-Claire Cordonier Segger & Ashfaq Khalfan eds., *Sustainable Development Law Principles, Practices, & Prospects* (New York: Oxford University Press, 2004).

Don Kash, *The Politics of Space Cooperation* (West Lafayette, IN: Purdue Research Foundation, 1967).

Duncan Kennedy, "A Left Phenomenological Alternative to the Hart/Kelsen Theory of Legal Interpretation" *in* Duncan Kennedy, *Legal Reasoning, Collected Essays* (Aurora CO: The Davies Book Publishers, 2008).

E Chaisson & S McMillan, *Astronomy Today* (Prentice Hall, New Jersey, 2007).

Ekkehart Schlicht, *On Custom in the Economy* (Oxford: Clarendon Press, 1998).

Fabio Tronchetti, *The Exploitation of Natural Resources of the Moon and Other Celestial Bodies* (Martinus Nijhoff: Leiden, 2009).

Gerhard Hafner "The Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States" in Irmgard Marboe ed., *Soft Law in Outer Space* (Cologne: Bohlau Verlag, 2012).

H.L.A Hart, *The Concept of Law* (Oxford, OUP: 1961).

Hans Kelson, *Introduction to the Problems of Legal Theory* (B. Paulson & S. Paulson, trans. Oxford, 1992).

Ines Scharlach, "Performance and Warranty Articles in Space Industry Contracts" in Lesley Jane Smith & Ing Baumann eds., *Contracting for Space: Contract Practice in the European Space Sector* (Ashgate: England, 2011).

Inge Kaul, et. al eds., *Global Public Goods: International Cooperation in the 21st Century* (NY: Oxford University Press, 1999).

Isaiah Berlin, "Two Concepts of Liberty" in Isaiah Berlin *Four Essays on Liberty* (Oxford: Oxford University Press, 1969).

J. Rowland et al, *Review of Remote Sensing Needs and Applications in Africa*, (Sious Falls, SD: USGS Centre for Earth Resources Observation and Science, 2007).

J.T. Gathii, “Africa” in B. Fassbender, & A. Peters eds., *The Oxford Handbook of the History of International Law* (Oxford: Oxford University Press, 2012).

J.T. Gathii, “Third World Approaches to International Economic Governance” in *International Law and the Third World: Reshaping Justice* (Oxon: Routledge-Cavendish, 2008).

James Lovelock, *The Vanishing Face of Gaia: A Final Warning* (London: Basic Books, 2009).

Jaques Derrida, *Les Spectres deMarx* (Paris: Galilée, 1993).

Jaques Derrida, *Specters of Marx* Trans. Peggy Kamuf (New York: Routledge, 1994).

Jean-François Mayence & Thomas Reuter, “Article XI” in Hobe et al. eds., *Cologne Commentary on Space Law: Volume 1, Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009).

Jennifer Nedelsky, *Law's Relations: A Relational Theory of Self, Autonomy, and Law* (New York: Oxford University Press, 2011).

John Montgomery, *Great From the Start; How Conscious Corporations Attract Success* (Morgan James Publishing, 2012).

Kai-Uwe Schrogl et al eds., *Threats, and Risks & Sustainability – Answers by Space* (Austria: Springer, 2009).

Kai-Uwe Schrogl, “Legal Aspects Related to the Application of the Principle that the Exploration and Utilization of Outer Space Should be Carried out for the Benefits and in the Interest of All States Taking Into Particular Account the Needs of Developing Countries” in Marietta Benko & Kai-Uwe Schrogl eds., *International Space Law in the Making* (France: Editions Frontiers, 1993).

Lavanya Rajamani, *Differential Treatment in International Environmental Law* (Oxford Scholarship Online, 2006).

M. Focault, *Surveiller et Punir* (Paris: Gallimard, 1975);

M. Focault*, Discipline and Punishment* Trans. Alan Sheridan (New York: Random House, 1977).

Marietta Benkö & Kai-Uwe Schrogl, "Article I of the Outer Space Treaty Reconsidered After 30 Years "Free Use of Outer Space vs. Space Benefits"" in G. L. Laferranderie & D. Crowther eds., *Outlook on Space Law over the next 30 Years* (The Hague: Kluwer, 1997) .

