Global Space Governance: Africa's contribution to the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS)

by

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ABSTRACT

In terms of global space governance, the United National Committee on the Peaceful Uses of Outer Space (UNCOPUOS)[1] is the only truly multilateral forum for the progressive development and codification of space law and norms guiding the actions of all states in matters pertaining to the peaceful use of outer space. However, with unprecedented technological advances and the increasing number of new spacefaring nations operating in space, including from Africa, there is increasing pressure on the UNCOPUOS to provide guidance and to be responsive in reacting to these challenges.

This study assesses the existing system of global space governance against the backdrop of its multilateral structure comprising international treaties, agreements, regulations and mechanisms. Within this framework, this research focuses on the role of Africa within the UNCOPUOS and interrogates the interaction between African spacefaring nations and the UNCOPUOS, highlighting the advantages of space cooperation for Africa, in an effort to motivate African nations to deal with the diplomatic challenges posed to African spacefaring nations.

The study also highlights the need to strengthen African agency in the UNCOPUOS and proposes that African spacefaring nations move beyond technical discussions to debate and influence international norm setting for space governance. African spacefaring nations thus need to engage at the standards setting table where they can push for standards based on principles of open access, interoperability and non-discrimination.

[1] The UNCOPUOS and the COPUOS are used interchangeably in this research. They refer to the same body.

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I have always been fascinated and awed by the beauty of the night sky with its moon, stars and planets. I will also never forget the first time, when as a child, I looked up and followed the movement of a satellite across the night sky. I am indeed fortunate and blessed that by serving my country as a foreign service officer, diplomat and also as a master's student, I have been able to deepen this fascination by researching and developing my understanding of what is taking place 'up there'.

In writing this mini-dissertation, my deepest gratitude goes to my wife, daughter and son for their patience, motivation and for sacrificing their family time to allow me to complete my studies. Without their support and friendly jibes of 'go work', completing this task would not have been possible.

I also wish to thank the Department of International Relations and Cooperation for providing me a bursary to undertake this Master's Degree in Diplomatic Studies. I look forward to further contributing towards the implementation of South Africa's foreign policy objectives and science/space diplomacy agenda, armed with a deeper understanding brought about by the academic exposure I have received.

I would also like to thank the University of Pretoria and all the lectures that assisted and guided me, with a very special note of appreciation to Ms Rentia Pretorius, my research supervisor, for her guidance, patience and for imparting her experience and understanding to me.

DECLARATION AND DISCLAIMER

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I declare that this research paper is my own original work. Sources have been acknowledged in accordance with the guidelines set by the University of Pretoria.

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LIST OF ABBREVIATIONS

ALC:	African Leadership Conference on Space Science and Technology for Sustainable Development
AMCOST:	African Ministerial Council on Science and Technology
AU:	African Union
CAIL:	Cosmopolitan Approaches to International Law
CSIR:	Council for Scientific and Industrial Research
CSIS:	Centre for Strategic and International Studies
CTBTO:	Comprehensive Nuclear-Test-Ban Treaty Organization
DIRCO:	Department of International Relations and Co-operation (South Africa)
ESA:	European Space Agency
ESPI:	The European Space Policy Institute
EU:	European Union
GEO:	Geosynchronous Orbit / Geostationary Orbit
GMES:	Global Monitoring for Environment and Security
GPS:	Global Positioning System
HLF:	High Level Forum
IADC:	Inter-Agency Space Debris Coordination Committee
IAEA:	International Atomic Energy Agency
IASL:	Institute of Air and Space Law (McGill University)
ICJ:	International Court of Justice
IGO:	Inter-Governmental Organisation
IISD:	International Institute for Sustainable Development
IISL:	International Institute of Space Law
LEO:	Low Earth Orbit
LSC:	Legal Subcommittee (of the UNCOPUOS)
NARSS:	National Authority for Remote Sensing and Space Sciences (Egypt)
NASA:	National Aeronautics and Space Administration
NEPAD:	New Economic Partnership for Africa's Development

NGO:	Non-Governmental Organisation
NSC:	North South Co-operation
OST:	Outer Space Treaty
PCA:	Permanent Court of Arbitration
PRC:	People's Republic of China
SACSA:	South African Council for Space Affairs
SANSA:	South African National Space Agency
SSC:	South-South Co-operation
STSC:	Scientific and Technical Subcommittee (of the UNCOPUOS)
SWF:	Secure World Foundation
TCBM:	Transparency and Confidence-Building Measures
TNC:	Trans-National Corporation
UN:	United Nations
UNCED:	United Nations Conference on Environment and Development
UNCITRAL:	United Nations Commission on International Trade Law
UNCLOS:	United Nations Convention on the Law of the Sea
UNCOPUOS:	United Nations Committee on the Peaceful Uses of Outer Space
UNCTAD:	United Nations Conference on Trade and Development
UNESCO:	United Nations Educational, Scientific and Cultural Organization
UNGA:	United Nations General Assembly
UNIDIR:	United Nations Institute for Disarmament Research
UNIDO:	United Nations Industrial Development Organization
UNODC:	United Nations Office on Drugs and Crime.
UNOOSA:	United Nations Office for Outer Space Affairs
UNSC:	United Nations Security Council
USA:	United States of America
USSR:	Union of Soviet Socialist Republics

CHAPTER 1

INTRODUCTION TO GLOBAL SPACE GOVERNANCE AND AFRICA'S PARTICIPATION

1.1 Introduction

The increasing number of space actors, both governmental and non-governmental, with varying capacities, capabilities and motives are changing the status of space from an environment essentially for scientific activities, to an increasingly vulnerable, unstable and uncertain environment with various scientific, legal and diplomatic challenges. These challenges include inter alia, scientific and technological developments of so-called new space activities, deep space exploration, the proliferation and the diversification of space systems and applications including satellites, with the resultant intensification of space debris. Moreover, increasing geo-political tensions and aspirations create an important challenge for space diplomacy. The United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) aims to manage these tensions by providing a multilateral global governance forum, to manage the peaceful uses of outer space as part of the United Nations (UN).

Within this milieu, Africa is increasingly dependent on space to support its sustainable development objectives with space systems inter alia supplying information and providing services. Consequently, increased political interaction of African states within the multilateral governance environment of the UNCOPUOS will be required to ensure that Africa's interests and concerns are addressed within the context of the long-term sustainability of outer space activities. For Africa it is imperative that nations conduct space diplomacy and international confidence building measures in outer space under the multilateral umbrella of the UNCOPUOS, as opposed to working in plurilateral systems at the exclusion of certain countries. Consequently, the situation must be

avoided where decisions with respect to the management of outer space and of the possible future exploitation of space resources are framed at the behest of only those countries in a position to effectively and efficiently deploy and benefit from technical and scientific advances in space.

1.2 Research questions and objectives

Main research question: How can African nations ensure their meaningful contribution to the peaceful use of outer space by participating in the UNCOPUOS?

Sub-questions derived from the main research question:

- How does the UNCOPUOS contribute to the governance of outer space?
- Why is it important for African countries to participate in the UNCOPUOS?
- How and on what basis can African states ensure meaningful participation in the UNCOPUOS?

Research objectives:

- To review and explain the existing structure relating to the peaceful governance of outer space in terms of the UNCOPUOS.
- To explore and assess why, how and on what basis African states can increase their participation in the UNCOPUOS.

The research questions are open ended in order to conclude with a viable answer to the questions posed by interaction between the African spacefaring nations and global space governance structure of the UNCOPUOS. Being involved with South Africa's contribution to Africa's participation in outer space governance renders my experiences valuable and will assist in providing answers to these questions.

1.3 Literature overview

As Cronin, Ryan and Coughlan (2008: 43) explain, "the literature review provides a central function in research because it not only exposes gaps in the existing literature on a particular topic, but also assists with refining the topic". Against this background, this research will employ a traditional literature review, described by Cronin, Ryan and Coughlan (2008: 43) as a "type of review [that] critiques and summarizes a body of literature and draws conclusions about the topic in question". They also state that the "body of literature is made up of the relevant studies and knowledge that address the subject area". This literature-based design is guided by the resources available as determined by my research questions and objectives.

The literature review in this research will firstly focus on reviewing and describing, in a structured manner, the UNCOPUOS as a multilateral body tasked with providing a platform for global space governance for the peaceful uses of outer space. Secondly, it will review academic sources focusing on the agency of African spacefaring nations[2] within the UNCOPUOS and will also include an analysis of sources focusing on continental space governance issues. The literature reviewed within this context will provide a background for this study on how African 'spacefaring nations' and the UNCOPUOS can benefit from this interface.

Outer space governance is undertaken primarily in the multilateral political context of the UNCOPUOS, which was set up by the United Nations General Assembly (UNGA) to "govern the exploration and use of outer space for the benefit of all humanity, for peace, security and development" (UNOOSA: n.d.). Consequently, primary sources form a crucial contribution to my research. Resolutions, reports, and statements made at these bodies as well as other documentation related to special activities, such as the,

[2] In this context an Africa space nation is an African country that is a member of the UNCOPUOS, or is not yet a member, but has an active space programme.

the UNISPACE+50, and the Space 2030 Agenda. These documents and resources are available on the website of UNOOSA.

Nevertheless, it is also important to consult interpretive logical analyses and commentaries of secondary sources, such as those of Jakhu and Pelton (2017), product of McGill University's Institute of Air and Space Law (IASL). This institute is recognised by the UNCOPUOS as an influential academic institution in the research on space governance. Jakhu and Pelton (2017) also focus on the inclusion of Africa and new state actors in the structures of global space governance. A South African perspective on the UNCOPUOS will be obtained from research and academic papers, such as the contributions of J-A. Van Wyk (2008: 2015), Professor at the Department of Politics at UNISA, P Martinez, Professor of Space Studies at the University of Cape Town until 2018 (2008, 2012, 2014, 2018) and Dr V Munsami, (2014, 2016) Chief Executive Officer of the South African National Space Agency (SANSA) since 2017.

Similarly, in developing an African perspective on and contribution to global space governance the research by Martinez (2012) highlights Africa's positions with respect to outer space, as articulated at the African Leadership Conference on Space Science and Technology for Sustainable Development (ALC) held in Pretoria in October 2007. Moreover, Martinez's *et al.* (2018) paper on the UNCOPUOS UNISPACE+50 Conference provides a historical overview of global space governance, and also focuses on current and future space governance issues. There is no African voice *per se* on the UNISPACE+50 in Martinez's paper which groups Africa together with developing spacefaring nations. A broader continental understanding of Africa and the UNCOPUOS will be undertaken inter alia by reviewing the various contributions of Aganaba-Jeanty (2013, 2016, 2019) who highlights the importance of the "African Space Policy and Strategy as the first of the concrete steps to realize an African Outer Space Program" Aganaba-Jeanty (2016b).

Van Wyk (2015: 108) also notes that "Africa's role and position in international relations has often been studied by focusing on the role and impact of exogenous actors on the continent instead of focusing on Africa's role and impact on these exogenous actors and relations". To explore and identify African priorities in terms of space governance, the researcher will review the 2016 contribution of Munsami and Nicolaides, entitled *Investigation of a governance framework for an African space programme*. As indicated, this research will focus on identifying Africa's general space governance priorities linked to its participation within the UNCOPUOS. Of particular importance for Africa's participation in global space governance are two documents: *African Space Policy* (2017a) and *African Space Strategy* (2017b), developed within the framework of the African Union's (AU), "*Africa Agenda 2063. The Africa We Want. A Shared Strategic Framework for Inclusive Growth and Sustainable Development. First Ten-Year-Implementation Plan 2014-2023*" (African Union Commission 2015:15). This document highlights "Africa's Space Policy and Strategy as one of Africa's flagship programmes" and will thus be a substantive primary source".

Moreover, I will also review and analyse publications from various think tanks covering space governance issues, such as; The European Space Policy Institute (ESPI)[3], he Secure World Foundation (SWF)[4], The International Institute of Space Law (IISL)[5] and The United Nations Institute for Disarmament Research (UNIDIR)[6].

[3] "The European Space Policy Institute provides decision-makers with an informed view on mid- to long-term issues relevant to Europe's space activities. In this context, ESPI acts as an independent platform for developing positions and strategies" (European Space Policy Institute 2018 n.d.).

[4] Secure World Foundation is an independent think tank with the mission "to work with governments, industry, international organizations, and civil society to develop and promote ideas and actions to achieve the secure, sustainable, and peaceful uses of outer space benefiting Earth and all its inhabitants" (Secure World Foundation n.d.).

[5] The International Institute of Space Law (IISL) is the "global association for space law with individual and institutional members from almost 50 countries" (International Institute for Space Law 2019).

[6] UNIDIR: "The United Nations Institute for Disarmament Research is a voluntarily funded autonomous institute within the United Nations that generates ideas and promotes action on disarmament and security" (UNIDIR 2013).

In addition, this research also consulted the international and interdisciplinary journal, *Space Policy,* which draws on the writings of experts across fields such as "international relations, economics, history, aerospace studies, security studies, development studies, political science and ethics to provide discussion and analysis of space activities in their political, economic, industrial, legal, cultural and social contexts" (Delgado Lopez n.d.)[7]. Combined, these sources form an essential broad database for the development of a detailed body of reference with respect to the relationship between Africa and the UNCOPUOS.

1.4 Research approach

The qualitative approach engaged in this research is based on "a process that seeks to reduce and make sense of vast amounts of information, often from different sources, so that impressions that shed light on a research question can emerge" (The Open University n.d.:13). Qualitative research, in particular, benefits studies focused on meaning and the way in which information is mediated by the researcher, which is the primary instrument for the collection and interpretation of data "rather than through inventories, questionnaires, or machines" (Atieno 2009: 14). Creswell (2014) and Maxwell (2009) indicate that qualitative research follows an inductive approach, whereby the research question requires that it first be reviewed, after which conclusions are drawn. In this research my conclusions will be focused on the positioning of Africa in outer space governance. In this research a qualitative approach will create an opportunity to identify weaknesses within the UNCOPUOS in terms of not only its response to

[7] The Space Policy journal publishes "full-length papers, which are subject to a double-blind peer review system, opinion pieces, case studies and short reports" ..... "which aims to provide a forum for the exchange of ideas and opinions and a means by which authors can alert policy makers and international organizations to their views. Space Policy is also a journal of record, reproducing, in whole or part, official documents such as treaties, space agency plans or government reports relevant to the space community" (Delgado Lopez n.d.)

challenges and opportunities underlying outer space governance, but also to its accommodation of the needs of African nations.

It is also recalled that the focal point of this research is the participation of Africa in global space governance, which involves one of the four global commons, namely outer space. However, as Hofferberth (2015: 598-599) warns, global governance is a "floating signifier" because it lacks "analytical precision and conceptual clarity". Global governance thus occupies a space "between an analytical perspective and normative notion" (Dingwerth and Pattberg 2006: 186-187). Open access to the use of outer space is a principle guiding the meaningful participation of all current and potential spacefaring nations

1.5 Theoretical framework

Samuel Stanton (2002: 2) states that theories should "provide viable options that are competitive in their ambition to explain a phenomenon or to provide a means of predicting future behaviour and outcomes". In this research, core elements of regime theory and social constructivism provide the theoretical framework for this study.

Stephen Krasner (1982: 186) defines regimes as "implicit or explicit principles, norms, rules and decision-making procedures around which actors' expectations converge in a given area of international relations" thus introducing more than one generations of International Relations scholars to the concept of regimes. The work of International Relations scholars, such as Stephen Krasner, Robert Keohane and Joseph Nye, will be used to explain their views on why and how regimes are formed and what the benefits for participating states are.

Hynek (2017: 13) identifies three generations of regime theory, the first being the consequence of "the convergence between neoliberal institutionalism and neorealism",

characterised by the quest for a balance between state-centrism and the increasing importance of international organisations. The second wave is characterised by Hynek (2017: 16) as a shifting of the "debate from state-centrism to neo-functionality". This generation focuses on the actors involved in regimes and "regime related processes and outcomes" (Hynek 2017: 22) while the third-generation manifests in radical constructivism where critical questions are asked, such as what rules are, and why should they be followed (Hynek 2017: 19). The first generation of regime theory is selected as a main element of the theoretical focus of this research since it explains the basic conditions and incentives for the creation of regimes and asks what motivate states to become involved in a regime and what role hegemonic stability plays in regimes (Hynek 2017: 21-22). As Haggard and Simmons (1987: 493) explain, "…regime theory focuses on "order" and explicit commitments; it stresses the normative dimension of international politics". Regime theory thus provides a natural link with the normative focus of social constructivism.

