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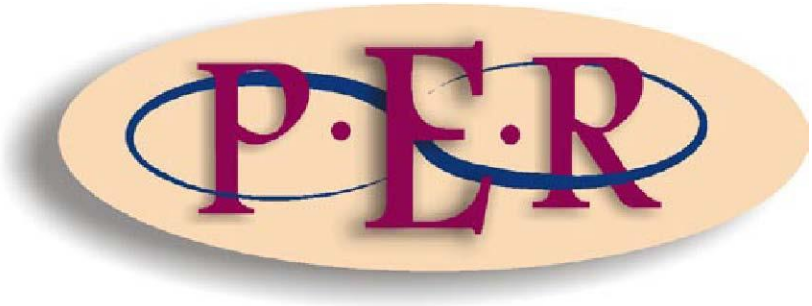

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SELECTED LEGAL CHALLENGES RELATING TO THE MILITARY USE OF OUTER SPACE, WITH SPECIFIC REFERENCE TO ARTICLE IV OF THE OUTER SPACE TREATY

A Ferreira-Snyman*

1 Introduction

In an address to the United Nations General Assembly on 22 September 1960, the then President of the United States of America, Dwight Eisenhower, stated that:

> The emergence of this new world [outer space] poses a vital issue: will outer space be preserved for peaceful use and developed for the benefit of all mankind? Or will it become another focus for the arms race and thus an area of dangerous and sterile competition? The choice is urgent. And it is ours to make. The nations of the world have recently united in declaring the continent of Antarctica off limits to military preparations. We could extend this principle to an even more important sphere. National vested interests have not yet been developed in space or in celestial bodies. Barriers to agreement are now lower than they will ever be again. The opportunity may be fleeting. Before many years have passed, the point of no return may have passed.[1]

Although the race to the moon dominated the attention of the two major space powers, the (then) USSR and the USA, during the 1960s,[2] the potential use of space for military purposes has continued to be intrinsically linked to the development of space technology[3] and space flight[4] since the end of the Second World War.

The launch of the first artificial satellite, Sputnik 1, by the USSR in 1957 "caused a crisis in Western military thinking"[5] as it indicated that a surprise attack from space was a real possibility. This event was the impetus for the so-called "space race" between the USA and the USSR, causing these two world powers to invest huge

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1 See Eisenhower 1960 http://www.state.gov/p/io/potusunga/207330.htm.

2 Lyall and Larsen *Space Law* 508. See Mayer "Short Chronology of Spaceflight" 23-24 for a short description of the quest for the moon during the 1960s.

3 Lyall and Larsen *Space Law* 499, 508.

4 Soucek "Earth Observation" 116. Neger and Soucek "Space Faring" 158 point out that "military aspects were the basis of modern spaceflight".

5 Lyall and Larsen *Space Law* 507.

resources in their respective space programmes.[6] Apart from the development of intercontinental ballistic missiles, which could be used for the launching of nuclear warheads,[7] specifically the strategic benefit of earth observation from outer space (reconnaissance) was and still is seen as an important security tool for states.[8]

Especially during the 1980s and continuing until the end of the Cold War, efforts were made to militarise outer space, for example, in the form of the ASM-135 Anti-Satellite Missile, which was developed and tested by the US Air Force in 1985 under the proposed missile defence programme.[9] During the 1980s Israel set up its military space programme and assisted South Africa to develop its own.[10]

The 1991 Gulf War provided the impetus for the use of military space applications such as American and British communications, reconnaissance and early-warning satellites, which played an indispensable role in the military operations during this conflict.[11] The USA has on several occasions reiterated that it is prepared to engage in armed conflict from space with statements such as the following:

> It's politically sensitive, but it's going to happen. Some people don't want to hear this, and it sure isn't 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 US has developed programs in directed energy and hit-to-kill mechanisms. We will engage terrestrial targets someday – ships, airplanes, land targets – from space.[12]

The USA regards outer space as a top national security interest to which its military power should be extended by, for example, the possible deployment of non-nuclear space-based weaponry.[13] Especially since the terrorist attacks in New York on 11

6 Neger and Soucek "Space Faring" 157.
7 Neger and Soucek "Space Faring" 158.
8 Soucek "Earth Observation" 116-117.
9 Mayer "Short Chronology of Spaceflight" 24-25.
10 Mayer "Short Chronology of Spaceflight" 24-25.
11 Mayer "Short Chronology of Spaceflight" 25.
12 Ashy JW, Commander and Chief of the United States Space Command, Aviation Week and Space Technology (9 August 1995) as quoted in Shah 2007 http://www.globalissues.org/article/69/militarization-and-weaponization-of-outer-space.
13 Lyall and Larsen *Space Law* 511-512; Goodman 2010 *Journal of Space Law* 108. In this regard Goodman refers to the 2001 *Report of the Commission to Assess United States National Security Space Management and Organisation* (Commission to Assess United States National Security Space Management and Organisation 2001 http www.dod.gov/space20010111.html), which cautions in ch 2 that the USA is "an attractive candidate for a 'Space Pearl Harbor'" and that it must therefore reduce its space vulnerability.