Marietta Benkö & Kai-Uwe Schrogl eds., *International Space Law in the Making* (France: Editions Frontiers, 1993).

Matthew Hoffman, *Climate Governance at the Crossroads: Experimenting with a Global Response after Kyoto* (New York, OUP: 2011).

Michael Beck et al., *To Supply or to Deny: Comparing Non-proliferation Export Controls in Five Key Countries* (Kluwer Law International: The Hague, 2003).

Micheal Decleris, *The Law of Sustainable Development: General Principles* (Luxembourg: Office for Official Publications of the European Communities, 2000).

Micheal Hardt & Antonio Negri, *Empire* (Harvard University Press, 2000).

N. M. Matte, *Space Activities and Emerging International Law* (CRASL, Montreal,:1984).

N. M. Matte, *Aerospace Law, Telecommunications Satellites*, (Toronto: University of Toronto Press, 1982).

Nandasiri Jasentuliyana, “nsuring Equal Access to the Benefits of Space Technology for all Countries” in Chia-Jui Cheng ed., *The Use of Airspace and Outer Space for all Mankind in the 21st Century* (The Hague: Kluwer Law International, 1995).

Nandasiri Jasentuliyana, *International Space Law and the United Nations* (The Hague: Kluwer Law International, 1999).

Oliver Rebbelink, “Technological Development and the Development of the Law of Outer Space “in A. C. Kiss & J.G. Lammer, (eds.), *Hague Yearbook of International Law: Vol. 10* (1997).

Peter Drucker, *The Essential Drucker: The Best of Sixty Years of Peter Drucker’s Essential Writings on Management* (Collins Business Essentials, 2008).

Ram Jakhu, “Developing Countries and the Fundamental Principles of International Space Law” in Girardot, R.G., et al. eds., *New Directions in International Law: Essays in Honour of Wolfgang Abendroth* (Frankfurt, 1982).

Rajagopal Balakrishnan, “International Law and Third World Resistance: A Theoretical Inquiry” in Anthony Anghie et al. eds., *The Third World and International Order: Law, Politics and Globalization* (Leiden: Martinus Nijhoff, 2003).

Richard Lewis, *Space in the 21st Century* (New York: Columbia University Press, 1990).

Richard Janada & Juan C. Pinto, “Fiduciary Governance of Impact and Benefit Agreements” in Roderick Macdonald & Veronique Fortin eds., *Autonomie Economique Autochone: Dimensions Multiples/Dimensions of Indigenous Economic Autonomy* (Montreal: Themis, 2015).

Ricky Lee, *Law and Regulation of Commercial Mining of Minerals in Outer Space* (Dordrecht:

Robert C. Harding, *Space Policy in Developing Countries: The Search for Security and Development on the Final Frontier* (New York: Routledge, 2012).

Schlicht Ekkehart, *On Custom in the Economy* (Oxford: Clarendon Press, 1998).

Security Index, *Space Security 2011: Executive Summary* (Ontario: Pandora Press, 2011).

Simon Bell & Stephen Morse, *Sustainability Indicators: Measuring the Immeasurable*? 2nd Edition (London: EarthScan, 2008).

Stephan Hobe, "Article I", in Hobe et al. eds., *Cologne Commentary on Space Law: Volume 1, Outer Space Treaty* (Cologne: Carl Heymanns Verlag, 2009).

Thomas Frank, *Fairness in International Law and Institutions* (Oxford: Clarendon Press, 1995).

V. Sriranjani, "Liberty" in R. Bhargava & A. Acharya eds., *Political Theory: An Introduction* (New Delhi: Dorling Kindersley, 2008).

Walter Carlsnaes et al. eds., *Handbook of International Relations* (London: Sage, 2002).

Wolfgang Rathgeber, et. al. eds., *The Fair and Responsible Use of Space: An International Perspective* (Germany: Springer, 2010).

World Commission on Environment and Development (WCED, *Our Common Future* (Oxford: Oxford University Press, 1987).

Xavier Pascoe, *A European Approach to Space Security* (Cambridge: American Academy of Arts and Sciences, 2009).

Yvonne Schmidt, "International Space Law and Developing Countries" in Christian Brunner & Alexander Soucek eds., *Outer Space in Society, Politics and Law* (Springer: Verlag/Wein, 2011).