Social constructivism is described by Stanton (2002: 4) as a political theory that "holds that the structures of interaction are determined by shared ideas". Theys (2017) links agency and structure to ideas and thus highlights an important feature of the contribution of the constructivist approach to International Relations theory when she states that "Constructivists argue that agency and structure are mutually constituted, which implies that structures influence agency and that agency influences structures" Theys (2017: 2-3). Agency, explained as the ability to act and to be actively involved in decision making to ensure the protection of own identity, interests and values, is a core element in this research which focuses on the agency of African nations in the UNCOPUOS while the latter provides the structure for cooperation. Ideas are the result of interaction with others while states have a variety of identities defined by norms. States' identities determine their actions and social constructivists therefore argue that "the actions of a state should be aligned with its identity. A state can thus not act contrary to its identity because this will call into question the validity of the identity,

including its preferences" (Theys 2017: 3). Thus, social constructivism contributes a focus on norms as determinants of identity choices and behaviour. The latter, together with the focus on agency and structure, are important elements in the explanation of the identity, needs, behaviour and role of African states in the UNCOPUOS.

Therefore, in terms of a macro level approach, or a world view, regime theory, with its focus on the interaction between states operating within the framework of global principles, norms, decision making, and the structure provided by treaties, can be seen as applicable to the UNCOPUOS, as it is within such a framework that the UNCOPUOS operates. However, this research also focuses on identifying intersubjective ideas, conceptions and assumptions that inform the participation of African nations in global space governance. Consequently, the relationship between African nations and the existing structure of the UNCOPUOS related to transformation provides an ideas-based approach to interpreting the data to be reviewed. This approach creates room for the assessment of the UNCOPUOS, and its potential transformation, to ensure the inclusion of the identities and agency of African states. Consequently, an appropriate theoretical framework is constructed for this research with its focus on the governance of a global common, outer space. Regime theory and the more flexible constructivist approach provide the two main theoretical pillars for this framework. The focus on social constructivism is motivated by Lennox's (2008) explanation of social constructivism as a combination of agency and structure, thus "ensuring that individuals and groups [in terms of this research - Africa] discover that they share common interests and needs that transcend existing frontiers".

1.6 Research methodology: design, methods and analysis

As indicated, this research will employ an exclusive literature-based design approach, underpinned by a qualitative research approach as it explores and seeks to understand the social interaction of African nations within the multilateral (regime) arena focused

on outer space governance. The data collected will be developed in an inductive manner with the aim to explain the complex relationship between African spacefaring countries and the UNCOPUOS. As Nieuwenhuis (2007: 47-48) explains, qualitative data analysis relies on three elements namely, "noticing, collecting and reflecting". In reviewing this against the research question, it was decided to include elements of a critical qualitative systematic review because such a review "goes beyond mere description of identified articles and includes a degree of analysis and conceptual innovation" (Grant and Booth 2009: 93). However, this research will not entail a codification of issues. The inductive and iterative approach may allow the development of new questions on the interaction between Africa and the UNCOPUOS as informed by African priories within the global space governance arena and the contribution of African spacefaring nations involved in the UNCOPUOS.

The AU provides extensive information on African norms in the *African Space Policy* (2017a) the *African Space Strategy* (2017b) and in the 2015, "*Africa Agenda 2063. The Africa We Want. A Shared Strategic Framework for Inclusive Growth and Sustainable Development. First Ten-Year-Implementation Plan 2014-2023"*. These documents articulate particular African norms, such as the centrality of an African position in outer space governance, the importance of African leadership on the continent and the participation of Africa in international co-operative arrangements. These can therefore be reviewed in terms of a constructivist approach to determine the underlying motivations of African involvement in the UNCOPUOS.

The identification of a saturation level as a research challenge and as highlighted by Gentles et al (2015) relates to this research and is approached on two levels. Firstly, in terms of a detailed analysis of the global governance arena for outer space, the candidate expects data saturation to occur after a review of between 20-25 publications and articles, given that the field is extensively illustrated and reviewed, and few new angles can be expected to be identified. Secondly, in terms of analysing global space

governance from the perspective of African spacefaring nations, the candidate expects this to require ongoing research until a physical cut off time, in terms of calendar date, is reached. Consequently, March 2019 is the target date to allow the development of positions and opinions on an ongoing basis within this area of debate. It is important to note Emmel (2013: 3) stating that the "key to sampling is that it will be "revised" based on ongoing investigation and interpretation." Thus, changes can be made to the saturation point providing that they will be carefully managed.

1.7 Limitations and delimitations of this research

There are limitations on the amount of data available on the positions of African countries on the governance of outer space, especially in terms of Africa's participation within the UNCOPUOS. This is a weakness which I have identified and which I hope to address by assimilating and analysing all available data. In terms of delimitations, this research is limited to a particular continent and is focused on African spacefaring nations as well as in terms of time, as indicated.

1.8 Ethical considerations

In terms of ethical considerations, none are expected. Primary and secondary information is openly available (on the internet or in open publications) and no interviews will be conducted.

1.9 Structure of the research

Chapter 1 introduces the research, explains the outline and purpose to the research and identifies the research questions and objectives, the methodology and the design frameworks against which the analysis will be undertaken.

Chapter 2 provides a theoretical framework consisting of regime theory and social constructivism as the two approaches that inform this research. In addition, the concepts of 'global governance', 'space diplomacy', 'regionalization in international relations' and 'emerging and developing spacefaring nations, are also clarified to provide a framework for subsequent chapters.

Chapter 3 explains the existing structures within the UNCOPUOS (including its sub-committees, working groups, and programmes). This chapter also explains Africa's involvement in global outer space governance and identifies important viewpoints that African states could advance in the UNCOPUOS, such as the advantages of an African identity based on solidarity and multilateralism and the importance of sustainable development as articulated in the 2030 Sustainable Development Goals and the Africa Agenda 2063. The African Leadership Conference on Space, Science and Technology for Sustainable Development is also centrally located towards formulating an African identity in the UNCOPUOS.

Chapter 4, as the concluding chapter, assesses Africa's challenges within the UNCOPUOS and draws a conclusion on ways to sufficiently reflect the "collective voice" of Africa's spacefaring nations within the multilateral global forum responsible for outer space governance namely the UNCOPUOS. This is crucial as African nations are increasingly challenged to deal with issues such as space resource exploitation, space debris, and the increasing commercialisation of outer space. This chapter concludes with an attempt to identify where and how Africa's increased participation can strengthen the UNCOPUOS.

CHAPTER 2

CONCEPTUAL AND THEORETICAL FRAMEWORKS

2.1 Introduction

As indicated in Chapter 1, regime theory and social constructivism are the two approaches that form the theoretical framework of this research. In addition, the concepts of 'global governance', 'space diplomacy', 'regionalisation in international relations' and 'what are emerging and developing spacefaring nations', are also clarified for "grounding"[i8] purposes and to provide a conceptual framework for subsequent chapters. The conceptual and theoretical frameworks in this chapter will serve three purposes. The first is to order the volume of information on the UNCOPUOS. The second is to extract and highlight important elements of an African agency within the UNCOPUOS, and the third is to evaluate and make sense of the challenges African states are facing in the multilateral governance of outer space.

The Western dominated liberal international order, underpinned by a rules-based approach to multilateralism, has been a main feature of international relations since 1945. However, this order has been changing fast since the end of the twentieth century. Challenges to the liberal international order are characterised by an increasing number and variety of both state and non-state global role players; the development of a new international security agenda focused on individual leadership; changing patterns of production and consumption; increasing competition for resources; and an ever-increasing importance of widening array of global issues, such as climate change, migration and global pandemics. This changing world order is also increasingly being impacted upon by the rise of "isms" such as nationalism, conservatism, populism, protectionism (trade), terrorism, racism and extremism. Indeed, the world, across most

[8] ''Ground (ing)'' means the "conceptualization of the fundamental or foundational level at which phenomena in the field of study occur, in other words, how people react to the world around them". (Hudson: 2005: 2-3).

disciplines and sectors, including international relations is undergoing what can be described as a VUCA[9] phase, which needs to be considered and managed.

The new, more complex, dynamic and even volatile global environment also impacts on Africa as illustrated by statements made by participants at an AU retreat on "The Emerging Global Order, Multilateralism and Africa[10]", who advanced concerns that existing international norms and practices, which underpin the current basis of multilateralism are being challenged, thus "raising questions significantly endangering the chances of progress and stabilization of the continent (Africa)" (African Union 2017c: 8).

2.2 Conceptual framework

The main aim of this section is to clarify the following four concepts: Global governance, space diplomacy, regionalization 'emerging and developing spacefaring nations'

2.2.1 Global governance

Global governance is not new and entails a transformed version of international governance which is primarily focused on the efforts of states to manage the international system. Global governance is a direct consequence of the impact of

[9] The VUCA concept is used to refer to the "multilateral world that emerged after the end of the Cold War and was characterised by increasing levels of: Volatility, Uncertainty, Complexity and Ambiguity" Oxford Leadership (2016:1).

[10] The AU retreat took place from 24 to 25 October 2017, in N'djamena, Republic of Chad. In attendance were "senior representatives from the AU Commission, including the Chairperson of the Commission, the Commissioner for Peace and Security, Special Envoys, Special Representatives, members of the Panel of the Wise, members of the Pan-African Network of the Wise and members of the Network of African Women in Conflict Prevention and Mediation, as well as senior representatives of the Regional Economic Communities (RECs) and Regional Mechanisms (RMs)" (African Union 2017c: 6).

globalisation and means different things to different people and definitions abound. By way of example, Robert Cox (1997) states that global governance "means the procedures and practices which exist at the world (or regional) level for the management of political, economic and social affairs … with the non-hierarchical form of coordination being called multilateral governance" (Cox 1997: xvi). Yet, Weiss, Seyle and Coolidge (2013: 4) describe global governance as the "capacity within the international system at any given moment to provide government-like services and public goods in the absence of a world government". By way of adding more detail, Weiss, Seyle and Coolidge (2013: 4) select particular concepts to be included, such as "informal and formal ideas, values, rules, norms, procedures, practices, policies, and organizations" that "help all actors—states, IGOs, civil society and NGOs, TNCs, and individuals, identify, understand, and address trans-boundary problems". By way of drawing globalisation closer to science and space diplomacy, (to be analysed further in this chapter) an interesting definition is postulated by Stiglitz, (2002) who describes globalisation as "the closer integration of the countries and peoples of the world which has been brought about by the enormous reduction of costs of transportation and communication, and the breaking down of artificial barriers to the flows of goods, services, capital, knowledge, and (to a lesser extent) people across borders "(Stiglitz, 2002: 9).

Indeed, the ongoing transformation of international structures and decision-making mechanisms to accommodate new interests, such as science and technology, which today underscores many global issues such as climate change, environmental management, and the peaceful use of outer space, have become drivers in the process of global governance reform (Weiss, Seyle and Coolidge 2013: 5). Indeed, the increasing role of science, and in particular the role of space technology in promoting and driving globalisation is the main topic of a paper entitled "The Role of Space Development in Globalization" (Vedda 2007: 195-205). This study highlights how space applications, including information obtained from earth observation, and satellite navigation are driving the latest "wave" of globalisation, by drawing nations, societies and individuals

closer together, much in the same way as the industrial revolution of the 1800's did. Vedda (2007) thus contends that the next phase of globalisation is being brought about by space technology and the reactions of government and society to the potential and impact of the use of space technology (Vedda: 2007: 203-205)[11].

It should also be recalled that the practical governance of the peaceful use of outer space is complicated by the physical realities associated with the space environment and the legal status of space as a global resource (Hitchens 2018: 3). Changing opportunities and challenges resulting from globalisation also contribute to rising aspirations and heightened competition between global role players. African states are not isolated in the global arena and the economic and developmental aspirations of the people and states of Africa not only contribute to their new identity, but also to a heightened demand for agency in the structures of global governance.

2.2.2 Space diplomacy

This research builds on the multilateral structures underlying diplomacy and international relations and thus requires a clarification of the concept of diplomacy. Broadly, diplomacy can be defined as being concerned with the management of relations between nations, states and other actors in terms of advising, shaping and implementing foreign policy (Barston 2014: 1). However, it should be noted that the content of diplomacy in the rapidly evolving global landscape of the twenty-first century,

[11] In his study Vedda (2007) analyses what where the; conditions at the time, the main drivers, as well as the results of previous eras of globalization. He then juxtapositions these against technological developments brought about by space exploration and utilisation of space applications, in order to come to the assumption of space as heralding the new wave of globalisation (Vedda: 2007: 203-205). Interestingly he uses OECD studies "Space 2030: Exploring the Future of Space Applications," (3 May 2004), and "Space 2030: Tackling Society's Challenges," (31 May 2004) which were developed "to understand how OECD countries may reap the benefits of civil and commercial space applications for society at large" in order to identify and further substantiate the future importance of space towards socio-economic development (Vedda: 2007: 203-204).

exists not only in the politico-strategic domain, traditionally under the custodianship of Foreign Ministries, but also embraces other role players including other Ministries, agencies and civil society. Consequently, there is a need to recognise that the type of diplomacy described in this research forms part of a specialised field of diplomacy namely, science diplomacy and even within this specialisation there can be said to be a more specific level namely, space diplomacy. This study is not aimed at developing these two branches of diplomacy in greater detail, as this will need to be addressed in subsequent research, however, reference and conceptualising of what is meant by science and space diplomacy is required.

By way of a brief introduction, the impact of science on diplomacy has always existed in some form or another. However, the cooperation between diplomats and scientists was very much confined to particular fields and often took the form of the cross-border involvement of universities, academic research institutions, in diplomatic endeavours. However, this cooperation broadened after the Second World War to the point where Peter (2007) argues that today it can be considered the "biggest contemporary axis of civilian-governmental cooperation" and this cooperation also benefits foreign relations (Peter 2007: 97-98). Ahmed Zewail (2010), former U.S. President Obama's Science Envoy to the Middle East, commented on science diplomacy stressing the important role science and technology partnerships can play in fostering and binding nations together through the use of "soft power"[12] (Zewail 2010: 204-207)[13].

[12] Joseph S. Nye, Jr defines "soft power is the ability to affect others to obtain the outcomes one wants through attraction rather than coercion or payment. A country's soft power rests on its resources of culture, values, and policies" (Nye : 2008: 94).

[13] Amed H. Zewail, Professor of Chemistry and Physics, at the California Institute of Technology and former American President Obama's Science Envoy to the Middle East, commentary on science diplomacy critically analyses the importance of science diplomacy as an enabler in diplomatic relations between the United Sates and the Middle East (Zewail 2010: 204-207).

Fedoroff (2009) explains science diplomacy as "the use of scientific collaborations among nations to address the common problems facing 21st century humanity and to build constructive international partnerships" (Fedoroff 2009: 1)[14]. The Royal Society (2010: v) explains the important role of science diplomacy "at the heart of the progressive international agenda", and crucial "to address the common problems facing humanity and to build constructive, knowledge based international partnerships" (The Royal Society 2010: 3).

In narrowing the focus, space diplomacy, can be seen as one of the new opportunities within science diplomacy which entails the application of soft power to ensure the governance of the global commons of outer space[15]. Thorne (2018: 1) describes space as "the final frontier in international diplomacy" and highlights the persistence of space diplomacy by claiming that it endures even "when economic, political, military, or even cultural methods fail to build international cooperation and unify a divided world". Ramirez de Arellano y Haro[16] (2016) focuses on the conduct of space diplomacy and describes it as "the art of negotiating to coexist peacefully in outer space for the future of humankind". She also comments on the quality of space diplomacy as a mechanism to ensure success, claiming "space diplomacy gives us that

[14] Nina V. Fedoroff, Science and Technology Adviser to the US Secretary of State from 2007-2010, articulates the need for more emphasis on science and technology as a global initiative in her paper "Science Diplomacy in the 21st Century".

[15] The Royal Society (2010: vii) defines global commons as "international spaces beyond national jurisdictions – including Antarctica, the high seas, the deep sea and outer space".

[16] Ms Rosa María Ramírez de Arellano y Haro the General Coordinator of Outer Space International and Security Affairs of Mexico, was the chairperson of the 61st session of the UNCOPUOS, as well as the special segment UNISPACE+50 (Yucatan Times 2018).

"power" to guarantee, for the next 50 years and beyond, an accessible and sustainable outer space" (Ramirez de Arellano y Haro 2016: 12).

