# THE MILITARIZATION & WEAPONIZATION OF OUTER SPACE–FROM PLAYGROUND TO BATTLEGROUND: LEGAL PERSPECTIVES ON THE USE OF FORCE

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## CERTIFICATE OF AUTHORSHIP/ORIGINALITY

I certify that the work in this Thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the Thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the Thesis.

## DISCLOSURE STATEMENT

This Thesis developed from a prior publication, Jackson Maogoto, "The Military Ascent into Space: From Playground to Battleground: The New Uncertain Game in the Heavens", *Netherland International Law Review,* (2005), 461-488. Select passages from that publication appear in the Thesis. Where passages or sentences from the Article do appear full acknowledgment is made via footnote referencing.

Signed

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Jackson Nyamuya Maogoto

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This Thesis is dedicated to my parents; Mary S G Maogoto my mother and the person who first taught me how to read and write and has through the years been a constant pillar of support and motivation; My late father R Jackson Nyamuya Maogoto Sr. who instilled in me the virtue that the search to know constitutes one of the highest values in society.

# TABLE OF CONTENTS

# TABLE OF ACRONYMS

| | |
|---|---|
| *ABM* | Anti–Ballistic Missile |
| *ABM Treaty* | Treaty on the Limitation of Anti–Ballistic Missile Systems |
| *AEC* | Atomic Energy Commission |
| *ASAT* | Anti–Satellite |
| *BMD* | Ballistic Missile Defence |
| *CAV* | Combat Aero Vehicle |
| *COPUOS* | Committee on the Peaceful Uses of Outer Space |
| *CVBG* | Carrier Battle Group |
| *DoD* | United States Department of Defense |
| *EELV* | Evolved Expendable Launch Vehicle |
| *EMP* | Electro–Magnetic Pulse |
| *EU* | European Union |
| *GPS* | Global Positioning System |
| *ICAO* | International Civil Aviation Organization |
| *ICBM* | Inter–Continental Ballistic Missile |
| *INMARSAT* | International Mobile Satellite Organization |
| *MAD* | Mutual Assured Destruction |
| *MIRVs* | Multiple Independently Targetable Re-entry Vehicles |
| *NASA* | National Aeronautical and Space Agency |
| *NCA* | National Command Authorities |
| *NMD* | National Missile Defence |
| *NSDD 42* | National Security Decision Directive No 42 |
| *NSPD 1* | National Space Policy Directive No 1 |
| *OOTW* | Operations Other Than War |
| *PLA* | People's Liberation Army |
| *SALT I* | Strategic Arms Limitation Talks Agreement I |
| *SALT II* | Strategic Arms Limitation Talks Agreement II |
| *SDI* | Strategic Defense Initiative |
| *SOV* | Space Operated Vehicle |
| *START I* | Strategic Arms Reduction Treaty I |
| *START II* | Strategic Arms Reduction Treaty II |
| *TMD* | Theatre Missile Defence |
| *UAV* | Unmanned Aerial Vehicle |
| *UN* | United Nations |
| *UN Charter* | Charter of the United Nations |
| *UNIDIR* | United Nations Institute for Disarmament Research |
| *UNISPACE 82* | United Nations Conference on the Exploration and Peaceful Uses of Outer Space |
| *US* | United States |
| *USAF* | United States Air Force |
| *USSPACECOM* | United States Space Command |
| *WMDs* | Weapons of Mass Destruction |

# ABSTRACT

The Thesis carries out a critical analysis of the militarization and weaponization of space and its intersection with the international legal regime. It juxtaposes technological advances with the tenets of the United Nations Charter and analyses technological breakthroughs in the weaponization of space against the landscape of the 'peaceful purposes' mantra that underpins the Space Law regime. It highlights the fact that the international arena now has a new game in the making for which it is in many ways ill equipped to handle with dual purpose technology having capabilities for both defensive and offensive purposes. The Thesis consolidates and critiques the initiatives of space faring nations in their endeavours to develop integrated battle platforms through the co–option of space–based sensors, space and missile tracking and deployment of hypervelocity kinetic weapons in outer space.

At the heart of the Thesis is the argument that there is a need to develop and enshrine new principles in order to plug the lacunae in the current regime on the use of force to enhance its capacity to govern the means and methods of space warfare, or at the very least to clarify to what extent the tenets of general international law apply directly to outer space. This will allow the international community to deal with a phenomenon which has quickly moved from fantasy to reality. The Thesis pushes the frontier of current literature by asserting that contemporary technological and engineering breakthroughs make it evident that at the very least there is a need to re-conceptualise and revise the existing Space Law regime, but more importantly a need to develop a new legal framework to specifically address the gathering momentum towards the weaponization of outer space.

# INTRODUCTION

> It is axiomatic to military commanders that possession of the high ground usually means the difference between victory and defeat. Although the high ground remains important to military tacticians, technology advances have changed it's venue. Initially, the high ground was converted from the terra firma to the skies above. Now, and for the foreseeable future, the ultimate high ground has been converted from the skies above to the outer space beyond.
>
> Major Douglas Anderson (1995)[1]
>
> Some people don't want to hear this, and it sure isn't in vogue, but–absolutely—we're going to fight in space. We're going to fight from space, and we're going to fight into space. That's why the U.S. has development programs in directed energy and hit–to–kill mechanisms.
>
> General Joseph W Ashy, Former Commander of the US Space Command (1996)[2]
>
> Though armed conflicts apparently have not occurred in space to date, the rudimentary means for engaging in such conflicts now exist. As each armed conflict since Vietnam makes greater use of space assets, it is undoubtedly only a matter of time before a future conflict witnesses the application of force both from and within the space environment.
>
> Major Robert Ramey (2000)[3]

The race to conquer space commenced in the 1950s with the United States ('US') and the Union of Soviet Socialist Republics ('Soviet Union') engaging in a series of initiatives that included satellites launches, manned spacecraft and nuclear detonations.[4] On 3 October 1957, history was forever changed with the launch of Sputnik I—the first artificial satellite—by the Soviet Union, shortly followed by successful nuclear detonations in space by the US.[5] However, it was the successful Sputnik launch that changed everything. As a technical achievement, Sputnik caught the world's attention and the US off-guard. Then the Soviets struck again four week later with the launch of Sputnik II. Three months later, the US caught up with the Soviets with the launch on 31 January 1958 of Explorer I. Later in the year, the US determined to stay competitively in the 'space game' established a dedicated space agency, the National Aeronautics and Space

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[1] Major Douglas Anderson, 'A Military Look into Space: The Ultimate High Ground' (1995) (November) *Army Lawyer* 19.

[2] Scott Ladermann, *The American Militarization of Outer Space* (2001) Minnesota Daily <http://www.mndaily.com/daily/2001/01/30/editorial_opinions/o0130/> at 28 March 2006.

[3] Major Robert Ramey, 'Armed Conflict on the Final Frontier: The Law of War in Space' (2000) 48 *Air Force Law Review* 1, 156.

[4] Jackson Nyamuya Maogoto, 'The Military Ascent into Space: From Playground to Battleground: The New Uncertain Game in the Heavens' (2005) 52 *Netherlands International Law Review* 461, 462.

[5] Ibid. See also Myres McDougal, Harold Lasswell and Ivan Vlasic, *Law and Public Order in Space* (1963) 389.

Administration (NASA). Against the backdrop of these developments, in 1957 the United Nations ('UN') General Assembly passed Resolution 1148 which declared that 'the sending of objects through outer space shall be exclusively for peaceful and scientific purposes.'[6] The following year, UN General Assembly Resolution 1348 reaffirmed and reiterated the tenor of Resolution 1148 that the common aim of humankind was that outer space was to be used 'for peaceful purposes only.'[7]

Leading by example, the US passed the 1958 National Aeronautics and Space Act.[8] In line with general international sentiment on the necessity of the use of space for 'peaceful purposes', the Act asserted that 'activities in space should be devoted to peaceful purposes for the benefit of all mankind'.[9] The Act established the 'foundation for United States policy in the development of international Space Law and serve[d] as a parallel to the international policies established through the United Nations'.[10] Although the US Congress adopted the 'peaceful purposes for the benefit of all mankind' standard for space activities and placed these activities under the auspices of the National Aeronautical and Space Agency ('NASA'), Congress also carved out a national defence exception to permit certain military activities.[11]

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[6] *Regulation, Limitation and Balanced Reduction of All Armed Forces and All Armaments; Conclusion of an International Convention (Treaty) on the Reduction of Armaments and the Prohibition of Atomic, Hydrogen and Other Weapons of Mass Destruction*, GA Res 1148, UN GAOR, 12th sess, 716th plen mtg, UN Doc A/RES/1148 (1957).

[7] Ivan Vlasic, 'The Legal Aspects of Peaceful and Non–Peaceful Uses of Outer Space' in Bhupendra Jasani (ed), *Peaceful and Non–Peaceful Uses of Space: Problems of Definition for the Prevention of an Arms Race* (1991) 37, 39.

[8] *National Aeronautics and Space Act*, 42 USC § 2451(a).

[9] *National Aeronautics and Space Act*, 42 USC § 2451(a).

[10] S Neil Hosenball and Richard Reeves, 'A Preface to US Space Laws and Policies' in Stephen Gorove (ed), *United States Space Law: National and International Regulation* (1982) vol 1, 17, 20–21.

[11] *National Aeronautics and Space Act*, 42 USC § 2451. The exception, s 102(b), is seemingly at odds with the spirit of the 'peaceful purposes' clause of s 102(a). Section 102(b) states that:

> [A]ctivities peculiar to or primarily associated with the development of weapons systems, military operations, or the defence of the United States (including the research and development necessary to make effective provision for the defence of the United States) shall be the responsibility of, and shall be directed by, the Department of Defence.

In 1961 the Soviet Union launched the first manned spaceflight when it placed Yuri Gagarin into orbit with the US following suit in 1962. This development marked the start of a new dimension in space activities. The military advantages offered by outer space had been hard to resist once the US and Soviet Union succeeded in placing satellites in orbit with manned flights now possible, it became impossible to ignore. Though the earliest satellite programs focused on communications, weather intelligence and navigation aid almost simultaneously and indeed as an outgrowth both the US and Soviet Union began exploring missile warning systems to monitor the launch of Inter–Continental Ballistic Missiles ('ICBMs').[12] It was evident to the two space faring powers that space assets had the capacity to be indispensable to combat operations.[13] This marked the start of a technological race between the US and the Soviet Union with each seeking to assert dominance in, a technological race which would soon metamorphose into an arms race. As the Cold War confrontation between the US and the Soviet Union grew in intensity, the military utility it offered was not lost on the space–faring nations. Research and development of state–of–the–art technology to capitalise on the military utility of outer space was soon underway.

In the 1960s several air–launched Anti-Satellite ('ASAT') systems were tested by the US and Soviet Union as a counter weight to each other's development of strategic air–launched and satellite–dependent ballistic missiles. Early experiments focused on 'hard–kill weapons' involving experimentation in kinetic energy weapons—a form of hypervelocity weapon.[14] In the same period, research also commenced on laser weapons—Directed Energy Weapons capable of

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[12] Curtis Peebles, *High Frontier: The US Air Force and the Military Space Program* (1997) 33.

[13] Ramey, above n 3, 16–7. The international community was quick to note this changing mindset and generate rhetoric that states should use outer space for positive and peaceful purposes in an effort to ensure a pro–active rather than the reactive stance which had dominated atomic weaponry.

[14] The most common version of this was the ASATs designed for use against artificial satellites. These are 'hard kill' weapons that shatter their target through high–speed impact owing to the tremendous speeds at which these objects travel in orbit in low–earth orbit which generate kinetic energy sufficient to obliterate targets: Ivan Vlasic, 'Space Law and the Military Applications of Space Technology' in Nandasiri Jasentuliyana (ed), *Perspectives on International Law* (1995) 397, 398.

disabling satellites.[15] It was clear, at least theoretically then that laser ASATs with the capability to target space assets stood to radically change warfare if ever fielded.[16] The research was to span many decades with tremendous technical problems being gradually resolved. In the meantime, the international community maintained the view that outer space should be used for 'peaceful' purposes. However, the disagreement was whether this meant 'non–military' or 'non–aggressive uses, considering the fact that the then dominant players—the two superpowers—were actively engaged in harnessing the military utility offered by space. While talk of 'peace' increased, so did the military potential of space technology.

By the 1970s, the Soviet Union had succeeded in developing an explosive kill vehicle with the ability to be 'hoisted' into the same orbital plane as a target satellite. In addition, development of electromagnetic and radiation weapons with the capacity to impair electronic circuitry by the creation and/or emission of Electro–Magnetic Pulse ('EMP') was actively underway and yielding exciting results.[17] The US on the other hand was experimenting with 'Microsats'—small non–kinetic devices borne on Space Operated Vehicles ('SOVs') that could be used to disable or disrupt rather than to destroy enemy satellites when released in outer space.[18]

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[15] 'Laser' is an acronym for Light Amplification by Stimulated Emission of Radiation, a device that produces a narrow beam of radiation by means of a physical emission. The intense beams can be used to either physically harm the satellite or simply to 'blind' the satellite sensors. For a concise discussion, see Major William II, *Does the United States Need Space–Based Weapons?* (1999) Maxwell–Gunter Air Force Base <http://www.maxwell.af.mil/au/aul/aupress/CADRE_Papers/PDF_Bin/spacy.pdf> at 23 October 2005, 10.

[16] Ramey, above n 3, 23, 25.

[17] Technological breakthroughs were turning scientific dreams into military utility: Christopher Petras, 'The Use of Force in Response to Cyber–Attack on Commercial Space Systems: Re–examining "Self–Defence" in Outer Space in Light of the Convergence Of US Military and Commercial Space Activities' (2002) 67 *Journal of Air Law and Commerce* 1213, 1224.

[18] Military planners were soon diversifying their vision to encompass development of military space plane technologies and a viable military space plane base Military planners were soon diversifying their vision to encompass development of military space plane technologies and a viable military space plane base These initiatives included Transatmospheric Vehicles, Military Aerospace Vehicles and experimental reusable space planes. For details see *Military Spaceplane* (2005) GlobalSecurity.org <http://www.globalsecurity.org/space/systems/msp.htm> at 9 August 2005; Paul Stares, *The Militarization of Space: US Policy, 1945–1984* (1985) 169, 178–9.

By the mid–seventies, space weaponry had moved from the realm of the superpowers military wish list to reality. This was manifest in the suspicious 'blinding' of three US satellites by an intense beam of radiation emanating from the western part of the Soviet Union in the autumn of 1975.[19] In tandem with this, the Soviet Union renewed its ASATs tests in 1976 triggering an about turn from US leaders from the policy of détente. The imperative in the US was that the continued research and development into ASATs by the Soviet Union should be reciprocated.[20] This accelerated active research into development of electromagnetic and radiation weapons. By the mid-1980s research had advanced to focus on space planes including the experimentations by the US of the 'Refly', a 'reusable weapon delivery platform'—a space plane with the capability to be launched into outer space, release of its conventionally armed ordnances for strikes before returning to Earth after one orbit. Similarly radar and intelligence–gathering aircraft are moving to outer space with the continued refinement of Unmanned Aerial Vehicles ('UAVs') and development of the US Air Force's Evolved Expendable Launch Vehicle ('EELV'), which has the potential capacity to put payloads into low–earth orbit As we progress into the 21st century, space warfare is no longer fiction made in Hollywood but a reality waiting to happen.

Underpinning the Thesis is a critical analysis of the militarization[21] and weaponization[22] of space and its intersection with the international regime. It will

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[19] See Stares, ibid n 17, 35, 169, 178–9; David N Spires, *Beyond Horizons: A Half Century of Air Force Space Leadership* (revised ed, 1998) 38–40.

[20] Stares, ibid.

[21] There is a cleavage between militarization and the weaponization of space. Since the launching of the first military communication satellites into orbit, the realm of space has been militarized. This reality is evidenced by the fact that militaries around the globe rely heavily on satellites for command and control, reconnaissance and monitoring, early warning, and navigation with the Global Positioning System ('GPS').

[22] A 1998 working group of the United Nations Institute for Disarmament Research ('UNIDIR') attempted to define a space weapon as 'a device stationed in outer space (including the moon and other celestial bodies) or in the earth['s] environment designed to destroy, damage or otherwise interfere with the normal functioning of an object or being in the earth['s] environment.' Certain technologies that were created with the capability and intent of degrading or destroying—such as space-based directed energy weapons, space-based kinetic weapons, and certain ASAT technologies—fit the traditional definition of space weapon. This is encapsulated in Canada's crisp definition that: '[A] weapon is space-based if it orbits the earth at least once, or has or will acquire a stable station at some point beyond earth orbit.' See eg Sarah Estabrooks, *Opposing Weapons in Space* (2002) Ploughshares Monitor <http:// www.ploughshares.ca/libraries/monitor/mons02a.html> at 12 August 2006; Bhupendra Jasani,

juxtapose technological advances with the tenets of the United Nations Charter ('UN Charter') and analyse technological breakthroughs in the weaponization of space against the landscape of the 'peaceful purposes' mantra that underpins the Space Law regime. It highlights the fact that the international arena now has a new game in the making for which it is in many ways ill equipped to handle with dual purpose technology having capabilities for both defensive and offensive purposes.[23] The distinguishing feature of this Thesis is that it consolidates and critiques the initiatives of space faring nations in their endeavours to develop integrated battle platforms[24] through the co–option of space–based sensors,[25] space and missile tracking and deployment of hypervelocity kinetic weapons[26] in outer space. By addressing these questions with a robust look at the lacunae inherent in the Space Law regime, the Thesis will make a holistic, novel contribution to developing issues that will become a pressing concern as the 21st century progresses.

At the heart of the Thesis is the argument that there is a need to develop and enshrine new principles in order to plug the lacunae in the current regime on the use of force to enhance its capacity to govern the means and methods of space warfare, or at the very least to clarify to what extent the tenets of general international law apply directly to outer space.[27] This will allow the international community to deal with a phenomenon which has quickly moved from fantasy to reality. The Thesis will push the frontier of current literature by asserting that contemporary technological and engineering breakthroughs make it evident that at

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'Introduction' in Bhupendra Jasani (ed), *Peaceful and Non–Peaceful Uses of Space: Problems of Definition for the Prevention of an Arms Race* (1991) 1, 13.

[23] See Vlasic, above n 14, 394; Bess C M Reijnen, *The United Nations Space Treaties Analyzed* (1992) 102.

[24] As used in the Thesis, this concept encapsulates the combination of land, sea and air forces through the use of space assets notably satellite capabilities to enhance the co–ordination of manpower and facilitation of synergies of firepower. This includes centralisation of the gathering and processing of intelligence (tracking and identifying military objectives including troop movements), transmission and dissemination of orders from central command centres to the war theatre and vice versa and use of GPS Satellites to facilitate troop movements and mark targets.

[25] See Spacy, above n 15, 10.

[26] The most common version of this was the ASAT designed for use against artificial satellites. These are 'hard kill' weapons that shatter their target through high–speed impact owing to the tremendous speeds at which these objects travel in orbit in low–earth orbit which generate kinetic energy sufficient to obliterate targets: Vlasic, above n 14, 397–8.

[27] This is an issue that has been and still is the subject of heated debate.

the very least there is a need to re-conceptualise and revise the existing Space Law regime, but more importantly a need to develop a new legal framework to specifically address the gathering momentum by space powers towards the weaponization of outer space.

Chapter I undertakes an analysis of the Space Law regime and in particular the international instruments that underpin this international legal framework. It commences first by addressing the matter of air and space regimes in order to reinforce the distinct legal nature of these spheres, but more importantly for the purposes of the Thesis to assert that the argument that outer space warfare may be seen as an extension of air to air dog-fighting is untenable and flawed. The Chapter then turns to grapple with the active and contentious debate on the delimitation of outer space. Having addressed these issues that are germane to the Thesis, the Chapter plunges into its central argument, an analysis of the relevant bilateral and multilateral treaties that contain provisions pertinent to the militarization and weaponization of outer space.

The central question addressed in Chapter II is whether the shift to use space as a medium of warfare rather than a medium of scientific endeavours has generated new legal and operational issues. Under discussion is domestic space policy and practical moves to harness space as a combat environment. Under particular focus is the US (which has for decades maintained a steady stream of official directives specifically addressing outer space) and the operationalisation of space as a combat environment. It details the efforts by the international community under the auspices of the UN to curtail an arms race in space by the two main space–faring nations.[28] The chapter observes that the Cold War was an era of contradictions as evidenced by the passage in 1988 of a General Assembly Resolution supporting general and complete disarmament of outer space under effective international control. However with technological and engineering breakthroughs, and in the face of an ascendant and bellicose US, the UN General

[28] This elite club has now been joined by China after its successful launch of a manned space flight on 15 February 2003 and the unveiling of an ambitious space program blueprint that aims to actively harness both civilian and military utilities of outer space.

Assembly felt obliged to identify the legal deficit in the Space Law regime with regard to militarization and weaponization of the outer space environment. The reality noted in this chapter is that despite the Space Law regime being premised on the basic principle of 'peaceful' purposes which at first glance seems to militate against any sort of space militarization or weaponization operations, outer space has the dubious distinction of being the most militarised environment. As a result, there has been tacit, if not explicit, acknowledgment of this reality in light of the fuzzy and malleable interpretations and misinterpretations of the principal legal provisions underpinning the Space Law regime.

Chapter III undertakes a synthesis of the international regime on the use of force. It carries out a *tour de horizon* of the development of the various concepts relating to use of force in the post–UN Charter era. The Chapter covers the collective security regime constructed under the UN which aimed to curb unbridled sovereign excesses very much evident in yester decades and centuries when balance of power was the favoured stance. Through an introduction of the various forms of force, the Chapter sets the stage for subsequent analysis and in particular the controversy over the UN Charter regime on the use of force and its relationship to militarization and weaponization of outer space. Tucked onto this is the genesis of the technological race between the US and Soviet Union with space exploration as a new scientific frontier rapidly degenerating into an arms race. It introduces the feeling of a jittery international community that States should use outer space solely for positive and peaceful purposes, before launching into a detailed analysis of the various space weapons under development as well as a discussion of existing national blueprints on space military dominance and control.

Chapter IV analyses and synthesises issues raised in the Thesis by arguing that there is a serious internal contradiction in the Space Law regime. As space technology develops into more sophisticated areas such as low–earth systems, space planes, and a variety of space–based platforms carrying a variety of weapon systems, the issue of space as a theatre of war is a now a pressing issue that needs

to be addressed. It critiques the 'peaceful purposes' centrepiece of Space Law which does not totally nor technically rule out the military use of outer space or placing of weapons in outer space. It asserts that there is no prohibition of the use of space assets in tactical military operations in which armed force is used. It rounds off with the observation that the Space Law regime yields little information on space warfare and that there is a need to address this lacuna. The core of this Chapter is an incisive discussion of potential avenues and frameworks through which space militarization and in particular weaponization may be addressed and contained.

# CHAPTER I

## THE SPACE LAW REGIME: REGULATING AN EXTRA-TERRESTRIAL WILD WEST

> Control of space will be decided in the next century. If the Soviets control space, they can control earth, as in the past... the nations that controlled the seas dominated the continents.
>
> John F Kennedy (1960)[1]
>
> Even in the vast expanse of space it can be expected, further, that the host of participants who will in the future seek to enjoy the many different potential uses of this great resource will in countless ways, whether deliberately or inadvertently, interfere with each other.
>
> Myres McDougal, Harold Lasswell and Ivan Vlasic (1963)[2]
>
> We will engage terrestrial targets someday—ships, airplanes, land targets—from space. We will engage targets in space, from space.... [The] missions are already assigned, and we've written the concepts of operations.
>
> General Joseph Ashy, USAF (1996)[3]

### 1.1. INTRODUCTION

Space law is 'a newcomer to the family of legal disciplines'.[4] The space regime as it now exists rests upon five principal United Nations treaties on outer space[5] supplemented by a series of bilateral agreements of international significance between the US and the Soviet Union. The five principal treaties evolved from a series of General Assembly resolutions and declarations following the creation by

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[1] Quoted in Major Elek Szkalak, *Military Implications of The Soviet Space Program* (1988) GlobalSecurity.org <http://www.globalsecurity.org/space/library/report/1988/SEJ.htm> at 28 March 2006.

[2] Myres McDougal, Harold Lasswell and Ivan Vlasic, *Law and Public Order in Space* (1963) 514.

[3] Quoted in William Scott, 'USSC Prepares for Future Combat Missions in Space' (1996) 145(6) *Aviation Week and Space Technology* 51.

[4] Major Robert Ramey, 'Armed Conflict on the Final Frontier: The Law of War in Space' (2000) 48 *Air Force Law Review* 1, 64.

[5] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967) ('*Outer Space Treaty*'); *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space*, opened for signature 22 April 1968, 672 UNTS 119 (entered into force 3 December 1968); *Convention on International Liability for Damage Caused by Space Objects*, opened for signature 29 March 1972, 961 UNTS 187 (entered into force 1 September 1972); *Convention on Registration of Objects Launched into Outer Space*, opened for signature 14 January 1975, 1023 UNTS 15 (entered into force 15 September 1976); *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, opened for signature 18 December 1979, 1363 UNTS 21 (entered into force 11 July 1984) ('*Moon Agreement*').

the UN General Assembly of the Committee on the Peaceful Uses of Outer Space ('COPUOS') to study problems of governing outer space.[6]

The development of a legal regime to govern space was kick–started in 1963 with the adoption of the Declaration of Legal Principles Governing State Activity in the Exploration and Use of Outer Space by the UN General Assembly.[7] It was the 'first significant step in the development of space law'.[8] In the same year that the Declaration on Legal Principles was adopted, the Treaty Banning Nuclear Weapons in the Atmosphere, In Outer Space and Under Water[9] entered into force to address the contested and controversial issue of nuclear detonations in space.[10]

With the space race continuing in earnest and the new regime covered by rudimentary rules, in 1967, the considerable authority of the pronouncements of the Declaration of Legal Principles were cemented in law with the adoption of the Outer Space Treaty.[11] This treaty, referred to as 'the constitution of outer space'[12] represents 'the primary basis for legal order in the space environment'.[13] Drawn principally from three previous United Nations General Assembly Resolutions,[14]

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[6] *Question of the Peaceful Use of Outer Space*, GA Res 1348, UN GAOR, 13th sess, 792nd plen mtg, UN Doc A/RES/1348 (1958). For an examination of COPUOS' working procedures, see Michel Bourély, 'The Contributions Made by International Organizations to the Formation of Space Law' (1982) 10 *Journal of Space Law* 143.

[7] *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,* GA Res 1962, UN GAOR, 18th sess, 1280th plen mtg, UN Doc A/RES/1962 (1963).

[8] Ramey, above n 4, 110.

[9] *Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water*, opened for signature 5 August 1963, 480 UNTS 43 (entered into force 10 October 1963) ('*Limited Test Ban Treaty*').

[10] The declaration primarily aimed to limit nuclear weapons testing but was also a reaction to Soviet pleas that nuclear detonations posed a danger to the safety of its cosmonauts. Though not binding on any State, the Resolution does not read like a traditional resolution. It declares and announces legal principles instead of merely recommending a course of action: Ramey, above n 4, 12–3.

[11] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967).

[12] '[The Outer Space Treaty] represents de facto and de jure the constitution of outer space': Ivan Vlasic, 'Some Thoughts on Negotiating and Drafting Arms Control and Disarmament Agreements Relating to Outer Space' in Nicolas Matte (ed), *Arms Control and Disarmament in Outer Space: Towards a New Order of Survival* (1991) vol 4, 203, 212.

[13] Carl Christol, *The Modern International Law of Outer Space* (1982) 20.

[14] Namely, *International Co–operation in the Peaceful Uses of Outer Space*, GA Res 1802, UN GAOR, 17th sess, 1192nd plen mtg, UN Doc A/RES/1802 (1962); *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,* GA Res 1962, UN GAOR, 18th sess, 1280th plen mtg, UN Doc A/RES/1962 (1963); and *International Co–operation*

the Outer Space Treaty has been termed the 'Magna Carta of outer space law'.[15] In 1972, another milestone was reached with the US and the Soviet Union signing the first SALT (Strategic Arms Limitation Talks) Agreement ('SALT I')[16] and the Anti–Ballistic Missile Treaty ('ABM Treaty').[17] Despite the latter two instruments being bilateral treaties, the fact that they were concluded by the then pioneering and still dominant space powers—the US and Soviet Union—ensured that the legal provisions encapsulated are central to the Space Law regime.

This Chapter undertakes an analysis of the Space Law regime and in particular the international instruments that underpin this international legal framework. It deliberately focuses on four treaties which are particularly pertinent to the central theme of this Thesis—the militarization and weaponization of outer space. This does not in any way sideline other instruments and declarations but rather is a framework that avoids raising the entire body of Space Law when clearly some of the instruments are highly particularistic and not germane to the Thesis' central theme. The Chapter highlights the lacunae in the regime which implicitly or explicitly pave the way for space–faring powers to harness the military utility of outer space.

However before analysis of pertinent treaties, the Chapter commences with a preliminary discussion of the air space and outer space legal regimes and tackles the matter of the delimitation of air space and outer space. The primary reason for this is that some commentators have voiced (albeit in muted) form the position that aviation law can provide a basis for the extrapolation of aviation norms to air space which the author seeks to counter and in particular dispel the notion that combat in space would be an extension of air to air 'dog–fighting'. With regard to

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*in the Peaceful Uses of Outer Space*, GA Res 1963, UN GAOR, 18th sess, 1280th plen mtg, UN Doc A/RES/1963 (1963).

[15] Nandasiri Jasentuliyana, 'The Role of Developing Countries in the Formation of Space Law' (1995) 20(2) *Annals of Air and Space Law* 95, 97.

[16] *Interim Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms*, opened for signature 26 May 1972, US–USSR, 23 UST 3462 (entered into force 3 October 1972) ('*SALT I*').

[17] *Treaty on the Limitation of Anti–Ballistic Missile Systems*, opened for signature 26 May 1972, US–USSR, 23 UST 3462 (entered into force 3 October 1972) ('*ABM Treaty*').

delimitation, this is a much more vibrant and still active debate and it would be simplistic for the Thesis to proceed as though outer space is a given, settled district when clearly it is not.

## 1.2. AIR SPACE LAW VIS-À-VIS OUTER SPACE LAW: TWO DIFFERENT REGIMES, DIFFERENT DYNAMICS

One of the main principles that has evolved is the right to launch satellites or space objects that orbit over the subjacent territory of other sovereign countries without prior permission or authorization. In Space Law this international right is well entrenched both through treaty law and customary principle. The right is encapsulated in treaty form in Articles I and II of the Outer Space Treaty which reflects the consensus that outer space is the 'province of mankind' and not 'subject to national appropriation by claim of sovereignty.'[18] This encapsulation forms the basis of the customary principle. Both the treaty and customary positions are backed by strong state practice and *opinio juris*. This customary law position is evident from the reality that since the first launching of satellites into outer space there have not been any significant objections regarding the right of Earth-orbiting satellites to pass over the territories of other nations without their consent.