## DISSERTATIONS/ REPORTS

Abigail Katz, "Technology Transfer Agreements Containing Tacit Knowledge" (LLM Thesis, University of Toronto, 2011) [unpublished].

C. Noichim, "The ASEAN Space Organization: Legal Aspects and Feasibility" (Ph.D. Thesis, Leiden University, 2008) [unpublished].

Eligar Sadeh, Dynamics of International Space Cooperation, (Ph.D. Thesis, Colorado State University, 1999) [unpublished].

Erich Klock & Marco Aliberti (2014) "ESA Enlargement: What Interested Countries Can Do to Prepare Themselves for Ultimate Accession – With a Special Focus on the CEE Region" ESPI Report 47.

Euroconsult (2014) "Profiles of Government Space Programs".

Euroconsult (2013) "Trends and Prospects for Emerging Space Programs".

Gordana Milinic Djapo, "Outer Space Activities, International Cooperation and the Developing Countries" (LLM. Thesis, McGill University, 1998) [unpublished].

Jiefang Huang, The Common Interest Principle in Space Law (LLM Thesis, McGill University, 1985) [unpublished].

Jan Mey, "Law and the extension of the human presence with Moon 2.0 - update to Global Compact 2.0?" (LLM Thesis, McGill University, 2008) [unpublished].

Jill Ferrier, "The Development of International Space Law: International Cooperation in Outer Space: Meeting the Needs of the Developing Countries" (LLM Thesis, McGill University, 1995) [unpublished].

Michel Bourbonnière, “Commercialization of Remote Sensing, U.S. and International Law: Towards a Liberalization of Economic Regulations” (LLM Thesis, McGill University, 1997) [unpublished].

Ram Jakhu, “The Legal Regime of the Geostationary Orbit” (DCL Thesis, McGill University, 1983) [unpublished].

Theresa Hutchins (2015) “Forwarding Multilateral Space Governance: Next Steps for the International Community”, CISSM Working Paper.

Torsten Kriening, “Space Training for Emerging Markets” (MSc Thesis, International Space University, 2012) [unpublished].

Usha Natarajan, “The 2003 Iraq Invasion and the Nature of International Law: Third World Approaches to the Legal Debate” (Ph.D. Thesis, Australian National University School of Law, 2008) [unpublished].

V. Sripati, “UN Constitutional Assistance (UNCA): A Third World Approaches to International Law Perspective” (Ph.D. Thesis, Osgoode Law School, York University, 2010) [unpublished].

Valnora Leister, “Space Technology: From National Development to International Cooperation” (DCL Thesis, McGill University, 1983) [unpublished].

Zeeshan Ashraf, “The Position of the Business Judgment Rule in Different Corporate Cultures and Structures: A Study and Analysis” (LLM Thesis, McGill University, 2001) [unpublished].

## JURISPRUDENCE/GOVERNMENT DOCUMENTS/UN

African Charter on Human and Peoples' Rights, 21 ILM 58 (1982).

African Union, Khartoum Declaration, AU/CITMC-4/MIN/Decl. (IV) Rev2.

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, 5 December 1979, 1363 UNTS 3 (entered into force 11 July 1984) [Moon Agreement].

Canada-France-Federal Republic of Germany-Italy-Japan-United Kingdom-United States: Agreement on Guidelines for the Transfer of Equipment and Technology Related to Missiles, Exchange of letters announced April 16, 1897, 26 I.L.M 599 (1987).

Council of European Union, Revised Draft Code of Conduct for Outer Space Activities 2010
European Commission, Key Facts on the Joint Africa-EU Strategy, Reference Memo/ 13/367 (23 April 2013).

Inter-American Commission on Human Rights, Organization of American States, Online <http://www.cidh.oas.org/countryrep/Seguridad.eng/CitizenSecurity.IV.htm>.

North Sea Continental Shelf Cases, Judgement, 20 February 1969, ICJ Reports, 1969, 3.

Statement by South Africa, The 50th Session at the Science and Technical Subcommittee, Committee on the Peaceful Uses of Outer Space (11-22 February 2013), Online: <http://www.sacsa.gov.za/COPUOS/UNCOPUOS_February2013_Agenda_item3.pd>

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, 27 January 1967, 610 UNTS 205, 18 UST 2410, TIAS No 6347, 6 ILM 386 (entered into force on 10 October 1967) [Outer Space Treaty/OST].