From a national perspectives participation in space diplomacy is, according to the American National Space Policy, (AcqNotes 2010: 1) motivated by various goals, such as to "expand international cooperation on mutually beneficial space activities" including broadening and extending the benefits of space; the peaceful use of space; and the "collection and partnership in sharing of space-derived information". China's space diplomacy, as explained by Xinmin Ma[17] (2016), is based upon four core objectives ranging from the "Exploration and Use of Outer Space for Peaceful Purposes; Protecting Outer Space; Space Governance"; and "Benefit Sharing in Outer Space". The European Commission also acknowledged the importance of space diplomacy as a pillar for related activities, stating "space activities are strategic for the construction of Europe and its cohesion, as well as a tool to serve the interests (humanitarian, environmental and peace-keeping activities) of the Union, its member states and its citizens by leveraging other European space actors" (Peter 2007: 100-101.)

These explanations of the aims of national, continental and global space diplomacy indicate similar goals and the importance of space diplomacy for both academic and practical purposes. The development of strong relations between scientists and diplomats is a precondition for the multilateral governance of the global commons and in particular impact positively on the involvement of new spacefaring nations in outer space governance, the core concern of this study.

As part of the preparations for the UNISPACE+50 and the associated development of the Space2030[18] the UNOOSA (2017: 22-23) state the following:

[17] In 2016 Deputy Director-General of the Department of Treaty and Law Ministry of Foreign Affairs of China

[18] UNISPACE+50 and the Space 2030 Agenda are further discussed in Chapter 3 of this research.

"Space diplomacy, built on existing norms and negotiated treaties, refers to cooperation among nations on the basis of equal engagement and mutual respect, with the overall goal being to address the common challenges facing humanity and to build constructive, knowledge-based partnerships."

2.2.3 Regions, regionalism and regionalisation

When analysing the meaning of regionalism in global politics, there is a synergy between firstly, the notion of a region in the traditional sense, which can be illustrated in Africa by the various regional economic groupings, and secondly, in terms of smaller multilateral or plurilateral[19] groupings, such as BRICS, being driven by the forces of globalisation, and functioning as a region. Underlying the elusive concept 'regionalism' is geographic proximity which often coincides with the sharing of cultural, economic and political ties, according to Mansfield and Milner (1999: 590-591). Nevertheless, they also posit that many definitions of regionalism not only exclude geographic proximity, but also tend to be very broad, for example constructivists claim that "countries sharing a communal identity comprise a region, regardless of their location" (Mansfield and Milner 1999: 591).

Olivier (2010: 19) contends that regionalism in the domain of foreign policy analysis is diverse and is not bound by one criterion, such as geographical, historical, economic, cultural etc. linkages. He also argues that elements of these criteria create "patterns of interaction" and produce conditions of "regioness" around interests. Olivier (2019) furthermore states that the traditional categorising of a region based on

[19] Plurilateralism can be "defined as a shared interest among a limited number of countries, who do not form a regional group" (Hettne and Odén 2002:21).

geographic proximity of national states, or in support of a global hegemon, as was the case with the USA and the Soviet Union, is outmoded.

Yet, underpinning all the "issue" based new regional organisations there is the requirement of a political imperative, "associated with authoritative decision making" (Olivier 2010: 20). The "new regional approach" represents a modern vision of regionalism which is understood "as a multi-dimensional and socially constructed phenomena, wherein cooperation occurs across economic, political, security, environmental and other issues" Olivier (2010: 21-22). This cooperation not only involves states, but also societal, non-governmental actors in the scientific, economic and cultural arena. In addition, Hurrell (2007: 128-134) states that increasing developments in inter-regional cooperation shows that the regionalisation process is global in nature and indeed, "the age of economic globalisation, has also been the age of regionalisation, restructuring of power and production."

2.2.4 Emerging and developing space nations

As part of the construct of this research it is necessary to develop a framework with respect to the use of the terms 'emerging and developing spacefaring nations', as both these concepts have different interpretations across various publications. Consequently, I refer to broad interpretations of the concepts put forward by Dennerley, (2016), Harding (2013) and Ansdell, Delgado and Hendrickson (2011).

Dennerley, (2016) proposes that spacefaring nations be defined or categorised based on the relative size of space programmes and not according to socio-economic or demographic indicators, such as GDP. Experience, capability and "their reliance on international partnerships when developing their space programs" distinguish emerging spacefaring nations from established spacefaring nations, according to Ansdell, Delgado and Hendrickson (2011: 1-8). Dennerley (2016: 27-28) also posits that "established

spacefaring nations are those with an established contemporary presence in space" such as the "United States, Russia, China, Japan and the member states of the European Space Agency (ESA)". However, Dennerley (2016) also includes Argentina, Brazil, India and South Korea in the collective term '*established spacefaring nations*' based on the realized size of their space programmes. Emerging spacefaring nations are, according to Dennerley (2016: 28) states in Latin America, Africa and the Asia Pacific because they have a less established space presence than the former.

Harding (2013) supports Dennerley's tenets by stating that spacefaring nations should not be classified according to socio-economic definitions, but rather according to "the longevity of a country's efforts in space-related activities" (Harding 2013: 13). Harding (2013) further divides developing spacefaring nations into three categories: first, second and third tier spacefaring nations. This division is based on criteria such as launch capabilities, their space research and technology and the level of their international cooperation[20]. Harding (2013) includes in the first tier of developing spacefaring nations; Brazil, China and India, in the second tier Iran, Israel, South Africa and Iraq, and in the third, other smaller spacefaring nations (Harding 2013: 86-93).

'Global governance', 'regionalism' and 'space diplomacy' require a peaceful approach to interdependence, consequently norms and institutions are crucial to enable

[20] The main differences between the three tiers are with respect to first tier countries being "those that can produce space technologies, have or are developing their own launch capabilities, have national space agencies, and whose space programs "evolved from research and development (or attempted development) of ballistic missile and nuclear programs" (Harding 2013: 93-94). The 'second tier' states are those that produce some of their own space technology, have a basic launch capacity, have national space agencies, and "out of necessity, collaborate with more advanced states' programs in the production of space technology" (Harding 2013: 94). The 'third tier' states being those that occasionally make contributions in space-related technology, almost always purchase space-related technology from more advanced producers, and almost always collaborate with other more developed space actors to achieve their space policy goals" (Harding 2013:94-95). Rather than being spacefaring, third tier space actors have made the policy decision to invest in space technology to accomplish what could not be done otherwise (Harding 2013:95).

the peaceful use of outer space. These aspects are the core ingredients of regime theory and social constructivism, the focus of the theoretical framework.

2.3 Theoretical framework

It is crucial to develop a linkage between, the "abstract world of theory and the real world of policy", according to Walt (1998: 29). The necessity to provide theoretical order and organisation, is explained by Segbers et. al (2006: 24) who highlight the application of an overarching theory to research, and Hofferberth (2015: 3) who advises the creation of a locus of "positionality as opposed to merely reviewing the substance in terms of a common-sense reflexive methodology" However, Walt (1998: 30) rather advises the opposite, claiming that it is better to have different or diverse international theories because the complexity of the issues is so wide that they cannot be captured by one theory. This researcher took into consideration the norms, rules and institutions facilitating global outer space governance and thus chose to focus on two approaches, regime theory and social constructivism. These are the two approaches in International Relations theory that speak to norms, but also acknowledge the role of states and institutions in the global arena.

The most important theoretical framework (paradigm) to "extract concepts from, in terms of the interaction between States operating within a structure of cooperation, given the diverse complexities and actors addressing outer space, would be regime theory" (Stuart 2014: 4-5). However, within the broad conceptual framework presented by regime theory, there are limitations which will require the use of social constructivism to analyse inter-subjective elements that inform African nations participation in the global space governance regime of the UNCOPUOS.

2.3.1 Regime theory

As explained in Chapter 1, Stephen Krasner, one of the leading exponents of regime theory, defines it as "a set of implicit or explicit principles, norms, rules, and decision-making procedures around which actor expectations converge in a given area of international relations" (Krasner 1982: 186). Keohane and Nye (1987) refine this definition by stressing that these rules are developed and agreed upon by governments and that consequently, state behaviour is "regularized" and in effect controlled or channelled (Keohane and Nye 1987: 745). It is important to note that "compliance or adherence to these rules are not backed up by the threat of force per se, it is instead the legitimacy of the rules and their underlying norms that make the actors comply" (Rittberger 1995: 393). Furthermore, as Keohane (1982: 332) explains "…a major function of international regimes is to facilitate the making of mutually beneficial agreements among governments, so that the structural condition of anarchy does not lead to a complete war of all against all." A third definition of significance for scholars of regime theory is that of Oran Young (1980), who follows a more socially based approach. He explains regimes as "…social institutions governing the actions of those interested in specifiable activities (or meaningful sets of activities). As such, they are recognized patterns of practice around which expectations converge" (Young 1980: 332).

Keohane (1982: 338) highlights the main reasons why regimes are formed and explains that regimes "improve institutional defects in world politics" because they are formed when there is "a lack of a clear legal framework establishing liability of actions", when information is unavailable when states realise the benefits to be gained from creating a regime to address a particular issue area. Krasner (1982: 189-190) agrees and states that regimes "do not arise out of their own accord but arise to deal with a specific issue and the governance thereof".

To understand the applicability of regime theory as the correct framework for the study on the UNCOPUOS, one needs to explain the many features of regimes. Keohane and Nye (2012: 731-733) identify the first feature of regimes as their ability to co-ordinate the behavior of states to achieve desired outcomes. Krasner (1982: 189-190) adds a second feature of regimes by explaining regimes as "intervening variables, able to direct human interactions based on developing relevant issues". Krasner (1982: 189-190) also posits that regimes "do not arise out of their own accord but arise to deal with a specific issue and the governance thereof". The third feature of regimes is their versatility, as Puchala and Hopkins (1982: 246) explain. They find that regimes can deal with a variety of issues, which include concerns in a specific geographic area, a specific economic sphere, a functional concern or if one extrapolates this further it can refer to the global commons, which effect and impact on all humankind.

All of the above features of regimes relate to this research. The first feature underlines the coordination of the behavior of spacefaring nations in multilateral negotiations while the second feature focuses on issues determining the coordination of actions and decisions. The third feature provides a framework for the versatility of issues and the developing of new ones, such as African identity and agency and the need to transfer space technology for Africa's development purposes. The fourth feature lies in the institutions as elements of regimes. Institutions are configurations of rights, rules and decision-making processes. They comprise organisational infrastructures, such as for example, staff and budgets as well as structural-functional divisions to ensure better decision making and implementation. Institutions are main components of regimes because institutions converge and specialise around a specific issue (Young 2012: 2). By way of example, Young (2012: 1), stresses the growing centrality of regime analysis when international political economy and environmental governance are placed under academic scrutiny. Included in this list is the impact of the transformation of the global arena and scientific developments, such as the Fourth Industrial Revolution, on outer space governance.

Consequently, if regime theory is analysed against the creation of the UNCOPUOS, one is drawn to UNGA resolution 1348 (XIII) of 1958, which established "an ad hoc committee to further investigate and report back on the peaceful uses of outer space" and UNGA resolution 1472 (XIV) of 1959, which highlighted that space is seen as firstly, a common heritage of mankind (a global commons) and secondly, that the basic function is the UNCOPUOS is to co-ordinate the behavior of states in order to ensure "cooperation in the peaceful use of outer space". These correlations will be further investigated in the subsequent chapters.

Another important feature of regimes, and one which is strongly illustrated within the UNCOPUOS, centers on the interconnectedness of regimes. Krasner (1982: 196) and Puchala and Hopkins (1982: 266) posit that regime theory provides a particular approach to the management of complex issues, which due to their complexity, lead to increasing interconnectedness and interdependence between states and within the structure. When this conceptualisation of regime theory is applied to the UNCOPUOS, it becomes clear that it must measure up against the demands related to governing outer space. In addition to its size, outer space is a unique and extreme environment to which no single nation has exclusive rights or can lay claim to. Governance of space demands high levels of interconnectedness and interdependence (Ansdell, Delgado and Hendrickson 2011: 1). Therefore, in order to support the sustainability of activities in outer space and to ensure outer space remains an operationally safe environment in which to conduct activities associated with national programmes and priorities, a governance regime needs to be constructed and maintained, to the benefit of all. Stein (1982: 311) highlights the interconnectedness of actors while subscribing to elements of common governance issues. These actors are most often motivated by their own interests and must therefore adopt a model of interrelatedness.

Puchala and Hopkins (1982: 247-248), highlight another feature of regimes by explaining that actors are the central agents or in simpler terms regime "players". They thus refer to "regime participants" as those entities responsible for "creating and maintaining a regime" (Puchala and Hopkins 1982: 247). Related to the global governance structure of outer space and in particular during the formative years of the UNCOPUOS, one can clearly recognise the role played by major space powers, in particular the USA and the USSR who were the prime drivers behind the formation of the UNCOPUOS. This will be further explained in subsequent chapters. This focus on actors also provides the theoretical platform for the investigation of the role of African spacefaring nations in global governance.

Within regimes there is also the prioritisation of leadership and the stability of the regime which serve to link the theory of hegemonic leadership to regime theory. In this regard it is suggested that in the case of a declining hegemon within a specific regime it will be very difficult to maintain stability and to ensure the continuity of a regime (Hansclever, Mayer and Rittberger 2000: 9). However, Stein (1982: 319-320) argues that as hegemony declines in a regime, there is increased pressure and incentives between remaining states to ensure the survival and stability of the regime. This notion is reinforced when seen against the fact that regimes "develop to address a common concern and interest which requires collaboration as opposed to coordination" (Krasner 1982: 195). Keohane (1982: 334) explains, that regimes are valuable to governments where, in their absence, certain mutually beneficial agreements would be impossible to consummate. Yet, Krasner (1982: 196-199) also posits that smaller states will be more willing to participate when they realise that the hegemon no longer has the capacity or the willingness to provide leadership. One can thus surmise that the decline of a hegemon can result in a deepening of the regime. This is the case with the UNCOPUOS where the increasing number of global players, at state level and also in terms of non-state actors, increasingly seek agency within the organisation.

2.3.2 Restrictions of regime theory

Regime theory can in many ways be seen as limited to "structural rights and obligations, and specific prescriptions for action" (Haggard and Simmons 1987: 493). Haggard and Simmons (1987) also criticise regime theorists for investigating regimes at the expense of actors, be they states, multinational corporations or non-governmental organisation and also argue that the ability of these actors to "pursue goals, share meanings, communicate with each other, criticise assertions and justify actions" are neglected by regime theorists (Haggard and Simmons 1987: 493-494). Furthermore, regime theorists are also unable to explain national processes or the role of non-government entities in influencing the positions states take and even though regime theorists focus on the activities of states within regime, little attention is paid to how the positions of the states are developed. The link between regime theory and hegemonic stability theory is also criticised because the focus on the role of hegemons contradicts the notion of interdependence which underlies regime theory (Haggard and Simmons 1987: 499). This is underscored by Young (2012: 4), who states that one of the biggest challenges facing realism going forward is to deal with the fact that international society is shifting away from a state centric approach to one that includes multinational corporations and non-governmental actors.

In the twenty-first century, it can be argued that we are living in the Anthropocene era[21], where environmental issues, such as climate change, have become priory issues[22]. However, this in itself illustrates a weakness of regime theory because if one analyses how regimes, through attendant institutions, have dealt with the issue of climate change

[21] "Definition of Anthropocene: the period of time during which human activities have had an environmental impact on the Earth regarded as constituting a distinct geological age" (Merriam-Webster n.d.).

[22] The issue of climate change was for example addressed in a speech by António Guterres (UN Secretary-General) on 10 September, 2018 (United Nations Secretary General 2018)

thus far, it is clear that they are not well equipped to "address the problems of the 21st century, especially if ways to restructure these institutions to improve their performance cannot be found" (Young 2012: 5).

Haggard and Simmons (1987: 503) also contend that regimes are seen primarily as responses by "advanced capitalist countries rather than as an integral part of high politics and alliance solidarity". While this statement needs to be reviewed against the period in which their research was undertaken, namely the 1980's, elements thereof still remain valid today. Advanced countries still see themselves as the main drivers of regimes, for example within the liberal international economic regime driven by the Bretton Woods institutions, but also in the global outer space regime.