September 2001, resulting in the "War on Terror", policies concerning space-based weapons have again been placed on the military agenda of the USA.[14]

As Venet[15] points out, outer space activities have a clear political dimension. During the Cold War space activities were intrinsically linked to the political objectives, priorities and national security concerns of the two superpowers, the USA and the Soviet Union.[16] After the Cold War the political relevance and benefits of space continued to be recognised by states not only as a foreign policy tool to affirm their sovereignty[17] and increase their power on the international level, but also to solve domestic and transnational problems.[18]

In view of the recent emergence of new major space powers, such as China,[19] the focus has again shifted to the military use of outer space and the potential that a state with advanced space technology may use it for military purposes in order to dominate other states.[20] This has already been illustrated, when China in January 2007 "shocked the international community"[21] by performing an Anti-Satellite (ASAT) test which generated a vast amount of space debris in low earth orbit.[22]

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14 Shah 2007 http://www.globalissues.org/article/69/militarization-and-weaponization-of-outer-space.

15 Venet "Political Dimension" 73.

16 Venet "Political Dimension" 73-74.

17 Venet "Political Dimension" 79. An example in this regard is China with the rapid development of its space programme.

18 Venet "Political Dimension" 75-76.

19 See Maogoto and Freeland 2008 *Air and Space Law* 12-15.

20 Lyall and Larsen *Space Law* 499, 508. In this regard Soucek "International Law" 318 refers to the *doctrine of space control* as one of the purposes of space capacities identified by the US Space Command. Soucek points out that, although the idea of space superiority is in itself a legitimate goal, the doctrine of space control may be contrary to the provision in a 1 of the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies* (1969) (*Outer Space Treaty*) that all states should be free to use and explore outer space. He explains as follows: "Space control has four key aspects: surveillance, protection, prevention and negation. The problem lies in the last of the four: Space control wants to limit the space freedoms if unilaterally found necessary (applying upon occurrence, ie during a military conflict). The doctrine of space control requires capacities and methods; much of it sounds like Star Wars turned true: anti-satellite weapons, space mines, bodyguard satellites, high altitude nuclear detonations, etc. The focus of the doctrines of space superiority and space control is ultimately to achieve national goals through a dominant use of outer space in comparison to adversaries."

21 Remuss "Space and Security" 519.

22 Tronchetti "Soft Law Approach" 365; Maogoto and Freeland 2008 *Air and Space Law* 15. For further examples of recent developments towards space militarisation, see Gopalakrishan, Murthi and Prasad 2008 *Proceedings of the International Institute of Space Law* 254.

As will be further discussed below, the *Outer Space Treaty*[23] prohibits the installation of nuclear weapons and weapons of mass destruction in outer space and determines that the moon and other celestial bodies shall be used for peaceful purposes only.[24] Although the installation and testing of military equipment and space weapons in outer space is clearly unlawful, the problem remains that most space assets have the potential to be used for military purposes.[25] For example, while satellite technology in the form of remote sensing can be used to gather meteorological data, it can also be used to gather intelligence in other states. Similarly, Global Navigation Satellite Systems (GNSS) or Global Position Systems (GPS) can be used for civilian purposes, but also to direct bombs or cruise missiles.[26] Telecommunication satellites are used to transmit not only civilian communications but also military messages.[27] Remote sensing by means of satellite is also used in the civilian as well as military spheres.[28]

It is clear that the distinction between military and non-military uses of space, is becoming increasingly blurred.[29] The question therefore remains whether the military use of space equipment is contrary to the provision in the *Outer Space Treaty* that outer space must be used for peaceful purposes exclusively. Moreover, due to the importance for states to protect their space assets from possible neutralisation by other states, the potential for conflict is self-evident.[30] In this regard Goodman[31] aptly notes:

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23 *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies* (1969) (*Outer Space Treaty*).

24 A IV of the *Outer Space Treaty*.

25 Lyall and Larsen *Space Law* 500. Also see Goodman 2010 *Journal of Space Law* 108, who confirms that "[i]t is widely known that any object in space can become a space weapon".

26 Lyall and Larsen *Space Law* 500, 519. The authors point out that "the present operation systems, US GPS, Russian GLONASS and the Chinese Beidou are systems designed, operated and owned by the military to which civilians have been granted access" (Lyall and Larsen *Space Law* 519). Also see Frischauf "Satellite Navigation" 126-133 on the dual use of satellite navigation systems.