U.S. Congress, Senate Special Comm. On Space & Astronautics, 85th Cong., Space Law – A Symposium, p.558 (Dec 31, 1958).

UNGA, Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interests of All States, Taking info Particular Account the Needs of the Developing Countries, Working Paper Submitted by Germany and France, U.N. Doc AéAC.105ÉC.2éL.197 of 24 March 1995.

UNCOPUOS, Draft Resolution, Working Paper Submitted by the Chairman of the Working Group, U.N. Doc A/AC.105/C.2/L.202 of 27 March 1996

UNCOPUOS, Legal Subcommittee, Summary Records of the 537th Meeting, 29th Sess., 537th Mtg., UN Doc. A/AC.105/C.2/SR.537 (190).

UNCOPUOS, Statement of Nigeria, Unedited Transcript, 643rd Meeting, Monday 4th April 2001, Vienna.

UNCOPUOS, Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes, UN Doc A/AC.105/C.2/L.182 (9 April 1991).

UNCOPUOS, Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes, Working Paper Submitted by Argentina, Brazil, Chile, Colombia, Mexico, Nigeria, Pakistan, Philippines, Uruguay and Venezuela, UN Doc. A/AC.105/C.2/L.182/Rev.1 of 31 March 1993.

UNCOPUOS, Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes, Working Paper Submitted by Brazil, Chile, Colombia, Egypt, Iraq, Mexico , Nigeria, Pakistan, Philippines, Uruguay and Venezuela, UN Doc. A/AC.105/C.2/L.182/Rev.2 of 23 March 1995.

UNCOPUOS, Principles Regarding International Cooperation in the Exploration and Utilization of Outer Space for Peaceful Purposes, UN Doc A/AC.105/C.2/L.182 (9 April 1991).

UN Committee on Peaceful Uses of Outer Space, Long Term Sustainability of Outer Space Activities: Preliminary Reflections, (8 February 2011) UN Doc. AC105/C1_2010/CRP.3.

UNGA, Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, UNGA Res 51/122, UN Doc A/RES/51/122 (13 December 1996).

White House, National Space Policy of the United States (28 June 2010).

## PRESENTATIONS

Abdul-Hakim Elwaer, "The African Space Agenda: Current and Future Prospects" (Paper delivered at the UNIDIR Space Security Conference, Geneva, Switzerland, 2-3 April 2013).

Álvaro Fabricio dos Santos, "A New Experience on the International Transfer of Space Technology" (Paper delivered at the 65th International Astronautical Congress, Toronto, Canada, October 2014).

Edmond Boulle, "Reproducibility: A New Phenomenon in Space Barter Agreements" (Paper delivered at the IISL 57th Colloquium on the Law of Outer Space in Toronto, Canada 2014).

Dumitru-Dorin Prunariu, "Space Sustainability: Setting a Technical Baseline for New Regimes" (Paper delivered at the UNIDIR Space Security Conference, Geneva, Switzerland, 2-3 April 2013).

Jana Robinson, "Space Sustainability: The Basis for Responsible Use of Space" (Paper delivered at the International Workshop on Space Policies, Beijing, 18-19 May 2011).

Keith Gottschalk "Africa's Space Heritage" Inventory, & Future Possibilities" (Paper delivered at the 62nd International Astronautical Congress, South Africa, October 2011).

Lauren Small-Pennefather & Yu Takeuchi, "Space Debris Removal as a First Step to Realizing a Legal Framework for Space Traffic Management" (Paper delivered at 3rd Annual Manfred Lachs Conference, Montreal, Quebec, 16-17 March 2015).

Lulu Makapela & Mari Botha "Government Initiatives to Support, Develop and Enable the South African Space Industry" (Paper delivered at the 63rd International Astronautical Congress, Naples, Italy, 1-5 October 2012).

Mahama Ouedraogo, "Regional Cooperation in Space in Africa: Initiatives of the African Union" (Paper delivered at the UNIDIR Conference, The Role of Norms of Behaviour in African Outer Space Activities, 7-8 March 2013).

Matthias Buhl et al., “BST Training Program - A New Paradigm for Successful Technology Transfer” (Paper delivered at the 8th IAA Symposium on Small Satellites for Earth Observation., Berlin, Germany, 24 – 28 April 2017).