An important contribution for broadening the theoretical framework of this research by drawing a link between regime theory and the normative basis of social constructivism is made by Susan Strange. She strongly criticises the way regime theory is articulated which…"…tends to exclude hidden agendas and to leave unheard and unheeded complaints, whether they come from the underprivileged, the disenfranchised or the unborn, about the way the system works … government, rulership, and authority are the essence of the word 'regime', not consensus, nor justice, nor efficiency in administration" (1982: 487-488).

Clearly, in this regard a more appropriate link exists between global governance and social constructivism because, as Lennox (2008) explains, social constructivism links agency and structure and assists states to "discover that they share common interests and needs that transcend existing (structures) or frontiers" (Lennox 2008: 7). Consequently, within the broad conceptual framework presented by regime theory, and also because of the limitations of regime theory, this research requires social constructivism to provide a theoretical framework for the analysis of inter-subjective

elements that inform African nations participation in the global space governance regime of the UNCOPUOS.

2.3.3 Social constructivism

As highlighted in Chapter 1, this research focuses on identifying intersubjective ideas, conceptions and assumptions that inform the participation of African nations in global space governance. However, the mere existence of a multilateral institution to protect and manage outer space serves as a first reminder of the importance of social constructivism for this research. Central to this research is the inclusion of norms, defined by Finnemore and Sikkink (1998) as "a standard of appropriate behaviour for actors with a given identity" (Finnemore and Sikkink 1998: 891). Consequently, a social constructivist analysis of the relationship between African nations and the existing structure of the UNCOPUOS in terms of transformation, provides an ideas-based approach to interpreting the agency of African countries with respect to the data to be reviewed. According to Balaam and Dillman (2019) central tenets of social constructivism are: "problematisation", where issues, allies or enemies become such because they are "talked into existence"…through discussion, debate or interaction; "*framing*", which can be seen as the lenses through which we interpret an issues; "*discourse analysis*", which is closely linked to the idea metaphors and the categorisation of issues to represent something we feel comfortable with or as an option to explain something easier (Balaam and Dillman 2019: 101-103).

In order to illustrate this within the UNCOPUOS, it is important to note that the majority of "multilateral work in the area of space governance" is, based on consensus decision making, based on voluntary measures reflecting best practice (Johnson and Samson: 2017: 1). This is best illustrated by the development of the *Guidelines on the Long Terms Sustainability of Outer Space Activities;* transparency and confidence building measures, and other so called "soft laws" such as UN Resolutions, developed under the

UNCOPUOS (Johnson and Samson: 2017: 1). It should be noted that consensus decision making, and the soft laws and treaties are addressed in greater detail in subsequent, chapters.

Social constructivism focuses on "ideas and beliefs that inform the actors involved in the international scene as well as the shared understanding between them" (Jackson and Sorenson 2007: 162). This not only explains but can also be seen as constraining actions, because as explained in Balaam and Dillman 2019: 99), states can feel that they cannot go against shared values or norms as this will be against what is perceived as their identity. The norms therefore create a situation where states obey shared values and norms out of self-interest or respect or because they want to be seen as responsible actors (Johnson and Samson 2017: 166-170). Johnson and Samson (2017: 167) further contend that "if norms are correctly formulated and actually contribute to useful results, the logical justification that impels their observance is simply because norms ought to be observed."

Accordingly, the relationship between how African nations interact within the existing structure of the UNCOPUOS is underpinned by an idea and norms-based approach, with emphasis on the development of meaning, knowledge, and interpretation. These, as explained by Balaam and Dillman, (2019: 98-99) play a significant role in terms of perceptions and prejudices experienced by actors.

This is also well reflected in the concept of inter-subjectivity in terms of the identities of states which define their behaviour in the international system and indeed how they are viewed by other states and also their own societies. The social basis and flexible approach of social constructivism provides a crucial framework for understanding the interaction of developing spacefaring nations. In this case more specifically African states as "new players" in the global governance arena of outer space. Therefore, social constructivism creates the framework for identifying intersubjective

(ideas, conceptions and assumptions) that inform the participation of African nations and their quest for agency in the UNCOPUOS in the global space governance arena.

Linked to the fore mentioned tenets and principles of social constructivism, Spies (2018: 10) contends that the guiding themes for African diplomacy are inter alia a "quest for justice and equality in international relations and international law" and the "over-riding imperative for development" by focusing on developing socio-economically in order to break the cycle of distorted relations with countries of the north. Importantly Spies (2018: 10) also highlights the focus on peace for the African continent and the "inclination towards diplomacy that emphases African solidarity, unity and integration". It is, however, important to appreciate that African diplomacy is…

> *"infused with traditional values, such as seamless approach to the passage of time, respect to for cultural tradition and authority, collective and unhurried decisions and prioritisation of the community rather than individuals, Africa consequently, approaches diplomacy holistically as a seamless venture, no-linear, involving all levels of diverse societies, including ancestors"* (Spies: 2018.1).

2.4 Conclusion

By way of establishing a broad overarching macro focus or "world view" it is important to emphasize that this research has as its focal point the system of global governance in terms of the peaceful uses of outer space, as embodied by the UNCOPUOS and that the emerging global arena and Africa's interaction within this committee provides the empirical context for this research. As illustrated, neither regime theory nor social constructivism, as stand-alone theories, provides a comprehensive framework for assessing the UNCOPUOS or the need to develop an African voice within the UNCOPUOS. Consequently, a theoretical construct, supported by certain key concepts

such as ‘global governance’, ‘space diplomacy’, ‘regionalisation in international relations’ and definitions of ‘emerging and developing spacefaring nations’, will be transferred in the following chapters to the practical analyses and description of the UNCOPUOS and the participation of African spacefaring nations.

CHAPTER 3

THE UNCOPUOS AND AFRICA'S PARTICIPATION IN OUTER SPACE

3.1 Introduction

In this chapter, three main themes are explained against the background of the changing environment of outer space governance since the early 1960s. The creation of the UNCOPUOS merely a year after the launch of Sputnik-1 underlines the urgency of the UN to facilitate the peaceful use of outer space. The treaties governing the peaceful use of outer space as developed by the UNCOPUOS as well as the structures and sub-committees of the UNCOPUOS are core concerns of the *first main theme*. The contribution of outer space to sustainable development in Africa is the main focus of the *second theme* while the contribution of the ALC is also explained in this subtheme. Celebrating fifty years after the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space with UNISPACE+50 and the Space2030, Agenda under the UNCOPUOS serves as the *third main theme* in this chapter.

Africa's involvement in outer space governance is a development that takes place against the background of a global space arena that is constantly changing into a more complex and demanding environment.

3.2 The changing environment of outer space governance

The UN has been involved in space activities ever since Sputnik-1, the first human-made satellite, was launched on 4 October 1957 (McDougall 1985: 20). The launch of Sputnik-1 marked the dawn of the space age and the first use of satellite technology for the advancement of science. This event enhanced the political prestige of the Soviet Union in an international arena dominated by the competition between the USA and the Soviet Union. NASA (2007: 1-3) explained the launch of Sputnik 1 as follows:

"The world's first artificial satellite was about the size of a beach ball (58 cm. or 22.8 inches in diameter)…and took about 98 minutes to orbit the Earth on its elliptical path. That launch ushered in new political, military, technological, and scientific developments. While the Sputnik launch was a single event, it marked the start of the space age and the U.S.-U.S.S.R space race."

Sheenan (2016: 20) posits that the space achievements of the superpowers were seen as confirmations of their "technological and economic supremacy". These achievements also became useful instruments in the manipulation of the non-aligned countries who were reluctant to choose between the economic and political ideologies offered by the two superpowers. Yet, the Cold War space race was characterised by a willingness of the superpowers to avoid the dominance of space because they feared the consequences of an arms race in space.

Against this background many new African states have since 1955 entered the ranks of the UN, thereby raising its membership from 60 to 99 by 1960 (Toye 2014: 6). While the UNSC functioned as the main arena for the Cold War power play, the UNGA served as the forum where the new African states found solidarity with their Asian and Latin American counterparts. This solidarity became a dynamic force in 1964 when the UNGA approved the creation of the United Nations Conference on Trade and Development (UNCTAD). Furthermore, and as Toye (2014) explains, "In a final demonstration of unity and solidarity, the developing countries that had voted for the General Assembly resolution authorizing UNCTAD, issued the Joint Declaration of the Seventy-seven Developing Countries" (Toye 2014: 19; Group of 77 n.d.)[23]. This marked

[23] The Group of 77 was established in 1964, when 77 developing countries signed a joint declaration at the end of the first session of the United Nations Conference on Trade and Development (UNCTAD) in Geneva. Now 134

the formal establishment of the Group of 77 (G77), the ideological platform of the non-aligned group of 'Third World countries. The G77 provided, according to Julius Nyerere, "an opportunity for developing countries, to be the prime movers of their own destiny" (Group of 77 2004: 1-2). Over the years the G77 managed to create its own network within the UN to represent and serve the interests of the non-aligned countries. As stated in 2004 during the 40th anniversary of the G77 "Since then our collective voice has spread to every institution and international organization representing the hopes and aspirations of the majority of humanity" (Group of 77 2004: 1). The Vienna Chapter of the G77, established in 1998, has since provided an ideological platform for the G77 countries in the International Atomic Energy Agency (IAEA), the United Nations Industrial Development Organization (UNIDO), the United Nations Office on Drugs and Crime (UNODC), the United Nations Commission on International Trade Law (UNCITRAL) and the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) (Jatavia 2018: 1; Heuls 2014: 3). As will be explained, this cooperation also spread to outer space.

The domain of outer space has dramatically changed since the disintegration of the Soviet Union and the gradual re-emergence of China as a global economic actor. By the dawn of the twenty-first century it was clear that new emerging economies, such as Brazil, China, India, Indonesia and Turkey, were challenging the existing Western dominated world order while seeking a global multi-polar power structure based on equality to oppose the hegemony of the USA (Shaw, Cooper and Chin 2009: 27-28). Moreover, the emerging economies of China and India, in particular, have become leading spacefaring nations in the twenty-first century. In addition, African countries, aware of the benefits of outer space, are increasingly investing in space infrastructure (Dennerley 2016: 30). African nations have also become more committed to global space governance, as epitomised by the increasing number of African states becoming

members. The concept 'G77 and China' refers to China's unique position as an industrialised developing country (Group of 77 n.d.).

members of the UNCOPUOS. These factors significantly contributed to the development of soft as well as hard outer space treaties and the involvement of a variety of states, each with its own priorities, interests and needs related to the peaceful governance of space (Jakhu and Pelton 2017 :51).

Furthermore, Africa's involvement in institutions of global governance, including the UNCOPUOS, has become increasingly important since the onset of the twenty-first century. The widening of the scope of the G77 Vienna Chapter in 2010 to include the UNCOPUOS, which can be deduced from the reviewing of reports of group meetings where the UNCOPUOS began to feature on the agenda of the Group of 77 in Vienna, further broadened the number of nations involved in the multilateral governance of outer space (Heuls: 2014: 3; Group of 77 n.d.). The G77 coalition and China present group statements at most of the UNCOPUOS[24] meetings while representatives of this coalition actively meet on the side-lines of the UNCOPUOS meetings (Group of 77 n.d.) This interaction and expression of African agency within the UNCOPUOS will be reviewed in Chapter 4. As Shaw, Cooper and Chin (2009: 28-34) explain, even though the emerging states are not only African economies, African states are in effect also demanding a new set of international norms, greater influence in setting new trade agendas and equitable representation in the multilateral arena (Shaw, Cooper and Chin 2009: 28-34).

3.3 Institutional and legal frameworks for outer space governance

International cooperation in science and technology, and the generation of knowledge form an increasingly important part of international diplomatic agendas and initiatives, including within North-South collaboration and South-South partnerships.

[24] UNCOPUOS "Reports of Group Statements" from 1999 when the Vienna Chapter of the G77 and China came into being, up until 2019 were reviewed and the first reference to the UNCOPUOS in these records was found in the Report of the 2010 (Group of 77 n.d.).

Within the global space governance architecture, and guided by the norm of the peaceful and sustainable use of outer space, the UNCOPUOS has become the "ultimate global governance scene of address" for international cooperation in civilian space activities (Aganaba-Jeanty 2016a: 10). The UNCOPUOS is the main forum where all countries, the so-called traditional space practitioners as well as the emerging spacefaring nations, are able to voice an opinion on how activities in outer space should be managed to ensure a global commons that can be utilised for future generations.

This section focuses on the evolution of the UNCOPUOS and the legal foundation for outer space governance.

3.3.1 The institutional framework of the UNCOPUOS

In 1958, one year after the launching of Sputnik-1, the UNGA established an *ad hoc* Committee on the Peaceful Uses of Outer Space (COPUOS) as the first universal body dealing with outer space. According to United Nations General Assembly Resolution 1348 (XIII), COPUOS was formed "to avoid the extension of national rivalries into this new field". The principle was also highlighted that, "the common interest of mankind in outer space …… outer space should be used for peaceful purposes only" (United Nations General Assembly Resolution 1348 (XIII)). This Committee only had 18 members, but was considered at the time as a major accomplishment, given the geopolitical tensions and suspicions between the USA and the Soviet Union.

Following the establishment of the *ad* hoc committee, the UNGA adopted Resolution 1472 (XIV) in 1959, thereby establishing the COPUOS as a permanent UN body, at the time comprising 24 members. The aim of this committee, as laid out in the resolution was to "study practical and feasible means for giving effect to programmes in the peaceful uses of outer space which could appropriately be undertaken under the

United Nations" (United Nations General Assembly Resolution 1472 (XIV)) and to act as the UN body responsible for international cooperation concerning outer space (Martinez et al. 2018: 31). Of particular importance for this study is that the COPUOS is the only Committee of the UNGA dealing exclusively with reviewing international cooperation in peaceful uses of outer space, including studying space-related activities, encouraging space research programmes, and studying legal problems arising from the exploration of outer space (UNCOPUOS n.d.; Gibbs 2009: 323).

Importantly, the establishment of the UNCOPUOS as an organ of the UNGA for the first time provided a political dimension to outer space (Martinez et al. 2018: 31).

Since its establishment, membership of the UNCOPUOS has continuously expanded, making it one of the largest committees in the UN. As reported on the UNOOSA website, under "Evolution of Members" as of December 2018, the UNCOPUOS has a membership of 92 countries, of which 19 are African countries namely: Algeria, Benin, Burkina Faso, Cameroon, Chad, Egypt, Ethiopia, Ghana, Kenya, Libya, Mauritius, Morocco, Niger, Nigeria, Senegal, Sierra Leone, South Africa, Sudan and Tunisia (UNOOSA n.d.). The membership of the UNCOPUOS has not only grown in numbers but also in diversity, ranging from nations with virtually no space programme to the big four: Russia, the USA, China and India. This diversity is also represented in the expanding spectrum of interests, agendas and capabilities of the members of the UNCOPUOS (Jakhu and Pelton 2017: 51.) There has also been a significant increase in the membership of non-governmental organisations and regional groupings, such as the European Space Agency (ESA) and the European Union (EU) which was admitted as a member in 2018 (United Nations General Assembly 2018b). At this juncture it should also be noted that although the AU Commission has been invited on numerous occasions to attend the UNCOPUOS meetings, there is as yet no formal request from the AU Commission to become a permanent member (UNOOSA Audio: 2017).

However, linked to this diversity of membership and consequently interests is the unwillingness of states to subject their national agendas and programmes to binding regulations (Jakhu and Pelton 2017: 20 and 51). Consequently, the UNCOPUOS has been unsuccessful in negotiating new treaties. Yet, there have been an increasing number of "soft laws and treaties", including transparency and confidence building measures, safety and technical standards as well as contributions from international conferences coming into existence (Hitchens 2018: 4), these measure have also been referred to by Jakhu and Pelton (2017: 590) as a new "toolkit" for global space governance. Here the recently adopted 21 Guidelines on the Peaceful Uses of Outer Space, developed under the Chairpersonship of Dr Peter Martinez, serves as a perfect example (Hitchens 2018: 4; Wolney 2018: 1-4).

The UNCOPUOS reports to the Special Political and Decolonization Committee (Fourth) Committee of the UNGA, which adopts an annual resolution on international cooperation in the peaceful uses of outer space. This resolution is usually adopted without a vote and provides a mandate for the work of the Committee (UNOOSA n. d.).