However the wide acceptance of the norm in relation to outer space is completely at odds with well recognized and established principles of aviation law. The first paragraph of Article I of the Paris Convention of 1919 reads: 'The contracting parties recognize that each power has complete and exclusive sovereignty over the air space above its territory.'[19] Similarly, the 1944 Chicago Convention on International Aviation, paragraph (1), Article I states: 'The contracting states recognize that every state has complete and exclusive sovereignty over the air

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[18] See *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967); for a discussion of the Treaty, see H G Darwin, 'The Outer Space Treaty' (1967) 42 *British Yearbook of International Law* 278.

[19] *Paris Convention for the Regulation of Aerial Navigation*, opened for signature 13 October 1919, 11 LNTS ('*Paris Convention*').

space above its territory.'[20] This spatial exclusivity has seen military and civilian aircraft frequently shot down for allegedly unauthorized aerial intrusion in the air space of foreign States.[21] Jurisdiction for such conduct stems from the clearly recognized international aviation law principle that countries enjoy exclusive sovereignty and control of the airspace over their territory as embodied in the Paris and Chicago Conventions which are widely adhered to and respected public international aviation law documents that underpin aviation customary law principles.

From a military perspective, there has been some cross over between Space Law and Aviation Law with military roles and missions for space assets developing along lines similar to those of airpower.[22] 'In both cases, intelligence-gathering and support operations came first, followed by each respective medium used as a means of transportation.'[23] However, it is the developments towards harnessing outer space for offensive and defensive combat roles that is alarming. With the dawn of the 21st Century decades of research and development finally herald the evolution of space into a theatre of war at variance with the treaty and customary principles that explicitly state that outer space is 'province of mankind' and use should fall within 'the peaceful purposes' principle.

Many may regard combat in space as an extension of air to air 'dog–fighting', but the velocities involved and the nature of the battlefield itself suggest a different set

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[20] *Chicago Convention on International Civil Aviation*, opened for signature 7 December 1944, 15 UNTS 295 (entered into force 4 April 1947) ('*Chicago Convention*'). See also Bin Cheng, *The Law of International Air Transport* (1962); and David Johnson, *Rights in Air Space* (1965).

[21] The first critical test of the Chicago Convention's strength occurred in 1960, when a United States U-2 reconnaissance aircraft was shot down while flying 20,000 meters over the Soviet Union. The United States, despite intense domestic opposition, did not attempt to justify the flight or protest the subsequent trial of the pilot, Gary Powers. On the 'Powers Incident', see Oliver J Lissitzyn, 'Some Legal Implications of the U–2 and RB–47 Incidents' (1962) 56 *American Journal of International Law* 135; and Quincy Wright, 'Legal Aspects of the U–2 Incident' (1960) 54 *American Journal of International Law* 836. An additional example is the tragedy of Korean Airlines Flight 007, a Korean civilian airliner carrying carried 269 passengers and crew in 1983. The aircraft enroute to Seoul strayed into Soviet airspace violating Soviet airspace over a significant distance. As KAL 007 over flew Soviet territory, the Soviets scrambled military fighter jets to intercept it. At 18:26 GMT, two Su-15s shot down the airliner with a single missile attack. The airliner crashed into the sea about 55 km off Moneron Island, killing all on board.

[22] John M Collins, *Military Space Forces*: *The Next Fifty Years* (1989) 159–60.

[23] Ramey, above n 4, 125.

of dynamics. Major Robert Ramey opines that space combat ought to be viewed sui generis as fundamentally different from combat in terrestrial airspace based on the reality that air combat and space combat 'are fundamentally different types of combat suggesting different doctrinal tenets of power.'[24] This author concurs with Ramey's conclusion that '[w]hile the military use of space has traditionally been viewed as a medium from which to support terrestrial warfare, including air warfare, space as a medium of warfare itself raises entirely different legal and operational issues'.[25] Considering the spatial separation of human combatants from their weaponry and the legal analysis of issues unique to space combat, it is asserted here that space warfare is indeed a stand alone field of combat that is not adequately regulated by the existing international regime on the use of force. It is for this reason that the initiatives by space-faring powers to generate offensive and defensive combat capabilities in space eviscerate the utility of established principles of aviation law.

It is evident from the foregoing that airspace and outer space are different legal regimes and generate different practical dynamics. In any case activities by nations signify a difference between national air space and outer space. The Thesis will be dealing with a number of unresolved or contentious issues as it addresses and focuses on the militarization and weaponization of outer space. In a twist of irony the first source of contention is none other than: What is outer space? It is this unsettled contentious issue that the next section of the Chapter now turns to grapple with.

## 1.3. THE DELIMITATION OF OUTER SPACE: FRAGMENTED OPINION, NO CONSENSUS

Few issues in the field of Space Law have been raised as often or elicited as much diversity of opinion and theorisation as the delimitation of air space and outer

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[24] Ramey, above n 4, 2.

[25] Ibid. According to Ramey, the central questions are: (1) How does the UN Charter square up in relation to dual purpose technology? (2) Are the general principles of international law (*lex generalis*)—including rules of customary law—and the UN Charter applicable to outer space?

space.[26] The matter is put in a much more forceful perspective when one considers that more than five decades after mankind's ascent into space, and against a backdrop the development of a substantial body of Space Law and evolution of many customary principles, there is no broad-based consensus on the demarcation of air space and outer space.

The question of delimitation is particularly important since the legal regimes applicable to both spheres are diametrically opposed. In terms of air space, national sovereignty is total and exclusive.[27] In direct contrast, claims of exclusive national sovereignty in outer space are explicitly prohibited by international agreement.[28] The delimitation of outer space is one that has (and continues to tax) scholars, practitioners as well as the international community.[29] To date this matter still remains unresolved with a slew of theories actively on the table.[30] The various theories relating to Space Law fall broadly in two dominant schools of thought (each of which has several sub-theories tucked into it): the functionalist and spatialist schools. The functionalist approach examines the nature of the activities pursued as a means of definition while the spatialist approach defers to an examination of various atmospheric layers or zones. The section now turns to consider these schools in more detail.

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[26] See Daniel Magraw and Theresa Ketler, 'Law Relating to Outer Space: A Bibliography – Part I' (1985) 19 *International Lawyer* 1391, 1409–10, in which the authors cite twenty–four recent books, reports, and articles concerning proposed definitions of outer space.

[27] The *Paris Convention* of 1919 provided in Article I that '...every Power has complete and exclusive sovereignty over the air space above its territory.' The basic agreement governing post–war civil aviation, namely, the *Chicago Convention* of 1944, reiterates the same principle, in virtually identical language.

[28] The *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967), was concluded under the aegis of the United Nations. Article II provides that '[o]uter space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation or by any other means.'

[29] For lengthy discussion of different possible definitions of outer space, see, inter alia, *The Question of the Definition and/or the Delimitation of Outer Space*, UN Doc A/AC.105/C 2/7 (1970); *The Question of the Definition and/or the Delimitation of Outer Space*, UN Doc A/AC.105/C 2/7 (1977); *Matters relating to the Definition and/or Delimitation of Outer Space and Outer Space Activities, Bearing in Mind inter alia, Questions Related to the Geostationary Orbit*, UN Doc A/AC 105/C.2/L.139 (1983).

[30] Theories range from the no present need theory, the aerodynamic lift theory, the Bogota Declaration view to the *usque ad infinitum* theory and the he national security and effective control theory. For a concise incisive analysis of this various theories see Gbenga Oduntan, 'The Never Ending Dispute: Legal Theories on the Spatial Demarcation Boundary Plane between Airspace and Outer Space' (2003) 1 *Hertfordshire Law Journal* 58, 58–79.

### 1.3.1. The Functionalist School

The basic premise associated with the functionalist approach is predicated on the purpose of the activity conducted in space rather than the physical location of its occurrence leading to a distinction between purely aeronautical activities and astronautical activities.[31] At first glance, the functionalist approach appears to provide a clear and unambiguous standard for determining what is to be considered air space or outer space. However, a functional approach still requires a definition of 'aeronautical activities', in order to differentiate between air space and outer space.[32] This in turn would require defining the purposes of various missions on an ad hoc basis. The author contends that it is the ad hoc, piecemeal nature of this school that hobbles it utility as a legal standard. No firm or certain calibration can be made on the basis of the fluidity of the School's central premise.

### 1.3.2. The Spatialist School

The notion of dividing the atmosphere into layers or zones lies at the heart of the spatialist approach. Considering that this school seems to be more ascendant than the functionalist school, the author will carry out a more detailed enunciation. Spatialist theories include demarcation based on the equation of the upper limit of the atmosphere, the division of the atmosphere into layers, the maximum altitude of an aircraft, the aerodynamic characteristics of flight instrumentalities, the lowest perigee of an orbiting satellite and the Earth's gravitational effects.[33]

Predominant in this school is the aerodynamic lift theory based on the Council of the International Civil Aviation Organization ('ICAO') definition of an aircraft as 'any machine that can derive support in the atmosphere from the reactions of the

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[31] See Nicolas Matte, *Space Activities and Emerging International Law* (1984) 380.
[32] S W Stober, 'L'Espace Extra-Atmospheria: Implications Juridique d'une Discrimination Technique' [1979] *Proceedings of the 21st Colloquium on the Law of Outer Space* 105.
[33] *The Question of the Definition and/or the Delimitation of Outer Space*, UN Doc A/AC.105/C 2/7 and UN Doc A/AC.105/C.2/7 Add 1 (1970).

air other than the reactions of the air against the earth's surface.'[34] The maximum altitude at which a machine can derive support from the reactions of the air is presently estimated at about 35 kilometres by the ICAO Secretariat. This position by ICAO provides the basis of one of the most widely discussed proposals for a demarcation between air space and outer space the so-called 'Von Kármán line'.[35] This line while hostage to technological progress is nonetheless a valuable reference boundary and its utility is bolstered by the fact that the US, a leading space power designates people who travel above an altitude of 80 kilometres as astronauts.

A second basis for demarcation under the spatialist school is based on the lowest perigee of an orbiting satellite. In the present practice, the lowest limit of satellite orbits is approximately at 150–160 kilometres height.[36] Underpinning this approach is the fact that at a certain altitude, the earth's atmosphere is too dense for an artificial satellite to stay in orbit. The lowest perigee approach has the advantages of being in accord with existing practices in orbiting satellites and with the attitudes of countries toward objects in earth orbit. The perigee of a durable satellite orbit may be a fluid measure in light of ongoing improvements in space flight technology.[37] Nonetheless this delimitation offers a robust and relatively stable reference boundary when compared with other positions in a pool of varying and often divergent theories. Importantly this measure is also supported by the conclusion of an extensive and comprehensive survey by Professor Robert F A Goedhart a leading international space scholar. In 1996 after an expansive review and synthesis of the two dominant existing schools and their relevant sub-theories he concluded:

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[34] To accomplish aerial flight, weight equals aerodynamic lift plus centrifugal force. Aerodynamic lift decreases with altitude because of the decreasing density of the air. Beyond zero airlift, centrifugal force takes over.

[35] This approach however involves several difficulties that seem to preclude a uniform and constant boundary including technological and engineering breakthroughs as well as the fluctuation of the atmosphere itself.

[36] Vladimir Kopal, 'What is "Outer Space" in Astronautics and Space Law?' [1967] *Proceedings of the 10th Colloquium on the Law of Outer Space* 275, 277–8.

[37] However, improvements in space flight technology, such as orbiting with continuing rocket thrust, may lower this perigee to 70-75 miles. In any case even now some space projectiles such as the X–15 rocket plane can reach altitudes of up to 75 kilometres, while the KH-9 photographic satellites can maintain a six week orbit at 52 kilometres

> In summary, it might be said that a height between 80 km and 90 km is most appropriate for drawing a legal boundary line between airspace and outer space. The lower and denser part of the atmosphere is as good as homogeneous in its chemical composition, whereas the upper part of it is in more than one respect equivalent to cosmic space, thus differing essentially from the deeper air layers. Luckily enough, this intermediate area which presents itself as a matter of nature happens to coincide with the numerous proposals done in Western literature on international law: most of them are directed at choosing a height between 80 km and 100 km above mean sea level.[38]

### 1.3.3. In Sum

From the foregoing discussion, it is evident that the sound conclusion is that no fully satisfactory answer on delimitation is in sight. However considering that the Thesis grapples with the matter of Outer space, the Thesis will adopt as its working demarcation point a fusion of the aerodynamic and the orbital flight trajectory theories that underpin the spatialist school. In this regard the Thesis adopts a height of 80–100km as the most appropriate demarcation for establishing a legal boundary. This has the practical and theoretical attraction of striking a balance of sorts between ICAO's limit of 35 kilometres as well as the International Law Association's statement in 1968 that a definition of outer space was the space beyond the lowest perigee reached by any satellite placed in orbit before 27 January 1967, the date on which the Outer Space Treaty was opened for signature.[39]

## 1.4. SPACE LAW: PREVAILING LEGAL PARADIGMS ON MILITARIZATION AND WEAPONIZATION

In the previous two sections of this Chapter, the author has addressed the issue of the air space and Space Law regimes as well the issue of the delimitation of outer space. The discussion above has sought to eviscerate the position that there may be a tacit connection between air space and outer space clearly highlighting the legal and practical differences that mark this out as different. It has also addressed the pertinent issue of the delimitation of outer space, canvassed the dominant schools of thought and underlying sub-theories and synthesized a working

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[38] Robert F A Goedhart, 'The Never Ending Dispute: Delimitation of Air Space And Outer Space' in Marietta Benko and Willem de Graaff (eds), *Forum for Air and Space Law* (1996) vol 4, 59–60.
[39] Raymond J Barrett, 'Outer Space and Air Space: The Difficulties in Definition' (1973) 24(1) *Air University Review* 34.

definition for the purposes of the Thesis whilst acknowledging the utility and limitations of this lively but contentious debate. The Chapter now takes an analytical plunge into the core of this Chapter, a sequential discussion of treaties pertinent to the Thesis' central theme.

### 1.4.1. The Limited Test Ban Treaty (1963)

The Limited Test Ban Treaty of 1963[40] prohibits nuclear weapon test explosions and any other nuclear explosions, in the atmosphere, in outer space, or under water, and in environments in which detection is possible outside the territorial limits of the state responsible for the explosion.[41] The object and purpose of the Treaty are set forth in the Preamble, which states the 'principal aim' of the Parties to be:

> the speediest possible achievement of an agreement on general and complete disarmament under strict international control in accordance with the objectives of the United Nations which would put an end to the armaments race and eliminate the incentive to the production and testing of all kinds of weapons, including nuclear weapons...[42]

The Preamble concludes by stating that the intent of the Parties in entering into the Treaty is to seek 'to achieve the discontinuance of all test explosions of nuclear weapons for all time' and 'to put an end to the contamination of man's environment by radioactive substances'.[43] Although the title of the Treaty implies

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[40] *Limited Test Ban Treaty*, opened for signature 5 August 1963, 480 UNTS 43 (entered into force 10 October 1963).

[41] Underground nuclear explosions are permissible if all radioactive debris is kept within the territorial limits of the state under whose jurisdiction or control the explosions are conducted: *Limited Test Ban Treaty*, opened for signature 5 August 1963, 480 UNTS 43, art I(1)(b) (entered into force 10 October 1963).

[42] *Limited Test Ban Treaty*, opened for signature 5 August 1963, 480 UNTS 43, Preamble (entered into force 10 October 1963).

[43] *Limited Test Ban Treaty*, opened for signature 5 August 1963, 480 UNTS 43, art 1 (entered into force 10 October 1963) provides:

> 1. Each of the Parties to this Treaty undertakes to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction or control:
>    (a) in the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas; or
>    (b) in any other environment if such explosion causes radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted. It is understood in this connection that the provisions of this subparagraph are without prejudice to the conclusion of a treaty resulting in the permanent banning of all nuclear test explosions, including all such explosions

that it only bans nuclear weapon tests, Article I broadens this to 'any nuclear weapon test explosion, or any other nuclear explosion' in what amounts to any place (except underground) and under any circumstances. 'On its face, then, the [Limited] Test Ban Treaty appears to ban all nuclear explosions in space, irrespective of their peaceful purposes. Unlike the Outer Space Treaty, the Treaty is not by its terms limited to "weapons" or to the furtherance of "peaceful purposes".'[44] The broad, all–inclusive language in Article I was an effort to circumvent any end–runs around a ban on nuclear weapons; but for this expansive language, some States may have tried to play games with the Treaty by detonating only precursors to or sub–components of nuclear weapons.[45] When read in conjunction with the language from the Preamble, the meaning of the prohibitions in Article I takes on a different slant. The object and purpose of the Treaty are focused on 'disarmament' and the elimination of production and testing of 'all kinds of weapons, including nuclear weapons.'[46]

The prohibition on the use of nuclear–based explosions and propulsion is important. It essentially means that the Treaty bans not only nuclear arms which 'utilize atomic energy in accomplishing their intended purpose, irrespective of their size or destructive force'[47] but also weapons utilising energy forces released through the splitting or union of atoms'.[48] This means that the use of fissile forces to create electromagnetic and radiation weapons with the capacity to impair electronic circuitry by the creation and/or emission of an EMP or radiation are off

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> underground, the conclusion of which, as the Parties have stated in the Preamble to this Treaty, they seek to achieve.
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> 2. Each of the Parties to this Treaty undertakes furthermore to refrain from causing, encouraging, or in any way participating in, the carrying out of any nuclear weapon test explosion, or any other nuclear explosion, anywhere which would take place in any of the environments described, or have the effect referred to, in paragraph 1 of this Article.

[44] Lieutenant Colonel John Kunich, 'Planetary Defense: The Legality of Global Survival' (1997) 41 *Air Force Law Review* 119, 145.
[45] Literally speaking, such devices might not have constituted nuclear weapons, but they certainly would offend the Treaty's purpose of disarmament and elimination of nuclear weapon tests.
[46] *Limited Test Ban Treaty*, opened for signature 5 August 1963, 480 UNTS 43, Preamble (entered into force 10 October 1963).
[47] Stephen Gorove, 'Arms Control Provisions in the Outer Space Treaty: A Scrutinizing Reappraisal' (1973) 3 *Georgia Journal of International and Comparative Law* 114, 115.
[48] Rex Zedalis and Catherine Wade, 'Anti–Satellite Weapons and the Outer Space Treaty of 1967' (1978) 8 *California Western International Law Journal* 454, 466.

the cards. A nuclear explosion creates both and these forces in outer space can effectively neutralise satellites.[49]

A significant issue is whether nuclear detonations under the Treaty are absolutely banned or whether there is a slippage allowing for use in wartime. Professor Egon Schwelb, a leading international jurist, supports the position that the terms of the Treaty do permit use of nuclear weapons. In 1964 he stated that '[i]f [the Outer Space Treaty] had been intended to prohibit the use of nuclear weapons in wartime, some mention of that important purpose would certainly be found in the title and in the Preamble'.[50] This position was reiterated several years later by then US Secretary of State Dean Rusk in a statement to the US Senate. He asserted that the Treaty did not affect the United States' ability to defend itself, noting that Article I (1) 'does not prohibit the use of nuclear weapons in the event of war nor restrict the exercise of the right of self–defense recognized in Article 51 of the Charter of the United Nations'.[51] Support of this observation can be found in the incisive observation by Lieutenant Colonel John C Kunich that:

> [a]lthough the expansive language 'or any other nuclear explosion' would on its face unambiguously ban nuclear explosions during war, even in self–defense or in a retaliatory strike, this has never been accepted as the meaning or legal effect of the Nuclear Test Ban Treaty. Instead, the title and the Preamble focus only on nuclear weapon tests.[52]

In any case, the position on permissibility of use of Nuclear Weapons in certain circumstances is still very much alive in light of the International Court of Justice's indecisive observation regarding the issue in its 1996 Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons.[53]

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[49] EMP is lethal to unprotected circuitry within a very large area, harming satellites several hundred miles from the blast. Beta particles and gamma rays from nuclear explosions may also reduce the functions of space assets as they affect both radio waves and radar waves, important to the functions of satellites.

[50] Egon Schwelb, 'The Nuclear Test Ban Treaty and International Law' (1964) 58 *American Journal of International Law* 642, 644–5.

[51] Bernhard Bechhoefer, 'The Nuclear Test Ban Treaty in Retrospect' (1973) 5 *Case Western Reserve Journal of International Law* 125, 153.

[52] Kunich, above n 44, 147–8.

[53] *Legality of the Threat or Use of Nuclear Weapons (Advisory Opinion)* [1996] ICJ Rep 226, [105]:

### 1.4.2. The Outer Space Treaty (1967)

The major principles governing activities in space are presented in Articles I, II and III of the Outer Space Treaty.[54] Article I states that activities in outer space, including the moon and other celestial bodies, shall be conducted for the benefit of all countries and that outer space shall be part of the heritage of all mankind.[55] It also provides for freedom of scientific investigation in outer space and for international cooperation in such investigation.[56] Article II provides that nations cannot appropriate outer space by claim of sovereignty.[57] Article III provides that States Parties to the Treaty will conduct their activities in space in accordance with international law, the United Nations Charter, and in the interest of international peace, security, cooperation and understanding.[58] Of significance with regard to the use of force is Article III's reference to Article 51 of the UN Charter and in particular its express preservation of the right of States to use space in self–defence. Article IV of the Treaty discusses partial disarmament and peaceful purposes,[59] providing:

> States Parties to the Treaty *undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.* The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. *The establishment of military bases,*

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> It follows from the above–mentioned requirements that the threat or use of nuclear weapons would generally be contrary to the rules of international law applicable in armed conflict, and in particular the principles and rules of humanitarian law;
>
> However, in view of the current state of international law, and of the elements of fact at its disposal, the Court cannot conclude definitively whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self–defence, in which the very survival of a State would be at stake.

[54] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967).
[55] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art I (entered into force 10 October 1967).
[56] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art I (entered into force 10 October 1967).
[57] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art II (entered into force 10 October 1967).
[58] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art III (entered into force 10 October 1967).
[59] In 1966, President Johnson hailed this as 'the most important arms control development since the 1963 treaty banning nuclear testing in the atmosphere, in space and under water': Paul Dembling and Daniel Arons, 'The Evolution of the Outer Space Treaty' (1967) 33 *Journal of Air Law and Commerce* 419, 432.

> *installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited.* The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.[60]

The first paragraph of Article IV does not bar all weapons from the Earth's orbit, from celestial bodies, or from outer space. One commentator has referred to the first paragraph as providing for a program of 'partial disarmament'.[61] The ban on the military uses of outer space and the Earth's orbit is limited to: (1) placing in the Earth's orbit objects carrying nuclear weapons or weapons of mass destruction; (2) stationing in any manner such weapons in outer space; and (3) installing such weapons on celestial bodies. Since this provision does not ban all weapons in space, around the Earth and on celestial bodies, it can be viewed as permitting conventional, non–nuclear weapons in these zones. Strict interpretation of the Treaty may thus leave loopholes which would allow use of nuclear weapons or weapons of mass destruction within the expressed boundaries. It is arguable that, absent a nation's expressed intent to 'place' such weapons in orbit, to 'install' such weapons on a celestial body, or to 'station' such weapons in outer space, no violation of the Treaty occurs.[62]

Authors have argued over whether the use of the adjective 'exclusively' in Article IV is meaningful.[63] The word first appeared in UN General Assembly Resolution 1148 on 14 November 1957, which incorporated a proposal to develop an inspection system to ensure objects launched into space would be 'exclusively for

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[60] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art IV (entered into force 10 October 1967) (emphasis added).

[61] Marko Markoff, 'Disarmament and "Peaceful Purposes" Provisions in the 1967 Outer Space Treaty' (1976) 4 *Journal of Space Law* 3, 4.

[62] Jonathan Halpern, 'Antisatellite Weaponry: The High Road To Destruction' (1985) 3 *Boston University International Law Journal* 167, 181:

> ...whether nuclear weapons or weapons of mass destruction could be orbited around the moon or other celestial body without violating the first paragraph of article IV, whether such weapons are permissible if they do not complete the Earth's orbit, whether for purposes of the first paragraph the moon is considered a celestial body and, if not, whether nuclear weapons and weapons of mass destruction could be installed on the moon.

[63] See G C M Reijnen, 'The Term "Peaceful" In Space Law' [1982] *Proceedings of the 25th Colloquium on the Law of Outer Space* 145, 148. INMARSAT's General Counsel takes the view that the term 'exclusive' adds no meaning to the clause in the INMARSAT Convention.

peaceful and scientific purposes'.[64] It appears, however, that the use of the word 'purpose' in Article IV of the Outer Space Treaty 'brings in the notions of both intent and of consequences; the activity must not be designed to terminate in some use of force contrary to international law'.[65] There is no indication that the Outer Space Treaty drafters intended the term 'purpose' to have any 'special meaning'. Thus, whether or not a 'use' was peaceful depends on its 'purpose'.[66] The term 'exclusive' merely emphasises that outer space is to be used solely for 'peaceful purposes'.

Commentators seek to resolve the uncertainties surrounding the key Outer Space Treaty provisions by viewing the terms of Article IV in light of other provisions of the Treaty and the Treaty's object as expressed in the Preamble. They invoke principles of construction, particularly the principle that a particular treaty provision should be interpreted within the context of the treaty as a whole.[67] Citing the paucity of 'actual interpretive documents on article IV,' they rely heavily on Article 31 of the Vienna Convention on the Law of Treaties.[68] Article 31(1) states: 'A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in light of its object and purpose.'[69]

### 1.4.3. The ABM Treaty and SALT I (1972)

The ABM Treaty[70] was the first non–proliferation treaty negotiated between the US and the Soviet Union during the Cold War. It served as a groundbreaking

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[64] Ivan Vlasic, 'The Legal Aspects of Peaceful and Non–Peaceful Uses of Outer Space' in Bhupendra Jasani (ed), *Peaceful and Non–Peaceful Uses of Space: Problems of Definition for the Prevention of an Arms Race* (1991) 37, 38.
[65] J E S Fawcett, *Outer Space: New Challenges to Law and Policy* (1984) 109. See also Jerome Morenoff, *World Peace through Space Law* (1973) 296.
[66] Isabelle Sourbes and Yves Boyer, 'Technical Aspects of Peaceful and Non–Peaceful Uses of Space' in Bhupendra Jasani (ed), *Peaceful and Non–Peaceful Uses of Space: Problems of Definition for the Prevention of an Arms Race* (1991) 57, 65.
[67] Zedalis and Wade, above n 48, 460.
[68] *Vienna Convention on the Law of Treaties*, opened for signature 23 May 1969, 1155 UNTS 331, art 31(1) (entered into force 27 January 1980).
[69] *Vienna Convention on the Law of Treaties*, opened for signature 23 May 1969, 1155 UNTS 331, art 31(1) (entered into force 27 January 1980).
[70] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462 (entered into force 3 October 1972); *SALT I*, opened for signature 26 May 1972, US–USSR, 23 UST 3462 (entered into force 3 October 1972).

advance towards cooperation between the two superpowers.[71] The Parties' intent is set forth in the Preamble: 'Effective measures to limit anti–ballistic missile systems would be a substantial factor in curbing the race in strategic offensive arms and would lead to a decrease in the risk of outbreak of war involving nuclear weapons...'[72]

The Treaty was created to hem in and contain the nuclear arms race between the United States and the Soviet Union by denying both signatories ballistic missile defence based on a deterrence system underpinned by the threat of retaliation.[73] It prevented the necessity of developing new weapons to defeat existing missile defence systems[74] and was geared to stabilising the relationship between the two countries during the Cold War.[75] The ABM Treaty's purpose was to facilitate reductions in the two superpowers' strategic weapons by ensuring mutual vulnerability to nuclear attack. The theory underlying the ABM Treaty's ability to facilitate reduction in both countries' strategic weapons inventories was known as Mutual Assured Destruction ('MAD').

The Treaty begins by recognising that limiting ABM systems would be a 'substantial factor' in curbing the arms race and would lead to a reduction in the risk of nuclear war. The Treaty then implements the MAD doctrine through two interrelated provisions. Article I prohibits each country from deploying 'ABM systems for a defense of the territory of its country' and from 'provid[ing] a base for such a defense'.[76] The language of this section is unequivocal—neither side

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[71] See Frank Gaffney and John Pike, *Online Q & A: The ABM Treaty* (1999) Online NewsHour <http://www.pbs.org/newshour/bb/military/jan–june99/nmd_qa.html> at 2 February 2006 (stating that the primary purpose of the ABM Treaty was to assist the United States and Russia with cooperative arms control agreements). Owing to its importance as an international restraint on arms proliferation, the ABM Treaty has been proclaimed as the 'cornerstone of nuclear arms control': 'Courting a New Arms Race', *New York Times* (New York), 10 April 1984, 31.

[72] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, Preamble (entered into force 3 October 1972).

[73] Robert Blackwill et al, *Arms Control and the US–Russian Relationship: Problems, Prospects and Prescriptions* (1996) 36–46.

[74] Bob Howard, 'A Frightening Retreat from Arms Leadership', *Sydney Morning Herald* (Sydney), 27 December 2001, 13.

[75] Ibid.

[76] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art I(2) (entered into force 3 October 1972).

may deploy an ABM system that will protect its entire territory, because that violates a fundamental tenet of MAD and would destabilise the nuclear balance. Article II of the Treaty defines the term ABM system:

> 1. For the purpose of this Treaty an ABM system is a system to counter strategic ballistic missiles or their elements in flight trajectory, currently consisting of:
> (a) ABM interceptor missiles, which are interceptor missiles constructed and deployed for an ABM role, or of a type tested in an ABM mode;
> (b) ABM launchers, which are launchers constructed and deployed for launching ABM interceptor missiles; and
> (c) ABM radars, which are radars constructed and deployed for an ABM role, or of a type tested in an ABM mode.
>
> 2. The ABM system components listed in paragraph 1 of this Article include those which are:
> (a) operational;
> (b) under construction;
> (c) undergoing testing;
> (d) undergoing overhaul, repair or conversion; or
> (e) mothballed.[77]

The limitations the ABM Treaty places on ABM systems apply to more than just missiles. It applies to all ABM system components, including systems 'currently' consisting of ABM interceptor missiles, ABM launchers and ABM radars, either 'deployed in an ABM role' or 'tested in an ABM mode'.[78] The ABM Treaty prohibits only the deployment of an ABM system to defend the nation's entire territory. It did not prevent either the US or Soviet Union (now Russia the successor state) from researching, developing, or testing such a system, provided the system is non–mobile and land–based. However, the treaty expressly prohibits *development, testing and deployment of sea–based, air–based, space–based, and mobile land–based ABM systems*.[79]

Similar to the analysis of 'peaceful purpose' under the Outer Space Treaty, the issue of 'rightful intent' is important. The definitional language of Article II of the ABM Treaty clearly implies that intent is important, in that it defines ABM

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[77] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art II (1)–(2) (entered into force 3 October 1972).
[78] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art II(1) (entered into force 3 October 1972). ABM radars include target tracking and missile control radars, but not early warning radars: see 'Report of Secretary of State Rogers' (1972) 67 *Department of State Bulletin* 3, 4.
[79] See *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art V (entered into force 3 October 1972 (emphasis added).

interceptor missiles, launchers, and radars as those 'constructed and deployed for an ABM role'.[80] Therefore, if any of these components were constructed and deployed for a role other than ABM, as an ASAT weapon the Article III prohibition in the ABM Treaty would apply. The Treaty is meant to prohibit the research, development, testing, and deployment[81] of ABM systems other than the very limited exceptions specifically provided for in Article III of the Treaty.