Nicholas Peter & Wolfgang Rathgeber “How to Raise the Space Sustainability Consciousness of Emerging Space Actors” (Paper delivered at the International Astronautical Congress, 24-28 September 2007).

Olivier Barsoau, “The Diplomacy of the Universal: The Cold War and the Rise of an American Conception of Human Rights, 1945-1948” (Paper delivered at the Dean Maxwell and Isle Cohen Doctoral Seminar, McGill University, Montreal, Canada, 23rd August 2014).

Peter Martinez, Current International Space Security (Sustainability) Activities/Initiatives, (Paper delivered at the ISU SSP 2010 - Space Security Theme Day).

Michael O Brien, “International Cooperation at NASA” (Paper delivered at the Asia Pacific Regional Space Agency Forum, Singapore December 8, 2011).

R. Bachand, “Critical Approaches and the Third World: Towards a Global and Radical Critique of International Law” (Paper delivered at the McGill Legal Theory Workshop, Montreal 2010).

Ram Jakhu, “Access to and Equity in Aerospace Transportation” (Paper delivered at the ICAO/ UNOOSA Aerospace Symposium, Montreal, Canada, 18-20 March 2015).

Sara Ross, “Potent Cultural Objects and the Right to Culture: Repatriation, Return, and Res Extra Commercium” (Paper delivered at the Dean Maxwell and Isle Cohen Doctoral Seminar, McGill University, Montreal, Canada, 23rd August 2014), [unpublished].

Stefano Scarda, “Space for Africa” (Paper delivered at SWF workshop International Relations and Space: The European Approach, Brussels 13 Sept 2012).

Ted Hewitt & Lorna Edmonds, “The 21st Century Advent of Universalization” (Paper delivered at the 2nd Manfred Lachs International Conference on Global Space Governance, Montreal, Canada, May 29-31, 2014).

Theresa Hutchins, “Space Sustainability: International Efforts to Bound Space Activity.” Presentation to CSIS –Space Enterprise Council: Can We Keep Space from Becoming a Shooting Gallery? (21 July 2008) Online: CDI <http://www.cdi.org/pdfs/csisjuly08.ppt>.

Tommas Sgobba, “An ICAO for Space?” (Paper delivered to the IAASS, October 2007).

Tommas Sgobba, “Space Safety in a Globalized World” (Paper delivered to ESRIN, 20 October 2008).

W.U. Guoxian, “Regional Space Applications Program and Applications and the third Ministerial conference on space applications for sustainable development in Asia and the Pacific” (Paper delivered at the 13th session of APSRAF, Jakarta, Indonesia, 5-7 December 2006).

Xavier Liao, “Consolidate the Global Space Governance with Regional Cooperation Mechanisms as Building Blocks” (Paper delivered at SWF 2012 Beijing Space Sustainability Conference, 8-9 November 2012).

## WEB RESOURCES


1st JEG8 Meeting of Action Plan II (2011-2013) Online: <www.ist-africa.org/home/files/JEG8Report_Tanzania_May12.pdf.>

African Union Commission, Strategic Plan 2009-2012 (May 19, 2009) Online: AU < http://www.au.int/en/sites/default/files/Strategic_Plan2009-2012.pdf.>

A New AUC Space Platform (14 March 2013); Online: All Africa http://allafrica.com/stories/201303200734.html>

AU, Executive Council Adopts the Strategic Plan and 2014 Budget of the AU, (23 May 2013), Online: AU <http://summits.au.int/en/21stsummit/events/executive-council-adopts-strategic-plan-and-2014-budget-au>.

Brian Weeden (March 2009) "Space Sustainability: To Preserve and to Protect", *Satmagazine* Online: Satmagazine, < http://www.satmagazine.com/2009/SatMag_Mar09.pdf>.

Business Day (4 April 2013) Stakeholders Disagree over Proposed NigComSat Bill, Online; <http://businessdaynigeria.com/stakeholders-disagree-over-proposed-nigcomsat-bill.>.

Chimamanda Adichi, "The Danger of a Single Story" (July 2009), online: TED: Ideas Worth Spreading, <http://www.ted.com/talks/chimamanda_adichie_the_danger_of_a_single_story>.