Regarding the process of decision making, the UNCOPUOS operates according to consensus (Hitchens 2018: 11; Johnson and Samson 2017: 3). Galloway (1979: 3) argues "that consensus can set in motion certain positive attitudes which carry over beyond the agreement and tend to facilitate implementation of formal agreements" because the process of agreeing to a consensus can only be reached through negotiation and compromise. Galloway (1979) furthermore states that within the UNCOPUOS the "no objection procedure" of consensus "is used whereby the chairman, sensing that agreement has taken substantial form, states "if there is no objection, it is so decided"" (Galloway 1979: 3-4)[25]. It should be noted that this differs from other UN bodies where

[25] Galloway (1979) explains that the decision to adopt consensus at the UNCOPUOS, was made on 19 March, 1962, by the then Chairman, of the UNCOPUOS, Dr Franz Matsch (Austria) who announced that "in the first place, I should like to place on record that through informal consultations, it has been agreed among the members of the Committee

decisions are primarily made according to votes received. The impact of consensus decision making on African states will be analysed further in Chapter 4.

The UNCOPUOS Committee comprises two subsidiary bodies: The Scientific and Technical Subcommittee (STSC), and the Legal Subcommittee (LSC), both established in 1961 under General Assembly Resolution 1721 B (XVI) and mandated to report to the plenary of the UNCOPUOS, which reports to the General Assembly (UNOOSA n.d.). The Scientific and Technical Subcommittee (STSC) meets every year for two weeks to discuss questions related to the scientific and technical aspects of space activities[26] (Yu: 137; Johnson and Samson 2017: 1-2). The Legal Subcommittee also meets annually for two weeks to discuss legal questions related to the exploration and use of outer space, including importantly the review and application of the five UN treaties on outer space[27] (Johnson and Samson 2017: 1-2; UNOOSA n.d.; Yu 2012: 137-138).

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that it will be the aim of all members of the Committee and its subcommittees to conduct the Committee's work in such a way that the Committee will be able to reach agreement in its work without need for voting" (Galloway 1979:5-7).

[26] By way of example topics at the 2019 STSC included: " United Nations Programme on Space Applications, Space technology for sustainable socioeconomic development, Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment, Space debris, Space-system-based disaster management support, Recent developments in global navigation satellite systems, Space weather, Near-Earth objects, Long-term sustainability of outer space activities, Use of nuclear power sources in outer space, Space and global health, Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union, Draft provisional agenda for the fifty-seventh session of the Scientific and Technical Subcommittee" (UNOOSA 2018d: 1-2)

[27] By way of example topics at the 2019 LSC included: Information on the activities of international intergovernmental and non-governmental organizations relating to space law, Status and application of the five United Nations treaties on outer space, Matters relating to: (a) The definition and delimitation of outer space; (b) The character and utilization of the geostationary orbit, including consideration of ways and means to ensure the rational and equitable use of the geostationary orbit without prejudice to the role of the International Telecommunication Union, National legislation

Established in 1962, the UN Office for Outer Space Affairs, (UNOOSA) supports the work of the UNCOPUOS Committee as a secretariat and implements the decisions of the UNGA and of the UNCOPUOS, including its sub-committees and of assisting capacity building in developing countries by using space technology for development. This is undertaken inter alia through the United Nations Programme on Space Applications (Gibbs 2009: 323-324). The UNOOSA is also responsible as the repository of documents with respect to the registration of objects launched into space (UNOOSA n.d.).

3.3.2 Space treaties

Since its inception in 1958, the UNCOPUOS, as the main international forum for the development and codification of international space law, has concluded five international legal instruments and five sets of legal principles governing space-related activities (United Nations 2017b: iii-iv). The first international convention laying down the broad principles of outer space law was the "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies" commonly referred to as the "Outer Space Treaty" (OST) which entered into force on 10 October 1967 and which can be said to be the "Magna Carta" of outer space (Tan 2000: 156). Danilenko (1989: 217) articulates that, following this

relevant to the peaceful exploration and use of outer space, Capacity-building in space law, Review and possible revision of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space, General exchange of information and views on legal mechanisms relating to space debris mitigation and remediation measures, taking into account the work of the Scientific and Technical Subcommittee, General exchange of information on non-legally binding United Nations instruments on outer space, General exchange of views on the legal aspects of space traffic management, General exchange of views on the application of international law to small-satellite activities and General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources " (UNOOSA 2018e: 1-2) .

broad statement of principles, further agreements would be required and consequently, the following four space treaties, which build on the OST, were concluded:

- The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the "Rescue Agreement") entered into force on 3 December 1968.
- The Convention on International Liability for Damage Caused by Space Objects (the "Liability Convention") entered into force on 1 September 1972.
- The Convention on Registration of Objects Launched into Outer Space (the "Registration Convention") entered into force on 15 September 1976.
- The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the "Moon Agreement") entered into force on 11 July 1984. (United Nations 2017b)

These treaties provide broad international legal principles for operations in and access to outer space. Importantly, for especially developing and emerging spacefaring nations, Article I of the OST declares that outer space is the "province of all mankind," "free for exploration and use by all states without discrimination of any kind, on a basis of equality," and that "there shall be free access to all areas of celestial bodies". (Gibbs 2009: 323-335; Jakhu 2016; Jakhu and Pelton: 2017 21-23)[28].

Other principles set out by these treaties focus on: Freedom of exploration and use and prohibition of appropriation; Interests of the present generation and future generations; peaceful purposes and military uses; the non- appropriation of outer space, including the moon and other celestial bodies; liability for damage caused by space objects;, safety and rescue of spacecraft and astronauts; prevention of harmful

[28] Interestingly, none of these agreements deal with the protection of the space environment as such, with Article 10 of the OST merely stating that space activity be undertaken "with due regard to the corresponding interests of all other States Parties to the Treaty" (Tan 2000: 156).

interference with space activities; the notification and registration of space activities; scientific investigation and the exploitation of natural resources in outer space; and the settlement of disputes (Gibbs 2009: 323-335; Danilenko 1989: 220-221; Jakhu and Pelton 2017: 21-23).

When reviewing these agreements, it is crucial to understand the context of the period in which they were drafted, hence they did not consider todays' technical advances, changing geo-political developments, including the increasing numbers of new actors, both emerging states and also private sector participants, as well as challenges posed by space debris. Indeed Danilenko (1989) explains that following the golden age of treaty making for outer space, there has been a significant "slow down" based, he contends, on the UNCOPUOS operating under the fore mentioned process of consensus (Danilenko 1989: 218-219). He also states that space law, given the changing environment requires continuous reassessment (Danilenko 1989: 218-247). Interestingly, Jakhu 2009 also refers to the negative effect of consensus decision making whereby a few powerful states can control what gets discussed and decided upon (Jakhu 2009: 74). However, detailed analysis of the effect of consensus as a decision-making tool is not within the charter of this research, save to highlight the process of decision making in the UNCOPUOS. In the following chapter, Africa's interaction with these treaties will be highlighted.

As mentioned, in addition to the five space treaties there are also 5 Principles adopted by the UNGA that form part of the principal body of international space law.

These principles are:

- Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (UNGA Resolution 1962 (XVIII) – 13 December 1963)

- Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (UNGA Resolution 37/92 – 10 December 1982)
- Principles Relating to Remote Sensing of the Earth from Outer Space (UNGA Resolution 41/65 of 3 December 1986)
- Principles Relevant to the Use of Nuclear Power Sources in Outer Space (UNGA Resolution 47/68 of 14 December 1992)
- 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 Resolution 51/122 of 13 December 1996).

  (United Nations General 2017b)

With respect to the above and in the context of this research, it is important to highlight 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 Developing Countries" commonly referred to as the "Benefits Declaration". As Dennerley (2016: 28-29) explains, this declaration was adopted "in part as a response to the dissatisfaction of developing countries as to their perceived lack of international space cooperation" and is especially formulated to put in place broad principles of cooperation in space activities to the benefit of developing spacefaring nations.

Paragraphs 2 and 3 of the "Benefits Declaration" in particular note that:

> 2. States are free to determine all aspects of their participation in international cooperation in the exploration and use of outer space on an equitable and mutually acceptable basis. Contractual terms in such cooperative ventures should be fair and reasonable and they should be in full compliance with the

legitimate rights and interests of the parties concerned as, for example, with intellectual property rights (United Nations 2017b: 65-67).

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3. All States, particularly those with relevant space capabilities and with programmes for the exploration and use of outer space, should contribute to promoting and fostering international cooperation on an equitable and mutually acceptable basis. In this context, particular attention should be given to the benefit for and the interests of developing countries and countries with incipient space programmes stemming from such international cooperation conducted with countries with more advanced space capabilities. (United Nations 2017b: 65-67).

3.4 The UNCOPUOS and sustainable development

Already recognising the immense relevance of space technology for socio-economic development and the importance of international cooperation in the 1960s, the UN has organised three global conferences on the Exploration and Peaceful Uses of Outer Space. UNISPACE I was held in Vienna in 1968, UNISPACE II took place in Vienna in 1982 and UNISPACE III in Vienna in 1999 (UNOOSA n.d.). Importantly, and addressed in greater detail further in this chapter is the fourth UNISPACE conference, the so called UNISPACE+50, which took place in Vienna in June 2018, and which had inter alia as its focus the initiation of a Space 2030 development programme to complement the UN 2030 Sustainable Development Agenda.

3.4.1 The 2030 Sustainable Development Goals (SDGs)

More than anything else, it was the adoption in September 2015 of "*Transforming our world: the 2030 Agenda for Sustainable Development",* with its 17 Sustainable Development Goals (SDGs) that focused the world's attention on the UNs development

priorities for developing countries (Wilson 2018: 1-2). As indicated in Figure 1, the 17 SDGs of the UN include goals covering all three dimensions of sustainable development namely; economic, political and social issues (United Nations 2019b; Wilson 2018:1). Also, highlighted in figure 1 are how space science and space applications could impact towards the achievement of the SDGs (Ferretti, S., Feustel-Büechl, J., Gibson, et al. 2016: 7).

Figure 1: List of 17 Sustainable Development Goals (SDGs)

SDG No.	Name	Actual or possible contribution of space
1.	End poverty in all its forms everywhere	Improved communications and more environmental data as a driver of growth, better logistics management by the use of sat/nav
2.	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Earth Observation data for optimised agriculture and livestock management, more efficient crop markets through better telecommunications, better emergency responses enabled by Earth Observation data and telecoms, better delivery systems using sat/nav

3.	Ensure healthy lives and promote well-being for all at all ages	E-health, including telemedicine and medical tele-training and learning
4.	Ensure inclusive and equitable quality education for all and promote lifelong learning opportunities for all	Quality Education Tele-learning
5.	Achieve gender equality and empower all women and girls	Female empowerment by telecoms links to the Information Society, tele-learning, telecoms enabling small businesses of women.
6.	Ensure availability and sustainable management of water and sanitation for all	Earth Observation data for water management, water detection, and water pollution monitoring
7.	Ensure access to affordable, reliable, sustainable and modern energy for all	Earth Observation data for renewable energy management, grid management
8.	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Space services as enabler of economic growth and high quality jobs in all economic sectors

9.	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Space as enabler of innovation both in own sector and others, space based data and communication abilities key for industrial processes, space telecoms compensates for lack of terrestrial networks, Earth Observation for lack of in-situ stations, sat/nav important for best use of transport infrastructure and banking systems
10.	Reduce inequality within and among countries	Access to Information Society through telecoms is a leveller, fosters transparency and hence helps fight against corruption, space services as an enabler of work opportunity
11.	Make cities and human settlements inclusive, safe, resilient and sustainable	Earth Observation data for pollution monitoring, energy management and land use planning, sat/nav for traffic management, telecoms for efficient information exchange

12.	Ensure sustainable consumption and production patterns	Earth Observation data for optimised supply management, energy management, sat/nav for logistics management in production
13.	Take urgent action to combat climate change and its impacts* * Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.	Earth Observation data key for climate change monitoring and definition of mitigation strategies
14.	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Earth Observation data key for monitoring the health of oceans and other water systems, for fisheries management and policing
15.	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Earth Observation data for bio-diversity monitoring, pollution monitoring, land use management and policing
16.	Promote peaceful and inclusive societies for sustainable development provide access to	Telecoms empower civil society by connecting to the Information Society,

	justice for all and build effective, accountable and inclusive institutions at all levels	e-voting enabled by telecoms, legal evidence, treaty compliance monitoring, security management through Earth Observation systems,
17.	Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	Partnerships Space community is part of an international fabric of partnerships. Possibilities of reinforcement of links with development actors

(Ferretti, S., Feustel-Büechl, J., Gibson, et al. 2016: 7)

From their very inception, the application of space technologies has been viewed as integral to the achievement of the SDGs. In highlighting this, paragraph 76 of the 2030 SDG Agenda document, specifically refers to the important role of data, including earth observation and geo-spatial information for Africa and other developing regions (United Nations General Assembly 2015: 32). To substantiate this, Ngcofe and Gottschalk (2013) clearly articulate that Earth Observation satellites are of "primary importance for Africa in order to address the challenges of environmental monitoring (including climate change) as they record Earth's information from space and provide accurate, continuous, simultaneous measurements" (Ngcofe and Gottschalk 2013: 1).

The broad range of space-based applications and their primarily non-evasive nature has led them to being taken for granted. However, in support of the SDGs, it is indeed because of this non-evasive manner of application, that data gathered from these sources can lead to greater objectivity and equitable analysis in term of achieving

targets as set under the specific SDGs (UNOOSA 2018a: 9). As referred to in the UNOOSA/ Copernicus[29] report of 2018, GPS, weather data, and satellite communications are all critical on the logistical side of carrying out sustainable development projects (UNOOSA 2018a: 6-12).

Consequently, to ensure appreciation for the potential of space-based applications, SDGs should be monitored and implemented and global partnerships between developed and developing spacefaring nations need to be fostered, "to ensure that the needs of all countries are taken into account" (Atlantic Interactions 3.0 2018: 13). This is particularly relevant to Africa in light of its aspirations as articulated in the African Agenda 2063. As stated by Bido (2008: 1) there is hardly any continent that is more "made for space applications than Africa"[30].

3.4.2 UNISPACE+50 and the Space2030 Agenda

Celebrating the fiftieth anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space, a summit conference, UNISPACE+50, was held in Vienna, from 18-21 June 2018. This conference provided an opportunity for the international space community to reflect on "the future course of global space cooperation in relation to sustainable development" (UN Resolution 72/79), in the context of strengthening the COPUOS as the "primary intergovernmental platform for international space cooperation" (United Nations. 2017b: 9).

[29] Copernicus, which was previously known as GMES (Global Monitoring for Environment and Security), is the European Programme for the establishment of a European capacity for Earth Observation.

[30] This statement was made following research undertaken under the aegis of the European Space Policy Institute (ESPI) on Africa's social and geographic environment and its space-related demand, which could serve as reference points for European actors wishing to become involved on the continent (Bido 1989: 1-7).

UNISPACE+50 aimed at strengthening the UNCOPUOS as a global space governance mechanism. During this conference the three previous UNISPACE conferences were reviewed and mechanisms were developed to strengthen UNOOSA. It was also decided at UNISPACE+50 to develop and subsequently, to endorse the UNGA's Space2030 Agenda and its implementation plan for strengthening the contribution of space activities and space tools for the achievement of the global agendas addressing long-term development of outer space (UNOOSA n.d.). Furthermore, to guide preparatory work for UNISPACE+50, in June 2016, the UNCOPUOS identified and agreed on the following seven thematic priorities, with concrete deliverables pertaining to space for development (Martinez et al 2018: 30-31).

- "Global partnership in space exploration and innovation,
- Legal regime of outer Space and global space governance , current and future perspectives,
- Enhanced information exchange on space objects and events,
- International framework for space weather services,
- Strengthened space cooperation for global health,
- International cooperation towards low emission and resilient societies; and
- Capacity building for the twenty-first century" (UNOOSA: 2017)

In order to operationalise these priorities, the Space2030 Agenda was established around the following four pillars: "*space economy*", which relates to "the development of space-derived economic benefits"; "*space society*", which relates to "the evolution of society and societal benefits resulting from space-related activities"; "*space accessibility*", which relates to "the use by all communities of space technology"; and "*space diplomacy*", which relates to "the building of partnerships and strengthened international cooperation in and governance of space activities" (United Nations 2017a: 2).

Operationalisation of the Space2030 Agenda also involved a draft resolution entitled "*Fiftieth anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space: space as a driver of sustainable development*". This draft resolution was endorsed by the UNCOPUOS at the 61st session in June 2018. It was also agreed to establish working groups for the development of the Space 2030 Agenda and implementation plan (UNOOSA 2018d: 44-45). Significantly, the Committee also agreed that the chairpersonship would be given to a representative of the Group of 77 and China, with two Vice-Chairs, from Italy and Romania respectively (UNOOSA 2018d: 44-45).