The primary provisions impacting space activity are encapsulated in Articles V and XII. The provisions tacitly recognise the legality of reconnaissance satellites as a means of verifying treaty compliance, and prohibit any 'interference' with their function.[82] These provisions were no surprise since consensus was that positive activities in space included but were not limited to the use of military satellites to monitor the performance of arms–control agreements. For purposes of ascertaining the legality of ASATs under the ABM Treaty, Article V is relevant. As noted above, it *prohibits developing, testing and deploying antiballistic missile systems that are sea–based, air–based, space–based, or mobile land–based.*[83] The issue is whether ASATs constitute ABM systems or components for purposes of the ABM Treaty. Technically speaking, an ASAT is not an ABM. An ASAT is a device that destroys satellites, whereas an ABM is a device that destroys intercontinental ballistic missiles. While both systems consist of destructive devices, each is designed to be target–specific. Although an ABM system could be effective as an ASAT, even at the most advanced stage of development an ASAT could not easily serve as an ABM.

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[80] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art II (1) (entered into force 3 October 1972).
[81] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art II (1)–(2) (entered into force 3 October 1972).
[82] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art XII(1)–(2) (entered into force 3 October 1972); *SALT I*, opened for signature 26 May 1972, US–USSR, 23 UST 3462 art V(1)–(2) (entered into force 3 October 1972).
[83] Article V(1) of the ABM Treaty states:

> Each party undertakes not to develop, test or deploy anti–ballistic missile systems or components which are sea–based, air–based, space–based, or mobile land based.

### 1.4.4. The Moon Agreement (1979)

Article III of the 1979 *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*[84] repeats much of the Outer Space Treaty's Article IV.[85] It states the moon shall be used exclusively for 'peaceful purposes' and prohibits placing nuclear weapons or any other kinds of weapons of mass destruction in the moon's orbit or trajectory. It also forbids establishing military bases, installations or fortifications, testing of weapons or conduct of military maneuvers on the moon, but does allow the use of military personnel for scientific purposes or for any other peaceful purposes. Article III further prohibits the threat or use of force or any other hostile act on the moon, and the use of the moon to commit such an act in relation to the Earth or to manufactured space objects. To some extent the Moon Agreement supplements the Outer Space Treaty, enlarging on some provisions concerning military activities on the moon and other celestial bodies.

Regarding military activity, the Agreement forbids the placement of weapons of mass destruction, including nuclear weapons, on the moon itself, in orbit around the moon, or on trajectories to and around the moon, and on other celestial

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[84] *Moon Agreement*, opened for signature 18 December 1979, 1363 UNTS 21 (entered into force 11 July 1984).

[85] *Moon Agreement*, opened for signature 18 December 1979, 1363 UNTS 21 art III (entered into force 11 July 1984) provides:

1. The moon shall be used by all States Parties exclusively for peaceful purposes.

2. Any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited. It is likewise prohibited to use the moon in order to commit any such act or to engage in any such threat in relation to the earth, the moon, spacecraft, the personnel on spacecraft or man–made space objects.

3. States Parties shall not place in orbit around or other trajectory to or around the moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the moon.

4. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on the moon shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration and use of the moon shall also not be prohibited.

Much of the language is reminiscent of that found in the Outer Space Treaty.

bodies.[86] The Agreement's military provisions do not prohibit the placement of weapons in outer space in general, only weapons of mass destruction. The Agreement's language pertaining to military usage does however largely mirror Article IV of the Outer Space Treaty. Requiring that the use of the moon be 'exclusively for peaceful purposes', the Moon Agreement continues 'any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited'.[87] Though the Moon Agreement reiterates the Outer Space Treaty language of 'peaceful purposes' its drafters did nothing to clarify this ambiguous phrase.

Because it does not place limits on arms in outer space, the Moon Treaty only affects the use of ASATs indirectly. Although used solely for defensive purposes, ASATs must still be considered to be weapons. Therefore, under Article III of the Moon Treaty, testing of ASATs on the moon would not be permitted.[88] If one accepts the argument that 'peaceful purposes' means 'non–military', Article IV of the Outer Space Treaty already prohibits testing ASATs on the moon and other celestial bodies.[89]

This Chapter would be incomplete without dedicating a section to a comprehensive discussion of the 'peaceful purposes' principle. It is readily apparent from the discussion of the Space Law instruments above that this principle is strongly encapsulated in the principal treaties. It is one of the

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[86] *Moon Agreement*, opened for signature 18 December 1979, 1363 UNTS 21 art III (3) (entered into force 11 July 1984). The prohibition on orbiting weapons of mass destruction around the moon was thought to close a gap left by art IV of the Outer Space Treaty. The latter outlawed the orbiting of weapons of mass destruction around the earth, and the installation or stationing of such weapons on celestial bodies or in outer space. Though the prohibition on stationing weapons of mass destruction in outer space could be read to foreclose the lawfulness of orbiting, for example, a nuclear weapon around the moon, the Outer Space Treaty did not specifically forbid orbiting of the moon by nuclear or other weapons of mass destruction. The Moon Agreement did.

[87] *Moon Agreement*, opened for signature 18 December 1979, 1363 UNTS 21 art III (2) (entered into force 11 July 1984).

[88] *Moon Agreement*, opened for signature 18 December 1979, 1363 UNTS 21 art III (entered into force 11 July 1984).

[89] 'Beyond this limitation, it is unclear what other restraints, if any, the Moon Treaty places on ASAT use. For instance, as the language in art III duplicates that of art IV, paragraph one of the Outer Space Treaty, signatories would not be prohibited from placing ASATs in the moon's orbit. This result could have been avoided had the drafters substituted "any weapons" for the original "nuclear weapons or any other kind of weapons of mass destruction"': Halpern, above n 62, 191.

universally recognized customary principles of the Space Law regime but like the treaty provisions, it too has been subjected to a range of interpretations that have exposed its fragility as a legal standard. The next section of this Chapter now turns to analyse this central principle.

## 1.5. THE 'PEACEFUL PURPOSES' PRINCIPLE: UNIVERSALLY BUT CONTESTED IN SUBSTANCE

More than half of all spacecraft presently orbiting the Earth serve military purposes. However the leading space faring powers describe all their space missions as 'peaceful'.[90] The crux of the matter though is that these devices have a dual purpose—offensive and defensive purposes.[91] The great semantic and interpretational battleground is the meaning of the 'peaceful purposes' mantra that underpins the Space Law regime in contradistinction to the 'non–aggressive' spin by the space powers.

The US has, from the very beginning of the Space Age up to the present, maintained the official position that 'peaceful' means 'non–aggressive' and not 'non–military'.[92] Some of the very earliest statements by the US on the international control of space activities appear to support the proposition that outer space should be used exclusively for non-military purposes.[93] A main goal of US space policy during the pre–Outer Space Treaty era was to gain international recognition of the legality of reconnaissance satellites, while simultaneously discouraging military space activities that threatened those assets.[94] 'So it is hardly surprising that the U.S. interpretation of "peaceful" as synonymous with "non–aggressive" reflects and upholds that policy. The definition is a corollary to

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[90] Daniel Goedhuis, 'Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law' (1981) 19 *Columbia Journal of Transnational Law* 213, 226.
[91] *Limited Test Ban Treaty*, opened for signature 5 August 1963, 480 UNTS 43 (entered into force 10 October 1963).
[92] Bin Cheng, 'Definitional Issues in Space Law: the "Peaceful Use" of Outer Space, including the Moon and other Celestial Bodies' (1983) 11 *Journal of Space Law* 89; see also Richard Morgan, 'Military Use of Commercial Communication Satellites: A New Look at the Outer Space Treaty and 'Peaceful Purposes'' (1994) 60 *Journal of Air Law and Commerce* 237, 303–4.
[93] For example, National Security Council Action No 1553 (21 November 1956), quoted in Paul Stares, *The Militarization of Space: US Policy, 1945–1984* (1988) 54.
[94] Vlasic, above n 64, 37.

the meaning of the terms "peace" and "aggression" found in the UN Charter.'[95] By the same token, '[t]he term "peaceful purposes"... was interpreted by the United States to mean...[that] all military uses are permitted and lawful as long as they remain "non–aggressive" as per Article 2(4) of the UN Charter, which prohibits "the threat or use of force".[96]

In contrast, as part of a diplomatic offensive to ban US reconnaissance satellites, the Soviet Union initially took the view that 'peaceful purposes' meant 'non–military', and that all military activities in space were thus prohibited. However, although the Soviets consistently maintained that all of their activities in space were 'peaceful' and 'scientific', the Soviet Union's official line eventually softened as its military satellite programs came into their own. By the spring of 1958 (less than a year after the launch of Sputnik I), the anticipation of the availability of reconnaissance satellites triggered a decisive shift in the Soviets' policy towards the view that space could and should be used for 'peaceful', rather than 'non-military' purposes such that it can be said that the Soviets, at least, acquiesced to the US interpretation.[97]

The United States' position on Article III of the Moon Agreement is that it permits military activities that are not aggressive, that is, those undertaken for 'peaceful purposes'. However, '[t]he reference to peaceful purposes in this Article does not add any clarification to the contradictory interpretations given to the term "peaceful purposes" in the Outer Space Treaty...The Moon Agreement adds little, if anything, to the provisions of the Outer Space Treaty in the realm of military space activities'.[98] The reference to 'any other hostile act or threat of hostile act' suggests that under the Moon Agreement a 'peaceful' use will be a non–hostile use. Perhaps the most significant feature of the Agreement of an enduring character is its articulation of the 'common heritage of mankind' concept. Article

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[95] Christopher Petras, 'The Use Of Force In Response To Cyber–Attack On Commercial Space Systems—Re–examining "Self–Defense" In Outer Space In Light Of The Convergence Of US Military And Commercial Space Activities' (2002) 67 *Journal of Air Law and Commerce* 1213, 1253.
[96] Vlasic, above n 64, 40.
[97] Petras, above n 95, 1254.
[98] Kunich, above n 44, 157–8.

11 begins: 'The moon and its natural resources are the common heritage of mankind.'[99]

> The argument for 'non–aggressive' purposes is that since defensive systems create a deterrent that ultimately promotes peace, only the aggressive use of such systems will threaten their peaceful status. Given that all weapons systems are potential deterrents, this view allows states to assert that deploying arms (nuclear weapons and weapons of mass destruction excluded) on the moon and in its orbit and trajectory constitutes a 'peaceful purpose' use of the moon.[100]

During the Outer Space Conference, '[t]he question of whether to permit military equipment and personnel in space and on celestial bodies sparked a lively debate at the Outer Space Treaty conference. Several delegations, including that of the Soviet Union, initially opposed even the peaceful use of military assets on celestial bodies.[101] The US, however, maintained that 'the use of military personnel and equipment for scientific research or any other peaceful purpose should not be prohibited'[102] because military resources 'played an indispensable role [in space activity] and would continue to be an essential part of future space programmes'.[103] This view was supported by the UK.[104] Ultimately, the Anglo–American view prevailed. The final treaty embodied the understanding that the actual end–use of a piece of equipment used in space is more important than its military origin or potential military capabilities.[105]

Article IV of the Outer Space Treaty provides that outer space shall be 'used exclusively for peaceful purposes'. However, this provision while seemingly clear is also a semantic and interpretational battleground. The impact of its ambiguity

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[99] *Moon Agreement*, opened for signature 18 December 1979, 1363 UNTS 21, art XI (entered into force 11 July 1984).
[100] Halpern, above n 62, 193.
[101] Barry Hurewitz, 'Non–Proliferation and Free Access to Outer Space: The Dual–Use Dilemma of the Outer Space Treaty and the Missile Technology Control Regime' (1994) 9 *High Technology Law Journal* 211, 217.
[102] *Statement of US Ambassador Goldberg*, UN GAOR, COPUOS, Legal Subcomm, 5th sess, 62nd mtg, UN Doc A/AC.105/C.2/SR.62 (1966), reprinted in Nandasiri Jasentuliyana (ed), *Manual of Space Law* (1981) vol 3, 59.
[103] The US delegation favoured liberal allowance of military assets in space for peaceful purposes: see Dembling and Arons, above n 59, 435.
[104] *Statement of US Ambassador Goldberg*, UN GAOR, COPUOS, Legal Subcomm, 5th sess, 62nd mtg, UN Doc A/AC.105/C.2/SR.62 (1966), reprinted in Jasentuliyana, above n 102, vol 3, 63. See Dembling and Arons, above n 59, 435 (the British delegation argued in favor of allowing dual–use equipment on celestial bodies).
[105] Dembling and Arons, above n 59, 435.

becomes clear when once considers the Reagan 'Star Wars' program. It was premised on 'non–peaceful' or 'aggressive' uses but geared for the purpose of defending the United States, a peaceful 'purpose' of self–defence. Therefore 'use' and 'purpose' acquire a strong legal connotation. Thus, the practical effect of Article IV of the Outer Space Treaty is that both military and non–military applications may be deployed for peaceful purposes anywhere in space.[106]

Whether a particular technology is permitted in space depends both upon the intended use of the technology and whether it is to be used in the vacuum of outer space or on the surface of a celestial body such as the moon.[107] The military origin or potential military use of a particular technology is not a factor.[108] Weapons of mass destruction are considered aggressive and are therefore prohibited in space and on celestial bodies.[109] However, non–aggressive military uses of outer space (as opposed to celestial bodies) are not prohibited,[110] meaning military equipment and personnel may be used for peaceful purposes even on the moon and other celestial bodies.[111] One commentator observes that Space Law, including the Limited Test Ban Treaty, Outer Space Treaty, ABM Treaty, and the Moon Agreement, was developed to 'permit, indeed to endorse, the arms race, including the militarization of space'.[112] Supporters of this militarization theory rely on a

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[106] Morenoff, above n 65, 226.
[107] Dembling and Arons, above n 59, 432–5.
[108] Ibid.
[109] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art IV(1) (entered into force 10 October 1967).
[110] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art IV (2) (entered into force 10 October 1967). Although the Outer Space Treaty failed to delineate precisely which 'peaceful purposes' were permissible, 'one might conclude [from the Outer Space Treaty] that any military use of outer space must be restricted to nonaggressive purposes…': Dembling and Arons, above n 59, 434.
[111] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art IV(2) (entered into force 10 October 1967): 'The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall . . . not be prohibited'. See also Hearings Before the Senate Committee on Foreign Relations, 90th cong, 1st sess, 81 (1967) (testimony of Cyrus Vance, Dep Sec of Defense): 'The treaty does not mean that military personnel or equipment will be excluded from space. Only weapons of mass destruction are barred from space.'
[112] Nicolas Matte, 'A Treaty for "Star Peace"' in Nicolas Matte (ed) *Arms Control and Disarmament in Outer Space: Lecture–Seminars Given at the Centre for Research of Air and Space Law* (1987) vol 2, 190.

fundamental axiom of international law: 'If an act is not specifically prohibited, then international law permits it.'[113]

As can be seen from this section on the central customary principle of outer space—peaceful purposes—a wide range of militarization and weaponization activities can be accommodated. Thus despite the use for peaceful purposes centrepiece of the Space Law regime, key provisions readily lend themselves to interpretations that would support many aspects of militarization and weaponization of space. The matter when coupled with the lacunae present in the relevant Space Law treaties outlined means that the regime is open and dependent on what perspective a state adopts since it can readily stretch the elastic nature of the Space Law regime. The legal and practical significance of the lacunae inherent in the Space Law regime will be buttressed further in Chapter III of the Thesis which juxtaposes the extant Space Law regime with the UN Charter regime on the use of force.

## 1.6. CONCLUSION

From the foregoing it is evident that the main body of international Space Law is in multilateral and bilateral treaty form. However alongside the legal provisions encapsulated in the bilateral and multilateral Space Law treaties, customary principles have evolved partly from treaty norms but primarily by analogy with norms drawn from other branches of international law. In establishing an early framework for space activities, lawmakers were able to borrow from existing principles of international law with the cooption of a catena of principles from other international regimes.[114]

The major principles encapsulated in the Space Law treaties are freedom of access to, and use of, outer space; prohibition against national claims to sovereignty in any part of outer space; and a ban on the placing of weapons of mass destruction

[113] Robert Bridge, 'International Law and Military Activities in Outer Space' (1979) 13 *Akron Law Review* 649, 658, 664; Morgan, above n 92, at 299–300.
[114] Matte, above n 31, 175, 176.

anywhere in outer space. Though the legal provisions contained in the various Space Law treaties address the militarization and weaponization of outer space, it is apparent from the analysis above that this provisions were drafted in an era when the placing of weapons in outer space was still largely a dream that the international community thought would never advance into the realm of practical possibility. However as will be apparent in the following Chapter, the single most important issue in the next ten years in arms control and disarmament will be related to outer space.

To wait until the deployment of weaponry in order to address the issue means adopting a reactive stance. For decades space powers were kept at bay by Mother Nature's stubborn resistance to the practicality of deploying weapons in space meaning that there were no credible activities that forced the issue of Space Law forwards. In the 21st century the position is different limiting guardian Mother Nature which stands to be tamed. The next Chapter will bring in sharp focus the initiatives that are contributing to the taming of Mother Nature necessitating a robust re-conceptualization of the Space Law a theme that will resonate in Chapter III and will be confronted and addressed in Chapter IV.

# CHAPTER II

## NEW HEIGHTS OF COMBAT: THE SPACEPOWERS' MILITARY ASCENT INTO SPACE

> Outer space has achieved the dubious distinction of being the most heavily militarised environment accessible to humans. Without satellites, performance of many military missions would become impossible, and performance of others would require large increases in the unit strengths of various US force elements.
>
> Professor Ivan Vlasic (1991)[1]
>
> [I]f there was ever a threat to our national security [in space], the best – the only – way to solve the problem is to take weapons into space.
>
> General Howell M Estes, USAF (1997)[2]
>
> The Pentagon is so sure that whomever controls space will control the Earth and beyond that they are feverishly working to deploy anti–satellite weapons (ASATs) that will enable the US to knock out competitors' 'eyes in the sky' during any future hostilities. As the Space Command says in its slick Vision for 2020 brochure, 'Control of space is the ability to assure access to space, freedom of operations within the space medium, and an ability to deny others the use of space if required'.
>
> Bruce Gagnon (1999)[3]
>
> The mastery of outer space will be a requisite for military victory, with outer space becoming the new commanding heights for combat...lightning attacks and powerful first strikes will be more widely used in the future.
>
> Captain Shen Zhongchang, Chinese People's Liberation Army (2001)[4]

### 2.1. INTRODUCTION

In the early 1980s, then US President Ronald Reagan's Strategic Defence Initiative ('SDI') provided a measure of legitimacy to many ideas that were formerly seen as impossible.[5] Since the announcement by President Reagan of the SDI (popularly

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[1] Ivan A Vlasic, 'The Legal Aspects of Peaceful and Non–Peaceful Uses of Outer Space' in Bhupendra Jasani (ed), *Peaceful and Non–Peaceful Uses of Space: Problems of Definition for the Prevention of an Arms Race* (1991) 37, 51.

[2] William Scott, 'USSC prepares for Future Combat Mission in Space' (1996) 145 *Aviation Week and Space Technology* 51, 55.

[3] Bruce K Gagnon, 'Pyramids to the Heavens: The Coming Battle for Control and Exploitation of Space' (1999) 48(5) *Toward Freedom* 1.

[4] Leonard David, *Pentagon Report: China's Space Warfare Tactics Aimed at US Supremacy* (2003) Space.com <http://www.space.com/news/china_dod_030801.html> at 28 March 2006.

[5] On 23 March 1983, President Reagan announced his decision to 'embark on a program to counter the awesome Soviet missile threat with measures that are defensive': Speech of President Ronald Reagan, *New York Times* (New York), 24 March 1983, A20.

referred to as the 'Star Wars' speech),[6] an arms race in outer space has come to mean something more; the introduction of new, futuristic weapons, including beam, kinetic, electronic, and laser weapons into the space environment as well as SOVs with the capability to launch ordnances. Several decades after man's conquest of space, there has not yet been a case of force used in outer space pitting one nation against another. Nonetheless, given the increasing global reliance on space systems, and increasing militarization and weaponization of outer space, its evolution into a distinct theatre of military operations seems imminent. A harbinger of things to come was flagged by about a decade and half later by the release in 1998 of the United States Space Command ('USSPACECOM') of its Long Range Plan outlining the US military vision for control of space and developing a capacity to project force from space.[7]

The first two mission statements of USSPACECOM's Long Range Plan are pointed: 'space support' and 'force enhancement', meaning the use of space assets to facilitate military operations of combat forces on land, sea, and air. The next two mission statements: 'space control' and 'force application' are more controversial as they suggest the weaponization of space, and are most closely related to combat in a future theatre of military space operations. Overall these four mission areas encapsulate 'space control'. More significant was its sister document issued in 1999 by US Department of Defence ('DoD') which expanded upon, and reinforced themes raised by USSPACECOM's Long Range Plan.[8] Among other space issues, the DoD policy states: 'Purposeful interference with US space systems will be viewed as an infringement on our sovereign rights. The US may take all appropriate self-defense measures, including, if directed by the National Command Authorities ('NCA'), the use of force, to respond to such an infringement on US rights.'[9]

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[6] 'The Stars Spoke on Capitol Hill', *Washington Post* (Washington), 5 May 1988, 2.
[7] United States Space Command, *Long Range Plan: Implementing USSPACECOM Vision for 2020* (1998) 21.
[8] *Department of Defense Directive 3100.10: Space Policy* (1999).
[9] Ibid ¶ 4.2.1.

All indications show a rapidly expanding role for space–based systems in support of military operations. The prospect of a celestial war is no idle scenario. Space warfare is the focus of serious planning as the US military braces for new forms of high–tech combat in the 21st century. This is evident in the US, where the Air Force is increasingly focusing on space—not just on how to operate there, but how to protect operations and attack others in space. The United States Air Force ('USAF') has established a 'space operations directorate' at Air Force headquarters, started a new Space Warfare School and activated two new units: the 76th Space Control Squadron (tasked with fighting in space) and the 527th Space Aggressor Squadron (whose mission is to probe the US military for new vulnerabilities).[10] It is not just the US and Russia (the successor of the Soviet Union) that are currently seeing space warfare as a virtual certainty in the future. The first Gulf War also convinced China's military leadership of the importance of high–tech warfare and the ability of sophisticated space–based command, control, communications, and intelligence systems to link land, sea and air forces.[11]

This Chapter discusses US and Soviet Union and now China (the latest peerless space power after its 2003 manned space flight) space activities. In particular, it focuses on domestic space policy and practical moves to harness space as a combat environment. Ironically it is while the space environment was actively under siege by the space faring powers that the international community under the auspices of the UN sought to curtail an arms race in space. It details the move towards curbing an arms race at the international level which has been foreshadowed at every positive twist and turn by domestic initiatives towards the weaponization of outer space that make hollow the international promise of seeking to curb an arms race in space and thus retaining

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[10] Thomas Ricks, 'Space Is Playing Field for Newest War Game: Air Force Exercise Shows Shift in Focus', *Washington Post* (Washington), 29 January 2001, 1.

[11] Wang Xiaodong, *Special Means of Warfare in the Information Age: Strategic Information Warfare*, Jianchuan Zhishi [Warship Information], 30 June 1999, *in* FBIS–FTS19990727000426 and FBIS–FTS19990727000941; Wang Baocun, *Subduing Enemy Force Without Battle and Informationized Warfare*, Zhongguo Junshi Kexue [China Military Science], 4 May 1999, 60–63 *in* FBIS–FTS19990823000602; James Perry, 'Operation Allied Force: The View from Beijing' (2000) 14(2) *Aerospace Power Journal* 79.

the integrity of the space as a scientific frontier for peaceful purposes. Also discussed is the breakdown of the strategic arms reduction negotiations between the Soviet Union (and then its successor—Russia).

## 2.2. REDEFINITION OF SPACE AS A BATTLEGROUND OVERSHADOWS INTERNATIONAL PEACE EFFORTS (1958–1989)

### 2.2.1. Leaps Backward: The US Leads the Way

The 1958 US National Aeronautics and Space Act (mentioned in the Introduction of Thesis)[12] laid the 'foundation for United States policy in the development of international Space Law and served as a parallel to the international policies established through the United Nations'.[13] In line with general international sentiment on the necessity of the use of space for 'peaceful purposes' the Act asserted that 'activities in space should be devoted to peaceful purposes for the benefit of all mankind'.[14] However the Act contains internal contradictions. Section 102(b) of the Act is seemingly at odds with the spirit of the 'peaceful purposes' clause of s 102(a). Section 102(b) states that:

> [A]ctivities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States) shall be the responsibility of, and shall be directed by, the Department of Defense. . . [15]

Four years later, in 1962, then US Senator Albert Gore emphasised this point before the UN General Assembly. He urged that the 'test of any space activities must not be whether it is military or non–military, but whether or not it is consistent with the United Nations Charter and other obligations of law'.[16] Ironically during this period the international community was actively pursuing initiatives to facilitate the use of

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[12] *National Aeronautics and Space Act* 42 USC § 2451.
[13] S Neil Hosenball and Richard Reeves, 'A Preface to US Space Laws and Policies' in Stephen Gorove (ed), *United States Space Law: National and International Regulation* (1982) vol 1, 17, 20–1.
[14] *National Aeronautics and Space Act* 42 USC § 2451(a).
[15] *National Aeronautics and Space Act* 42 USC § 2451.
[16] It is difficult to reconcile the objective of 'development of weapons systems' and 'military operations' with the goal of using space for 'peaceful purposes for the benefit of all mankind.'

space for peaceful scientific purposes while both superpowers increasingly sought to develop space warfare capabilities.[17] The Soviet Union was first off the blocks with its Almaz Project, which was designed to give them the ability to perform on–orbit inspections of satellites and destroy them if needed. Similar planning in the US took the form of the Blue Gum project.[18] As the Cold War heated up in the 1970s, the policy of détente was mooted by the Richard Nixon administration, marginally easing the arms race between the two superpowers.[19] Underlying détente was the willingness to negotiate with the Soviet Union especially in view of the fact that a determined Soviet military push had seen it pull ahead of the US in long–range missiles and was catching up in submarine–launched missiles and long–range bombers. This brief period of optimism and cooperation resulted in the signing of SALT I and the ABM Treaty.[20]

The Nixon Administration was soon out of office after Nixon fell on his own sword after the Watergate Scandal. His deputy, Gerald Ford ascended to the highest office of the land as the new occupant of the Whitehouse. The US policy toward defence of space systems and, in particular, toward ASATs, began to change during the Ford administration. With the period of détente withering away, a renewed focus on space weaponry took over, leading Ford to sign National Security Decision Memorandum No 345 directing the Department of Defence to develop operational ASAT and EMP capability, while continuing to study arms control options for ASATs.[21]

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[17] 'In the late 1970's and through the 1980's the Soviet Union and the US theorised, designed and in some cases even tested an astonishing variety of bizarre and exotic weaponry designed for warfare in outer space. Systems proposed ranged from measures as simple as ground and space–based anti–missiles to rail guns, space based lasers, orbital mines and other such futuristic weaponry': *Space Warfare* (2006) Wikipedia: The Free Encyclopaedia <http://en.wikipedia.org/wiki/Space_warfare> at 28 March 2006.

[18] Ibid.

[19] Jackson Nyamuya Maogoto, 'The Military Ascent into Space: From Playground to Battleground: The New Uncertain Game in the Heavens' (2005) 52 *Netherlands International Law Review* 461, 464.

[20] Ibid.

[21] *National Security Decision Memorandum No 345: US Anti–Satellite Capabilities* (18 January 1977), as discussed in Paul B Stares, *The Militarization of Space: US Policy, 1945–1984* (1985) 171, 178–9. [NSDM–345] remains classified in full.

> The argument behind the policy [NSDM–345] was both logical and persuasive: the prospect of a United States ASAT capability would serve as a 'bargaining chip' that would provide the Soviet Union with real incentive to negotiate and give the United States leverage once talks began, and, in the event negotiations failed, the United States would acquire the capability to deal with military threats in space.[22]

When Carter stepped into the White House on Ford's departure, he embraced the Ford administration's schizophrenic 'two–track' policy.[23] On 11 May 1978, Carter issued his own space policy through Presidential Directive/NSC–37.[24] The Directive strongly mirrored that of the Ford administration and offered no significant new dimensions.[25] Echoing the Ford administration's basic principle, it noted: 'Purposeful interference with operational space systems shall be viewed as an infringement upon sovereign rights. The US will pursue activities in space in support of its right of self–defense'.[26] The Directive provided that the US would continue to advance the dual goals of international cooperation and national defence. It included the following among the 'basic principles' governing the conduct of the US space program:

> Rejection of any claims to sovereignty over outer space or over celestial bodies, or any portion thereof, and rejection of any limitations on the fundamental right to acquire data from space. The space systems of any nation are national property and have the right of passage through and operations in space without interference. *Purposeful interference with operational space systems shall be viewed as an infringement upon sovereign rights. The United States will pursue activities in space in support of its right of self–defense.*[27]

As the wording of the Presidential Directive indicates, it was geared to be a definite and assertive approach toward national defence of space systems.[28] On one hand, the principles championed peaceful uses of outer space asserting among the United States' commitment to the exploration and use of outer space by all nations for

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[22] Christopher Petras, 'The Use of Force in Response to Cyber–Attack on Commercial Space Systems—Re–examining "Self–Defense" in Outer Space in Light of the Convergence of US Military and Commercial Space Activities' (2002) 67 *Journal of Air Law and Commerce* 1213, 1224.
[23] Maogoto, above n 19, 465.
[24] President Jimmy Carter, *Presidential Directive/NSC–37: National Space Policy* (1978) Federation of American Scientists <http://www.fas.org/spp/military/docops/national/nsc–37.htm> at 28 March 2006.
[25] Maogoto, above n 19, 465.
[26] *Presidential Directive/NSC–37: National Space Policy*, above n 24 (emphasis added).
[27] Ibid.
[28] Petras, above n 22, 1225–6.

peaceful purposes and the centrality of scientific and economic imperatives.[29] On the other hand, though the principles articulating national security undercut the noble rhetoric of 'peaceful purposes'. Significantly belligerent overtones are found in the principles rejecting any limitation on the United States' fundamental right to acquire data from space in support of its right of self–defence as a means of strengthening national security, however this seems to champion hostile military uses of outer space that would act as a deterrence to attack through protection of space assets.[30] In sum, the Presidential Directive contemplated a space policy which included an enhanced military role. Despite the bellicose nature of some of the principles, Jimmy Carter, a dovish moderate carried on with the policy of détente with the commencement of negotiations in 1979 of the second Strategic Arms Limitation Treaty ('SALT II') to complement SALT I signed in 1972 under Nixon.[31]

In 1980 amidst the shadow cast by the Iran Hostage Crisis, Carter lost the presidential election to Ronald Reagan. The following year Reagan officially became the new occupant of the White House. Under Reagan, a significant shift in space policy was to take place. Arms negotiations seemed to have a very bleak future as SALT II was passed unto Ronald Reagan from the Carter administration. Reagan abandoned détente and made no secret of the fact that he considered the Soviet Union to be an, 'evil empire'. Reagan's policy was one of forcefully confronting the Soviet Union, marking a sharp departure from the détente observed by his predecessors.