Communiqué of the 3rd IAA African Regional Conference, Space for Africa: Joint Participation, Knowledge Development and Sharing, Sheraton Hotel, Abuja, Nigeria (24-26 November 2009) Online :< http://iaaweb.org/iaa/Communication/pr_abuja2009.pdf>.

Communique of the National Space Dialogue and Media Conference, (28 March 2013) Online: <http://nasrda.gov.ng/Space_Dialogue_Media_Conf_COMMUNIQUE.pdf.>.

Daniel Finnan, “Does Africa Need a Space Agency?” Radio France International (7 Sept 2012), Online: <http://www.english.rfi.fr/node/137118>.

European Commission, Free and open access to Sentinel-1 and Sentinel-3 data would contribute to the preservation and development of Indonesia's marine resources, Copernicus Observer, Issue 9, February 2015 Online:<http://newsletter.copernicus.eu/issue-09-february-2015/article/free-and-open-access-sentinel-1-and-sentinel-3-data-would-contribute>.

European Union, Joint Statement of Vice President Tajani, European Commission and Commissioner Ezin, African Union Commission, Press Release, 15th September 2010, Online: <http://europa.eu/rapid/press-release_MEMO-10-414_en.htm?locale=en>.

Henri Sokolski, Ending South Africa’s Rocket program: A Non Proliferation Success, NPEC, Online :< http://npolicy.org/article_file/Ending_South_Africas_Rocket_Program-A_Nonproliferation_Success.pdf>.

Ian Carter, Positive and Negative Liberty *in* Edward N Zalta (ed.) The Stanford Encyclopedia of Philosophy (Spring 2012 Edition), Online: Stanford Encyclopedia of Philosophy <http://plato.stanford.edu/archives/spr2012/entries/liberty-positive-negative/>.

Instruction for a manuscript based thesis, Online: McGill University: <http://www.mcgill.ca/gps/thesis/guidelines/preparation#manuscript>.

Inter-Islamic Network on Space Sciences and Technology (ISNET) Online:<http://www.isnet.org.pk/>.

Martha Nussbaum, “Patriotism and Cosmopolitanism”, online: (1 October 1994) Boston Review <http://bostonreview.net/martha-nussbaum-patriotism-and-cosmopolitanism>.

Maxwell Awumah, “Ghana Opens Space Research Centre” *SciDev net* (3 October 2012) Online: <http://www.scidev.net/en/sub-suharan-africa/news/ghana-opens-space-research-centre.html.>.

Oxford Economics, “The Case for Space: Impact of Space Derived Services and Data”, Online: Oxford Economics <http://www.oxfordeconomics.com/my-oxford/projects/129029>.

Paul Quirke, “African Space Programmes: Political or Scientific Endeavours?” Consultancy Africa Intelligence, Online :< http://www.consultancyafrica.com/index.php?option=com_content&view=article&id=1124%3Aafrican-space-programmes-political-or-scientific-endeavours&catid=57%3Aafrica-watch-discussion-papers&Itemid=263>.

Permanent Representative of Pakistan to the United Nations, “Missile Technology Control Regime - Its Destabilizing Effect on South Asia” (23J uly 1997) Online:< http://www.un.int/pakistan/13970723.htm>.

Peter Spelding, “Thales Alenia Space Details Elaborate Tech Transfer Deal with Brazil” (22 April 2015), *Space News* Online :<http://spacenews.com/thales-alenia-space-inks-elaborate-tech-transfer-deal-with-brazil/>.

Secure World Foundation, “Space Sustainability: A Practical Guide” Online: SWF <http://swfound.org/media/1808/space_sustainability_booklet.pdf>.

Silvia Ciccarelli, “Space Cooperation with Developing Countries: The Case of Morocco” (2006) Online: <http://ojs.uniroma1.it/index.php/JMEG/article/viewFile/3130/3114>.

Taylor Dinerman, “Sustainability: Just another Excuse for UN Power Grab” (27 April 2009) Online: Space Review< http://www.thespacereview.com/article/1358/1>.

Zahrah Musa, “An Inventory of Space Technology Applications in Africa” (August 2008) Online: <http://isulibrary.isunet.edu/opac/doc_num.php?explnum_id=200/>.