As explained, the Space 2030 Agenda, similar to other "soft" frameworks, establishes norms and principles and therefore links with the constructivist approach and its focus on identity, values and norms, which is also represented in the UNCOPUOS. The Space 2030 Working Group to develop the fore mentioned, began its deliberations in 2018, and will compete its work in 2020. How Africa engages with this working group is too early to determine and should form the focus of future studies. However, the centrality of the development of the Space 2030 Agenda will be a priority for the UNCOPUOS during the next year and thus needs to be highlighted.

3.5 African agency and the governance of outer space

Africa's contribution to global space governance is the main focus of this section which is divided in four themes. In the first theme Africa's programme for the development of Agenda 2063 is contextualised. Africa's space policy and strategy are the core concerns of the second theme while the third theme is dedicated to Africa's space programme. The fourth theme is concerned with the role of African Leadership Conference on Space Science and Technology for Sustainable Development (ALC).

However, before addressing the fore mentioned, it is necessary to focus on African diplomatic practices and the African negotiating personality, a prerequisite for the development of African agency in multilateral fora. The need for an African negotiating personality is explained by Spies (2018) who identifies three underlying features dominating African diplomatic practices, namely, the quest for justice and equality; the focus on development in and on the continent; and the emphasis on "African solidarity, unity and integration," within the recurrent theme of Pan Africanism (Spies 2018: 1-8).

Furthermore, Africa's goal to establish a collective voice has also been recognised by major international role players and individual states who have chosen to engage with Africa as a collective entity with the aim to improve multilateral relations with the African block. For example, Shaw, Cooper and Chin (2009: 29-30) and also Spies (2018: 11), refer to various multilateral conferences involving the African block, for example the Tokyo International Conference on African Development (TICAD), between Japan and Africa as a collective; the Forum on China-Africa Cooperation (FOCAC); the India–Africa Forum Summit; the EU-Africa Summit; the Turkey-Africa Partnership Summit; and the latest summit currently, being finalised and due to be held in 2019 for the first time, the Russia- Africa Summit[31].

3.5.1 Africa's Agenda 2063

The development objectives of the AU are clearly laid out in various continental documents and declarations. The most significant, Agenda 2063, is a policy document which serves as a framework for inclusive growth and sustainable development (African Union Commission 2015). Moreover, Agenda 2063 provides a "strategic long-term

[31] In January 2019, Russia announced that it would host African leaders in a high-level October summit in Sochi. Consequently, on March 19, the Organizing Committee on Russia-Africa held its first meeting in Moscow, this committee has been given the responsibility of prepare for and holding the first Russia-Africa summit 0n 24 October 2019 in Sochi, Russia (Klomegah 2019: 1).

vision and framework for the socio-economic transformation of Africa over the next 50 years" and is informed by the AU vision of "An integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in international arena" (African Union Commission 2015: 11). Strongly influenced by Pan Africanism and the African Renaissance, Agenda 2063 was adopted during the 24th Ordinary Session of the Assembly of the AU in January 2015 in Addis Ababa (African Union Commission 2015: 12).

At the core of Agenda 2063 are the following seven African aspirations: A prosperous Africa, based on inclusive growth and sustainable development; • An integrated continent, politically united, based on the ideals of Pan Africanism and the vision of Africa's Renaissance; • An Africa of good governance, democracy, respect for human rights, justice and the rule of law; • A peaceful and secure Africa; • Africa with a strong cultural identity, common heritage, values and ethics; • An Africa whose development is people driven, relying on the potential offered by people, especially its women and youth and caring for children;• An Africa as a strong, united, resilient and influential global player and partner (African Union Commission 2015: 11).

African nations are facing socio-economic challenges which require an investigation into the role of science and technology, in particular related to outer space activities, to determine how African nations can bridge the digital divide[32] thus placing African countries on a path of sustainable growth and development. Consequently, the notion of "space for development" indicate how the application of science and

[32] "The concept 'digital divide' refers to the difference in opportunities with regard to access to information and communication technologies such as the Internet. It also refers to the "gap between nations mastering space capabilities and others with limited or no access to those capabilities. To reduce that divide, it is vital to create new opportunities and enhance existing opportunities for accessing space" (UNOOSA 2017:4).

technology through space related activities can be an essential tool for achieving the UN's 2030 SDGs and the AU's Agenda 2063 (African Union 2017a; African Union 2017b).

The UNCOPUOS acknowledges that the goals and major targets of the UN 2030 Agenda for Sustainable Development, the Addis Ababa Action Agenda on Financing for Development, the Sendai Framework for Disaster Risk Reduction 2015–2030 and the Paris Agreement on Climate Change, "require stronger space governance and supporting structures at all levels, including improved space-based data, space infrastructure, services and applications" (UNOOSA n.d.). Therefore, only by developing an African agency within the UNCOPUOS will African governments be able to articulate and act upon their people's sustainable development needs. Furthermore, Munsami and Nicolaides (2017: 2) identify a lack of informed policy based on empirical data as one of the biggest challenges facing Africa. Therefore, given the important role that space applications can play in generating this data, how space is governed and what role African nations play in this process is of significant importance to Africa.

3.5.2 Africa's Space Policy and Strategy

Agenda 2063 identifies 12 urgent projects[33] to be achieved as part of the first 10-year programme. Importantly, in terms of outer space, one of the projects identified was the development of an African Space Policy and Strategy which aims to strengthen Africa's use of outer space to bolster its development. In the development of the 2063 African Agenda, the base document of Agenda 2063 articulates that the continent has one of

[33] The full list of flagship projects / initiatives are: • Integrated High-Speed Train Networks; • Africa Virtual and E-University; • African Commodity Strategy; • Annual African Forum; • Continental Free Trade Area; • African Passport and free movement of people; • Grand Inga Dam Project; • Pan African E-Network; • Silencing the Guns; • African Outer Space Strategy; • Single Air-Transport Network; • Continental Financial Institutions (African Union Commission: 2015.).

the highest demands for "space products and services, with Africa's economy increasingly becoming space-dependent". It also indicates that these space-based products include communication technology; economic processes, for example financial transactions such as e-banking; navigation; the use of space-based technologies for disaster management and climate change; and the improvement of health-related issues on the continent. (African Union Commission 2015: 15).

In order to bring this to fruition, the AU Conference of Ministers in Charge of Communication and Information Technologies, that met in Sudan in September 2012, recommended in their Khartoum Declaration that the AU Commission "develop a space policy for the continent in collaboration with relevant stakeholders and taking into account remote sensing applications and satellite imagery processing" (African Union 2012: 1). 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. This Working Group comprised individuals from the African Leadership Conference on Space Science and Technology for Sustainable Development (to be discussed later in the chapter) and national space agencies from across the continent. An initial draft policy was completed in October 2013 and presented for final adoption at the AU Heads of State and Government during their Twenty-Sixth Ordinary Session on 31 January 2016, in Addis Ababa (Aganaba-Jeanty 2019: 1-2). The adoption of the Space Policy and Strategy can be seen as the first steps towards realising a continental Outer Space Program.

Of paramount importance is the AU, being aware of the unique opportunities for the continent to collectively address socio-economic development issues through space technologies, requested the development of an implementation architecture for the African Space Policy and Strategy, taking into account requirements of different sectors and end-user groups; as well as a Governance Framework that covers the relevant legal requirements and protocols for an operational African Outer-Space Programme

(Aganaba-Jeanty, 2016: 1-4). The practical outcome of this implementation architecture is an African Space Agency, further discussed in Chapter 4.

It is interesting to note that according to Aganaba-Jeanty (2016) during the development phase of the two documents the initial focus was on the application of space science for socio-economic development. However, through various iterations this aim evolved towards a well-coordinated and integrated African Space Programme with a regulatory agenda aimed to support an African agenda, but also to ensure that Africa is a responsible user of outer space (Aganaba-Jeanty, 2016b: 3).

The adopted African Space Strategy lists four key areas of space science that contribute to socio-economic development as "(i) Earth observation, (ii) navigation and positioning, (iii) satellite communications, and (iv) space science and astronomy" (African Union 2017b: 6). The African Space Strategy also undertakes a situational analysis of space activities in Africa and articulates an action plan to deal with these activities (African Union 2017b: 10). As acknowledged in the Strategy Document, Africa cannot afford to remain a net importer of space technologies, as the long-term prognosis of doing so is to limit socio-economic development and negate the African Union 2063 vision. Importantly it also provides a one, five- and ten-year outcomes "wish list", which highlights as one of its objectives to have a "continental space programme that meets globally accepted space industry standards" (African Union 2017b: 12). However, a detailed analysis of the document exposes a flaw because despite the focus on developing, utilising and developing scientific and technological priorities, little reference was made to the need to ensure that Africa can be part of the global governance debate. Moreover, there was no recognition that Africa can in fact be one of the developers instead of followers of global policies on outer space governance.

Nevertheless, the adopted African Union Space Policy has at its core two overarching goals. The first goal is to use space science and technology to improve the

quality of life and generate wealth in Africa, while the second goal focuses on developing and maintaining African infrastructure and capacity to service both African and foreign markets in a responsible way. Such activities will include the training of space-related experts and making use of continental and regional training networks and partnerships to ensure resources are used optimally. The policy emphasises the importance of nurturing a strong space industry in Africa, including ensuring that investments are directed at space technologies appropriate to Africa. As highlighted in the African Space Policy document, more than 90 percent of the Strategic Objectives across the eight Commissions of the African Union are reliant on space applications for its effective implementation (African Union 2017a: 1-16). This space policy centres on the creation of an African Space Programme, which will bring all Africa's space activities under one umbrella. However, the policy is focused on ensuring a framework for scientific and technological advancement of the space arena in Africa with little reference to the impact on global governance.

While some may argue that it is not the intention of the African Space Policy and Strategy to provide such, given that the documents, especially African Space Policy, are aspirational, a golden opportunity to openly declare intent towards becoming a global entity in terms of space governance was possibly missed. However, as articulated earlier in Chapter 3 the African Space Policy and Strategy will have an implementing agency namely the African Space Agency, of which decision to establishment this agency in Cairo, Egypt, was made during February 2019.

3.5.3 Africa's space programme

It is important to note that Africa has emphasised the utilisation of space based resources to not only support economic and social development, but also peacekeeping operations on the continent (African Union 2017b: 6). This is illustrated by the growth of

African space agencies on the continent (figure 2) and by the increasing list of African satellites being placed in orbit (figure 3).

Figure 2: African institutions responsible for the coordination of space programmes

Algeria Space Agency	Algeria	2002
South African Space Agency	RSA	2010
National Space Research and Development Agency	Nigeria	
Egypt Space Agency Prior to that establishment of the National Authority for Remote Sensing & Space Sciences (NARSS) (established in 1991) had been in charge of the Egypt Space Program.	Egypt	2018
Kenya Space Agency Part of the Kenya Ministry of Defence.	Kenya	2017
Zimbabwe National Geospatial and Space Agency	Zimbabwe	2018
Gabinete de Gestao do Programa Espacial Nacional The GGPEN (National Space Program Management Office) is an institution that has the oversight of the Interministerial Commission for the General Coordination of the National Space Program and under the Ministry of Communications and Information Technologies	Angola	
The Royal Center for Remote Sensing Space	Morocco	
Ghana Space Science and Technology Centre	Ghana	
Libya Center for Remote Sensing and Space Science	Libya	
National Remote sensing Center (NRSC) Remote Sensing Authority (RSA) was established in 1977, as a National Remote sensing Center (NRSC) within the National Council for Research, Ministry of Higher Education and Scientific Research. In 1996 the Remote Sensing Center was	Sudan	

renamed to Remote Sensing Authority and affiliated to the National Center for Research, Ministry of Science and Technology.		
Tunisia Space Agency	Tunisia	
While there is a movement for the official establishment of the Tunisian Space Agency, the National Mapping and Remote Sensing Center established under the Ministry of National Defence (CNCT) act of 1988 is in charge of space activities in the country.		
Ethiopian Space Science Society	Ethiopia	2004

(Space in Africa 2018b)

Figure 3: Distribution of satellite launches in Africa

Algeria (6)	ALSAT 1 – 2002
	ALSAT 2A – 2010
	ALSAT 1B – 2016
	ALSAT 2B – 2016
	ALSAT 1N – 2016
	ALCOMSAT-1 2017
Angola (1)	AngoSat-1 – 2017
Egypt (5)	NILESAT 101 – 1998
	NILESAT 102 – 2000
	EGYPTSAT 1 -2007
	NILESAT 201 – 2010
	EGYPTSAT 2 – 2014
Ghana (1)	GhanaSat-1 – July 2017
Kenya's	KUNS-PF – 2018

Morocco (2)	Maroc-TUBSAT – 2001
	MOHAMMED VI-A – 2017
Nigeria (6)	Nigeriasat-1 – 2003
	NIGCOMSAT 1 – 2007
	NigeriaSat-2 – 2011
	NigeriaSat-X – 2011
	NIGCOMSAT 1R – 2011
	NigeriaEduSAT-1 – 2017
South Africa (6)	SUNSAT – 1999
	ZACUBE – 2003
	SUMBANDILA – 2009
	KONDOR E – 2014
	nSight1 – 2017
	ZA-AEROSAT – 2017

(Space in Africa: 2018c)[34]

Consequently, the growing dependence of African countries on space assets creates the situation of African spacefaring nations, with assets in outer space, being exposed to more safety and security risks, such as the impact of space debris and interference with satellites (UNIDIR 2013: 3). For ensuring a governance regime through which to address these issues, Aganaba-Jeanty (2016 a: 10) describes the UNCOPUOS as "the ultimate (forum for) global space governance". Consequently, it is of critical importance to include emerging actors from Africa in dialogues regarding outer space security (UNIDIR 2013: 3).

[34] This list of satellites launched by African countries, as referenced from "Space in Africa: June 22, 2018" does not include the recently launched South Africa nano-satellite, the ZACube-2, on 27 December 2018 (Van der Merwe: 2018:1).

On the African continent insufficient capacity around African regional outer space cooperation may be explained by several historical factors. Firstly, the majority of space-related projects at the regional level are driven by donor countries and are therefore dependent on outside funding. These projects are consequently largely influenced by the objectives and priorities of donor countries, according to Aganaba-Jeanty (2016: 9) who also refers to the scenario that African projects are often constrained by capacity and financial challenges and often suffer mixed outcomes. As an example, she cites the lack of progress with the African Resource Management Satellite Constellation project between Nigeria, Algeria, Kenya and South Africa (Aganaba-Jeanty 2016: 10). Secondly, Aganaba-Jeanty (2016: 10) reflects that projects have suffered from the lack of coordination at the African Union Commission level.

3.5.4 The African Leadership Conference on Space Science and Technology for Sustainable Development

The idea of the ALC was first raised following consultations held among African member states during the 48th sessions of the UNCOPUOS from 8 to 17 June 2005, under the leadership of chairperson Adigun Ade Abiodun of Nigeria (Martinez 2012: 33). According to Adigun Ade Abiodun, this followed a realisation within Africa for leadership to ensure the centrality of space towards achieving developmental priorities on the continent (Abiodun 2012: 284-285). Martinez (2012) identifies the three overarching aims of the ALC as "(i) to raise awareness among African leaders of the importance of space science and technology, (ii) to provide a regular forum for the exchange of information among African countries and (iii) to enhance intra-African cooperation in the development and application of space technology" (Martinez 2012: 33; Committee on the Peaceful Uses of Outer Space. 2009: 1). Martinez (2012) further contends that prior to the establishment of the ALC there was a lack of African political interaction with issues of outer space governance (Martinez 2012: 33).

The ALC not only influenced political leaders to deal with space at continental and national levels, but also energised the broader space community in Africa. Consequently, successful ALC conferences in Nigeria (2005), South Africa (2007), Algeria (2009), Kenya, (2011), Ghana (2013) and Egypt (2015), engaged political as well as technical leadership across the continent. The ALC became "a unique forum for African policy makers and technical experts to meet and exchange information about space applications and benefits for Africa", and the "representative African forum in the global space community"[35] (Martinez 2012: 33).