In 1981, the first year of the Reagan presidency, the new administration initiated a comprehensive space policy review. On 4 July 1982, the results of this review were presented in National Security Decision Directive No 42 ('NSDD 42').[32] Its key

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[29] White House, 'Description of Presidential Directive on National Space Policy' (Press Release, 20 June 1978).
[30] Ibid.
[31] On 18 June 1979, an agreement to limit strategic launchers ('SALT II') was reached in Vienna, and was signed by Carter and then Soviet President Leonid Brezhnev.
[32] *National Security Decision Directive No 42: National Space Policy* (1982) National Aeronautics and Space Administration <http://www.nasa.gov/office/codez/new/policy/nsdd–42.htm> at 8 August 2002.

theme remained that of the previous Ford and Carter administrations—the US considered the space systems of any nation to be national property with the right of passage through space to be without interference. Purposeful interference with space systems would be viewed as infringement upon sovereign rights.[33] The directive went on to order 'the prototype development of space–based weapons systems so that [the US would] be prepared to deploy fully developed and operationally ready systems should their use prove to be in [its] national interest.'[34] The Department of Defence space policy issued a few days later cemented this significant shift in policy. It enshrined the military's intention to develop ASATs capability for the primary purpose of '[deterring] threats to [the] space systems of the United States and its allies'.[35]

> The 'Defense Guidance' directive unabashedly proclaimed that 'the United States would pursue activities in support of its right to self–defense'.[36] It articulated a five–year plan in which space operations would 'add a new dimension to [US] military capabilities'.[37]

On 23 March 1983, Reagan launched the SDI by delivering what became known as 'The Star Wars Speech'. In it he proposed 'using technological advances to develop an effective non–nuclear missile defense program to counter missiles launched by attackers'.[38] He further announced the ambitious military goal of the US to 'embark on a program to counter the awesome Soviet missile threat with measures that are defensive'.[39] The focus of the SDI program was to intercept and destroy strategic ballistic missiles before they reached continental US.[40] The SDI was a system geared

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[33] Ibid.
[34] Report on the 1982 Presidential Directive on National Space Policy, *New York Times* (New York), 27 March 1983, 1.
[35] See Paul Stares, *Space and National Security* (1987) 218; Maogoto, above n 19, 466.
[36] Report on the 1982 Presidential Directive on National Space Policy, above n 31.
[37] Maogoto, above n 19, 466.
[38] Jonathan Halpern, 'Antisatellite Weaponry: The High Road to Destruction' (1995) 3 *Boston University International Law Journal* 167, 175.
[39] Speech of President Ronald Reagan, above n 5.
[40] Ibid.

to use space–based systems to protect the US from attack by strategic nuclear missiles.[41]

> With the SDI in place and the Reagan Administration's militaristic mindset, billions of dollars were splashed on various military projects, mainly innovative technologies to bolster the military might of the US. There was, however, considerable debate over the necessity, feasibility, and cost–effectiveness of such weapons. The huge military expenditure did pay dividends.[42]

In September 1985, however the SDI scored one of its major successes when USAF pilot Major Doug Pearson made military history when he successfully displayed the capabilities of ASATs.[43] Flying an F–15A at one–and–a–half times the speed of sound; he launched a missile which kinetically destroyed a practice target satellite, reducing it to debris.[44] Pearson's feat provided credence as well as a propaganda base for the Reagan administration's 'Star Wars' vision, signalling a new phase in the arms race in outer space.[45] By 1989, the Reagan policy of ASATs and EMP deterrence, and the corresponding goal of developing and deploying an anti–satellite capability were reaffirmed and entrenched as part of US military policy with the introduction of National Space Policy Directive No 1 ('NSPD 1') in 1989 by the George Bush Sr. administration.[46]

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[41] Major Douglas Anderson notes, '[t]he SDI provided a measure of legitimacy to many ideas that were formerly seen as impossible': Major Douglas Anderson, 'A Military Look into Space: The Ultimate High Ground' [1995] (November) *Army Lawyer* 19, 22.

[42] Maogoto, above n 19, 467.

[43] Ibid.

[44] The successful flight provided just the sort of evidence that proponents of the weaponization of space needed. It was evident that a robust, well–funded space program would be able to develop workable technologies: Michel Bourbonnière, 'Law of Armed Conflict (LOAC) and the Neutralisation of Satellites or *Ius in Bello Satellitis*' (2004) 9 *Journal of Conflict and Security Law* 43, 56.

[45] The 'Star Wars' initiative gave the cooling space arms race a renewed boost.

[46] Maogoto, above n 19, 468. The policy is encapsulated in *National Space Policy Directive No 1* (1989) Air War College of the United States Air Force <http://www.au.af.mil/au/awc/awcgate/nspd1.htm> at 28 March 2006. The directive stated, in part:

> The United States will conduct those activities in space that are necessary to national defense. Space activities will contribute to national security objectives by (1) deterring, or if necessary, defending against enemy attack; (2) assuring that forces of hostile nations cannot prevent our own use of space; (3) negating, if necessary, hostile space systems; and (4) enhancing operations of United States and Allied forces.

### 2.2.2. Feeble Steps Forward: Efforts in the United Nations

In the early 1980s as the Reagan administration was turning the heat up with its ambitious space militarization and weaponization vision, the UN was intensifying efforts to address the matter of weaponization of space and head off the space arms race between the two superpowers. Ironically, it was the Soviet Union which introduced a robust plan to prevent an arms race in outer space into the agenda of the thirty–sixth General Assembly in the fall of 1981.[47] It was a bold plan which proposed the conclusion of a Treaty on the Prohibition of the Stationing of Weapons of Any Kind in Outer Space.[48] In response, the General Assembly expressed its view that it 'considered it necessary to take effective steps, by concluding an appropriate international treaty, to prevent the spread of the arms race to outer space'.[49] It also requested that the Conference on Disarmament begin negotiations to achieve agreement on the text of such a treaty.[50] The following year, in its provisional agenda, the General Assembly reaffirmed its view that outer space 'should be used exclusively for peaceful purposes and that it should not become an arena for an arms race'.[51] It went on to link peaceful uses of space with the goal of general and complete disarmament.[52]

In 1982, the United Nations Conference on the Exploration and Peaceful Uses of Outer Space ('UNISPACE 82') convened in Vienna, Austria.[53] UNISPACE 82 was an international initiative seemingly aimed at curtailing efforts to weaponize outer space. The Conference 'was born out of a desire to explore how the worldwide activities in outer space, including international cooperation, could be developed to

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[47] *Draft Treaty on the Prohibition of the Stationing of Weapons of Any Kind in Outer Space*, UN GAOR, 36th sess, UN Doc A/36/192, annex (1981).
[48] Ibid.
[49] Ibid.
[50] *Conclusion of a Treaty on the Prohibition of the Stationing of Weapons of Any Kind in Outer Space*, GA Res 36/99, UN GAOR, 36th sess, 91st plen mtg, UN Doc A/RES/36/99 (1981).
[51] *General Assembly Provisional Agenda*, UN GAOR, 39th sess, UN Doc A/39/100 (1984).
[52] Ibid.
[53] The UN General Assembly designated COPUOS and its Scientific and Technical Subcommittee as the Preparatory Committee and Advisory Committee, respectively, for UNISPACE 82: Ibid.

ensure that the potential benefits from space science, technology and their applications would be truly realized for all countries'.[54] With regard to the military use of outer space, UNISPACE 82 came up with some tangible recommendations. However, its attempts to introduce language banning the testing and deployment of ASATs and guaranteeing the inviolability of all peaceful space activities failed.[55] It did however reaffirm the goal of preventing an arms race in outer space and recommended that the relevant UN bodies give priority to the issue of weapons in space. In relation to military use of outer space, the Conference made a number of recommendations key among which were:

- The extension of an arms race into outer space is a matter of grave concern to the international community, detrimental to humanity and should be prevented.
- The maintenance of peace and security in outer space is of great importance for international peace and security and the prevention of an arms race and hostilities in outer space is essential.[56]

In its report issued at the end of its 1985 session, COPUOS acknowledged the differing viewpoints by Member States as to the extent to which the Committee could engage in substantive work toward the peaceful maintenance of outer space.[57] Some delegations wanted COPUOS to consider specific steps to ensure that the uses of space remained peaceful.[58] Three years later, in 1988 the General Assembly passed a resolution supporting general and complete disarmament under effective international control.[59] Resolution 43/70 stated that *in order for disarmament to take place, outer space must be used for peaceful purposes and must not become an arena for a new arms race.*[60] 'The General Assembly recognized the need to consolidate, reinforce, and enhance the legal regime in outer space, and to provide effective verification

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[54] Yash Pal, 'UNISPACE 82 and Beyond' (1982) 10 *Journal of Space Law* 181.
[55] Ibid.
[56] *Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82) Report*, UN Doc A/CONF 101/11, annex (1982).
[57] Maogoto, above n 19, 467. See *Committee on the Peaceful Uses of Outer Space, Twenty–Eighth Session, 278th Meeting and Round–Up of Session*, UN Doc A/AC.105/L.155 (1985); United Nations, 'Round–up of Session' (Press Release, 28 June 1985).
[58] *Committee on the Peaceful Uses of Outer Space,* ibid; United Nations UNISPACE 82, above n 56.
[59] *Prevention of an Arms Race in Outer Space*, GA Res 43/70, UN GAOR, 43rd sess, 73rd plen mtg, UN Doc A/RES/43/70 (1988).
[60] Ibid (emphasis added).

measures. The vote on the resolution was 154 to 1 with the US casting the single negative vote.'[61]

The prevention of an arms race in outer space was once again at the heart of the deliberations of the Conference on Disarmament composed of both developed and developing world countries when it convened for its 520th plenary meeting in 1989. Delegates called for the prevention of an arms race in outer space. The general sentiments and tenor of the meeting are captured in Indian Ambassador Sharma's declaration that:

> [I]t is accepted that an extension of the arms race into outer space would have profoundly destabilizing consequences. Deeply conscious of such risks, an overwhelming majority of the Member States of the United Nations have in recent years urged the Conference on Disarmament to take resolute measures aimed at preventing an arms race in outer space.[62]

However, the differing viewpoints among some members and the political shadow cast by the reluctant superpowers prevented any definitive agenda emerging in relation to preventing weaponization of outer space, something which may perhaps have put a brake on the Reagan administration's 'Star Wars' vision and thrown cold water on Soviet determination to match and counter the Reagan administration's ambitious program.

In 1990, in the face of an ascendant and bellicose US, the UN General Assembly felt obliged to identify the legal deficit in the Space Law regime with regard to militarization and weaponization of the Space environment. The General Assembly acknowledged that:

> [T]he legal regime applicable to outer space by itself does not guarantee the prevention of an arms race in outer space, that this legal regime plays a significant role in the prevention of an arms race in that environment, [expressed] the need to consolidate and reinforce that regime,

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[61] Colleen Sullivan, 'The Prevention of an Arms Race in Outer Space: An Emerging Principle of International Law' (1990) 4 *Temple International and Comparative Law Journal* 211, 234.
[62] *Conference on Disarmament: Final Record of the 529th Plenary Meeting*, UN Doc CD/PV/529 (1989).

> ... enhance its effectiveness, and [emphasised] the importance of strict compliance with existing agreements, both bilateral and multilateral.[63]

In addition, the General Assembly recognised the fact that statements were not sufficient to prevent an arms race and emphasized additional measures 'with appropriate and effective provisions for verification to prevent an arms race in outer space' must be adopted by the community of nations.[64] The resolution called upon the major space faring States to 'contribute actively to the objective of the peaceful use of outer space' and to 'take immediate measures to prevent an arms race in outer space'.[65] Despite the rhetoric and initiatives by the UN, the move by the US to ensure effective global power projection through space supremacy received added urgency when the first Gulf War broke out and demonstrated technically and militarily the multiplier effects that space technology would have on military capabilities.

## 2.3. FROM THE FIRST GULF WAR INTO THE 21ST CENTURY—THE HEAVENS BECKON: SPACE ARMS EXPANSION

### 2.3.1. The First Gulf War: Integrated Battle Platforms Come of Age

The first Gulf War was the first war to rely heavily on space technology and the first to demonstrate that an integrated battle platform[66] coordinated through space assets would contribute tremendously to battleground supremacy.[67] Operation Desert Storm heralded the beginning of a great era of the space age. 'It's the first space war,'

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[63] *Prevention of an Arms Race in Outer Space*, GA Res 45/55, UN GAOR, 45th sess, 54th plen mtg, UN Doc A/RES/45/55 (1990).
[64] Ibid.
[65] Ibid.
[66] As used in the Thesis, this concept encapsulates the combination of land, sea and air forces through the use of space assets notably satellite capabilities to enhance the co–ordination of manpower and facilitation of synergies of firepower. This includes centralisation of the gathering and processing of intelligence (tracking and identifying military objectives including troop movements), transmission and dissemination of orders from central command centres to the war theatre and vice versa and use of Global Positioning Satellites ('GPS') to facilitate troop movements and mark targets.
[67] The war demonstrated that '[a]s with other military operations, space operations [were] shedding the old strategic Cold War myopia and focusing instead on theatre war': Anderson, above n 38, 23.

declared a space policy analyst.[68] Coalition forces, which included the largest naval fleet constituted since World War II, were supported by 'the most sophisticated information network ever designed... dwarfing anything generated in previous wars'.[69] The multinational force benefited greatly from US technological breakthroughs in harnessing space capabilities. Electronic still video photos taken by troops were transmitted, almost instantaneously, via portable satellite ground terminals and orbiting civilian and military satellites to the Pentagon onward to military command in the theatre of war.

An impressive array of technologies and particularly the use of satellites and other outer–space mounted devices was on display. The 'Smart War' featured lightening attacks targeting Iraqi command and control targets and 'microwave' technology targeting and jamming Iraqi communications facilities. The future was now here. The experience of the first Gulf War in which the multinational force suffered light casualties despite a battle–hardened Iraqi Army and the role that technology played in enabling the multinational force to control the battlefield despite facing being vastly outnumbered by the Iraqi army buoyed US determination to enhance its military capabilities through technology. The heavy reliance on satellites convinced the US military that space dominance and space control were necessary. Bruce K Gagnon sums up the technologically driven and dominated first Gulf War thus:

> [T]he war was essentially an opportunity to test new weapons systems. Afterward, Pentagon spokespersons predicted that if other enemies could be prevented from gaining access to military space assets, the US could dominate any battlefield situation. An urgent call went out for anti–satellite weapons that could knock out competitors' eyes and ears. Less than a decade later, the war in Kosovo was used to show the world that the goal [had] been achieved.[70]

The first Gulf War provided the US military establishment and government with a convincing demonstration of the value of satellite reconnaissance and the importance

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[68] John Pike, quoted in Vincent Kiernan, 'War Tests Satellites' Prowess: Military Space Systems Put to Work during Desert Storm Conflict', *Space News* (New York), 21 January 1991, 1.
[69] J H Petersen, 'Info Wars: Naval Institute Proceedings' (1993) 88 *Naval Review* 86. See also Maogoto, above n 19, 469.
[70] Gagnon, above n 3, 1.

of denying it to one's enemies. This not only gave credence to its previous space policy, but provided the impetus to accelerate development of space weapons. It was not lost on the US that while its Air Force's Air Expeditionary Force could bring to bear weighty ordnance from heavy bombers, its long cycle time between missions, particularly if travelling from the continental US, posed a logistical nightmare, with the possession of few overseas bases exacerbated by the frequent denial of over–flight rights. This tended to restrict missions or force military command into alternative plans. These meant that the US was forced to rely heavily on the Navy's Carrier Battle Groups ('CVBG') to take up missions. However, the CVBG had their own problems, mainly the time taken to reach the operational area, the vast expense of cruise missiles, the limited number of available cruise missiles and their limited ability to strike targets that moved or were heavily fortified.

Speaking on the experience and lessons of the first Gulf War, General Colin Powell, then Chairman of the Joint Chiefs of Staff, noted that the US ought to 'achieve total control of space if [it is] to succeed on the modern battlefield'.[71] The net result in subsequent years was to spur the US to aggressively pursue research and development of innovative space weapons and in particular the development of SOVs with the capability of delivering and deploying ordnances from space through low–earth orbit, geo–synchronous orbit or sun–synchronous orbit.[72] With the experience and lessons of the first Gulf War burning brightly, the US fast–tracked its Operations Other Than War concept ('OOTW'). The military establishment moved forward with an ambitious plan to develop an SOV—a multipurpose rugged low earth orbit–capable vehicle designed to conduct multiple sorties for military purposes including space based reconnaissance and deployment of ordnances through boosting a Combat Aero Vehicle ('CAV').[73] In 1996, six years after the experience of the first Gulf War,

[71] Colin Gray, 'Space Power Survivability' (1993) 7(4) *Airpower Journal* 27.
[72] Phillip Pournelle, *Component Based Simulation of the Space Operations Vehicle and the Common Aero Vehicle* (M Op Thesis, Naval Postgraduate School, 1999).
[73] Ibid 7.

then US President Bill Clinton issued his National Space Policy. The new policy provided:

> National security space activities shall contribute to US national security by (a) providing support for the United States' inherent right of self–defense and our defense commitments to allies and friends; (b) deterring, warning, and if necessary, defending against enemy attack; (c) assuring that hostile forces cannot prevent our own use of space; (d) countering, if necessary, space systems and services used for hostile purposes; [and] (e) enhancing operations of US and allied forces.[74]

In part, it carried on the general tenor of US space policy stretching back to the Ford years. It reiterated the requirement that space was to be used for 'peaceful purposes'. However, it contained a robust reaffirmation of the shift in policy that had been spawned by Reagan. It championed the interpretation that *the term 'peaceful' does not exclude military activity such as intelligence–gathering or even armed defense.*[75] The policy went on to note the military utility of space asserting that 'peaceful purposes' encompassed defence and intelligence–related activities in pursuit of national security and other goals.[76] Two years later, Clinton's National Security Strategy asserted that '*[US] policy is to promote development of the full range of space–based capabilities in a manner that protects our vital national security interests.*'[77]

In 2001, Clinton exited the White House and George Bush Jr took over the reins. While the Clinton administration had advocated a robust space policy, Clinton had

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[74] *White House Fact Sheet: National Space Policy* (1996) National Archives and Records Administration <http://clinton2.nara.gov/wh/eop/ostp/nstc/html/fs/fs–5.html> at 8 August 2002. This document affirms the proposition that '"[p]eaceful purposes" allow defense and intelligence–related activities in pursuit of national security and other goals'.

[75] National Science and Technology Council, *National Space Policy 3* (1996) Federal Aviation Administration Office of Commercial Space Transportation <http://ast.faa.gov/licensing/regulations/nsp–pdd8.htm> at 8 August 2002 (emphasis added).

[76] Ibid (emphasis added).

[77] The White House, Office of the President, *A National Security Strategy for a New Century* (1998) 25 (emphasis added). Two significant reasons may be attributed to the strong pro–military stance of this directive. First, since the first Gulf War, the United States had been pursuing development of space air vehicle systems and the United States Air Force's dream of a responsive Military Space plane—the SOV—was firming up as a reality as a result of major technological and engineering breakthroughs. Secondly, there was a military worry that the new heavy reliance on space was creating significant vulnerabilities to United States' military operations

demonstrated disinclination towards a heavy military spending binge.[78] 'Bush Jr, however, showed no such qualms. In line with former Republican President, Ronald Reagan, he revived and adopted a bellicose, hard–line stance based on the notion that America's interests were underwritten by military might, and thus the need to not only maintain America's supremacy but to eclipse every other nation.'[79] Shrugging off the protests of the international community, the Bush Jr. administration dusted off Reagan's SDI and brought it back to play with the embrace of the so–called 'Son of Star Wars'.[80]

Even as official US policy was asserting the military utility of space, military thinkers began to worry that the reliance on space was creating new vulnerabilities. In a January 2001 Report to Congress, the Commission to Assess United States National Security Space chaired by Donald Rumsfeld (subsequently Secretary of State in the Bush Jr administration) warned that the 600 satellites the US military depended upon for photo reconnaissance, targeting, communications, weather forecasting, early warning and intelligence gathering were highly vulnerable to attack from adversaries.[81] The Report went on to warn that the US must anticipate what Pentagon officials called a 'Space Pearl Harbor'—a crippling sneak attack against American satellites orbiting the planet.[82]

To reduce the nation's vulnerability, the Rumsfeld Commission urged the US to develop 'superior space capabilities', including the ability to 'negate the hostile use of space against US interests' by using 'power projection in, from and through space'.[83] In lay terms, that means the development and deployment of anti–satellite weapons. With the Bush Jr administration pledging to pursue a ground–based national missile

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[78] Maogoto, above n 19, 470.
[79] Maogoto, above n 19, 470-471.
[80] Ibid.
[81] *Report of the Commission to Assess United States National Security Space Management and Organization* (2001) US Department of Defense <http://www.defenselink.mil/pubs/space20010111.html> at 28 March 2006.
[82] Ibid.
[83] Ibid.

defense system, Rumsfeld's vision was to guarantee dominance of space by eliminating threats to America's satellites.[84] He noted that during history every medium—air, land and sea—had seen conflict. In essence, contemporary reality indicates that space will be no different.[85] The Report from his Commission rounded off by calling space warfare 'a virtual certainty'.

### 2.3.2. START I & II: A Red Card for Strategic Arms Reduction

In the 1990s, two key treaties (Strategic Arms Reduction Treaties I & II—'START I' & 'START II') were negotiated between the US and Russia (successor to the Soviet Union after dissolution in 1991). Each treaty was aimed at reducing US and Russian nuclear arsenals. Although the ABM Treaty set out initial limitations on the use of strategic arms, START I was the first treaty to actually reduce the number of strategic offensive weaponry.[86] US President George H Bush Sr and Russian President Mikhail Gorbachev signed the START I Treaty in Moscow in July of 1991.[87] It was ratified by both countries in December 1994.[88]

As the START I Treaty was coming into force, negotiations were being finalised for the START II Treaty. START II prohibited the deployment of land–based ICBMs with multiple targetable nuclear warheads.[89] The START II Treaty was designed to reduce the US and Russian arsenal of strategic nuclear warheads and eliminate the most destabilising strategic weapons: heavy ICBMs and all other multiple–warhead

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[84] Jonathan Broder, *Why Are We preparing for War in Space?* (2001) Orbit: Sol <http://www.cyberspaceorbit.com/warinspc.htm> at 28 March 2006.

[85] *Report of the Commission to Assess United States National Security Space Management and Organization*, above n 73.

[86] See Bureau of Arms Control, *START Treaty Final Reductions Fact Sheet* (2001) US Department of State <http://www.state.gov/t/ac/rls/fs/2001/index.cfm?docid=6669> at 28 March 2006. Although the START I Treaty began as a bilateral treaty between the United States and the former USSR, it defaulted into a multi–lateral treaty between the United States, Russia, Belarus, Kazakhstan, and Ukraine as a result of the break up of the Soviet Union.

[87] *Treaty on the Reduction and Limitation of Strategic Offensive Arms*, opened for signature 31 July 1991, US–USSR (entered into force 5 December 1994) ('*START I*').

[88] Ibid.

[89] *Treaty on the Further Reduction and Limitation of Strategic Offensive Arms*, opened for signature 3 January 1993, US–Russia (entered into force 5 December 1994) ('*START II*').

ICBMs. This treaty was geared to build upon the START I Treaty and facilitate further reductions in strategic nuclear forces.[90]

The US approved the initial START II Treaty in 1996,[91] but the Russian Duma (Parliament) refused to ratify it.[92] Russian officials then attempted to amend the START II Treaty in 1997.[93] The Protocol to the Treaty on Further Reduction and Limitation of Strategic Offensive Arms included a memorandum of understanding linking ratification of the START II Treaty to the United States' continued adherence to the ABM Treaty. On 4 May 2000, Russia ratified the START II Treaty along with the 1997 Protocol. However, the US never ratified the Treaty because it did not approve of the 1997 Protocol.[94] As a result, the START II Treaty had no legally binding effect because both nations ratified different versions of the Treaty.

Ironically it was in the shadow of the START II negotiations that China—in the author's view the next superpower in waiting—was concentrating and accelerating programs geared to sharpen its military power through incorporation of technology. This was geared toward a leaner and efficient technologically driven military. Among its major breakthroughs is its emergence in the 21st Century as a space power with the successful launch of a manned spaceflight into the earth's orbit on 15 February 2003. China became only the third nation to achieve the feat. In tandem with its arrival as a space power, China is undertaking an active role in sharpening its war fighting space skills, from creating anti–satellite weaponry, building new classes of heavy–lift and small boosters, as well as improving an array of military space systems. Their can be

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[90] *Comprehensive Nuclear Test–Ban Treaty*, opened for signature 24 September 1996 (not yet in force).
[91] Baker Spring, *Accept No Russian Conditions to START II Treaty* (1998) The Heritage Foundation <http://www.heritage.org/Research/RussiaandEurasia/em561.cfm > at 28 March 2006.
[92] See Bureau of European and Eurasian Affairs, *Background Note: Russia* (2001) US Department of State <http://www.state.gov/r/pa/bgn/index.cfm?docid=3183> at 3 December 2001.
[93] Ibid.
[94] See *Fact Sheets: the START/ABM Package at a Glance* (1997) Arms Control Association <http:// www.armscontrol.org/factsheets/pack.asp> at 1 April 2002 (pronouncing that the Clinton administration failed to submit the agreements to the Senate for approval, and it is unlikely that they will be submitted under the Bush administration).

doubt that first Gulf War convinced China's military leadership of the importance of high–tech warfare and the ability of sophisticated command, control, communications, computers, and intelligence systems to link land, sea and air forces.[95] With the US quickly grasping the effectiveness of an integrated battleground platform underpinned by space technology and weaponry, Chinese defence analysts now recognise that space control provides a key to military victories in modern warfare.[96]

### 2.3.3. Redemption with Sin—Arms (Un)Limitation

In the 1990s as START negotiations dominated US and Russian foreign policy, the US Congress was dominated by activity concerning the ABM Treaty—ironically its termination rather than strengthening. The Patriot batteries deployed during the Persian Gulf War helped make a case for the role of Theatre Missile Defence ('TMD').[97] Pressure began building in the US to either loosen or completely divest US antiballistic missile technology from the constraints of the ABM Treaty. On 5 December 1991 the US Congress passed the Missile Defence Act of 1991.[98] This act put Congress on record as officially supporting a National Missile Defence program, stating that:

> It is a goal of the United States to deploy an anti–ballistic missile system, including one or an adequate additional number of anti–ballistic missile sites and space–based sensors, that is capable of providing a highly effective defense of the United States against limited attacks of ballistic missiles.[99]

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[95] Xiaodong, above n 11.

[96] Foreshadowing this move by the Chinese too are other considerations primarily potential conflict over Taiwan and United States plans to deploy a national Ballistic Missile Defence system.

[97] The proposed United States TMD systems will employ interceptor missiles without warheads, relying on kinetic energy to kill their targets. The lower tier system will ram its target after the target re–enters the earth's atmosphere on its downward trajectory, the upper tier system rams its target during the target's mid–course trajectory intercepting their targets in outer space. See Ballistic Missile Defense Organization, *Fact Sheet 97–05: Ballistic Missile Defense—The Core Programs* (1997) 1–2; Ballistic Missile Defense Organization, *Fact Sheet 97–19: Navy Theater Wide Ballistic Missile Defense Program* (1997) 2.

[98] *Missile Defense Act of 1991*, Pub L No 102–190, § 231–40, 105 Stat 1321–26 (repealed 1996).

[99] Ibid § 236(a).

Four years later, in 1995, a bill was introduced in the US Congress entitled the Defend America Act[100] . This Act was geared to require the US President within 180 days after enactment to serve notice that the US intends to withdraw from the ABM Treaty. This legislation (which later failed) was directed toward remedying the lack of defence against ballistic missile attack. Section 4 provided within one year after enactment for at least one test of either an ABM interceptor based in space; a sensor in space capable of providing data directly to an ABM interceptor; or an existing air defence, theatre missile defence, or early warning system to demonstrate its capability to counter strategic ballistic missiles or their elements in flight trajectory. In the same year an almost identical provision was inserted into the National Defense Authorization Act for Fiscal Year 1995, entitled the Ballistic Missile Defense Act of 1995.[101] The Bill approached ballistic missile defences by repealing the Missile Defense Act of 1991 and replacing it with the Ballistic Missile Defense Act of 1995.[102] It then substantially reformulated the initial statement of US policy on NMD.

The proposed NMD system includes space–based sensors, including the Space and Missile Tracking System (formerly known as Brilliant Eyes), and other space–based sensors which could provide cueing to the ground–based interceptors.[103] The 1995 Bill also called for the NMD system to be developed for deployment, with an initial operational capability being achieved by 2003.[104] The proposed amendments would allow deployment of multiple ground–based ABM sites to provide effective defence of the US against limited ballistic missile attack; unrestricted use of sensors based within the atmosphere and in space; and increased flexibility for development, testing, and deployment of follow–on national missile defence systems.[105] The 1995 Bill posed a significant Congressional challenge to President Clinton's faith in the

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[100] *Defend America Act of 1995*, HR 2483, 104th Cong (introduced 17 October 1995).
[101] *HR 104–406: Conference Report to Accompany HR 1530* (1995) Federation of American Scientists <http://www.fas.org/spp/starwars/congress/1995_r/h104406.htm> at 28 March 2006.
[102] See *National Defense Authorization Act for Fiscal Year 1996*, HR 1530, 104th Cong (vetoed by the President on 3 January 1996), §§ 231, 238.
[103] Ibid § 235(b)(3).
[104] Ibid § 235(a).
[105] *HR 104–406*, above n 93, § 236.

continued viability of the ABM Treaty owing to the fact that the proposed NMD would not be accommodated within the existing ABM Treaty.[106] On 3 January 1996, President Clinton vetoed the Bill.[107]

Despite the signing on 26 September 1997 by representatives of the US and Russia of a portfolio of agreements regarding the ABM Treaty's application to the deployment of sophisticated theatre ballistic missile defences to preserve its viability,[108] conservatives in Congress were calling for the termination of the treaty terming it 'a relic of the Cold War.'[109] They contended that rapidly advancing technology and the changing world political situation made continued US adherence to the ABM Treaty a serious threat to US national security.[110] With Clinton out of office, his successor George Bush Jr dropped the bombshell on 14 December 2001 when he announced the withdrawal of the United States' from the ABM Treaty.[111] President Bush invoked Article 15 of the ABM Treaty in December of 2001.[112] The key reason President

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[106] See *Veto Message from the President of the United States*, HR Doc No 104–155, at H12 (1996).
[107] Ibid.
[108] *Memorandum of Understanding Relating to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti–Ballistic Missile Systems of May 26, 1972*, opened for signature 26 September 1997, US–Belarus–Kazakhstan–Russia–Ukraine; *Agreement on Confidence–Building Measures Related to Systems to Counter Ballistic Missiles Other Than Strategic Ballistic Missiles*, opened for signature 26 September 1997, US–Belarus–Kazakhstan–Russia–Ukraine; *First Agreed Statement Relating to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti–Ballistic Missile Systems of May 26,1972*, opened for signature 26 September 1997, US–Belarus–Kazakhstan–Russia–Ukraine; *Second Agreed Statement Relating to the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti–Ballistic Missile Systems of May 26, 1972*, opened for signature 26 September 1997, US–Belarus–Kazakhstan–Russia–Ukraine; and *Regulations of the Standing Consultative Commission*, opened for signature 26 September 1997, US–Belarus–Kazakhstan–Russia–Ukraine.
[109] See Statement of Senator Helms 142 Cong Rec S917 (daily ed, 6 February 1996). See also 'ABM Treaty Changes Loom Again; Weldon Critical' (1997) 12 *BMD Monitor* 299.
[110] See Statement of Senator Helms, 142 Cong Rec S917–918 (daily ed, 6 February 1996); Statement of Senator Thurmond, 142 Cong Rec S7294–7295 (daily ed, 28 June 1996).
[111] Secretary of State Colin Powell, *Statement on the Achievement of the Final Reductions under the START Treaty* (2001) US Department of State < http://www.state.gov/secretary/former/powell/remarks/2001/dec/6674.htm> at 12 August 2006.
[112] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art V (entered into force 3 October 1972):

> 1. This Treaty shall be of unlimited duration.