It is not the aim of this research to interrogate the various ALC conferences in detail as excellent summaries of these are available which could form the basis of further study. However, given the constructivist approach set out as a theoretical overarching framework for the research, various principles/norms have been extracted from the first, second and fourth ALC conferences, in particular, in order to substantiate positions of the ALC in contributing towards the development of an African agency in the UNCOPUOS. Not a great deal of open source information is available concerning the fifth ALC held in Ghana, and the sixth ALC held in Egypt, however, reference is made to these. The seventh ALC took place in Nigeria in November 2018, and will form part of future analysis and research.

The first ALC conference in Abuja in 2005 focused on space technology and space science issues and emphasised the principles of Africa's participation in the UNCOPUOS; the leadership role of Africa's leaders in this regard; and the interaction between decision makers and space science and technology practitioners in the public and private spheres (UNOOSA 2006: 6-8).

[35] The ALC takes place every two years, on a regional basis across the continent of Africa. In order manage the planning and follow up process, there is a secretariat as well as a steering committee which meets on the side-lines of the UNCOPUOS meetings, as required (Martinez 2012: 34).

The second ALC was held in Pretoria, South Africa in 2007 under the theme "Building African Partnerships in Space" (Martinez 2008: 1). This conference focused on the legal foundation for participation in the UNCOPUOS and highlighted the centrality of space law (United Nations General Assembly 2008: 14). African countries were encouraged to sign or ratify the five space treaties and to develop an international legal capacity to address space issue. Inter alia, these recommendations were aimed at deepening the ALC as an institutionalised body supporting African solidarity and the need to act in a collective capacity, it was also agreed that inter-regional and intra-regional cooperation should be fostered given that space could not be appropriated by individual nations (Martinez 2008: 10-11). In addition, this conference highlighted the contribution of science and technology to sustainable development on the continent. Furthermore, the idea of establishing an "African Space Agency" was first mooted at this conference and it was also agreed that "the observations and recommendations" of the ALC, including that of an African Space Agency, be forwarded to formal AU structures, including NEPAD and the African Ministerial Council on Science and Technology (AMCOST) (Martinez 2008: 2-3).

Of particular relevance to this research is the participants' acknowledgement of the low level of African involvement in the activities of the UNCOPUOS, especially in its Legal Subcommittee (Martinez 2008:1). To improve Africa's involvement in the Legal Subcommittee, participants recommended that African countries should consider the establishment of national focal points for space law issues but that they should also actively participate in international space law conferences where space law issues are debated (UNOOSA: 2009: 4).

The third ALC, held in Algiers in 2009, again focused on space science and technology for the socio-economic development of Africa. Here the meeting underlined the importance of integrating space-based information and involve the involvement of the African scientific community for a better understanding of the vulnerability and the

adaptation to the climate change. Importantly, issues such as the need to strengthen national and regional capabilities, human resource, equipment and institutions, and their optimal mobilisation around prioritised objectives were also raised (Kedjar 2010: 11-16)

The fourth ALC conference took place in Mombasa, Kenya, in 2011. The key deliverable was the Mombasa Declaration on Space for Africa's Development. The Mombasa Declaration was in essence an affirmation of the commitment of Africa's space leaders to take concrete action to collectively address and promote sustainable development; to advance scientific knowledge of outer space and to ensure the protection of the space environment for future generations (UNOOSA 2011: 1-2). Particular reference was also made of the need to adhere to international space treaties and to strengthen African participation in the UNCOPUOS (Maimba 2012: 3-6; UNOOSA 2011: 1-2). The Mombasa Declaration is by far the most structured statement by the ALC on the UNCOPUOS and should have set the groundwork for Africa's future participation.

The fifth and sixth ALCs were held in Accra in Ghana in 2013 and in Egypt 2015 respectively. The ALC in Ghana, emphasised the need for Africa to build capacity in space law (Ghana News Agency 2013) and according to Ghana web there was a call for the development of a "cadre of African space scientists" to enable African countries to build, deploy and operate space-based systems. Following the conclusion of the sixth ALC in Egypt, a Resolution was adopted that called for the strengthening of the ALC as a "think tank and consultative body" for African governments and space entities concerning the issues of space science and technology (NARSS 2015: 1-3). Concerning international co-operation there was a general reference to the need to strengthen ties with other regional and international bodies (NARSS 2015: 1-3).

3.6. Conclusion

The UNCOPUOS was developed at the height of the Cold War, with the specific aim of establishing a multilateral governance forum to ensure the peaceful use of outer space. This governance forum follows closely the main tenets of regime theory, as described in Chapter 2. Chapter 3 provided detail as to the structure and rational underpinning the UNCOPUOS, contextualising it within the sustainable development agenda. Indeed, the spectrum of activities for which the UNCOPUOS is responsible is too broad to be addressed by this study, hence the need to highlight sustainable development as a niche area of focus. It was also highlighted that Africa's involvement in outer space governance is a development that takes place against the background of a global space arena that is constantly changing. Chapter 4 consequently also identified circumstances against which Africa could develop its voice, in line with the main tenets of social constructivism, within the multilateral environment of the UNCOPUOS.

As will be shown in Chapter 4, African agency has found its most meaningful expression through driving and focusing on the promotion of sustainable development. This chapter did not review the activities of each African spacefaring nation, but rather sought to focus on how Africa, as a collective, could impact most in the UNCOPUOS on the issue of developing policy. The next chapter will build on these and seek to explain how Africa interacts within the UNCOPUOS.

CHAPTER 4

AFRICAN AGENCY IN THE UNCOPUOS

4.1 Introduction

This concluding chapter assesses the development of an African negotiating identify against the challenges experienced by developing and emerging spacefaring nations in the UNCOPUOS. This negotiating identity is based on inter-subjective ideas and norms, explained in Chapter 2 and guided by Finnemore and Sikkink's definition of a norm as "a standard of appropriate behaviour for actors with a given identity" (Finnemore and Sikkink 1998: 891). This chapter also revisits and highlights the advantages of space cooperation for Africa in an effort to motivate African nations to deal with the diplomatic challenges posed to African spacefaring nations by their experiences in the UNCOPUOS and the new realities in outer space. The chapter furthermore asks how the African Leadership Conference on Space Science and Technology for Sustainable Development and the African Space Policy and Strategy, as well as the development of an African continental space agency can assist with the improvement of an African identity and agency in the UNCOPUOS.

4.2 New realities of outer space governance

Today, outer space, described in the preceding chapters as a complex and dynamic global arena, is increasingly characterised by the influx of new participants, such as new spacefaring nations, commercial enterprises and research institutions. This is also an arena where the application of new technologies and new issues create a mixed bag of opportunities and challenges for humanity (Harding 2016: 1; Sheenan 2016: 20).

4.3 African collective identity and focus on development

The creation of a collective identity involves two processes, the first requires a conscious decision made by those in the 'in-group' to identify common ground and to establish a group entity. The second process requires 'the other' role players to become conscious of and to acknowledge the collective identity of the first group. As referred to in Chapter 1, African states in general favour multilateral diplomacy because it underscored and strengthened their position in their struggles against colonialism and apartheid, as did their collective non-aligned stance during the Cold War (Endeley 2009: 3-11; Spies 2018: 12). Consequently, African states, in collaboration with Asian and Latin American states, created a collective voice to negotiate a common position in an often-aggressive multilateral environment by forming the Non-Aligned Movement (NAM) and the Group of 77 (Mushelenga and Van Wyk 2017: 129). Recently, the importance of multilateral cooperation was also emphasised by participants at the AU Retreat in Chad in 2017, who posited that "Africa's approach to multilateralism is based on principles such as African ownership and priority which in turn is based on mutual respect, subsidiarity, the principle of comparative advantage and complementarity" (African Union 2017c: 8).

The importance of creating a collective identity reflects the main features of regimes, explained in Chapter 2, as the coordination of behaviour by establishing institutions to achieve desired results. The development of an African collective identity in the UNCOPUOS also coincides with the social constructivists' view of agency as the ability to act and to make an impact through collective action. Africa thus succeeded in creating a sense of "collective security" (Mushelenga and Van Wyk 2017: 128). Nevertheless, as stated in Chapter 3, the AU currently articulates the voice of the African collective in the UN.

Central to Africa's need to establish a collective identify in the global environment, highlighted in previous chapters, is Africa's niche focus on development issues within the multilateral environment which has led to development being recognised by the UN as an "inalienable human right"[36] (Spies 2018: 10). Consequently, it is clear that Africa has left its mark with respect to the global prioritisation of development issues. As Spies (2018) explains, this developmental focus was brought about by a confluence of various factors, including the inequality between Africa and other nations and Africa also taking issue with the traditional approach to development assistance which was "hierarchical and patronising and filled with conditionality" (Spies 2018: 10-11). Africa therefore participated in the alternative approach of South-South Cooperation (SSC) to development, as opposed to the traditional approach of North-South Cooperation (NSC). SSC has evolved since the Bandung Conference of 1955 and is based on "a spirit of mutual benefit and solidarity", the "sharing of knowledge, experiences, technology, skills and goodwill" (United Nations Office for South-South Cooperation and United Nations and the United Nations Development Programme (2019: 12). However, African states not only placed SSC firmly on the UN agenda, but also highlighted the need to change the guiding principles of development cooperation to "demand driven development assistance" underlined by "respect for national sovereignty, non-conditionality…" (United Nations Office for South-South Cooperation and the United Nations Development Programme 2019: 8).

[36] The Declaration on the Right to Development was adopted by the General Assembly by resolution 41/128 of 4 December 1986. "The Declaration contains 10 articles. Article 1, paragraph 1 proclaims that the right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized. The Declaration identifies the human being as the central subject of development (article 2, paragraph 1) and attributes States the right and the duty to formulate appropriate national development policies that aim at the constant improvement of the well-being of the entire population and of all individuals (article 2, paragraph 3) (United Nations: Audio-visual History of International Law: n.d.).

In terms of the importance of development within the UNCOPUOS, Chapter 3 articulated the centrality of space applications as enablers of socio-economic development, as exemplified by the 2030 Sustainable Development Goals and the Space2030 development agenda which is still under construction. This prioritisation of development, including within the environment of outer space, also underscores the central tenet of social constructivism as explained by Balaam and Dillman (2019: 101-103) and highlighted in Chapter 2 of the "problematising" of an issue, "framing" of an issue and then "discourse analysis". Indeed, this can also be extrapolated to include Africa's focus on development and the support for development with the African Space Policy and Strategy as highlighted Chapter 3 of this research.

4.4 Challenges for African diplomacy in the UNCOPUOS

Based on the main features and building blocks of African solidarity, identity and agency, it can be concluded that African spacefaring nations prefer multilateral collective action in global space governance and in the UNCOPUOS in particular. However, as Aganaba-Jeanty (2016:4) explains, despite the increase in the number of African spacefaring nations and their involvement in space programmes, barriers still exist preventing the meaningful participation of African nations in global outer space governance. Why?

Von Welck (1986) blames the attitude of developed spacefaring nations and their continuing effort to maintain their domination in the outer space arena by controlling "information and knowledge, autonomous space transportation systems, human presence in space and by having a willingness to accept that outer space is an extension of a country's status as a world power" (Von Welck 1986: 202-203). Therefore, the influence and effectiveness of smaller states in space diplomacy depends on how developed spacefaring nations choose to open the opportunities for smaller states by limiting their own control (Burzykowska, 2009, 191). This challenge facing African states in the UNCOPUOS also illustrates the limitations of a pure regime analysis of the global

space regime which, as highlighted in Chapter 2, focuses almost exclusively on dominant role players as regime participants. In the case of the UNCOPUOS regime participants are the USA and Russia, who dominated because they were "responsible for creating and maintaining" the UNCOPUOS. This historical position of dominance still exists today as the USA and its allies continue to play a hegemonic role within the UNCOPUOS.

Furthermore, the system of consensus decision making in the UNCOPUOS, as discussed in Chapter 3, tends to support the actions of developed spacefaring nations. For example, the UNCOPUOS does not debate the issue of space resource exploitation, at the behest of some countries, because this has not significantly matured, even though the USA and Luxemburg (the latter a major funder and source of expertise in space resource exploitation), have already developed national legislation to support their local industries in doing so (UNOOSA 2019: 4-7). Interestingly, concepts such as consensus, can be seen as an illustration of constructivist approaches and tendencies, however, in the above case, consensus within the UNCOPUOS is also used by the major powers to maintain hegemonic leadership within regime theory, as highlighted in Chapter 2.

Practical challenges also relate to the inability of many diplomats to function effectively in the multilateral environment of the UNCOPUOS. This is a direct correlation to the need for the development of space (science diplomacy) addressed in Chapter 2. As illustrated in Chapter 3, the UNCOPUOS comprises the main body, but also the STSC and the LSC with their specialised working groups[37] where the discussion and negotiation around specific issues take place (UNOOSA n.d.). Therefore, negotiating fields within the UNCOPUOS are uneven due to the highly technical nature of the subject

[37] A full list of working groups under the UNCOPUOS are: Committee on the Peaceful Uses of Outer Space: Working Group on the "Space2030" Agenda; Scientific and Technical Subcommittee: Working Group on Space and Global Health, Working Group of The Whole, Working Group on the Use of Nuclear Power Sources in Outer Space, Working Group on the Long-Term Sustainability of Outer Space Activities (Mandate Concluded). Legal Subcommittee: Working Group on the Status and Application of the Five United Nations Treaties on Outer Space, Working Group on the Definition and Delimitation of Outer Space (UNOOSA: n.d.)

(outer space), both in terms of science and technology debates and also from a legal perspective. Many developing countries, including those from Africa, are often unable to realistically support their negotiators with technical expertise, or even to attend all the meetings. This reality is postulated by Spies (2018: 213) where she explains that situations such as this leaves diplomats "ill-equipped to deal with technical aspects of negotiations". This is reinforced by Burzykowska (2009), who refers to the need to support career diplomats, (such as those in Vienna), who are mostly concerned with broad strategic political or administrative issues, by appointing specialists who can help navigate the complex world of science and technology (Burzykowska 2009: 192).

These challenges illustrate the practical problems of diplomacy at the UNCOPUOS and is a manifestation of the argument of Spies (2018) that "less developed states have limited diplomatic capacity and often do not have enough staff to populate the range of committees that operate simultaneously" (Spies 2018b: 12). This position is supported by Mushelenga and Van Wyk (2017: 131-136) who confirm that small states experience a lack of resources which impacts negatively on their effectiveness and negotiation capacity. These challenges include a scarcity of human and financial resources and insufficient national public debates to inform delegates positions on issues. Furthermore, these limitations can create the danger of "foreign intervention in agenda setting" (Spies: 2018b 213) and the alignment of emerging (African) countries with large and middle powers "in order to survive politically and economically" (Mushelenga and Van Wyk (2017: 131-136).

Taking the above into account, the argument is thus made that space and science diplomacy as niche avenues for diplomatic practice (again as highlighted in Chapter 2) have not transformed the traditional diplomatic practices conducted by African countries within the UNCOPUOS. One could therefore argue that this weakness of African states in the UNCOPUOS is symptomatic of the broader need to reform diplomacy and the way it is conducted in Africa.

Moreover, the physical representation of African states within the UNCOPUOS is challenged by the dual role of diplomats, mentioned by Spies (2018b) and put forward by Paul Sharp where he explains that within the realm of multilateral diplomacy, diplomats represent their countries at international organisations, but also in turn represent the decisions and norms developed at these bodies back to their respective states (Spies 2018b: 211). How this transpires within the UNCOPUOS and in relation to the African states represented would be very difficult to ascertain and is not within the remit of this research. However, it is important to acknowledge the impact of this challenge, particularly because the majority of African diplomats serving in Vienna and indeed in other multilateral institutions, report to foreign ministries which are not responsible for space affairs.

Chapter 3 also confirmed that the UNCOPUOS is required to provide effective leadership and long-term stability while simultaneously creating the opportunity for new members to gain governance experience. These requirements has a knock-on impact on African spacefaring nations because emerging spacefaring nations "have limited regulatory experience and capacity in the space domain" (Martinez et al. 2018: 30).

This research has shown that the outer space domain has become a more complex and dynamic arena in which African countries find it increasingly challenging and costly to play an active role in this arena. However, as indicated in the 2017 report of the Satellite Industry Association, 59 countries operate (either individually or in consortia) 1 459 satellites with an approximate value of USD 260.5 billion (Satellite Industry Association 2017: 8-9). Given the fore mentioned facts, one can expect this number to increase exponentially due to technologies increasingly contributing towards the rapid development of mini-, micro- and nano-satellites. Moreover, the demand for, extension and deepening of space applications in terms of communication, remote sensing and navigation satellites have accelerated the commercialisation of space technology,

thereby lowering costs associated with the development of space assets, thus making these more accessible to new emerging spacefaring nations (Peter 2016: 146; Martinez et al. 2014: 91).