Bush decided to withdraw from the ABM Treaty was because the Treaty was outdated.[113] According to President Bush, '[t]he Cold War is long gone. Today [the United States] leave[s] behind one of its last vestiges'.[114] The withdrawal gives the US a free run to develop the weapon systems which are prohibited under the ABM Treaty and, in particular the space-based devices discussed in Chapter I of this Thesis.

### 2.3.4. The Wrestle for Space Superiority: An Ascendant China Joins the Elite 'Space' Club

With China ascendant in the 21st century space-technology rivalry is heating up. In 2000 China's unveiled an ambitious ten-year space program whose objectives include:

- To build up an integrated Chinese military and civilian earth observation system.
- To set up an independently operated indigenously-built satellite broadcasting and telecommunications system. The technology would be used to develop new military and civilian communications satellites to form a command-and-control network designed to link Chinese combat forces.
- To establish an independent Chinese satellite navigation and positioning system. This would be achieved by launching a satellite constellation in stages while developing the relevant application systems.[115]

While one of the strongest immediate motivations for this program appears to be political prestige, China's space efforts almost certainly will contribute to improved

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2. Each Party shall, in exercising its national sovereignty, have the right to withdraw from this Treaty if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests. It shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty. Such notice shall include a statement of the extraordinary events the notifying Party regards as having jeopardized its supreme interests.

[113] See John Diamond, 'Missile Pact on Brink: US Says Imminent Testing May Violate ABM Treaty', *Chicago Tribune* (Chicago), 13 July 2001, 1.

[114] See Barry Schweid, 'US Quits Arms Treaty—War on Terror: Where Is Osama', *Daily Telegraph* (Sydney), 14 December 2001, 5 (reiterating that President Bush had consulted with his top advisors before making the decision). Bush further stated: 'This is not a day for looking back. This is a day for looking forward with hope of greater prosperity and peace. We're moving to replace mutually assured destruction with mutual cooperation'.

[115] Mark Wade, *China* (2006) Encyclopaedia Astronautica <http://www.astronautix.com/articles/china.htm> at 17 May 2006.

military space systems.[116] In 2003, Huang Chunping, commander of the Long March 2–F carrier rocket team and deputy commander of the Jiuquan space launch centre noted: 'Just imagine there are outer space facilities of another country at the place very, very high above your head, and so others clearly see what you are doing, and what you are feeling...That's why we also need to develop space technology.'[117] Like the US and Russia, China is researching technology designed to disable or destroy satellites, and is developing a dual-use satellite launch vehicle that is capable of 'blinding' or destroying satellites in orbit as well as technology that can be used in areas such as missile guidance systems.[118]

In 2003 the Chinese People's Daily quoted a Chinese military strategist as saying: 'In the current and future state security strategy, if one wants not to be controlled by others, one must have considerable space scientific and technological strength.'[119] Later, a Chinese military official commented that China's army had already introduced the concept of 'space force strength'[120] in apparent reference to a similar US military concept (detailed in Chapter III). The official went on to note that a Chinese military research report proposed building a separate 'force to fight in space'. While it may appear early days for China to be a formidable space power, one commentator notes in relation to China's space program that:

> Although the Chinese are playing catch–up right now, they're likely to experience the second–mover's advantage. It's *easier* to catch up than to forge new ground. And although China is vastly poorer and weaker than the United States, in terms of absolute capabilities the gap between the China of today and the United States of 1965, say, is much closer, and with China ahead in quite a few capabilities. Plus, they know what's possible; we were trying to figure that out.[121]

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[116] David, above n 4.
[117] Bill Smith, *Space War 2017: Science Fiction or Real Risk?* (2003) Ummah Forum <http://www.ummah.net/forum/showthread.php?t=24910> at 5 May 2006.
[118] David, above n 4.
[119] *China looking at 'space force'* (2003) News24.com <www.news24.com/News24/Technology/News/0,,2-13-1443_1433115,00.html> at 10 May 2006.
[120] Ibid.
[121] Glenn Reynolds, *China Targets Space* (2005) TCS Daily <http://www.tcsdaily.com/article.aspx?id= 012605B> at 28 March 2006.

China's manned space and associate programs will no doubt enable the country to develop and improve its military applications, including space-based intelligence gathering, navigation, and guidance, and jamming. Chinese military space programs are driven by security considerations:

> Western analysts point to the fact that the Chinese manned space program has always been under the command of the PLA [People's Liberation Army] General Armament Director—General Cao Gangchuan for Shenzhou V and General. Chen Bingde for Shenzhou VI. Many of the programs carried out through the Shenzhou series are suspected of having dual-use significance, such as the high-resolution imaging system and reconnaissance capabilities.'[122]

In 2005 a US Defence Department report on the Chinese military voiced concerns over China's space program, pointing out that military capability and strategy 'is likely one of the primary drivers behind Beijing's space endeavours and a critical component' of the country's financial investment in space.[123]

## 2.4. CONCLUSION

In the 21st Century, the US is preparing its next military objective—a doctrine to establish 'space superiority'.[124] Space superiority ensures the freedom to operate in the space medium while denying the same to an adversary and, like air superiority, cannot be taken for granted.[125] The new doctrine means that pre–emptive strikes against enemy satellites would become 'crucial steps in any military operation'.[126] The USAF believes that seizing control of the 'final frontier' is essential for modern warfare, noting that '[s]pace superiority provides freedom to attack as well as

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[122] *Kremlin Voices Concern At US Conventional Missile Plans* (2006) Defensenews.com <http://www.defensenews.com/story.php?F=1767408&C=airwar> at 12 August 2006.
[123] David, above n 4.
[124] Air Force doctrine is evolving to reflect technical and operational innovations. Air Force Doctrine Document 2–2.1 ('AFDD 2–2.1'), the Air Force's first doctrine publication on counterspace operations, provides operational guidance in the use of air and space power to ensure space superiority: *Air Force Doctrine Document 2–2.1: Counterspace Operations* (2004) Defense Technical Information Centre <http://www.dtic.mil/doctrine/jel/service_pubs/afdd2_2_1.pdf> at 28 March 2006.
[125] Ibid, Foreword.
[126] Ibid.

freedom from attack. Space and air superiority is now deemed crucial in any military operation'.[127] In this regard the concept of counter space operations has been articulated premised on the notion of destroying enemy satellites in the event of combat to improve the chance of victory.[128]

The American initiatives have raised hackles among two other space powers—Russia (successor to the Soviet Union) and China—both of which seek military dominance to underwrite their political power. The impetus for Sino-Russian developments for space-based military capabilities is the US display of space driven integrated battle platforms during the first Gulf War, the Kosovo intervention in the late 1990s and, most recently, the military operations in Afghanistan and Iraq, which demonstrated the advances in US harnessing of space technology. With the US abrogation in 2001 of its ABM Treaty commitments and the implications mentioned above Russia and China are accelerating development of space weaponry to counteract the envisaged utility of America's Ballistic Missile Defence program. The straight–line prediction would be that over the next decade or so, we should expect a discernible effort to a strike–back assured destruction posture which ensures that Russia and China remain America's peer military competitors.

[127] Ibid.
[128] Ibid.

# CHAPTER III

## SPACE WEAPONIZATION AND THE UN CHARTER REGIME ON FORCE: WALKING A LEGAL TIGHTROPE

Military use of outer space is fundamental to US national security. Numerous space systems, such as those for navigation, weather forecasting, communications, mapping, geodetic measurement, nuclear explosion detection and monitoring, ballistic missile early warning, photo reconnaissance and surveillance, are considered 'force multipliers' which support and enhance military operations.

Richard A Morgan (1994)[1]

An attack on elements of US space systems during a crisis or conflict should not be considered an improbable act. If the US is to avoid a 'Space Pearl Harbor' it needs to take seriously the possibility of an attack on US space systems. The nation's leaders must assure that the vulnerability of the United States is reduced and that the consequences of a surprise attack on US space assets are limited in their effects.[2]

Report of the Commission to Assess United States National Security Space Management and Organization (2001)[3]

The UN Charter while seeming to present a neat and tidy regime on the use of force nonetheless reflects the drafters' singular focus on creating a system to govern conventional warfare. The concept of war as then understood specifically covered conventional warfare and was premised on the use of aerial, terrestrial and sea spaces.

Jackson N Maogoto (2006)[4]

## 3.1. INTRODUCTION

Space superiority will be gained and maintained through counter space operations which are anchored in the USAF's air and space power functions. The development of offensive counter space capabilities provides combatant commanders with new tools for counter space operations. Counter space operations have defensive and offensive elements, both of which depend on robust space situation awareness. These operations may be utilised throughout the

[1] Richard Morgan, 'Military Use of Commercial Communication Satellites: A New Look at the Outer Space Treaty and "Peaceful Purposes"' (1994) 60 *Journal of Air Law and Commerce* 237, 248.

[2] *Report of the Commission to Assess United States National Security Space Management and Organization* (2001) US Department of Defence <http://www.defenselink.mil/pubs/space20010111.html> at 28 March 2006, Executive Summary at 8–9.

[3] Ibid.

[4] See Section 3.2 below.

spectrum of conflict and may achieve a variety of effects from temporary denial to complete destruction of the adversary's space capability.[5]

In Chapter II, the Thesis outlined the vision and ambitions of the USSPACECOM as well as the Commission to Assess United States National Security Space. The net result has been to spur the United States to aggressively pursue research and development of innovative space weapons and in particular the development of SOVs with the capability of delivering and deploying ordnances from space through low–earth orbit, geo–synchronous orbit or sun–synchronous orbit. As noted in Chapter II, the SOV is a multipurpose rugged low earth orbit–capable vehicle designed to conduct multiple sorties for military purposes including space based reconnaissance and deployment of ordnances through boosting a CAV.[6] The technological advances made in this regard were palpable enough to alarm Russia (successor to the Soviet Union) which in 2005, warned that it would consider the deployment of a CAV into space an act of aggression and would consider using force if necessary to respond.[7] Russia's strong language was prompted by the fact that new space plane would deliver space superiority to the US and ability to control space as a combat environment.

Not to be left behind, China, keen to cement its place as a major power, has also stepped up to the challenge of sharpening its space technology. While one of the strongest immediate motivations for this program appears to be political prestige, China's manned space efforts almost certainly will contribute to improved military space systems.[8] China has also been busy procuring state–of–the–art technology to improve its intercept, direction finding, and jamming capabilities and is also thought to be developing direct–ascent ASATs.[9]

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[5] Mark Townsend, *US ready to put weapons in space* (2004) The Guardian <http://observer.guardian.co.uk/international/story/0,6903,1345380,00.html> at 10 October 2004.
[6] Phillip Pournelle, *Component Based Simulation of the Space Operations Vehicle and the Common Aero Vehicle* (M Op Thesis, Naval Postgraduate School, 1999).
[7] Demetri Sevastopulo, 'Russia Urges US to Avoid Space Arms Race', *Financial Times* (London) 19 May 2005, 4.
[8] Leonard David, *Pentagon Report: China's Space Warfare Tactics Aimed at U.S. Supremacy* (2003) Space.com <http://www.space.com/news/china_dod_030801.html> at 28 March 2006.
[9] Ibid.

All these developments demonstrate that space warfare is not mere talk but something brewing into a potent reality. It is evident from chapter I that the existing Space Law regime is leaky and it is with this in mind that this Chapter now turns to juxtapose the weaponization of outer space and the UN Charter regime on the use of force. As will be seen, just like the Space Law regime, the application of the UN Charter provisions on the use of force create plenty of middle ground when confronted with the phenomenon of the weaponization of outer space. This Chapter notes that though the UN Charter regulates the use of military force, when the regime is juxtaposed to outer space, a significant legal deficit is exposed. This will be apparent in the discussion and analysis in this Chapter of the Thesis. It is to be noted here that the collective security paradigm was inaugurated with the establishment of the League of Nations post-World War I and several advances were made in the inter-war years however since the UN Charter regime supplanted the League Covenant regime, the Chapter will not enmesh itself in the dynamics of this regime, though it will note fleetingly significant pre-Charter era use of force paradigms.

## 3.2. SPACE LAW AND THE UN CHARTER: PEELING A LEGAL ONION? FORCE AND THE REGIME OF THE UN CHARTER

It was in the shadow of World War II that the victorious States negotiated both the establishment of the UN. The final step in making the UN Charter was taken at Yalta, in 1945, by the 'Big Three' with victory in World War II in sight.[10] The primary purpose of the new organisation was 'to maintain international peace and security; and to that end to take effective collective measures for the prevention and removal of threats to the peace and the suppression of acts of aggression or other breaches of the peace'.[11]

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[10] All the Allied States, great and small, were invited to the United Nations Conference on International Organisation, which met at San Francisco on 25 April 1945 to prepare the final instrument for the new international organisation. The 'Dumbarton Oaks Proposals' were taken as the basis for the discussions which were to lead to the UN Charter: Leland M Goodrich, Edvard Hambro and Anne P Simons, *Charter of the United Nations* (3rd revised ed, 1969), 4–8.

[11] See 'Proposals of the Delegation of the Republic of Bolivia for the Organization of a System of Peace and Security' reproduced in Benjamin Ferencz, *Defining International Aggression, The Search For World Peace: A Documentary History and Analysis* (1975) vol 1, 313.

The UN Charter while seeming to present a neat and tidy regime on the use of force nonetheless reflects the drafters' singular focus on creating a system to govern conventional warfare. The concept of war as then understood specifically covered conventional warfare and was premised on the use of aerial, terrestrial and sea spaces. This fact is reflected strongly and almost exclusively in the existing regime on the Law of Armed Conflict. Few if any during the drafting of the UN Charter anticipated that in the coming years technology would advance to a stage where the militarization and weaponization of space would move from wishful thinking into a practical possibility.

### 3.2.1. Article 2(4): Proscription of Force

Until the adoption of the UN Charter in 1945, there was no customary prohibition on the unilateral resort to force if circumstances warranted it, and for signatories to particular instruments, if certain preliminary procedures had been exhausted. States reserved the right to resort to force. The UN sought to impose limitations on the unilateral use of force in resolving international disputes with the right of self–defence the only included exception to the prohibition of the use of force. Under the UN Charter, unilateral acts of force not characterised as self–defence, regardless of motive, were made illegal.[12] Customary international law had previously accepted reprisal, retaliation, and retribution as legitimate responses.[13]

The UN Charter introduced to international politics a radically new notion: a general prohibition of the unilateral resort to force by States.[14] The principle is

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[12] *Charter of the United Nations* arts 39–51.

[13] For a detailed discussion see Jackson Maogoto, *Battling Terrorism: Legal Perspectives on the Use of Force and the War on Terror* (2005) Chapter I.

[14] Various legal instruments have reinforced the prohibition of the use of force since the adoption of the UN Charter. These include:

i. *Pact of the Arab League*, opened for signature 22 March 1945, art 5;
ii. *Inter–American Treaty of Reciprocal Assistance*, opened for signature 9 February 1947, 21 UNTS 77 (entered into force 12 March 1948);
iii. *Charter of the Organization of American States*, opened for signature 30 April 1948, 119 UNTS 3, arts 5, 15, 18 (entered into force 13 December 1951);
iv. The Five Principles of Peaceful Co–existence (known as Panch Shila), first formulated in the agreement of 29 April 1954 between India and the People's Republic of China; and

encapsulated in its most authoritative form in Article 2(4) of the Charter. The Article elaborates on the need for peaceful resolution of disputes: 'All members shall refrain in their international relations from the threat or use of force against the *territorial integrity* or *political independence* of any state, or in any other manner inconsistent with the purposes of the UN.'[15] The terms 'territorial integrity' and 'political independence' are not intended to restrict the scope of the prohibition of the use of force. Rather, the two given modes of the use of force cover any possible kind of trans–frontier use of armed force.[16] Most forms of the exercise of armed force already fall under the first two forms of the prohibition of force.[17]

The use of force in international relations proscribed in Article 2(4) includes war and transcends war to cover forcible measures short of war. Apart from the now obsolete clauses concerning the former enemy States, the UN Charter contains only two exceptions to the prohibition of force, namely Security Council enforcement actions pursuant to Chapter VII, and the right to individual and collective self–defence laid down in Article 51. Today Article 2(4) constitutes the basis of any discussion of the problem of the use of force. Its predominant significance has been emphasised by authors who label it 'the corner stone of peace in the Charter'[18] and 'the heart of the UN Charter' and the basic rule of contemporary prohibition of use of force in international law.[19]

The principle of prohibition of the threat or the use of force, well enshrined in Article 2(4) of the UN Charter, has been further elaborated by several consensual

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v. The final communiqué of the Afro–Asian conference at Bandung of 24 April 1955, which gave approval to ten principles as the basis for promotion of world peace and cooperation.

[15] *Charter of the United Nations* art 2(4) (emphasis added).

[16] In other words, 'integrity' has to be read as 'inviolability' proscribing any kind of forcible trespassing.

[17] Gaps that may possibly be left are filled by the remaining form which outlaws the threat or use of force 'in any other manner inconsistent with the Purposes of the UN'.

[18] Douglas Eisner, 'Humanitarian Intervention in the Post–Cold War Era' (1993) 11 *Boston University International Law Journal* 195; Bartram Brown, 'Humanitarian Intervention at a Crossroads' (2000) 41 *William and Mary Law Review* 1683.

[19] Brown, ibid; Oscar Schachter, 'The Right of States to Use Armed Force' (1984) 82 *Michigan Law Review* 1620.

law–making decisions of the UN General Assembly including, in particular, the 1970 Declaration on the Principles of International Law Concerning Friendly Relations[20] and the 1974 Declaration on the Definition of Aggression.[21] The 1970 Declaration on Friendly Relations, besides restating Article 2(4) of the UN Charter, emphasises that such threat or use of force 'shall never be employed as a means of settling international issues'.[22]

Despite reaffirmations of the prohibition of force in a number of international instruments, the scope and content of the prohibition of the use of force in contemporary international law cannot be determined by an interpretation of Article 2(4) alone. Rather than standing by itself, Article 2(4) is part and parcel of a complex security system and must be read in context with Articles 39, 51, and 53. Here the problem arises that those articles contain a number of terms which, though related to one another, differ considerably in their meaning. Thus notions such as 'use or threat of force', 'threat to the peace', 'breach of the peace', 'act of aggression', 'armed attack', and 'aggressive policy' are used, but do not receive any further explanation in the Charter. Neither legal writings nor state practices have so far clarified these terms beyond doubt. Nor have attempts within the framework of the UN yet led to a satisfactory interpretation.

### 3.2.2. The Concept of Armed Attack

Paragraph 7 of the Preamble to the Charter states as one of the goals of the UN to be 'that armed force shall not be used, save in the common interest'. Article 44 supports the view that the Charter uses the term 'force' where it clearly means 'armed force'. The prevailing view is further corroborated by a teleological

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[20] *Declaration of Principles of International Law Concerning Friendly Relations and Co–Operation Among States in Accordance with the Charter of the United Nations*, GA Res 2625, UN GAOR, 25th sess, 1883rd plen mtg, UN Doc A/RES/2625 (1970) ('*Declaration Concerning Friendly Relations*').

[21] *Definition of Aggression*, GA Res 3314, UN GAOR, 29th sess, 2319th plen mtg, UN Doc A/RES/3314 (1974). This Resolution has been severely criticised by a number of scholars for leaving too many loopholes: see eg Allegra Carpenter 'The International Criminal Court and the Crime of Aggression' (1995) 64 *Nordic Journal of International Law–Acta Scandinavica Juris Gentium* 223, 242.

[22] *Declaration Concerning Friendly Relations*, GA Res 2625, UN GAOR, 25th sess, 1883rd plen mtg, UN Doc A/RES/2625 (1970).

interpretation of Article 2(4).[23] The *travaux preparatoires* of the UN Charter reaffirm the fact that only military force is the concern of the prohibition of the use of force.[24] This conclusion is confirmed by the Friendly Relations Declaration, adopted by the UN General Assembly on 24 October 1970, which contains an interpretation of the fundamental Charter Principles.[25] When interpreting the Principle that States shall refrain in their international relations from the threat or use of force, the Declaration deals solely with military force. Apart from that, the Declaration stipulates as a further principle the obligation not to intervene in matters within the domestic jurisdiction of another state. It is in this context that the Declaration reads: 'No state may use or encourage the use of economic, political or any other type of measures to coerce another state'.[26]

The term 'armed attack' is central to the UN Charter regime on the use of force. Only an unambiguous definition would ward off arbitrary interpretations. However despite the bias of the interpretation of the term towards military force, the term still lacks a clear–cut universally accepted definition. The UN has been striving since 1950, first in the International Law Commission, then in four subsequent Special Committees of the General Assembly for a definition of these terms.[27] With the adoption of the 1974 Resolution on Aggression,[28] this undertaking, for the time being, came to an end. However the 'Definition of Aggression' constitutes a mere recommendation and not binding law, since it is a resolution of the General Assembly.

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[23] Were this provision to extend to other forms of force, states would be left with no means of exerting pressure on other states that violate international law.
[24] For instance, at the San Francisco Conference, a proposal by Brazil of 6 May 1945, to extend the prohibition of force to economic coercion was explicitly rejected.
[25] *Declaration Concerning Friendly Relations*, above n 22.
[26] Ibid. By doing so, the Declaration underlines the fact that the scope of art 2(4) is restricted to armed force. Economic and other types of coercion are not covered by art 2(4) but by the general principle of non–intervention.
[27] For a concise survey of efforts to define aggression encompassing both the League and Charter eras, see Jackson Maogoto, 'Aggression: Supreme International Offence Still in Search of Definition' (2002) 6 *Southern Cross University Law Review* 278.
[28] *Definition of Aggression*, above n 21.

### 3.2.3. The Use or Threat of Force

The prohibition of the use or threat of force in the UN Charter forms a significant plank in remedying the shortcomings of the 1928 Kellogg–Briand Pact,[29] which does not expressly prohibit threats. With regard to threat of force, this generally consists of an express or implied promise by a government of a resort to force conditional on non–acceptance of certain demands of that government. If the promise of resort to force occurs in conditions in which no justification for the use of force exists, the threat itself is illegal. Threats vary according to their nature and magnitude. The type of weapons likely to be used in an attack is an aspect of the nature of a threat, as well as the methods of delivery. At the inception of the UN, it would appear that the focus was almost exclusively on conventional weapons in view of the fact that only the major powers had the capability to develop Weapons of Mass Destruction ('WMDs'). But several decades later, this technology would soon be in the hands of any state that was determined enough to acquire it.

This development has created new problems. The question is whether suspected or actual development of chemical and biological weapons ought automatically to attract the military wrath of countries capable of launching military campaigns in view of the devastating capability of these weapons. The advent of nuclear weapons and breakthroughs in harnessing outer space added novelty to this system. These developments radically change the role that threats of warfare now play in world politics; particularly whether this justifies pre–emptive use of force.

### 3.2.4. Article 51: The State's Right to Respond in Self–Defence

Having proscribed forcible self–help, the UN Charter nevertheless permits those state actions that are reasonably necessary in self–defence when faced with an 'armed attack'.[30] This defensive right exists until the Security Council mobilises

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[29] *Treaty Providing For the Renunciation of War as an Instrument of National Policy*, opened for signature 27 August 1928, 94 LNTS 57 (entered into force 24 July 1929) ('*Kellogg–Briand Pact*').

[30] Professor Ian Brownlie has categorised several art 51 exceptions to the restrictions on the use of force. They are as follows:

i. Acts of self–defence;

to halt the attack.[31] The term 'armed attack'[32] represents the key notion of the concept of self–defence pursuant to Article 51. In the final analysis, its interpretation determines how far unilateral force is still admissible.

Based on a literal reading of the UN Charter, the meaning of armed attack is ordinarily self–evident. It clearly does not mean an incident created by irresponsible groups or individuals, but rather an attack by one state upon another. Purely internal disorders, revolution or attacks by non–statal entities fall outside the definition.[33] As straightforward as Article 51 appears, its application has

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ii. Acts of collective self–defence;
iii. Actions authorised by a competent national organ (e.g. the United Nations Security Council);
iv. Actions where treaties confer rights to intervene by an ad hoc invitation, or where consent is given by the territorial sovereign;
v. Actions to terminate trespass;
vi. Necessity arising from natural catastrophe; and
vii. Measures to protect the lives or property of a state's nationals in a foreign territory.

See Ian Brownlie, *International Law and the Use of Force by States* (1963) 432–3.

[31] However, in the *Case Concerning the Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v United States of America) (Merits)* [1986] ICJ Rep 14, 103, it was held that:

> an armed attack must be understood as including not merely action by regular armed forces across an international border, but also the sending by or on behalf of a state of armed bands, groups, irregulars or mercenaries, which carry out acts of armed force of such gravity as to amount to '(inter alia) an actual armed attack conducted by regular forces 'or its substantial' involvement therein'

See also *Charter of the United Nations* art 42 (which provides that the Security Council 'may take such action by air, sea or land forces as may be necessary to maintain or restore international peace and security') and art 43 (which provides that the member states will make forces and facilities available to the Security Council to facilitate the restoration of international peace and security).

[32] In French, '*agression armee*'.

[33] *Case Concerning the Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v United States of America) (Merits)* [1986] ICJ Rep 14, 103. However, if a revolution or an attack by a non–statal entity were aided and abetted by an outside power such assistance might possibly be considered an armed attack. Since the phrase 'armed attack' strongly suggests a military offensive, it is very doubtful if it applies to the case of aid to revolutionary and other groups and forms of trespass which do not involve offensive operations by the forces of a state. Sporadic operations by armed bands would also seem to fall outside the concept of 'armed attack'. It is conceivable that a coordinated and general campaign by powerful bands of irregulars, with obvious or easily proven complicity of the government of a state from which they operate would constitute an 'armed attack', more especially if the object were the forcible settlement of a dispute or the acquisition of territory. The Court thus gave its judicial imprimatur to art 3(g) of the General Assembly Resolution on the *Definition of Aggression*, GA Res 3314, UN GAOR, 29th sess, 2319th plen mtg, UN Doc A/RES/3314 (1974). In effect, in customary international law, the prohibition of armed attacks may apply to the sending by a state of armed bands to the territory of another state, if such an operation, because of its scale and effects, would have been classified as an armed attack rather than a mere frontier incident had it been carried out by regular armed forces.

sparked considerable debate in much the same way as the concepts of 'armed attack' and 'use or threat of force'—the question of interpretation. Article 51 provides that '[n]othing in the present Charter shall impair the inherent right of individual or collective self–defence...'[34]

The key battleground in interpreting this provision is the word 'inherent'. While the Charter does not indicate what rights are 'inherent', the inclusion of this term was considered significant by the drafters of the Charter. The initial draft of Article 51 made no mention of this 'inherent right', but it was changed to make the definition of self–defence acknowledge that right.[35] Two schools of thought have developed with regard to the scope of Article 51—those who take the literal, or restrictive, approach and those who take the expansive view that Article 51 is considerably broader than its terms. Depending on which position one takes, self–defence may be viewed either as solely predicated as a responsive act to a current attack or as a broader notion encompassing anticipatory acts to an imminent threat of attack.

*3.2.4.1 The Restrictionist Approach*

The restrictionists adhere to the argument that the term 'inherent right' doesn't modify self–defence in any meaningful way, requiring some incursion beyond national borders before the right is activated.[36] In any case they point out a critical question is left open that paves the way for abuse if the right is accepted: How far in advance of such an attack may a state employ such an active, or anticipatory, defence? The restrictionist approach cites the absolute prohibition of resort to forcible self–help as set out in Article 2(4) subject only to the limited exception contained in Article 51. This exception permits recourse to self–defence only when faced with actual 'armed attack'. The argument is that the Article does not contemplate anticipatory or pre–emptive actions by a state so threatened. Rather,

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[34] *Charter of the United Nations* art 51.

[35] Ruth Russell, *A History of the UN Charter: The Role of the United States, 1940–1945* (1958) 698–9.

[36] See Sean Condron, 'Justification for Unilateral Action in Response to the Iraqi Threat: A Critical Analysis of Operation Desert Fox' (1999) 161 *Military Law Review* 115, 115, 151–5; see also Yoram Dinstein, *War, Aggression, and Self–Defence* (2nd ed, 1994) 202 (drawing the distinction between imminence and immediacy).

it requires a state to refrain from responding with like force unless actively involved in repelling an armed attack.[37]

If the correctness of the view is that Article 51 of the UN Charter is the authoritative definition of the right of self–defence and is not qualified or supplemented by the customary law since it subsumes the same is accepted, then States are bound by the black–letter law of the Charter and have less extensive grounds to support armed force undertaken other than within the framework of the UN Charter.[38] In any case, the phrasing of Article 51 was almost certainly not regarded as a novel development of the law by the delegations at San Francisco, and generally speaking by 1945 self–defence was understood to be justified only in case of an attack by the forces of a state. And quite apart from this consideration, the Charter may be regarded as objective or general international law.[39]

*3.2.4.2. The Counter–Restrictionist Approach*

The counter–restrictionist approach adopts an expansionist view. Proponents interpret the word 'inherent' to mean that the Charter recognises and includes those rights of self–defence that existed under customary international law prior to

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[37] Julius Stone, *Aggression and World Order: A Critique of United Nations Theories of Aggression* (1958) 94–5.

[38] Brownlie, above n 30, 279.

[39] First, it has received the adherence of every recognised independent state with the states expressly accepting the principles and obligations of the Charter. Secondly, the provisions of the Charter have had strong influence on state practice since 1945 and the terms of art 51, or very similar terms, have appeared in several important multilateral treaties and draft instruments. Thus art 3 of the *Inter–American Treaty of Reciprocal Assistance*, opened for signature 9 February 1947, 21 UNTS 77 (entered into force 12 March 1948) provided for individual or collective self–defence in case of an 'armed attack'. Articles 18 and 25 of the *Charter of the Organization of American States*, opened for signature 30 April 1948, 119 UNTS 3 (entered into force 13 December 1951) are primarily concerned with reaction to the use of force but the latter article refers ambiguously to 'an act of aggression that is not an armed attack' and is concerned only with the application of 'measures and procedures', whilst the former merely refers to 'the case of self–defence in accordance with existing treaties or fulfilment thereof'. The *Draft Declaration on Rights and Duties of States*, UN Doc A/CN.5/W.5 (1949) adopted by the International Law Commission provided in art 12 that 'every State has the right of individual or collective self–defence against armed attack'. The Report of the Commission states that this language is based upon that employed in arts 51 of the UN Charter. Though discussions of the Article by the Commission indicated differences of opinion as to the legality of preventive action prior to an actual attack, all members regarded the right of self–defence as exercisable through the medium of armed force only in the case of the threat of armed attack or actual attack, that is as a reaction to the use of force.

the drafting of the UN Charter.[40] The counter–restrictionists argue that 'inherent right' is used to preserve the meaning of 'self–defence' as it existed prior to the founding of the United Nations: customary international law as it existed in 1945.[41] They round up with the assertion that self–defence actions may be taken both in anticipation of a given threat and in immediate response to actions directed at the vital interests of the target state.[42]

The argument is premised on the fact that under customary international law, the right of self–defence was judged by the standard first set out in the 1837 case of The Caroline.[43] This established the right of a state to take necessary and proportional actions in anticipation of a hostile threat. Proponents in recent years have cited the impracticability of applying a literal interpretation of Article 51 in an age of advanced weapons and delivery systems and heightened terrorist activity throughout the world. Adherents argue the absurdity of requiring a state to refrain from taking action on its own behalf when an opposing state is preparing to launch an attack.[44] Given the devastating potential of modern weapons and the swiftness of their delivery to intended targets, denying a state the right to act in advance of a pending attack effectively denies any defence at all.

Professor Michael Byers explains that customary law traditionally recognised a limited right of pre–emptive self–defence according to the Caroline criteria—'a necessity of self–defence, instant, overwhelming, leaving no choice of means and no moment for deliberation' precipitating action that is not 'unreasonable or excessive'.[45] In support, Professor Martti Koskenniemi notes that the right of self–

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[40] Yehuda Blum, 'The Legality of State Response to Acts of Terrorism' in Binyamin Netanyahu (ed), *Terrorism: How the West Can Win* (1986) 137.
[41] Condron, above n 36, 160. This position is similar to the position advocated in Part V, but with a distinction akin to the distinction between original intent originalism and original meaning originalism in constitutional law.
[42] Stone, above n 37, 245.
[43] See John Moore, *A Digest of International Law as Embodied in Diplomatic Discussions, Treaties and other International Agreements, International Awards, the Decisions of Municipal Courts, and the Writings of Jurists* (1906) vol 2, 409–14.
[44] See generally Mark Baker, 'Terrorism and the Inherent Right of Self–Defence (A Call to Amend Article 51 of the United Nations Charter)' (1987) 10 *Houston Journal of International Law* 25.
[45] Michael Byers, *Iraq and the "Bush Doctrine" of Pre–emptive Self–Defence* (2003) Crimes of War Project <http://www.crimesofwar.org/expert/bush–byers.html> at 10 December 2003.

defence articulated in the UN Charter 'should be read rationally against the useful purpose the rule is intended to serve'.[46] Koskenniemi argues that the purpose of Article 51 was 'to protect the sovereignty and independence of the state',[47] and therefore that a state that feels its sovereignty and independence to be threatened by the actions of another country might be entitled to use force against that country, even if the country's hostile actions have not yet risen to the level of an actual armed attack.

### 3.2.5. The UN Charter and Other Forms of Forcible Self–Help

Prior to the *Naulilaa* decision in 1928,[48] international law imposed few constraints, if any, on state reprisals. Though the League of Nations had been unsuccessful in fashioning restraints, it did signal a shift in state philosophy and a growing awareness that a central corporate authority may provide an effective means of resolving disputes between States, thus reducing the need to seek recourse through violent methods.[49] This belief persisted through World War II and found expression in the UN Charter.[50] While the League of Nations had addressed its proscriptions in terms of wartime practices, the UN Charter instead proscribed the 'threat or use of force'[51] by Member States, a prohibition which applied in peacetime. In doing so, it sought to extinguish a state's right, except in very limited circumstances,[52] to use forcible self–help.

The text of the UN Charter represents a conventional rejection of the just war theories of retribution buttressed by Article 2(3) of the Charter which requires States to settle disputes peacefully. The Charter neither acknowledges nor even mentions reprisals. Many commentators believe retaliation and reprisals to be

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[46] Martti Koskiennemi, *Iraq and the "Bush Doctrine" of Pre–emptive Self–Defence* (2003) Crimes of War Project <http://www.crimesofwar.org/expert/bush–koskenniemi.html> at 10 December 2003.
[47] Ibid.
[48] *Naulilaa Case (Portugal v Germany)* (1928) 2 *Reports of International Arbitral Awards* 1011.
[49] James Brierly, *The Law of Nations* (6th ed, 1962) 408.
[50] *Charter of the United Nations*.
[51] *Charter of the United Nations* art 2(3).
[52] *Charter of the United Nations* art 51.

illegal under the UN Charter, citing the language of Articles 2 and 51.[53] Taken together, Articles 2 and 51 comprise a minimum order in the sense that they protect only the primary interest in freedom from aggression and the right of self–defence as a sanction.[54] This view is set forth by Professor Ian Brownlie: '[t]he provisions of the Charter relating to the peaceful settlement of disputes and no resort to the use of force are universally regarded as prohibiting reprisals which involve the use of force'.[55]

It would be difficult to conform acts of reprisal with the overriding dictate in the Charter that all disputes must be settled by peaceful means. Indeed, the use of reprisals represents a regression to the discredited 'just war' theory. The purpose the UN was to limit the use of force in international matters and to provide a forum for the resolution of conflict in international matters so as to prevent the need for war. To permit reprisals would thwart the very goal to which States have committed themselves through membership in the UN.[56]

## 3.3. THE UN CHARTER: ANY RELEVANCE AND APPLICABILITY TO OUTER SPACE?

The issue of whether general principles on public international law apply to outer space is still one of contention. On one hand, there is the extreme position held by some commentators that seeks to preclude *in toto* the applicability of general principles of international law *(lex generalis).* Proponents of this position argue

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[53] Guy Roberts, 'Self–Help in Combating State–Sponsored Terrorism: Self–Defence and Peacetime Reprisals' (1987) 19 *Case Western Reserve Journal of International Law* 243, 282.

[54] Myres McDougal and Florentino Feliciano, *Law and Minimum World Public Order* (1961) 121–4; W Thomas Mallison Jr and Sally Mallison, 'The Concept of Public Purpose Terror in International Law: Doctrines and Sanctions to Reduce the Destruction of Human and Material Values' (1973) 18 *Howard Law Journal* 412, 419.

[55] Brownlie, above n 30, 281. The UN Charter prohibits all forms of forcible self–help other than the exercise of self–defence within the meaning of art 51. An assertion that in the post–UN Charter era, reprisals are illegal under international law because they are punitive, rather than legitimate, actions of self–defence seems well supported.

[56] See Roberts, above n 53, 286. In the case of Israel, however, the US has sometimes insisted, before condemning a reprisal by Israel, that the terrorist act that prompted the reprisal also be condemned: see William O'Brien, 'Reprisals, Deterrence and Self–Defence in Counter Terror Operations' (1990) 30 *Virginia Journal of International Law* 421, 433.

that since the Outer Space Treaty[57] does not enumerate exactly which 'general principles' apply to outer space, certain fundamental provisions of international law, specifically those concerning the use of force in self-defence, cannot and should not be made applicable to outer space, on the basis that they are inconsistent with the principles of the Outer Space Treaty itself.[58] On the other hand there is the position fronted by some of the leading scholars in this field that a proper reading of Article III of the Outer Space Treaty makes the general principles of international law (*lex generalis*)—including rules of customary law—and certain provisions of the UN Charter applicable to outer space.[59]

The prevalent view with regard to the UN Charter and its force provisions is that the Charter applies in outer space in the face of the reality that Article III of the Outer Space Treaty—the most significant treaty on outer Space Law—specifically references the UN Charter.[60] A succinct survey of some leading commentators is in order to reinforce this view. Beginning in 1968, Professor J E S Fawcett asserted that 'no provision of the Charter or rule of customary law imposes "any upper limit above the surface of the Earth on the legitimate exercise of the right of self-defense.'[61] The position was reiterated two years later by Professors S Houston Lay and Howard J Taubenfeld who strongly echoed the position by Fawcett thus: 'Under present treaty rules and/or customary law, as demonstrated in practice, national statements, and United Nations resolutions ...[i]nternational law including the United Nations Charter where appropriate, applies to acts in outer space. This expressly includes the right of self defense.'[62]

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[57] *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, opened for signature 27 January 1967, 610 UNTS 205 (entered into force 10 October 1967) ('*Outer Space Treaty*').
[58] M Chandrasekharan, 'Editorial Comment: The Space Treaty' (1967) 7 *Indian Journal of International Law* 61, 63.
[59] Christopher Petras, '"Space Force Alpha": Military Use of the International Space Station and the Concept of "Peaceful Purposes"' (2002) 53 *Air Force Law Review* 135, 155-56.
[60] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art 3 (entered into force 10 October 1967).
[61] J E S Fawcett, *International Law and the Use of Outer Space* (1968) 39.
[62] S Houston Lay and Howard J Taubenfeld, *Study on the Law Relating to Activities of Man in Space* (1970) 73.

This author gravitates to the view that supports a limited application of UN Charter principles to outer space. To begin with it is by far the more well articulated and popular position and accords with the reality of the development of customary principles relating to Space Law—the use of analogy to other international legal spheres as a basis for development. However this position should be tempered with the reality that Article III is not an automatic, blanket extension to outer space and celestial bodies of the entire body of international law but only extends relevant and pertinent principles including the UN Charter.[63] In this regard the extension encompasses *lex generalis* since certain rules of international law and/or provisions of the Charter cannot, by definition, apply to outer space as they are by their nature *lex specialis*.[64] This position by commentators who advocate and assert the applicability of certain UN Charter provisions (a position shared by this author) has received the approval of the Legal Sub-Committee of COPUOS which is resolute that the right of self-defence is applicable to outer space.[65]

Further support for the position that *lex generalis* principles of public international law including the UN Charter apply to outer space is found in Stacey Lowder's crisp and robust observation that: '[s]ince its beginning, international law has adhered to no intrinsic geographical limits.'[66] Buttressing this observation, we can enlist the help of three General Assembly Resolutions from the 1960s. Resolution 1721 of 20 December 1961 commended States to use outer space for exploration in conformity with international law and not subject celestial bodies to national appropriation;[67] Resolution 1884 of 17 October 1963 called for all States to declare their intention not to station in outer space any objects carrying nuclear weapons or other kinds of weapons of mass destruction.[68] This was reinforced two

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[63] Petras, above n 59, 156.
[64] Ibid.
[65] Bruce A Hurwitz, *The Legality of Space Militarization* (1986) 72; see also Gennadii Zhukov, *International Space Law* (1976) 89 (states can lawfully use force in or through outer space in the process of self-defence).
[66] Stacey L Lowder, 'A State's International Legal Role: From The Earth To The Moon', (1999) 7 *Tulsa Journal of Comparative & International Law* 253, 256.
[67] See *International Co–operation in the Peaceful Uses of Outer Space*, GA Res 1721, UN GAOR, 16th sess, 1085th plen mtg, UN Doc A/RES/1721 (1961).
[68] See *Question of General and Complete Disarmament*, GA Res 1884, UN GAOR, 18th sess, 1244th plen mtg, UN Doc A/RES/1884 (1963).

months later by Resolution 1962 of 13 December 1963. Taken together, these three resolutions would seem to support the position that they represent an understanding between the US and Soviet Union that 'ground' rules would be observed in the exploration and the use of outer space.[69]

## 3.4. THE INTERSECTION OF THE UN CHARTER REGIME ON FORCE AND SPACE LAW

In the above sections, the Chapter has carried out a tour de horizon of the basic tenets of the UN Charter regime on the use of force. It has also carried a foray into whether general principles of public international law apply to outer space. The matter of the basic tenets of the UN Charter will be interwoven with the extant legal provisions in the second half of the Chapter. A case has also been made for the applicability of *lex generalis* principles of public international law to outer space. Having made a case for the application of certain UN Charter provisions to outer space the next sections will encapsulate the second primary theme of the Chapter—the juxtaposition of space militarization and weaponization with the UN Charter Regime on the use of force. In light of the various spectrums of space militarization and weaponization two cleavages will be evident: direct military force—here meaning physical space devices which make actual proximate contact with their targets and indirect force—here meaning the use of space weaponry that makes contact with space assets through space by the use of shock waves, electromagnetic pulses, radiation belts or laser beams.

### 3.4.1. Direct Physical Military Force in Space: Kinetic/Hypervelocity Weaponry

#### *3.4.1.1 The Use or Threat of Force Paradigm*

The UN Charter forbids the 'threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with

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[69] See *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,* GA Res 1962, UN GAOR, 18th sess, 1280th plen mtg, UN Doc A/RES/1962 (1963).

the Purposes of the United Nations'.[70] The meaning of this prohibition remains hotly contested. The prevailing view is that this provision is an absolute bar to the use of force with the sole exceptions being self–defence and authorisation by the Security Council. Under the Outer Space Treaty, while the principle of self–defence remains intact, the method of that defence is limited, however a wide range of military activity can still fit under the self–defence umbrella. Article III of the Outer Space Treaty provides that States Parties to the Treaty will conduct their activities in space in accordance with international law, the UN Charter, and in the interest of international peace, security, cooperation and understanding.[71] Of significance with regard to the use of force is Article III's reference to Article 51 of the UN Charter and in particular its express preservation of the right of States to use space in self–defence. Article III provides perhaps the clearest indication that the international law of war will apply to space warfare:

> States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co–operation and understanding.[72]

Two significant observations arise from this provision. First, Article III applies the restrictions of all international law to outer space activities ('in accordance with'). As products of 'international law', this surely includes both the *jus ad bellum*, made obvious by Article III's specific reference to the UN Charter, and the *jus in bello*. This observation provides the strongest evidence that as far as its principles will apply to future technologies, the law of war has been incorporated into military space operations by virtue of the Outer Space Treaty. A second observation relates to the requirement that a State's exploration and use of outer space be 'in the interest of maintaining international peace and security'.

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[70] *Charter of the United Nations* art 2(4).
[71] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art III (entered into force 10 October 1967).
[72] *Outer Space Treaty*, opened for signature 27 January 1967, 610 UNTS 205, art III (entered into force 10 October 1967).

The most relevant provisions regarding weaponization of space are Articles IV and IX of the Outer Space Treaty. Major Douglas Anderson notes that '[a]rticle IV (1) is viewed by most commentators as only a limited disarmament provision'.[73] Evidence that the drafters only intended Article IV (1) to ban orbiting nuclear–type weapons is the drafters' agreement that the Treaty does not prohibit the stationing of land–based ICBMs, even though their flight trajectory would take them through outer space.[74] It is well established that the only specific limitation placed on the use of the outer void space for military purposes is that found in Article IV (1).[75] Professor Bin Cheng asserts that 'the outer void space as such can be used for any military activity that is compatible with general international law and the Charter of the United Nations', so long as no 'nuclear weapons or any other kind of weapons of mass destruction are stationed there.'[76] The practical import of this analysis is captured in Major Douglas Anderson's observation that:

> Under this... interpretation, none of the exotic future weapons systems currently being proposed or researched by the United States would violate this provision of the Outer Space Treaty. For instance, laser beam weapons are intended to destroy their targets by delivering a high impulse shock that causes structural collapse of the rocket booster or by remaining on the target until a hole is burned through the missile... violations would only occur if any of the weapon systems included a nuclear explosion to propel them or as a means of destroying a target.[77]

Alongside the specific reference to the restriction of only particular weapons, Article IV is the setting for much greater controversy. 'It provides for two separate legal regimes for military activity in outer space: (1) activity conducted on the moon and other celestial bodies, and (2) activity conducted in outer space itself.'[78] Article IV divides the extraterrestrial universe into three parts: the Earth's

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[73] Major Douglas Anderson, 'A Military Look into Space: The Ultimate High Ground' [1995] (November) *Army Lawyer* 19, 23.

[74] Other weapons of mass destruction not relevant to the issue of planetary defence would be biological and chemical weapons: Captain Michael Gallagher, 'Legal Aspects of the Strategic Defense Initiative' (1986) 111 *Military Law Review* 11, 41.

[75] Bin Cheng, *Studies in International Space Law* (1997) 529.

[76] Ibid.

[77] Major Anderson notes that '[t]he SDI provided a measure of legitimacy to many ideas that were formerly seen as impossible': Anderson, above n 73, 24–5.

[78] Jackson Nyamuya Maogoto, 'The Military Ascent into Space: From Playground to Battleground: The New Uncertain Game in the Heavens' (2005) 52 *Netherlands International Law Review* 461, 477-478.

orbit, celestial bodies, and outer space. This then means that the Outer Space Treaty does not completely free all of outer space from military use.

Military activity by its terms, including deployment of ASATs, is prohibited specifically on the moon and other celestial bodies. Outer space, as such, remains open to military activity that is non–aggressive, in line with the UN Charter and international law as long as such activity does not involve nuclear weapons or weapons of mass destruction. Professor Cheng notes that subject to the second paragraph of Article IV, 'nothing in Article IV(1) itself prohibits the stationing of any other type of weapons in outer space, including the moon and other celestial bodies, or in fact the use of outer space, including the moon and other celestial bodies, for military purposes in any other way'.[79]

Although Article IV (2) does not prohibit the non–peaceful use of outer space away from celestial bodies, such uses are nonetheless implicitly prohibited by other provisions. For example, at least to the extent that 'non–peaceful' means the aggressive use of force, such uses are prohibited by the UN Charter's provision to the contrary. A further point on Article IV relates to the legal permissibility of satellite interceptors. ASATs deviate from the non–aggressive character of virtually all other satellites, and in so doing may appear to violate the non–aggressive mandate required of all space activities under the 'peaceful purposes' restriction.

> However, regardless of their putative 'destabilizing' character for international peace and security, the Outer Space Treaty does not prohibit the transiting, or even the orbiting, of conventional weaponry in space, including ASATs. The prohibition on orbiting of weapons of mass destruction, including nuclear weapons, strongly suggests the distinction between those weapons, and conventional weapons of lesser destructive power, including those directed at satellites. Though Article IV (1) could easily be modified to affect the de–weaponization of space, conventional weapons are not proscribed.[80]

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[79] Bin Cheng, 'Definitional Issues in Space Law: the "Peaceful Use" of Outer Space, including the Moon and other Celestial Bodies' (1983) 11 *Journal of Space Law* 89, 101.
[80] Major Robert Ramey, 'Armed Conflict on the Final Frontier: The Law of War in Space' (2000) 48 *Air Force Law Review* 1, 84.

From the foregoing paragraphs, it can be deduced that Article IV of the Outer Space Treaty contemplates the military use of space for scientific research and grants a carte blanche to civilian scientific applications. The reality is that civilian applications of space capabilities such as weather, navigation, communications and remote sensing are equally significant for military purposes. In addition, as a technical matter, there is no bright line between military 'missiles' and civilian 'space launch vehicles.' Technologies used to build sophisticated weaponry are often similar or even identical to the technologies required for civilian space programs.[81]

The tacit acceptance of military usages coupled with the explicit permission to civilian endeavours provides a strong argument that weaponization of space through placement of non–nuclear and other weapons of destruction is in and of itself permissible under the Space Law regime. Richard A Morgan notes that most experts agree that the Outer Space Treaty does not prohibit 'military use' of space.[82] He goes on to note that there is a 'consensus, within the United Nations that 'peaceful' more specifically equates to 'non–aggressive'.[83] However, the general stance by commentators noted by Morgan is at odds with the Conference on Disarmament's observation in 1986 that '[n]o country should develop, test or deploy space weapons in any form'.[84]

The author now turns to consider the Limited Test Ban Treaty whose entry into force focused only on prohibiting nuclear detonations in space. Little thought and attention seems to have been put into ensuring that the treaty effectively prevented space from being turned from a sanctuary of 'peaceful' science into a battleground that may one day offer opportunities for offensive and defensive non–nuclear weapons. First, the ban focuses exclusively on nuclear weapons, meaning that other forms of weapons such as conventional, biological, chemical, or high energy

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[81] 'The differences relate to intentions, not capabilities': Barry Hurewitz, 'Non–Proliferation and Free Access to Outer Space: The Dual–Use Dilemma of the Outer Space Treaty and the Missile Technology Control Regime' (1994) 9 *High Technology Law Journal* 211, 228.
[82] Morgan, above n 1, 288.
[83] Ibid.
[84] *Conference on Disarmament, Final Record of the 350th Plenary Meeting*, UN Doc CD/PV.350 (1986).

laser weapons can be deployed without breaching the treaty. Second, to the extent that nuclear power sources operate by means other than explosion, the treaty does not prohibit their use. This off course means that the testing and deployment of non–nuclear based ASATs and SOVs with combat capabilities are not prohibited. The treaty establishes three grounds for space weaponization. These are eloquently synthesised by Major Robert Ramsey:

> 1. First, while the treaty prohibits all nuclear detonations in space, even those that may have value for peaceful military or scientific purposes, it does not regulate detonations of a non–nuclear nature.
> 2. Second, because the treaty outlaws 'any nuclear weapon test explosion, or any other nuclear explosion', it may prohibit the use of nuclear fission as a means of space propulsion.
> 3. Finally, the Treaty also prohibits the use of nuclear explosions for non–testing purposes as well.[85]

Moving on to the next principal treaty the ABM Treaty, Article V(1) of the ABM Treaty provides that '[e]ach party undertakes not to develop, test, or deploy ABM systems or components which are sea–based, air–based, space–based, or mobile land–based'.[86] Though there were no space–based ABM systems in existence in 1972 when the treaty was adopted, the space program of each Party was highly advanced and each could foresee the use of space–based ABM systems.[87] Article XII of the treaty is perhaps even more significant to the long–term use of space by military systems beyond the narrower question of ABM systems. It provides:

> 1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party *shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.*
> 2. Each Party *undertakes not to interfere with the national technical means of verification of the other Party* operating in accordance with paragraph 1 of this Article.[88]

Paragraph 1 is significant. Though the legality of military surveillance activity in space was established in international law previous to the ABM Treaty, the treaty gave formal sanction to the practice by the two leading space–faring States. In

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[85] Ramey, above n 80, 100–1.
[86] *Treaty on the Limitation of Anti–Ballistic Missile Systems*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art V(1) (entered into force 3 October 1972) ('*ABM Treaty*').
[87] Glenn H Reynolds and Robert P Merges, *Outer Space: Problems of Law and Policy* (2nd ed, 1997) 97.
[88] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art XII (entered into force 3 October 1972) (emphasis added).

particular it acknowledged the legality of space–based surveillance via satellite and entrenched this as 'an essential component of the international arms control regime'.[89]

While the ABM Treaty bans missile defences, it makes no mention of the ASAT, a device that has been in the process of development for over 20 years. Under the ABM Treaty, 'antisatellite weapons remain unrestricted'.[90] While no language in the ABM Treaty expressly restricts ASAT development or testing, special problems may arise because of the operational similarity between the ABM and the ASAT.[91] The American ASAT consists of a two–stage rocket (a sensor and a war-head). [92] The ASAT's heat–seeking homing sensor picks up the heat of the target satellite as the ASAT travels through space, intercepts the target and the warhead destroys the target. On the other hand, the Soviet ASAT is launched by rocket into the orbit of the targeted satellite and explodes in proximity to the target destroying the satellite.[93]

It is evident that because ASAT and ABM technologies overlap, continued development of ASAT technology would have amounted to contravention of the ABM Treaty, as Article V prohibits developing, testing or deploying ABM systems or components.[94] An ASAT which could be converted into an ABM might be considered an ABM system component for Article V purposes and, as a result, may violate the terms of the ABM Treaty.[95] From a practical point of view, an aggressive ASAT deployment program could be viewed by an adversary as a

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[89] Reynolds and Merges, above n 87, 97.
[90] 'Courting a New Arms Race', *New York Times* (New York), 10 April 1984, 31.
[91] An ABM is a device that can destroy an ICBM in flight. See Kurt Gottfried, 'A Backfiring Weapon', *New York Times* (New York), 21 July 1983, A23.
[92] John Pike, 'Anti–Satellite Weapons and Arms Control' (1983) 13 *Arms Control Today* 1, 4.
[93] Ibid.
[94] *ABM Treaty*, opened for signature 26 May 1972, US–USSR, 23 UST 3462, art V (entered into force 3 October 1972).
[95] Assuming ASATs will be used for ASAT purposes (i.e., destroying targeted satellites), and not for later conversion into ABMs, the ABM Treaty does not limit ASAT use. Nonetheless, from a practical point of view, an aggressive ASAT deployment program could be viewed by an adversary as a clandestine mechanism to boost ABMs. As a result, 'ASATs could therefore trigger enormous build-ups of offensive missiles, which is precisely what the ABM Treaty was designed to prevent': Jonathan Halpern, 'Antisatellite Weaponry: The High Road To Destruction' (1985) 3 *Boston University International Law Journal* 167, 191.

clandestine mechanism to boost ABMs. As a result, 'ASATs could therefore trigger enormous build-ups of offensive missiles, which is precisely what the ABM Treaty was designed to prevent.'[96] In this regard, ASATs and other SOVs with the capability to deploy ordnances from space deviate from the non–aggressive character of satellites, and in so doing may appear to violate the non–aggressive mandate required of all space activities under the 'peaceful purposes' restriction. The crux of the matter, though, is that the Outer Space Treaty does not prohibit the transiting, or even the orbiting, of conventional weaponry in space. As Major Robert Ramey notes:

> The prohibition on orbiting of weapons of mass destruction, including nuclear weapons, strongly suggests the distinction between those weapons, and conventional weapons of lesser destructive power, including those directed at satellites. Though Article IV (1) could easily be modified to effect the de–weaponization of space, conventional weapons are not proscribed.[97]

*3.4.1.2. The Armed Attack Paradigm*

A key issue is the matter of the use or threat of force. It is inconceivable that deployment of ASATs or SOVs would be seen as a benign activity considering that they are offensive in character. Thus under the regime on the use of force, deployment of this weaponry can amount to the threat of the use of force especially where the space weaponry is hoisted to the same orbital plane as another state's space assets. This is even more poignant if it does occur in circumstances where the States are on a war footing or a militarily volatile situation. Compounding the matter would be the testing of the weapons or military manoeuvres under these circumstances. Major Douglas Anderson offers the sobering observation that:

> All forms of military, and not only 'warlike,' uses of outer space, including defensive activities, are in conflict with the clearly established principle set forth in Article I(1) of the Space Treaty. Nonaggressive, or defensive, uses of outer space cannot be lawful since most all existing States have agreed on that principle.[98]

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[96] Gottfried, above n 91, 23.
[97] Ramey, above n 80, 84.
[98] Major Anderson notes, '[t]he SDI provided a measure of legitimacy to many ideas that were formerly seen as impossible': Anderson, above n 73, 26.

### 3.4.2. Indirect Military Force in Space Force: Electromagnetic/Laser/ Radiation Weaponry

*3.4.2.1 The Use or Threat of Force Paradigm*

Under Article 2(4) of the UN Charter, States may neither use force in the course of their international relations, nor threaten it. Historically defining what "force" the Charter prohibits given the many sources of pressure nations may use in their relations with each other has always been difficult. However it is widely recognized that the prohibition excludes most forms of non-military physical force[99] but encompasses both direct and indirect military force. It is not difficult to conceive scenarios in which the use of armed force in space would potentially involve 'harmful interference' with other States Parties in their peaceful exploration and use of space. In this regard Major Ramey notes:

> Given the fact that space warfare will require new application of existing legal regimes, if not new regimes altogether, new means and methods of using force will also give rise to new means of making threats, including those from space.[100]

In 1995, a study for the USAF analyzing the future of air and space power reported that a combination of high radio frequency power and large antenna technology would allow for the projection of extremely high power densities and electromagnetic radiation.[101] The report suggested that such a weapon in geo-synchronous orbit could create a six mile footprint on a battlefield which would 'blank out' all radar receivers and damage all unprotected communication sets within that area.[102] As the 1995 USAF Report shows, there are activities in outer space that have the potential to meet the threshold of a threat of force. Consider

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[99] Albrecht Randelzhofer, 'Article 2(4)' in Bruno Simma et al (eds), *The Charter of the United Nations: A Commentary* (1994) 106, 118. The author points out that while these forms of coercion may not constitute 'force' under Article 2(4), their use may violate the general principle of non-intervention.

[100] Ramey, above n 79, 61.

[101] Ivan Bekey, 'Force Projection from Space' in Air Force Scientific Advisory Board, *New World Vistas: Air and Space Power for the 21st Century: Space Applications Volume* (1995) 83, 84.

[102] Ibid 84–5. With respect to information warfare, the report gives a number of examples: network viruses, disinformation, memory erasures, and false signals. For a brief discussion of information warfare and its relation to space combat.

for example the use of space assets to jam military communication and electronic gathering facilities. To what extent can generation of 'an electronic footprint' that jams radar and other communication facilities crucial to military command systems be considered a use or threat of use of force? The matter is clear-cut in the context of hostilities but is far from clear in non-hostile situations.

Could a country consider the 'blanking out' of its communication systems as a tactical military strategy to test its command systems and thus a threat of use of force that would provide the basis for defensive actions say the deployment of an ASAT, laser or other electromagnetic weaponry? These are crucial questions. More so when one considers that USSPACECOM's Long Range Plan (outlined in Chapter II) encompasses space control which is articulated thus: '...the ability to ensure un-interrupted access to space for U.S. forces and our allies, freedom of operations within the space medium and an ability to deny others the use of space, if required.'[103] Translated into legal terms, attempts to ensure un-interrupted access to space and to maintain an ability to deny others the use of space,'[104] no doubt will encompass active interference with the space assets of Third States.