As highlighted in Chapter 2, regarding the governance of outer space, prominence has been given to the full spectrum of UN space treaties and principles adopted by the UNGA, including the so-called benefits declaration (Dennerley 2016: 27). However, how co-operation within these treaties are implemented is often the result of a subjective interpretation (Von Welk (1986: 1-2). The reason for this is that economic and political investments in space are huge and developed spacefaring nations are more aggressively driving their agendas to ensure that their interests are reflected in developing regulations and principles to govern outer space (Dennerley. 2016: 27). This consequently, contributes to a situation, where "developing countries, as well as small and medium space powers, while recognizing the importance of space to their national priorities do not have the ability to influence what happens in outer space, as compared to large spacefaring nations such as Russia, China and the United States" (Pace 2016: 25).

4.5 Development of an African agency in the UNCOPUOS

This research reflects on Africa's role, status and position, within the UNCOPUOS, which consequently, necessitates a focus on both the traditional drivers of a space policy and the priorities of spacefaring nations. Gibbs (2009), analyses what drives major spacefaring nations and identifies the following 6 common factors: "knowledge and understanding, economic growth in terms of job creation and new markets, national prestige, security and defence considerations, international cooperation, promotion of education and workforce development, leadership and utilisation of space applications for example, Earth Observations for sustainable development" (Gibbs 2009: 283-284; Petroni and Bianchi 2016: 1).

Yet, when applied to African spacefaring nations, these drivers should be narrowed down, especially when linked to the constructivists' focus on "idea", "beliefs" and what informs a "shared understanding between them" as highlighted and discussed by Jackson and Sorenson (2007: 162) in Chapter 2. As highlighted previously, African spacefaring nations are relatively new entrants to the space environment and they are driven by their own socio-economic priorities, as articulated in the UN Sustainable Development Goals and the development objectives set out in the Africa Agenda 2063 of the AU. In addition, even though the aspirations of emerging African spacefaring nations may in essence be similar to those of developed spacefaring nations, they are severely constrained by diplomatic experience, costs and capacity (scientists, engineers etc.).

4.6 Importance of cooperation developed through a regional approach

As explained, African spacefaring nations turned towards multilateral cooperation to achieve their programmes, both related to policy development and with respect to scientific and technological objectives, which, as illustrated in Chapter 2, are results of the need to, based on ideas and beliefs, develop a constructivist focus of a shared understanding. Peter (2016: 146) argues that states ostensibly cooperate to promote their self-interest, however, these self-interests can be assimilated and consequently reflected in in the pursuit of a common objective. Peter (2016) also states that the benefits derived from cooperation, including improving capability and capacity, sharing costs (affordability) and building common interests, define the scope of a nation's space policy (Peter 2016: 145). It is also important to recognise that cooperation is not static and needs to be dynamic to allow change and adaption and cooperation is based on "reciprocity or mutual acceptability" (Peter 2016: 146 and Dennerley 2016: 27). Consequently, there is no one-size-fits-all in terms of determinants for African countries participating in outer space policy development and equally in terms of acting as a driver

towards developing agency within the UNCOPUOS. The fore mentioned elements postulated by Peter (2016) and Dennerley (2016) illustrate the constructivist approach which holds that "the structures of interaction are determined by shared ideas" Stanton (2002: 4) and that agency and structure are mutually constituted, which implies that structures and agency influence each other (Theys 2017: 2-3).

However, it is clear that African countries cannot stand alone in space activities and this necessitates a dialogue between current and future space role players, in order to address challenges and promote the development of the African continents space agenda (Remus 2009: 63-64).

4.7 Space Policy and Strategy

As explained in Chapter 3, cooperation is a fundamental principle underlying regime theory and of space law and practice as explained in Article I of the Outer Space Treaty. The importance of cooperation to Africa is explained in the 'Benefits Declaration' which highlights that "States are free to determine all aspects of their cooperation….on an equitable basis and that spacefaring states should empower non-spacefaring states to access and utilise outer space" (United Nations 2017b: 66-67). As explained in Chapter 3 the 'Benefits Declaration' articulates the norms and principles underlying development, as important for developing, and consequently, African spacefaring nations. Based on this, Dennerley (2016) also argues that "it is important for emerging spacefaring nations to take initiatives of their own accord regarding their own space activities" (Dennerley 2016: 28).

Developing agency, an African voice and presence based on mutual needs and solidarity in global space governance, in essence denoted by the need for the development of an African space regime, is also supported by the normative approach of social constructivism. The proposed African Space Agency, put forward in the African

space policy and strategy, will promote a collective African voice. Cooperation on the continent takes place a functional level, mostly on an inter-space agency level where the relations are focused on the promotion of science and technology and not developing policy on a multilateral level. However, as previously highlighted, Africa's participation in the policy debate on outer space governance is essentially left to government negotiators within the UNCOPUOS. The need to strengthen African agency in the UNCOPUOS demands that African spacefaring nations move out and beyond technical discussions on the continent to focus on influencing international norm setting and debate.

Indeed, this is underscored by Aganaba-Jeanty (2016) who states that in the African context, regional cooperation should be pursued because it would enable role players to follow a more closely aligned approach which would in turn provide for cost sharing and pooling of resources , "as well as increase influence and prestige on a global stage" (Aganaba-Jeanty 2016: 2). She argues that "this action could pave the way for an evolution in the establishment of general (political) principles, allowing all actors to think more coherently and systematically about cooperation in Outer Space…" (Aganaba-Jeanty 2016: 2).

4.8 Africa's interaction with Outer Space Treaties and Resolutions

Regarding Africa's implementation of the five UN space treaties, Van Wyk (2008), highlights a concerning trend namely that very few African countries have ratified these Treaties, as well as enacted domestic space legislation. This trend excludes Africa from meaningful participation in outer space governance, "irrespective of their space activities" (Van Wyk 2008: 25-26). Various reasons for non-compliance with treaty obligations are postulated, such as the absence of relevant institutions driving the process of ratification and existing institutions not ensuring implementation of the obligations, either due to insufficient capacity or political will (Van Wyk 2008: 21-22.)

4.9 African Space Policy and Strategy

As argued in Chapter 3, the involvement of African states in the UNCOPUOS is explained in two important documents, the African Space Policy and the African Space Strategy. These documents directly impact on the norms carried forward by Africa into the UNCOPUOS and must be seen as fundamental to the constructivist theoretical underpinning of the development of an African agency in the UNCOPUOS.

The importance of the African Space Policy and Strategy, as norm and principle initiators for African agency, have also often been referred to in recent statements made by the Africa Group to the UNCOPUOS during 2017 and 2018[38]. These can be identified as follows:

- **"**The Africa Group at the UN attaches great importance to the work of the UNCOPUOS due to its importance in enhancing international cooperation in the peaceful uses of outer space and its benefit to all nations" (UNOOSA Audio: 2016; UNOOSA Audio: 2017).

- "International cooperation in space exploration and the use of space technology applications to meet global development goals remains significant for the African Continent (UNOOSA Audio: 2017)" and towards realizing the 2030 Agenda for Sustainable Development (UNOOSA Audio: 2016).

[38] The information obtained was extracted from audio records of proceedings available on the UNOOSA Web sites. These speeches were made at the UNCOPUOS during the 2016 and 2017 plenary sessions by the representatives of the Africa Group. For reference purposes these are listed in the bibliography as UNOOSA Audio (2016) and UNOOSA Audio (2017).

- "The potential of space applications should be equally beneficial to all Member States regardless of their level of socio-economic or scientific development." (UNOOSA Audio: 2016).

- "The African Group is of the view that the benefits of outer space are not just dependent on countries having a space programme, but are cross cutting in terms of disaster management, agriculture, health, education and sustainable development" (UNOOSA Audio: 2017).

- "The African Union Space Programme and Strategy will generate new impetus across Africa and significantly increase the participation of African States in space activities. The adoption of the African Space Policy and Strategy in 2016, remains an important policy framework towards the realisation of an African Outer Space Programme within the framework of African Agenda 2063" (UNOOSA Audio: 2016).

- "The African Group encourages the UNCOPUOS to continue to develop the existing legal framework, where required, including through soft law, taking into account technological development, the expansion of space activities and emergence of new space actors, provided that the principles governing exploration and use of outer space are not undermined" (UNOOSA Audio: 2017).

- "The African Group stresses the importance of the international legal framework that allows equal exploration of outer space base on the principles of non-appropriation and peaceful uses of outer space in conformity with the five United Nations" (UNOOSA Audio: 2017).

- "The proliferation of space debris is a matter of concern for the African Group due to its consequences on the future of exploration and use of outer space. Therefore, the mitigation of space debris and the limitation of their creation

should be among the priorities of the work of the Committee and its subsidiary bodies. It is against this background that challenges related to space activities, in particular space debris, should be addressed in such a way that it will not jeopardise the development of space capabilities of developing countries. In this regard, the Group would like to reiterate its call to all States to consider voluntary implementation of the Space Debris Mitigation Guidelines" (UNOOSA Audio: 2016, UNOOSA Audio: 2017).

- "Special attention should be paid to the use of nuclear power sources in outer space. The potential risks of collisions and accidental re-entry in the earth atmosphere of space objects using nuclear power sources and their consequences should be addressed accordingly. In order to ensure a safe use of nuclear power sources" (UNOOSA Audio: 2016, UNOOSA: Audio: 2017).

- "The Group welcomes the invitation extended by the 54th session of the Scientific and Technical Sub-committee to the African Union Commission as an observer and wishes to underscore the importance of this initiative as a big step towards future permanent observer status for the African Union Commission at the UNCOPUOS" (UNOOSA Audio: 2016).

- "The African Group encourages the Committee and its Legal Sub-Committee to continue their efforts to develop the existing legal framework, where required, including through soft law, taking into account technological development, the expansion of space activities and emergence of new space actors" (UNOOSA Audio: 2016).

These statements illustrate the importance of the African Space Policy and Strategy detailed in Chapter 3 and form the basis for the constructivist development of norms and principles being expressed in the UNCOPUOS by Africa.

4.10 The African Leadership Conference on Space Science and Technology for Sustainable Development

Critical to developing a continental voice was the creation of the ALC on Space Science and Technology, described in detail in Chapter 3. As previously stated, the ALC has, according to Martinez (2012: 33), "come to be regarded as a representative African forum in the global space community" and must become a "must-go-to" conference in Africa for space deliberations. Chapter 3 also explained the importance of the ALC for developing African agency in the UNCOPUOS. This is illustrated by the Mombasa Declaration (developed during the ALC conference in 2011), which underlines inter alia: the importance of the UNCOPUOS for Africa, and the need for Africa to sign and ratify the Space Treaties.

However, the adoption of the 2015 African Space Policy and Strategy created a continental focus on outer space which cannot be ignored. Furthermore, the ALC will have more opportunity to provide inputs once the Space Agency becomes operational. Nevertheless, the challenge of giving the African space policy a political voice still needs addressing, and whether this can and will happen, will need to be the focus of an article on this dissertation, once the African Space Agency becomes established.

4.11 Conclusion

As set out in the research objectives stated in Chapter 1, this research has attempted to first of all assess the contribution of the UNCOPUOS to the peaceful governance of outer space as a global commons. The second objective was to explore how, why and on what basis African states can increase their participation in the UNCOPUOS, the multilateral regime established by the UN to address issues related to the peaceful uses of outer space.

In terms of the first objective, the research has shown that the challenges facing the UNCOPUOS and consequently, all its members, are likely to increase as humanity increasingly impacts on outer space. Increasing science/space diplomacy will be required on the part of developed and emerging spacefaring nations to find equitable solutions for these challenges. Of particular importance is the signing and ratification of outer space treaties which provides the basic legal parameters for the global governance of outer space. Furthermore, soft guidelines and norms, most often implemented on a voluntary basis, provide an important normative platform for multilateral cooperation and the creation of shared global norms of responsible behaviour.

This research has shown that Africa operates most effectively as a collective entity within the UNCOPUOS through the Africa Group, as well as the G77 and China groupings, thereby allowing individual African spacefaring nations to seek partnerships with other developing and emerging spacefaring nations. This supports a main argument in this research concerning the approach of African nations to multilateral diplomacy and the crucial role of the AU as the main vehicle for articulating the needs of Africa and presenting an African identity to the global arena.

The research also found that while it can be relatively easy for developed spacefaring nations to ignore the voice of Africa given the relative size of their current contribution to outer space, what is also clear is that global governance is increasingly being pressured to, on a more equitable basis, include the voice of developing and emerging countries. This similarly holds true for Africa and consequently it is important for Africa to "raise its game" within the UNCOPUOS.

Furthermore, it is easy to subsume that Africa does not participate as effectively in the UNCOPUOS and needs to do more. However, there are unique situations that underscore Africa's perceived lack of participation and these are important to recognise.

Furthermore, within negotiating structures to influence the global governance debate in the UNCOPUOS, the point can be made that Africa's space expertise and technical nuance are vested within its space agencies and do not necessarily permeate across to diplomats who lead the negotiations within the UNCOPUOS. This places Africa at a disadvantage with respect to other developed spacefaring nations who are able to staff their negotiating teams with scientific and technical experts.

The way the UNCOPUOS operates as an organisation in the regime of outer space, as demonstrated in Chapter 2, leaves it open to domination by large major spacefaring nations who use this forum to drive their agendas. However, this research has identified tendencies that will ensure African states ensure meaningful participation in the UNCOPUOS.

Consequently, within the UNCOPUOS there are various norms that hold true and find expression in the African Space Policy and Strategy, which derive their legal persona from the international space treaties. In this regard, Africa first and foremost contends that space is the domain of all countries, both the so-called traditional space practitioners, as well as the current emerging spacefaring nations. Consequently, Africa remains committed to developing space capabilities, through transparency underpinned by a rules-based approach to space law.

It is also recognised that the best way to promote order, safety, security and the sustainability of outer space activities and to preserve outer space as domain for peaceful activities is through international cooperation and dialogue. In this regard Africa should continue to support and engage with international efforts to develop constructivist influenced rules of the road and norms for behaviour in space. In order to achieve these rules and norms, there is no alternative to open and transparent multilateral processes, in which all interested States can participate on an equal basis.

Key to such efforts is the extent to which all states are able to gain access to and benefit from outer space. Africa therefore needs to be engaged at the standards setting table and push for standards that are informed by principles of open access, interoperability and non-discrimination. Being active on these standards and regulatory committees will promote international collaboration and ensure Africa has a hand in the formation of space regulations and standards.

In reviewing Africa's status and role in the UNCOPUOS, there is also the opportunity to develop niche positions on strategies to ensure that broad positions, such as reciprocity and differentiated responsibility, are highlighted. Linked to this is the tenet that emerging spacefaring nations and by implication Africa must "educate and train professionals and governmental officials on the laws relative to outer space" (Dennerley 2016: 51). In this way a legally skilled class of space law experts and diplomats can assist in the development of domestic and international space laws.

In addition, there must be recognition for a more prominent role of science diplomacy involving a variety of role players, such as the future African Space Agency, negotiating a range of issues and accommodating the needs of all of humanity. Space is no longer just a domain for governmental activity and a diversity of actors, are needed in order to supplement general positions, especially in terms of contributing to the technological debate. With the development of the African Space Policy and Strategy and the norms and principles identified within these, and also in decision of the AU to establish a space agency, hopefully this can change.

Many different role players have requested the AU to join the UNCOPUOS. However, this has as yet not yet transpired. Hopefully the new Africa Space Agency will increase Africa's meaningful involvement in the UNCOPUOS. The agency can also act as a conglomerate of African positions on space debris etc. and how these impact on Africa.

Norms and policies drawn up within the African Space Agency could therefore be the rallying point for African diplomats at the UNCOPUOS.

When one reviews the development of humankind since the Wright brothers took their first flight in 1903 to the modern civil aviation industry in terms of technology and governance, a period of 116 years has lapped. Similarly, when one looks at the evolution of space, only 62 years has passed since the first satellite was launched into space in 1957. This represents a period only a little over half as long as the aviation industry. Given the technological developments that could occur over the next 62 years, it is imperative that the governance structure related to the peaceful use of outer space follows a trajectory similar to that of civil aviation. Of vital importance for Africa is that its rightful place and voice within this dynamic environment be a non-negotiable central point.

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