*3.4.2.2. The Armed Attack Paradigm*

Perhaps the biggest question with respect to the self-defence principle embodied in Article 51 relates to the meaning of the phrase 'if an armed attack occurs'. This seems to preclude the right to defend with arms, until an actual armed attack has triggered the right. Article 51 of the UN Charter provides that the inherent right of self–defence is expressly linked to an armed attack.[105] Yet, as the International Court of Justice noted in the case of *Nicaragua v. United States*, 'a definition of the 'armed attack' which, if found to exist, authorises the exercise of the 'inherent right' of self–defence, is not provided in the Charter, and is not part of treaty law'.[106] Consequently, it is necessary to look elsewhere to determine whether

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[103] United States Space Command, *Long Range Plan: Implementing USSPACECOM Vision for 2020* (1998) 21.
[104] Ibid.
[105] See *Charter of the United Nations* art 51.
[106] *Case Concerning the Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v United States of America) (Merits)* [1986] ICJ Rep 14, 94.

cyber–attack constitutes an 'armed attack' justifying self–defence within the framework of Article 51. At first glance, cyber–attack can be objectively likened to 'armed force'. This necessitates some textual interpretation in line with the UN Charter to see whether this actually fits within the international regime on the use of force.

Let us consider whether a cyber–attack constitutes an 'armed attack' justifying self–defence within the framework of Article 51. Armed attack clearly implies the use of arms or military force and has an offensive, destructive, and illegal nature.[107] Significant in this regard is the 'Definition of Aggression' adopted by the UN General Assembly through Resolution 3314.[108] Article 1 defines aggression as the 'use of armed force by a State against the sovereignty, territorial integrity or political independence of another State, or in any other manner inconsistent with the Charter of the United Nations, as set out in this Definition'.[109] To the extent that 'non–peaceful' means the aggressive use of force, such uses are prohibited by the UN Charter's provision to the contrary. Article 3 of Resolution 3314 enumerates specific acts that amount to acts of aggression 'regardless of a declaration of war'. The text of Resolution 3314 makes clear the fact that it is intended to serve as a guide to the Security Council in determining the existence of aggression under Article 39 and not as a definition of 'armed attack'.[110] Nevertheless, if armed attack is understood to be a type of aggression that justifies self–defence under Article 51 of the Charter, that is, *'une agression armée'* (or 'aggression which is armed'),[111] then the resolution's definition of aggression and the specific acts of aggression enumerated in Article 3 are at least illustrative of the types of circumstances wherein recourse to self–defence is vindicated.[112]

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[107] See J Nagendra Singh, *Use of Force under International Law* (1984) 15.
[108] *Definition of Aggression*, GA Res 3314, UN GAOR, 29th sess, 2319th plen mtg, UN Doc A/RES/3314 (1974).
[109] Ibid.
[110] Ibid, Preamble, art 6.
[111] Dinstein, above n 36, 166 (describing the Kellogg–Briand Pact as 'a watershed... in the history of the regulation of the use of inter–States force').
[112] Bruno Simma (ed), *The Charter of the United Nations: A Commentary* (1994) 668 (asserting that 'aggression' as defined in Resolution 3314 does not coincide with the notion of 'armed attack' under art 51 of the Charter).

It is significant that the Space Law regime provides that States have a right to deploy satellites and proscribes any interference. In this regard, the use of ASATs or Direct Energy Weapons—primarily lasers—on a State's satellites would be commensurate with the use of armed force by a State against the sovereignty of another State or perhaps would be equated with the with the use of weapons by a State against the territory of another State. It is clear then that the cyber–attack cannot be justified as self–defence in the absence of any prior action by the victim state targeting a state's satellites. Any action absent a prior action by another state can thus be inferred to constitute an 'armed attack' within the meaning of Article 51. This would at the very least involve laser blinding of satellites and at the very most the deployment of hyper–velocity kinetic weapons—this would clearly amount to an attack. However, the finer points would be whether detonations in an orbital plane that generate EMP or Van Allen radiation belts which impair the operation of satellites of a third state constitute an armed attack.

Despite the provisions of the Outer Space Treaty prescribing the "peaceful" use and exploration of space, the Liability Convention for Damage Caused by Space Objects ('Liability Convention') seems to recognize the distinct possibility that States may engage in intentional damage to space objects. [113] The Liability Convention takes as its goal an elaboration of 'effective international rules and procedures concerning liability for damage caused by space objects and to ensure, in particular, the prompt payment under the terms of [the] Convention of a full and equitable measure of compensation to victims of such damage.'[114]

To the extent that a hostile act in space, whether lawful or not, could harmfully interfere with a third party State's asset, Article IX of the Liability Convention appears to require that a Third State must be consulted. Further, unlike other space treaties and UN resolutions that leave the timing of such consultations unclear,

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[113] *Convention on International Liability for Damage Caused by Space Objects*, opened for signature 29 March 1972, 961 UNTS 187, art 1(b) (entered into force 1 September 1972) ('*Liability Convention*').
[114] Ibid.

Article IX specifies that it must occur before proceeding with any space activity or experiment. This could create a disincentive to carrying out activities involving military interference with a Third State's military objects as prior consultations with a third party State could, by public dissemination or otherwise, constitute a *de facto* notification to the opposing belligerent State of the anticipated attack. Nonetheless, Article IX does not stand in the way of carrying through with such hostile acts once 'consultations' have occurred, even if the third-party State objects to the anticipated activity or experiment.

A careful reading of the Liability Convention discloses that the *corpus juris spatialis* implicitly recognizes that under certain circumstances the intentional destruction of space objects might occur.[115] Thus the Liability Convention subjects States Parties to absolute liability for damage caused by its space objects on the earth's surface, or to aircraft in flight,[116] and to liability based on fault for damage by its space object to the space object of another State 'being caused elsewhere than on the surface of the earth.'[117] However Major Robert Ramsey in a carefully crafted and incisive insight flags the possibility that far from the Liability Convention being simply a matter of claim and compensation in a classical tortuous scenario, one can read into the 'with intent to cause damage' damage phrase a tacit acknowledgment that in certain instances force may be used by Third States.[118]

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[115] Hurwitz, above n 65, at 148–50.
[116] Ibid.
[117] *Liability Convention*, opened for signature 29 March 1972, 961 UNTS 187, art 3 (entered into force 1 September 1972).
[118] As Major Ramey notes:

> ...Article VI provides exoneration from absolute liability in cases where either the claimant State, or the natural or juridical persons it represents, caused the damage wholly or partially by gross negligence, or an act or omission done with intent to cause damage. *A proper understanding of the phrase "intent to cause damage" provides insight into the Convention's foresight as to the possibility of uses of force against space objects.*

Ramey, above n 80, 135 (emphasis added).

### 3.4.3. Anticipatory Self–Defence: Weapons of Mass Destruction—A New Calculus

It can be said that in the *Nicaragua Case* the International Court of Justice identified the need to supplement the Charter provisions with customary international law.[119] On this basis then, the issue is whether anticipatory self–defence is recognized considering that the UN Charter discounts the notion. Customary international law has long recognised that no requirement exists for States to 'absorb the first hit.' The doctrine of anticipatory or pre–emptive self–defence, as developed historically, is applicable only when there is a clear and imminent danger of attack. But the matter is not that simple in view of the split between the 'restrictionist' and 'counter–restrictionist' views of anticipatory self–defence which was discussed above in this Chapter.

It is contended that the right to respond with force in self–defence, even to a triggering act that has already occurred, is temporally limited. As the Caroline incident indicates, the customary right of self–defence appears to require immediate action. Otherwise, there is a strong argument that the use of force is nothing more than a reprisal, which, while permitted under limited circumstances by customary international law, is widely agreed to have been outlawed by the UN Charter. This narrow technical interpretation perhaps seems to ignore that international law cannot compel any state to wait until it absorbs a devastating or even lethal first strike before acting to protect itself. Strategic circumstances and the consequences of strategic surprise have changed a great deal since the Caroline incident. Today, in an age of chemical/biological/nuclear weaponry, the time available to a vulnerable state could be notably very short.

How far may a country wait when technology innovations now point to a situation where a sneak attack may be preceded by an elaborate tactical scheme that jams military communications and blinds satellites, thus crippling the States intelligence gathering, early warning and battlefield capability? Some scholars

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[119] *Case Concerning the Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v United States of America) (Merits)* [1986] ICJ Rep 14, 176; Christine Gray, *International Law and the Use of Force* (2000) 154.

believe that a right of truly anticipatory self–defence has emerged outside of Article 51 in light of the availability of WMDs.[120] Professor Thomas Franck talking about WMDs in the context of terrorism nonetheless presents a position that is equally applicable (in the author's view to space weaponization) to the emergence of a viable doctrine of anticipatory self–defence.

> ...the transformation of weaponry to instruments of overwhelming and instant destruction. These [weapons bring] into question the conditionality of Article 51, which limits States' exercise of the right of self–defence to the aftermath of an armed attack. Inevitably, first–strike capabilities begat a doctrine of 'anticipatory self–defence.[121]

Professor Christopher Greenwood weighs in (along the terrorism continuum but with resonance in the author's to the weaponization of outer space) with the observation that in a nuclear age, it is the potentially devastating consequences of prohibiting self–defence unless an armed attack has already occurred that leads one to prefer the interpretation permitting anticipatory self–defence.[122] He argues that:

> ...accords better with State practice and with the realities of modern military conditions than with the more restrictive interpretation of Article 51, which would confine the right of self–defence to cases in which an armed attack had already occurred—although it has to be said that, as a matter of simple construction of the words alone, another conclusion might be reached.[123]

The arguments above are particularly strong when one considers that shortly after the birth of the UN Charter, the Atomic Energy Commission suggested in its First Report in December 1946 that preparation for atomic warfare in breach of a multilateral treaty or convention would, in view of the appalling power of the weapon, have to be treated as an 'armed attack' within Article 51 of the UN Charter.[124] Specifically, the AEC made the following recommendations to the

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[120] Derek Bowett, *Self–Defence in International Law* (1958) 191–2; see also Richard Erickson, *Legitimate Use of Force against State–Sponsored International Terrorism* (1989) 142–3.
[121] Thomas Franck, 'The Institute for Global Legal Studies Inaugural Colloquium: The UN and the Protection of Human Rights: When if Ever May States Deploy Military Force without Prior Security Council Authorization?' (2001) 5 *Washington University Journal of Law and Policy* 51, 57–8.
[122] Maogoto, above n 78, 487.
[123] Christopher Greenwood, 'International Law and the Pre–Emptive Use of Military Force: Afghanistan, Al Qaida and Iraq' (2003) 4 *San Diego International Law Journal* 12, 15.
[124] See generally Claud Waldock, 'The Regulation of the Use of Force by Individual States in International Law' (1952) 2 *Recueil des Cours* 498 (recounting the Atomic Energy Commission's suggestions to the UN Security Council).

Security Council about the control of nuclear energy and nuclear weapons: 'The development and use of atomic energy are not essentially matters of domestic concern of the individual nations, but rather have predominantly international implications and repercussions.'[125]

The impact of WMDs on the modern self–defence doctrine appears to be the basis on which some commentators have concluded that a doctrine permitting certain anticipatory self–defence actions is available for States to utilise.[126] Truly anticipatory self–defence would permit the use of force '[i]f a state has developed the capability of inflicting substantial harm upon another, indicated explicitly or implicitly its willingness or intent to do so, and to all appearances is waiting only for the opportunity to strike'.[127] The author avers that this emerging realities which centre around anticipatory self-defence and bear relevance to emerging outer space military technologies and capabilities more than ever boost and bring into play the little used legal provision encapsulated in Article IX of the Outer Space Treaty which relates to a State's duty in non-hostile situations to engage in international consultations prior to engaging in activities which the State 'has reason to believe...would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space,...'[128]

### 3.4.4. Reprisals

During the Cold War offensive counterforce attack operations were the preferred military paradigm of both the US and the Soviet Union for countering the other side's strategic forces. The problem of destroying ballistic missiles on the ground before they were launched was widely recognised as far more tractable than the difficult challenge of destroying them in flight after launch. At present, the US is spending more on Missile Defense than on conventional counterforce and related

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[125] Leo Van Den Hole, 'Anticipatory Self–Defence under International Law' (2003) 19 *American University International Law Review* 69, 91.

[126] Erickson, above n 120, 149 (noting that 'anticipatory self–defence can be a legal justification for the use of armed force.').

[127] See Michael Glennon, 'The Fog of Law: Self–Defense, Inherence, and Incoherence in Article 51 of the United Nations Charter' (2002) 25 *Harvard Journal of Law and Public Policy* 539, 552.

[128] As a practical matter, though the Treaty requires it this provision has never been taken seriously by the international community and no such consultation has ever been undertaken since the adoption of the *Outer Space Treaty* in 1967.

capabilities dedicated to attacking theatre missiles on the ground before they are launched. In part, this allocation of resources reflects the abundance of weapons, platforms and sensors that can be applied to attacking theatre missiles and launchers, in addition to the full spectrum of other ground targets. Once the US deploys an effective Ballistic Missile Defence ('BMD') system, minimal deterrent capability posed by other major powers could be negated unless their missile arsenals are sufficiently improved in numbers and accuracy, and by fitting its ICBMs with Multiple Independently Targetable Re–entry Vehicles ('MIRVs').

This lies at the heart of Chinese military strategists' current vision of developing a concept of limited deterrence. Limited deterrence rests on a limited war–fighting capability aimed at communicating China's ability to inflict costly damage on the adversary at every rung on the escalation ladder and thus denying the adversary victory in a nuclear war. Limited deterrence requires hitting counterforce targets that are mobile. These forces would thus require effective space–based early warning, and some configuration of BMD capabilities. Given that China does not now have such capabilities, the straight–line prediction would be that over the next decade or so, we should expect to see a discernible effort to shift the forces away from a minimum strike–back assured destruction posture, which China now has, toward limited war–fighting.[129]

It is contended that in the history of the UN, there have been authoritative condemnations of both pre–emptive and retaliatory reprisal actions,[130] so it seems safe to conclude that both are widely expected to be inconsistent with the purposes

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[129] According to William S Murray III and Robert Antonellis, 'China's Space Program: The Dragon Eyes the Moon (and Us)' (2003) 47 *Orbis* 645, 650:

> The PRC's current nuclear deterrence doctrine emphasizes a Chinese retaliatory strike against counter value targets (enemy cities) rather than against counterforce targets (enemy missiles that could threaten China). This is because counterforce targeting requires the use of highly accurate ballistic missiles, preferably with multiple, independently targetable reentry vehicles (MIRVs)—two technologies that China currently lacks in its operational ICBMs.

[130] Richard Falk, 'The Decline of Normative Restraint in International Relations' (1985) 10 *Yale Journal of International Law* 265, 266. See generally Geoffrey Levitt, 'International Law and the US Government's Response to Terrorism' (1986) 8 *Whittier Law Review* 755.

of the United Nations and are therefore proscribed under Article 2(4) of the Charter. The predominant expectation is that merely pre–emptive and retaliatory reprisal actions as such are impermissible.

## 3.5. CONCLUSION

Professor Ian Brownlie opines that weapons which do not employ the force of shock waves and heat associated with more orthodox weapons, may nevertheless be assimilated to the use of force on two grounds:[131] 'In the first place the agencies concerned are commonly referred to as 'weapons' and forms of 'warfare...[and] the second consideration [is] the fact that these weapons are employed for the destruction of life and property'.[132] Regardless of whether a satellite is struck by an ASAT weapon (be it a nuclear burst, kinetic weapon or high–energy particle beam) or a computer virus, the effect is the same—crippling of the satellite and/or its function. Under Brownlie's formulation then, cyber–attack on a satellite does indeed equate to the use of armed force.[133] 'Thus, though space weapons were not actively envisaged during the drafting of the UN Charter, whether a satellite is struck by an ASAT weapon or ordnances deployed by an SOV, under Brownlie's formulation this cyber–attack would equate to the use of armed force.'[134]

With the US pursuing its ballistic missile defence shield, it is not impractical to assume that China or Russia will have no choice but opt for a strategic paradigm premised on counterforce targets should there be military conflict.[135] Tucked within this paradigm is the concept of limited deterrence, which rests on a war–fighting paradigm, aimed at communicating an ability to inflict costly damage on

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[131] Maogoto, above 78, 483.
[132] Brownlie, above n 30, 362.
[133] Petras, above n 59, 1259.
[134] Ibid. See also Jackson Nyamuya Maogoto, 'The Military Ascent into Space: From Playground to Battleground: The New Uncertain Game in the Heavens' (2005) 52 Netherlands International Law Review 461, 483.
[135] This is no idle argument. Among the systems in the works for Russia's military is a new type of warhead designed to outwit the missile defence shield being developed by the United States. The warhead is intended to be manoeuvrable like a cruise missile after re–entering the atmosphere from space.

the adversary at every rung on the escalation ladder. This may well lead to ghosts from the Cold War era coming back to life, in particular the 'counterforce attack' paradigm.[136]

The prospect of space warfare points to a military paradigm premised on 'counterforce' which in and of itself encompasses pre–emptive or retaliatory strikes. A broad right of anticipatory self–defence premised on a standard of 'emerging threat' would introduce dangerous uncertainties relating to the determination of potential threats justifying pre–emptive action. With this determination being state based the probability of opportunistic interventions justified as anticipatory self–defence will rise. After all the reality is that only States with the military muscle will be able to make use of this avenue and unilateral action will inevitably be coloured by national interest considerations.

> ...space warfare will require legal analyses that either convincingly demonstrate how current international law will regulate anticipated space operations, or conclude that international law is currently insufficient to the task. The increasing appearance of innovative analyses applying traditional legal categories to developing information warfare tactics could contribute greatly to the clarification of the *jus in bello* for space.[137]

The need for clear, coherent legal limitations in space is summed up by Colleen Sullivan's astute observation that despite customary law, which has evolved in the last few decades since human–created objects began orbiting the earth and is based on principles designed to keep weapons out of space, the international community must codify them in treaties to assure that weapons remain out of the space environment.[138] The author concurs enthusiastically with this observation. After all, this has been the general intent of the international community, evidenced by countless statements, numerous declarations and resolutions and the general tenor of the Space Law regime. The Thesis now turns to Chapter IV which

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[136] In the Cold War era, developments in non–conventional warfare—the primary non–focus of the UN Charter regime led to the articulation of MAD and the limited deterrence concepts by the superpowers. These concepts were very persuasive in maintaining a balance of sorts.
[137] Ramey, above n 80, 144.
[138] Colleen Sullivan, 'The Prevention of an Arms Race in Outer Space: An Emerging Principle of International Law' (1990) 4 *Temple International and Comparative Law Journal* 211, 235.

seeks to discuss and propose avenues that may afford a platform to contain and/or address the deployment of weapons in outer space.

# CHAPTER IV

## FROM STAR WARS TO SPACE WARS—THE NEXT STRATEGIC FRONTIER: PARADIGMS TO ANCHOR SPACE SECURITY

> [An] important feature of space law derives from the permissive nature of public international law in general. Because space law prohibits only the stationing of weapons of mass destruction in orbit around the earth, States may orbit weapons of lesser destructive capability for the simple reason that no specific prohibition exists.
>
> Major Robert Ramey (2000)[1]
>
> Although the realm of outer space has long represented the future of humankind, the development of space technology and the subsequent proliferation of space participants in recent years--encompassing civil, commercial, and military realms—has served notice to the world that the future is rapidly approaching ...the potential weaponization of space on the horizon, policymakers and pundits around the world are quick to acknowledge that the realm of outer space is the next strategic frontier for international security. Unfortunately, the concept of space security today is still as amorphous as the realm of space is vast.
>
> Andrew T Park (2006)[2]

### 4.1. INTRODUCTION

The debate over space weaponization is far from the theoretical discussion debated by the founders of the current legal Space Law regime. A measure of how far this has progressed is readily apparent in the discussions in Chapter II which detail the establishment by the USAF of a space operations directorate to oversee the operations of two activated space squadrons: 76th Space Control Squadron and the 527th Space Aggressor Squadron. Thus, the US already has a space force organized as component commands of the Army, Navy, and Air Force, and falling under the overall control of USSPACECOM.[3] Further Chapter III explores the emerging technology which is increasingly turning up viable space weapons ranging from ASATs, space-based lasers to SOVs. Currently the US is spending billions of dollars in the research and

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[1] Major Robert Ramey, 'Armed Conflict on the Final Frontier: The Law of War in Space' (2000) 48 *Air Force Law Review* 1, 65–6.

[2] Andrew T Park, 'Incremental Steps For Achieving Space Security: The Need For A New Way Of Thinking To Enhance The Legal Regime For Space', (2006) 28 *Houston Journal of International Law* 871, 872–3.

[3] See generally *U.S. Air Force Space Command: Command News* (2001) US Space Command <http://www.spacecom.af.mil/hqafspc/news/default.htm> at 16 April 2001.

development of advanced space weapons with its military establishment resolute that the dominance and control of space is a necessity. Moreover, many have called for the allocation of more assets to the Space Command. For example, in 1999 US Senator Bob Smith demanded that the USAF commit more resources to developing 'space power.'[4] Senator Smith, a vocal supporter of a space force went on to declare that he was committed to a separate US space force.[5]

Recent leaps in space technologies have put the development of space weapons within the realm of possibility for several different countries. As New World Vistas: Air And Space Power For The 21st Century, a USAF board report, states: 'In the next two decades, new technologies will allow the fielding of space-based weapons of devastating effectiveness to be used to deliver energy and mass as force projection in tactical and strategic conflict. These advances will enable lasers with reasonable mass and cost to affect very many kills.'[6] While the US continues it relentless drive to place weapons in outer space, the other major space faring powers are not sitting idly by the sidelines. China has embarked on an ambitious space program part of which is driven by military considerations. A Pentagon report in 1998 warned that 'given China's current level of interest in laser technology, it is reasonable to assume that Beijing would develop a weapon that could destroy satellites in the future.'[7] The Report was no idle warning: '[i]n 1999, the Chinese displayed a portable laser weapon, advertised for blinding human vision and electro–optical sensors highlighting a potential acquisition of high–energy laser equipment that could be used in the development of ground–based EMP weapons'.[8] The Chinese space program's mid–term objectives include creating an integrated military Earth observation system,

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[4] See William Scott, 'U.S. Adopts "Tactical" Space Control Policy' (1999) 150(13) *Aviation Week and Space Technology* 35.
[5] Ibid.
[6] Park, above n 2, 881.
[7] Bill Gertz, 'Chinese Army is Building Laser Weapons', *Washington Times* (Washington), 3 November 1998, A1.
[8] Leonard David, *Pentagon Report: China's Space Warfare Tactics Aimed at U.S. Supremacy* (2003) Space.com <http://www.space.com/news/china_dod_030801.html> at 28 March 2006.

building a Chinese–operated satellite broadcasting and telecommunications system[9] and fielding a constellation of space–based reconnaissance systems with real–time intelligence capabilities.[10]

With the US pouring billions of dollars into its space militarization and weaponization program and Sino-Russian cooperation on the rise, it is imperative that the international community act now rather than have to react later. The UN stands the chance to be at the vanguard of this process. First, it has maintained an active role in the passage of the leading multilateral principal treaties and has an active Committee (COPUOS) dedicated to the use of outer space. Unfortunately, the creators of the current legal regime for space failed to foresee the rate at which these advancements would take place, and as a result, the shortcomings in the current regime beg the question of whether law can keep up with technology. While for almost its entire history, the UN in general, and the Security Council in particular, have approached their mission in a reactive manner, this stance is untenable in the face of a determined push by space-faring powers to not only dominate but also to control space as a battle frontier. As defence goals increasingly focus on fielding national missile defence systems both a ground-based defence system and space-based systems, the international community must rise up to the challenging emerging issues in the interests of international peace and security. An arms race in space will seriously erode peace and security and generate an atmosphere of insecurity. This Chapter seeks to explore avenues through which the militarization of space may be regulated and its weaponization addressed.

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[9] *China and Weapons of Mass Destruction: Implications for the United States: Conference sponsored by the US National Intelligence Council (NIC) and the Federal Research Division (FRD), Library of Congress* (1999) Nuclear Threat Initiative <http://www.nti.org/e_research/official_docs/cia/11599CIA.pdf> at 28 March 2006.

[10] Mark Stokes, *China's Strategic Modernization: Implications for the United States* (1999) Strategic Studies Institute of the US War College <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB74.pdf> at 28 March 2006.

## 4.2. AVENUES FOR ANCHORING AND SECURING SPACE SECURITY

### 4.2.1. Re-orientating the Peace and Security Framework

One of the most profound events at the start of the 21st century in regard to international peace and security was the devastating terrorist attacks on 11 September 2001 against the US. The horrors of September 11 and the events that unfolded on that tragic day presented a terrible day in history.[11] While this attack marked the maturation of global terrorism, its ramifications were far wider. The attacks pointed to the fact that drastic events outside of the contemplation of the UN Charter's drafters would change the international security environment. A changed international security environment was as manifest in President George W Bush Jr's speech in June 2002 to the 200th graduating class of the US Military Academy at West Point. In his speech Bush Jr noted that:

> The gravest danger to freedom lies at the crossroads of radicalism and technology. When the spread of chemical and biological and nuclear weapons, along with ballistic missile technology—when that occurs, even weak States and small groups could attain a catastrophic power to strike great nations.[12]

Though the West Point speech was based largely on the maturation of global terrorism, the author will dwell on a theme that was rather poignant—the dangers of proliferation of technology. While Bush Jr dwelt on the matter of advanced technology being in the hands of terrorists, it is also just as important that States themselves avoid developing space weaponization technology that will inevitably lead the international community down the path of insecurity and ignite an arms race. While it would seem as strange for the author to use the West Point speech as a

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[11] Four commercial aircraft were hijacked, two of them were flown into the twin towers of the World Trade Centre in New York City, causing both buildings to collapse, a third aircraft crashed into the Pentagon building in Arlington, Virginia, which houses the headquarters of the US Department of Defence and the US armed forces, the fourth aircraft, crashed near Somerset, Pennsylvania. Rensselaer Lee and Raphael Perl, *Terrorism, the Future, and US Foreign Policy (Issues Brief For Congress)* (2002) 1.

[12] George W Bush, 'Commencement Address' (Speech delivered at the US Military Academy at West Point, 1 June 2002), quoted in The White House, *The National Security Strategy of the United States of America* (2002) 13.

platform to argue against space weaponization, it is imperative that a few factors are brought to light. First, the history of mankind would be hard pressed to judge States kindly—States have proved to be just as irresponsible as non-statal entities in the use of armaments. Second, new technology has only served to open new avenues for efficient killing whether that be use of atomic devices in World War II, landmines or cluster bombs. Lastly, the nature of State hegemonic competition has always been dominated by a belief that economic and political power is underwritten by military might.

Just as the West Point speech pointed to a strong concern about national interest on the central matter of national security. In the international arena, any threat to global security is problem shared by all members of the UN, particularly when new technology points to development of deadly, devastating space weaponry. The deadlier the technology and the more the likelihood of military conflagration, the more the international debate is required. In this respect, it is important to recall that the UN security system addresses both form and substance. Indeed, the UN Charter does not prohibit the use of force, but it does seek to regulate its use. The more sophisticated and complicated forms of using military forces under international auspices require the United Nations to contribute to shaping of both the practice and scope of the international disarmament agenda with regard to space. What greater curative platform would be than dealing with threats that have the potential of widespread deadly effects, but that have not yet materialized? To quote President John F Kennedy's observation during the Cuban Missile Crisis in 1962: 'We no longer live in a world where only the actual firing of weapons represents a sufficient challenge to a nation's security to constitute maximum peril.'[13]

It is to be remembered that the sophist justification for the Soviet nuclear build-up was that it was merely a reaction to a US–initiated arms race (and vice versa). The

[13] Charlotte Ku, 'When Can Nations Go To War? Politics and Change in the UN Security System', (2003) 24 *Michigan Journal of International Law* 1077, 1099.

author argues strongly that there is no way argument can be made (logically or otherwise) that maintaining international peace and stability is by ratcheting up an arms race in outer space and the correlative danger of the use of armed force. There is a need for the UN to carry out a re-appraisal of its regime on the use of force and re-interpret them in a different light. We no longer live in an era when the most powerful weapons were muzzle–loading cannons with a maximum range of about three miles. The nature of space weaponry as outlined in Chapter III is such that there is great leeway for military confrontation to emanate from a misunderstanding such as a malfunctioning laser that 'blinds' a third State's satellite or an ASAT being hoisted into orbit that accidentally detonating creating a deadly Van Allen Belt field destroying a third State's space assets whether military or civilian. Who will prevent or counsel the victim state that it was not a sneak 'Space Pearl Harbour' when space faring powers are getting nervous and worried about the vulnerability their space assets?

The author in a burst of optimism argues that the existence of the UN has a quasi–universal international institution has fundamentally changed the character of the international system and the post-World War II international security system. The is based on the reality that despite a number of failings the UN Charter has shown itself adept to adapting to a variety of new tasks, but this remains incomplete. While the UN Charter system as a means to restrain the use of force has developed more fully than the Charter system's ability to authorize and to enable States to use force against a member state, Article 1 remains pivotal to the UN Charter's mandate. This article articulates the central purpose of the UN 'to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression.'

There is no doubt that the UN was founded to be attentive first and foremost to peaceful settlement of international disputes and to rely on the military instrument of

policy only as an extreme last resort.'[14] The Security Council is thus required to fulfil a central constitutive principle of the UN, stated in the Charter's stirring preamble: 'to save succeeding generations from the scourge of war.' The undercurrent is a recognition that the UN Charter provision though in an age before the advent of intercontinental ballistic missiles, WMDs, and space weapons offers room to accommodate a mandate to address the weaponization of space but only if the UN seizes the chance before rather than after space powers deploy weapons in outer space. This may well afford a platform for a moratorium on deployment of weapons in outer space and a window of opportunity to negotiate a total ban of weapons in outer space outlined later in this Chapter.

### 4.2.2. Coercive Arms Control: 'Coming Down to Earth'

On 7 June 1981 the Israeli air force bombed the Iraqi nuclear complex at Tuwaitha.[15] The attack was strongly condemned by the UN Security Council as a 'clear violation of the Charter of the United Nations and the norms of international conduct.'[16] Nearly ten years after voting to condemn the Israeli raid, the US struck at the same target during the first Gulf War.[17] Unlike the Israeli raid, the American action was not denounced by a Security Council Resolution. In rallying national and international support for its stand against Iraq, the George Bush Sr administration stressed not only the economic consequences of Iraq's control over Kuwait's oil, but importantly Iraq's unconventional weapons capability identifying Iraq's capability as the pre-eminent danger.[18]

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[14] Jules Lobel and Michael Ratner, 'Bypassing The Security Council: Ambiguous Authorizations To Use Force, Cease-Fires And The Iraqi Inspection Regime' (1999) 93 *American Journal of International Law* 124.

[15] David K Shipler, 'Israeli Jets Destroy Iraqi Atomic Reactor', *New York Times* (New York), 9 June 1981, A1.

[16] *On the Israeli Military Attack on Iraqi Nuclear Facilities*, SC Res 487, UN SCOR, 36th Sess, 2288th mtg, UN Doc S/RES/487 (1981).

[17] Rick Atkinson and Ann Devroy, 'U.S. Claims Iraqi Nuclear Reactors Hit Hard', *Washington Post* (Washington), 21 January 1991, A1.

[18] See James Baker, 'Why America Is in the Gulf' (1990) 1 *Department of State Dispatch* 235; McGeorge Bundy, 'Nuclear Weapons and the Gulf' (1991) 70(4) *Foreign Affairs* 83, 89.

Not only did the Security Council never condemn the American raid on Tuwaitha, but subsequently, it actually endorsed the strike. As part of its terms to end the war, the *Security Council ordered Iraq to destroy all manufacturing capabilities for the production of nuclear, chemical, and biological weapons, as well as those for ballistic missiles.*[19] While Iraq's nuclear and biological weapon programs may have violated its treaty obligations,[20] its possession of chemical weapons and ballistic missiles was not prohibited by international law. When Resolution 678 was adopted, only the use of chemical weapons was prohibited by international law.[21] The Security Council's blanket demand that Iraq be prohibited from manufacturing weapons of mass destruction, regardless of Iraq's actual international legal obligations would seem to provide ground for an argument that a coercive arms control agenda can fit within the mandate of the UN. As Roger K Smith notes, in the aftermath of the first Gulf War, scholars and diplomats were left with the critical question of whether the Security Council, by omission and commission had ushered in a new world order, 'an order where "coercive arms control" is both a legal and legitimate instrument of statecraft'.[22]

Smith's reflection above provides the author with the basis for the argument that this may well be a platform that demarcates a paradigm acknowledging the potential of the expansive language of Article 1 of the UN Charter outlined in the section above

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[19] *On Restoration of the Sovereignty, Independence and Territorial Integrity of Kuwait*, SC Res 687, UN SCOR, 46th sess, 2981st mtg, UN Doc S/RES/678 (1991).

[20] Iraq is party to the *Treaty on the Non–Proliferation of Nuclear Weapons*, opened for signature 1 July 1968, 729 UNTS 161 (entered into force 5 March 1970), and to the *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction*, opened for signature 10 April 1972, 1015 UNTS 163 (entered into force 26 March 1975) ('*Chemical Weapons Convention*').

[21] *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction*, opened for signature 13 January 1993, 32 ILM 800 (entered into force 29 April 1997). In regard to ballistic missiles, the only relevant international law is the Missile Technology Control Regime ('MTCR'), which merely seeks to control the export of long-range (more than 300 kilometres) ballistic missile equipment and technology: see *Agreement on Guidelines for the Transfer of Equipment and Technology Related to Missile: Exchange of Letters Between Canada, France, Federal Republic of Germany, Italy, Japan, United Kingdom, and the United States* (7 April 1987) 26 ILM 599.

[22] Roger K Smith, 'The Legality of Coercive Arms Control', (1994) 19 *Yale Journal of International Law* 455, 457.

to implicitly serve as legal authority for embracing coercive arms control.'[23] In tandem with this, Chapter VII of the Charter specifies how the UN is to exercise this broad authority by providing that:

> The Security Council shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security.[24]

Article 39's grant of wide discretionary power to the Security Council is bolstered by the fact that the drafters of the Charter did not offer precise definitions as to what constitutes a 'threat to the peace,' a 'breach of the peace,' or an 'act of aggression.'[25] Although the UN General Assembly eventually reached a rather limited definition of aggression, the Security Council is not bound by it. Given the history of the Security Council, the reality seems that the definition of these terms was geared to be subjective in view of the fluidity and malleability of state actions and could well afford leeway to embrace the emerging Space arms race by allowing the Security Council an avenue to classify certain activities in space as 'acts of aggression'. This would offer an avenue to regulate deployment of devices by space faring powers that are obviously geared to be offensive.

The position elaborated above regarding the possible role of the Security Council in coercive arms control is further buttressed by the UN Security Council unanimous adoption of a resolution imposing limited sanctions on North Korea for its missile tests and demanding that the reclusive communist nation suspend its ballistic missile program after its 5 July 2006 testing of several mid-range missiles and a long-range missile.[26] The resolution not only condemns North Korea's multiple missile launches

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[23] Ibid 459.
[24] *Charter of the United Natons* art 39.
[25] Leland M Goodrich et al, *Charter of the United Nations: Commentary and Documents* (3rd revised ed, 1969), 295.
[26] *Letter dated 4 July 2006 from the Permanent Representative of Japan to the United Nations addressed to the President of the Security Council (S/2006/481)*, SC Res 1965, UN SCOR, 61st sess, 5490th mtg, UN Doc S/RES/1695 (2006).

but demands that North Korea 'suspend all activities related to its ballistic missile program.' It is significant that the tests in and by themselves were not illegal but nonetheless they signalled a threat to international peace and security by the reclusive and unpredictable Stalinist State. The unanimous vote at the Security Council in regard to the North Korea tests after a contentious debate certainly sends a message that the world powers can work together and that the UN can be effective in sending a united message. However, the Security Council must desist from double standards. In terms of destructive weaponry the author argues that there is no such standard as responsible and irresponsible States. A devastating weapon's capability isn't lessened when deployed by one nation and not another. The only issue is perhaps likelihood of deployment. This statement is geared to note that only three days after the North Korea test, to very little public notice, India launched its own long-range missile test. This missile test was not denounced by anyone as a provocation. This means that any position adopted proscribing the deployment of weapons in space should be across board unless off course the UN wishes to get enmeshed yet again in a situation where it allowed some States to officially enter into the 'Nuclear Club' and then closed the doors a move that has done more damage to nuclear proliferation than the whole sentiment of rogue nations.

This is buttressed further by the ongoing dilemma by the international community over Iran's nuclear program which highlights the debilitating issue of interweaving politics and the law. Part of the problem is that Iran argues that it has a legal right to enrich uranium for peaceful purposes under the Nuclear Non–Proliferation Treaty, a right which in 2005 the US and the European Union ('EU') began to assert had been forfeited by a 'clandestine' nuclear programme. While the Thesis will not enmesh itself in this contentious issue, one thing can be said, Iran has been able to frequently to compare its treatment to other nations that have developed an indigenous nuclear weapons capability: Israel, India and Pakistan. Argument may be made that as

opposed to this three, Iran is a State Party to the Nuclear Non-Proliferation Treaty,[27] however it is precisely on the basis of this that Iran argues that it has a right to develop research, production and use of nuclear energy for peaceful purposes. The dynamics of the Iran nuclear program and the active debate that it generated in the Security Council regarding sanctions serves to offer further traction and mileage to the argument espoused here regarding coercive arms control that would be extrapolated to the weaponization of outer space.

In recent years, the precedent for intrusive, multilateral monitoring of a state's unconventional and conventional military capacity has become well established. As Roger K Smith notes: 'The agreements on intermediate-range nuclear forces (INF), conventional armed forces in Europe (CFE), strategic nuclear arms reductions (START I & II), and the chemical weapons convention all contain elaborate verification provisions, including sustained on-site monitoring and challenge inspections.'[28] Arms control policy and strategy, perceived as a program and framework in which the international community shares common objectives can be achieved on a basis of shared expectations. Under these perceptions the agreements, and the arms control policy and strategy, serve the international community by providing greater strength and security of a public order. As that order is strengthened, it becomes a reliable basis upon which to rest international peace and security. It may well be the time to dust off some previous initiatives from yester years. For example, in 1957, Western States, including the US, proposed the creation of an 'inspection system which would ensure the use of outer space exclusively for peaceful and scientific purposes.'[29] About three decades later in 1985, the former Soviet Union's proposed the creation of a 'World Space Organization,' which would ensure 'international cooperation in the peaceful uses of outer space in the context of

[27] *Treaty on the Non-Proliferation of Nuclear Weapons*, opened for signature 1 July 1968, 729 UNTS 161 (entered into force 5 March 1970).
[28] Smith, above n 22, 473.
[29] Bruce A Hurwitz, *The Legality of Space Militarization* (1986) 174.

its non-militarization.'[30] These proposals ought not to be viewed as simplistic pipe dreams but as serious propositions that may well afford the international community the basis of serious deliberations to address and contain the matter of space weaponization.

### 4.2.3. Resolving the 'Peaceful Purposes' Conundrum: Banning Space Weaponry

In the process of banning the placement of WMDs in orbit and the establishing of military bases in space, the Outer Space Treaty codified the term 'peaceful use of outer space.' However, no consensus has been reached as to an operational definition of 'peaceful.'[31] In fact, in many nations, the term 'peaceful' has become synonymous with the term 'non-aggressive' rather than 'non-military' thereby implying that 'all military uses were and are allowed and lawful as long as they remain 'non-aggressive' as permitted under Article 2(4) of the UN Charter, which basically prohibits 'the threat or use of force.'

The Outer Space Treaty as noted in Chapter 1 is so revered that it is often referred to as the 'Magna Carta' of outer space. It certainly is of such significance as to amount to the 'Constitution' of outer space. Of particular importance is the fact that it was the first treaty to not only set rules governing access to space, but more pertinently, it addresses the issue of space weaponization. The fundamental premise of the Outer Space Treaty is that space is not open to national appropriation but should be reserved for the pursuit of the common interest of mankind and for 'peaceful purposes.' 'The underlying goals of the Outer Space Treaty are to avoid colonial competition in space and to avert an extension of the Cold War's dangerous military rivalry.'[32] The Outer Space Treaty provides the basic framework for international order in outer space, introducing principles that have since been elaborated on in later treaties. Due to the few number of States that are capable of operating in space, the Outer Space Treaty

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[30] Ibid 176 (citing Radio Moscow, 17 August 1985 and 2 October 1985).
[31] Sarah Estabrooks, *Opposing Weapons in Space* (2002) Ploughshares Monitor <http:// www.ploughshares.ca/libraries/monitor/mons02a.html> at 12 August 2006.
[32] Park, above n 2, 877.

has been largely untested, and its principles have been by and large aspirational.'[33] Consequently, space powers have determined that military support activities such as observation, surveillance, communications, and the detection of nuclear explosions on Earth are 'passive' and thus fall under the umbrella of 'peaceful purposes.'[34] As Andrew T Park notes: 'While all hope for preserving space for peaceful purposes is not lost, [there is a need to] narrow the definition of peaceful purposes if progress is to be achieved. The era of space as a truly peaceful sanctuary may be gone, but it may not be too late to regulate space activities in an effort to mitigate the potential of space weaponization.'[35] It is significant that for decades national speeches and international declarations increasingly employ the phrase 'the prevention of an arms race in outer space.'

In Chapter III, the Thesis in a robust tour de horizon reached the conclusion that the international community has proclaimed and repeatedly affirmed that outer space shall be used for peaceful purposes, not for military advantage. The United Nations Conferences on Disarmament, the General Assembly, COPUOS, and the international scientific community use this phrase as a basis for deliberations[36] Despite the non-military/non-aggressive dichotomy, 'no case can be made for a space-based weapon systems consistent with this norm, which binds space faring nations, not only as conventional law but also as international custom.'[37] This is in light of the explicit provisions of the Vienna Convention on the Law of Treaties that a nation does not act in good faith when it disregards *pacta sunt servanda* and violates extant treaty commitments. This imperative was articulated Professor Martin Feinrider during a special proceeding of the American Society of International Law in 1985.

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[33] Ibid.
[34] See Abram Chayes et al, 'Space Weapons: The Legal Context', in Franklin A Long et al (eds), *Weapons in Space* (1986) 193, 196–7.
[35] Park, above n 2, 884.
[36] Colleen Sullivan, 'The Prevention of an Arms Race in Outer Space: An Emerging Principle of International Law' (1990) 4 *Temple International and Comparative Law Journal* 211.
[37] Nitza Milagros Escalera, 'Arms Control And U.S. Policy: 'Star Wars,' Mad, Mx And Pershing IIS' (1985) 79 *American Society of International Law Proceedings* 233, 235.

Professor Feinrider noted that the principle of *pacta sunt servanda* means that 'international law [is] binding on all nations, including both superpowers'. He cautioned that international lawyers reviewing treaties and state practice 'must ascertain fairly the parties' intentions and the resulting legal obligations, and then analyze subsequent practice with a view to furthering good faith performance of such obligations.'[38] He further warned that it is not appropriate to 'rely on strained readings of text and disingenuous presentations of fact to erode legal obligations and thus rationalize avoidance of constraints on state behavior'.[39] This caution issued by Professor Feinrider is particularly relevant to one of the central provisions of the Outer Space Treaty—Article III of the Outer Space Treaty which provides that States shall carry out activities in space in accordance with international law, including the UN Charter in the interest of maintaining international peace and security. In essence then, the question of maintaining international peace and security should preclude utilizing space as a medium of warfare. The only possible exception would be a defensive system, but this is clearly a rather slippery slope considering the dual-purpose nature of space technology. In any case no nation would feel the need to field a defensive system in space when no space weapons are deployed. This means then that the best paradigm would be a blanket proscription of any deployment of weapons in space.

The position on a blanket proscription of weapons deployment in space is buttressed by a couple of very poignant illustrations. To commence with one of the major space-faring powers, the Soviet Union (now Russia) as argued in the past and maintains the position that based upon contemporary international law it is important that outer space be excluded from the sphere of the arms race and that all channels for militarization and weaponization of outer space should be blocked. While this position may be taken with a grain of salt, it is significant that the Soviet Union (as it then was) one of the two dominant space faring super powers proposed successive

[38] Ibid 233.
[39] Ibid 234.

radical solutions on the prevention of the militarization and weaponization of space notwithstanding that it had the capacity and capability as a superpower to transform itself into a peerless space power along with the US. As early as 1981, the Soviet Union submitted to the United Nations Committee on Disarmament a Draft Treaty on the Stationing of Weapons of any Kind in Outer Space.[40] The draft treaty sought to ban deployment of all types of weapons in outer space and to provide for the use of national technical monitoring facilities. Two years later in 1983, the Soviet Union made specific proposals on banning and eliminating space attack weapons, as well as any land, air or sea–based systems designed to destroy objects in outer space. During the 38th session of the UN General Assembly the Soviet Union made specific proposals for the conclusion of a treaty on the prohibition of the use of force in outer space and from space against the Earth be concluded. The main elements of the draft treaty were:

> (1) The prohibition of the testing or deployment by placing in orbit around the Earth or stationing on celestial bodies or in any other manner of any space-based weapons for destruction of objects on the Earth, in the atmosphere or in outer space.
> (2) The prohibition of the use of space objects in orbit around the Earth, on celestial bodies or stationed in outer space in any other manner as means to destroy any targets on the Earth, in the atmosphere or in outer space.
> (3) The obligation of states not to destroy, damage, or disturb the normal functioning or change the flight trajectory of space objects of other states.
> (4) The prohibition of the testing or creation of new antisatellite systems and the destruction of such systems that may already exist.
> (5) The prohibition of the testing or use of manned space craft for military, including antisatellite, purposes.
> (6) The provision for a broad range of measures to verify compliance with the obligations envisaged by the treaty.[41]

Hot on the heels of its comprehensive draft treaty proposal in 1983, and following on its proposal in 1981, in 1984 during the 39th Session of the UN General Assembly the Soviet Union once again tabled a proposal whose underpinning philosophy was that the General Assembly proclaim it the historic responsibility of all States to ensure that exploration of outer space should be carried out exclusively for peaceful

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[40] See *General and Complete Disarmament*, GA Res 36/97, UN GAOR, 36th sess, 91st plen mtg, UN Doc A/RES/36/97 (1981).
[41] Quoted in Escalera, above n 37, 245.

purposes and for the benefit of mankind.[42] The Soviet proposal proposed that the UN General Assembly declare that the exclusion of outer space from the sphere of the arms race is an international obligation, and that the prevention of militarization would provide an opportunity for the peaceful use of space to solve the acute economic, social and cultural development problems facing mankind. In its final resolution, the General Assembly took this on board noting that there was a grave concern regarding the extension of an arms race into outer space and requesting the conclusion of a treaty to safeguard international peace and security.[43]

It is significant that as recently as 2003, China publicly declared 'that space should not be militarized and that space technologies should be used for peaceful purposes'.[44] This is even more poignant when one considers that it was in the same year that an ascendant, cashed up China joined the 'Space Club' after a successfully launched a manned space flight becoming only the third nation in the history of mankind to do so. In light of this assertion and the Soviet proposals outlined above the spirit of which continues to permeate through Russian official sentiment, there seems to be a gathering momentum both in letter and spirit for an agreement being reached on the prohibition and elimination of attack space weapons and all other systems designed to destroy objects in space. The future of space security will depend greatly on how effectively this initiative is attained and the need for space faring nations to set aside their differences and come together in an effort to strengthen the current legal regime. If they cannot, outer space will become even more susceptible to the exploitation of these space stakeholders and their need to protect and promote their space interests.

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[42] *Prvention of an Arms Race in Outer Space*, GA Res 39/59, UN GAOR, 39th sess, 97th plen mtg, UN Doc A/Res/39/59 (1984).
[43] Ibid.
[44] William S Murray III and Robert Antonellis, 'China's Space Program: The Dragon Eyes the Moon (and Us)' (2003) 47 *Orbis* 645, 649.

### 4.2.4. Amending the Outer Space Treaty: A Glimmer of 'Light'

It is argued in certain quarters that the determination of a peaceful use of space depends on the purpose of the activity.[45] Thus the position is taken that 'purpose' is 'an intended or desired result; end, aim; goal.'[46] This would mean that the arguments against the militarization and weaponization of outer space are rendered redundant since the argument by space faring nations is that their programs are geared towards advancing national self–defence–a 'peaceful purpose.' Further traction for this argument is to be found in Major Robert Ramey's synthesis of state practice. He notes that an examination of the Space Law regime discloses that, at a minimum, the following military activities in outer space are not prohibited:

1. The use of military personnel;
2. The use of space–based remote sensors in support of combat or other military purposes;
3. The use of space–based communication, navigation, and meteorological systems for combat or other military purposes;
4. The deployment and non–aggressive use of conventional space weapons; and
5. The transiting of nuclear and other weapons of mass destruction in non–orbital trajectories.[47]

Despite the loopholes identified above, the fact and reality is that Space Law requires that 'outer space' be used for 'peaceful purposes'. The concept is an accepted axiom of customary international law and continues to be recognised in the majority of space–related international agreements and UN declarations or resolutions enacted today. Although the UN Charter requires States to maintain peace, the Outer Space Treaty explicitly confirms that requirement is applicable to Outer Space. States have an obligation, under the UN Charter, the Outer Space Treaty, and the international satellite organisation agreements to which they are parties to use outer space for peaceful purposes. The term 'peaceful' can be found in virtually all UN documents devoted to outer space matters. 'Most experts agree, however, that the Outer Space Treaty does not prohibit 'military use' of space. There has been a consensus developed 'within the United Nations that 'peaceful' more specifically equates to

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[45] Robert Bridge, 'International Law and Military Activities in Outer Space' (1979) 13 *Akron Law Review* 649, 658.
[46] Richard Morgan, 'Military Use of Commercial Communication Satellites: A New Look at the Outer Space Treaty and "Peaceful Purposes"' (1994) 60 *Journal of Air Law and Commerce* 237, 305.
[47] Ramey, above n 1, 157.

'nonaggressive'.[48] This stance is at odds with the Conference on Disarmament's observation in 1986 that:

> Outer space should be used exclusively for peaceful purposes for the benefit of ... mankind. No country should develop, test or deploy space weapons in any form. An international agreement on the complete prohibition of space weapons should be concluded through negotiations as soon as possible.[49]

The 'peaceful purposes' principle as argued in the foregoing paragraphs establishes a norm in support of the maintenance of outer space for peaceful purposes. This norm has been sustained for nearly forty years, and in the process, it has ensured that the realm of space would not be used as a battleground for international actors to settle their disputes. In order for this normative standard to carry weight with regard to space weaponization, it needs to elaborate a normative legal regime for the future of space. Although it has its shortcomings, the Outer Space Treaty has, for the most part, withstood the duration of time, and for that exact reason, an effort to strengthen it must be pursued John Rhinelander and Philip Coyle advocate for a unanimously endorsed amendment to the Outer Space Treaty to prohibit state deployment of military assets in space that fall short of the 'peaceful purposes' paradigm. The author enthusiastically supports this position since it would generate a great deal of valuable momentum.[50] However, this strategy would first require that the States Parties to the Outer Space Treaty convene a meeting. The most substantial barrier to an amendment is likely to be the reluctance of States to accept new limitations upon their sovereign autonomy to use force in space. This reluctance is likely to stem from limits on their autonomy to unilaterally apply defensive force in space.

Consideration should be given to establishing a discussion forum starting with either a variant of a UN subcommittee, or perhaps convocation of major space–faring

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[48] Christopher Petras, 'Military Use of the International Space Station and "Peaceful Purposes"' (2002) 53 *Air Force Law Review* 135, 171.
[49] *Conference on Disarmament, Final Record of the 350th Plenary Meeting*, UN Doc. CD/PV.350 (1986).
[50] See Philip E Coyle and John B Rhinelander, 'Drawing the Line: the Path to Controlling Weapons in Space' (2002) 66 *Disarmament Diplomacy* 27.

nations (incorporating non–space–faring nations). The main focus of the forum would be to address in detail the prospect of promoting 'no first deployment pledges' and establishing transparency and other confidence building measures. The important goal would be to ensure the presence and participation of the three major space faring nations (the US, Russia and China). In this approach, rather than striving for an operational regime based largely on a freedom of the seas analogy, the international community should play an active role in negotiating rules to ensure that commercial, security, and scientific interests in space are secured. This would establish a normative approach that 'emphasizes international cooperation among all parties with an interest in space' with the ultimate goal being embodied in a treaty that would be designed to prevent the predominance of any single power in space.'[51]

Key space–faring nations Russia and China, have espoused positions and proposals that aim to achieve a complete demilitarization of outer space. In 2000, the Chinese Ambassador to the United Nations on Disarmament recently voiced his country's view that '[t]he prevention of an arms race and the prohibition of weapon systems in outer space will...exempt outer space from wars...[and will] be crucial for maintaining peace, security, and stability on the Earth.'[52] Moreover, the Chinese ambassador, in a statement seemingly targeted at the US, stated that 'attempts to seek so-called 'absolute superiority' for oneself at the expense of the security of others will definitely go nowhere and benefit nobody.'[53] In addition, Russian President Vladimir Putin, who ostensibly holds the same position, initiated and hosted in April 2001 an international conference aimed at preventing an arms race in space.[54] The space–faring powers ought and should be held to their word.

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[51] Park, above n 2, 891.
[52] Envoy at UN Opposes Outer Space 'Arms Race,' BBC SUMMARY OF WORLD BROADCASTS, 5 October 2000.
[53] Ibid.
[54] See Colum Lynch, 'U.N. Summit Ends with Ambitious Declaration; Pledge on Poverty, AIDS, and Peacekeeping No Cure for Finances, Mideast Stall', *Washington Post* (Washington), 9 September 2000, A16. See also Fred Weir, 'Russia Honors First Space Hero', *The Toronto Star* (Toronto), 12 April 2001, A21.

## 4.3. CONCLUSION

Currently various aspects of space asset management are discussed in widely different fora with little crossover in participation. Given that space security involves commercial, military, scientific, and political aspects, it might be worthwhile to consider how to ensure that space security efforts in the different realms are coordinated. While the answer may simply be to reinvigorate the UN Office of Outer Space Affairs, the international community should consider the creation of a new and voluntary annual gathering of all space stakeholders. To guard against the vagaries of changing fortune and shifting international alignments, the United Nations will need to increase the scope of its jurisdiction over domestic based on the UN's mandate on international peace and security. The international community should not allow developing space warfare technologies to outpace the Space Law regime. The fluidity and flux of international politics ought to offer a strong reason for the UN to categorically deny each and every nation explicit or tacit permission to place weapons in outer space since changing geopolitical dynamics will lead other aspiring space powers up the same path and the shifting tides of power politics will serve to hobble the law.

It is evident from this Thesis' analysis that when the reality of space warfare dawns on mankind, there will be a serious legal deficit in the absence of specific international norms restricting the deployment of weapons in outer space. However as this Chapter has noted there are several avenues that can address this. Given the tremendous potential destructive power of space weapons, strong argument can be made that the development and deployment of such weapons ought to fall within the purview of the Security Council even though they were not known to the Charter's drafters. As we progress into the 21$^{st}$ century, space warfare will become a reality necessitating the formulation of a new legal commitment in the international community to conclude a treaty banning deployment of weapons in outer space or at the very least amending the Outer Space Treaty to clarify in no uncertain terms that

'peaceful' means precisely that hence avoiding sophist arguments by space powers. Such an ultimate conclusion would limit both countries' future use of outer space. Though the meaning of the phrase 'peaceful uses of outer space' has long defied specific definition, the 'danger' can be addressed if its parameters are established eviscerating the self interests of space faring powers.

# CONCLUSION

> Strategic vision is a rare phenomenon and exposes one to ridicule and scepticism. The early proponents of air and armored warfare had their detractors and skeptics before World War II validated their theories. Today, there is a new frontier, one that needs to be approached with vision and innovation if a nation is to prevail and survive independently and freely... space, the new frontier.
>
> Major Elek J Szkalak (1988)[1]
>
> ...we must guard against the misuse of outer space. We recognized early on that a legal regime was needed to prevent it [from] becoming another area of military confrontation. The international community has acted jointly, through the United Nations, to ensure that outer space would be developed peacefully. But there is much more to be done. We must not allow this century, so plagued with war and suffering, to pass on its legacy to the next, when the technology at our disposal will be even more awesome. We cannot view the expanse of space as another battleground for our earthly conflicts.
>
> Kofi Annan, United Nations Secretary-General (2000)[2]

The Space Law regime is premised on the basic principle of 'peaceful' purposes, which at first glance seems to militate against any sort of militarization or weaponization operations.[3] However, '[o]uter space has achieved the dubious distinction of being the most heavily militarized environment accessible to humans.'[4] As a result, there has been tacit, if not explicit, acknowledgment of this reality. Major Robert Ramey notes that this reality 'provides the strongest evidence that as far as its principles will apply to future technologies, the law of war has been incorporated into military space operations by virtue of the Outer Space Treaty.'[5] However, this bold assertion is not black and white. The same provision equally applies to the counter perspective that space should be a science sanctuary for endeavours geared towards peace not a battleground. This arises

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[1] Major Elek J Szkalak, *Military Implications of the Soviet Space Program* (1988) GlobalSecurity.org <http://www.globalsecurity.org/space/library/report/1988/SEJ.htm> at 28 March 2006.

[2] Kofi Annan, 'World Community Must Leave No One Behind As It Moves to Explore, Develop Outer Space, Declares UN Secretary-General' (Speech delivered at the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19 July 1999), available at <http://www.un.org/events/unispace3/speeches/19sgspace.htm> at 12 August 2006 (emphasis added).

[3] Richard Morgan, 'Military Use of Commercial Communication Satellites: A New Look at the Outer Space Treaty and "Peaceful Purposes"' (1994) 60 *Journal of Air Law and Commerce* 237, 278.

[4] Ivan Vlasic, 'The Legal Aspects of Peaceful and Non–Peaceful Uses of Outer Space' in Bhupendra Jasani (ed), *Peaceful and Non–Peaceful Uses of Space: Problems of Definition for the Prevention of an Arms Race* (1991) 37, 51.

[5] Major Robert Ramey, 'Armed Conflict on the Final Frontier: The Law of War in Space' (2000) 48 *Air Force Law Review* 1, 127.

from the fact that provisions of the Outer Space Treaty and other principal instruments apply the restrictions of international law to outer space activities. Considering that the legal regime on the use of force is a product of international law, the logical presumption is that it encompasses the pacific theme that lies at the heart of the UN Charter.

As law governing outer space, the moon and other celestial bodies has developed, the determination of the extent of utilisation has been debated. Before the existence of the Outer Space Treaty, no specific guidelines relating to the military use of outer space, the moon and other celestial bodies existed. Only the rules of general international law that govern areas of *res extra commercium* or *res nullius* were applicable.[6] Military use was allowed only with observance of general international law.[7]

The Space Law regime has a schizophrenic quality which exposes a serious internal contradiction in the Space Law regime. As space technology develops into more sophisticated areas such as low–earth systems, space planes, and a variety of space–based platforms carrying a variety of systems, the issue of delimiting the outer space area district from national airspace should become more immediate. The 'peaceful' purposes centrepiece of Space Law does not rule out the military use of outer space or military use of commercial communications satellites. Whether a military use is for 'peaceful purposes' cannot be determined by the type of vehicle on which a satellite terminal is mounted, by the vehicle's cargo, by the nature of the communications traffic, or by whether the vehicle or personnel using the equipment are engaged in military operations involving the use of armed force. The Space Law regime yields little information on space warfare. Though space militarization and weaponization has been actively pursued for decades, the law of armed conflict 'is no longer a body of law

[6] See Bin Cheng, *Studies in International Space Law* (1997) 513.
[7] Ibid.

designed to ensure a fair fight between two opponents'.[8] Indeed, it would seem that this is what lies behind the race to space supremacy.

Because of its uniquely commanding height, outer space has gained even greater military and strategic value in the post-cold-war international strategic environment providing conditions for outer space to become a platform for warfare. This will only result in negative consequences. This will disrupt strategic balance and stability, undermine international and national security and do harm to the existing arms control instruments, in particular those related to nuclear weapons and missiles, thus triggering a new arms race. In addition, the deployment and use of space weapons will seriously threaten the security of space assets and risks harming the biosphere of the earth.

The use of satellites for undertakings in communication, navigation, space flight, meteorology, remote sensing, disaster reduction and other fields of science and technology is indispensable for peaceful scientific and exploration endeavours. While achieving notable progress in the peaceful uses of outer space, humanity is faced, nevertheless, with its ever-expanding use for military purposes, the increasing danger of its weaponization is posed by active and continuing research into and testing of space weapons. International security and stability requires that peaceful capabilities be sustained and advanced within an internationalized context. The space faring powers have repeatedly expressed a commitment to the exploration and use of outer space by all nations for peaceful purposes and for the benefit of all humanity. They should be held to their word! States should pursue greater levels of partnership and cooperation in national and international space activities and work together to ensure the continued exploration and use of outer space strictly for peaceful purposes.

Prevention of an arms race in outer space should be actively advocated and in particular the negotiation of an international legal instrument or substantive work

[8] Michael Schmitt, 'Bellum Americanum: The U.S. View of Twenty–First–Century War and Its Possible Implications for the Law of Armed Conflict' (1998) 19 *Michigan Journal of International Law* 1051.

on the issue of weaponization based on the principle accepted by all that space is the common heritage of mankind and its indispensability to peaceful use as human society progresses will suffer should it be transformed in to a military frontier.

As this Thesis has demonstrated, the existing international legal regime on outer space has inherent limitations. Confronted with the danger of the weaponization of outer space and an arms race, the limitations of the existing international legal regime on outer space are exposed: it is unable to prevent or prohibit the deployment and use in outer space of weapons other than weapons of mass destruction, and it is unable to prevent or prohibit the use or threat of force on outer space objects from earth. Preventing the weaponization of space and an arms race is urgent. The peaceful use of outer space is a pressing and common objective of mankind and should afford momentum to consolidate international consensus on the prevention of the weaponization of outer space and an arms race in outer space by means of explicit legal commitment and the conclusion of a multilateral instrument.

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