27 Lyall and Larsen *Space Law* 500. The use of telecommunications systems is subject to the rules and procedures of the International Telecommunications Union (ITU). See further in this regard Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

28 Lyall and Larsen *Space Law* 521-522. Also see Soucek "International Law" 317; Ospina 2009 *Proceedings of the International Institute of Space Law* 178.

29 Lyall and Larsen *Space Law* 519; Ospina 2009 *Proceedings of the International Institute of Space Law* 180.

30 Goodman 2010 *Journal of Space Law* 110.

31 Goodman 2010 *Journal of Space Law* 111.

> As space assets become increasingly integrated into national and economic systems and military defences, space will become an increasingly attractive battleground.

2 Delimiting outer space

Since some military activities which are permitted on earth, may be prohibited in outer space, it is necessary to know where outer space is. The term *outer space* generally refers to the entire universe, in other words, any area beyond the earth's atmosphere. However, since spaceflight can be undertaken only in a very limited part of outer space, this general meaning is too broad for legal purposes. In a legal sense, *outer space* refers to that part of the universe where human activities are practically possible or feasible.[32] Some activities which are based on earth are, however, intrinsically linked to outer space activities and the question remains whether space law should be applicable to these activities also.[33]

The delimitation of outer space essentially concerns the question of where air space ends and where outer space begins. The answer to this question is significant in order to determine which activities are indeed space activities under international space law, and which activities are governed by other legal regimes. In contrast to air space, which falls under the territorial sovereignty of the underlying state, international law determines that outer space is not subject to the sovereignty of any particular state.[34] It may therefore be regarded as customary international law that states do not need the prior consent of other states in order to conduct activities in outer space.[35]

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32 Neger and Walter "Space Law" 238.

33 Neger and Walter "Space Law" 238-239. According to the authors these activities include those which "can be considered as facilitating access to and the return from outer space, like all kinds of launching and return facilities (spaceports as well as spacecrafts)" and those activities which "regulate the operation and control of human conduct in outer space, like all activities concerning the functioning of satellites and other outer space systems (eg ISS)" (Neger and Walter "Space Law" 239).

34 Neger and Walter "Space Law" 239.

35 In the *North Sea Continental Shelf Cases (Federal Republic of Germany v Denmark; Federal Republic of Germany v Netherlands)*, Merits, 1969 ICJ Reports 3 230 it was stated by Lachs J that "[t]he first instruments that man sent into outer space traversed the airspace of States and circled above them in outer space, yet the launching States sought no permission, not did the States protest. This is how the freedom of movement into outer space, and in it, came to be established and recognized as law within a remarkably short period of time". Also see Freeland 2010 *Melb J Int'l L* 10-11.

Clear international consensus on the definition of *outer space* has, however, not yet been reached.[36] An attempt to formally define the term can be found in the first *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects*, which was developed by two major space superpowers, China and Russia, and presented in 2008 at the Plenary Meeting of the United Conference on Disarmament in Geneva.[37] Article 1(a) defined *outer space* as the "space beyond the elevation of approximately 100km above ocean level of the Earth". The use of the word *approximately*, however, resulted in the definition lacking a clear and decisive indication of the borderline between air space and outer space.[38] The "disputable definition"[39] was therefore removed from the second draft of the Treaty[40] in order "to be addressed, if necessary, in the future".[41] The failure of the drafters of the Draft Treaty to formulate a clear definition of outer space is regrettable. It is not clear how outer space activities can be regulated in terms of the Draft Treaty without a clear indication of what it regards as the borderline between earth and outer space.

Although some commentators are of the opinion that the demarcation of outer space would be premature or even unnecessary, the need for a well-defined border line in order to avoid uncertainties and conflict situations is self-evident.[42] At present it is

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36 Freeland 2010 *Melb J Int'l L* 12.

37 *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects* (2008) available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space. Also see Masson-Zwaan and Freeland 2010 *Acta Astronautica* 1603; Freeland 2010 *Melb J Int'l L* 12-13.

38 Freeland 2010 *Melb J Int'l L* 12-13.

39 See the Explanatory Note on the updated *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (2014) available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

40 The second draft of the Treaty was recently submitted by Russia and China to the Conference on Disarmament in June 2014. See *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (2014) available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

41 See the Explanatory Note on the updated *Draft Treaty on the Prevention of the Placement of Weapons in Outer Spaceand of the Threat or Use of Force against Outer Space Objects* available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

42 Diederiks-Verschoor *Introduction to Space Law* 15. Cheng 1995 *Air and Space Law* 298 identifies three schools of thought on the delimitation and definition of outer space: (i) The *spatialists* who assert that there should logically be a legally determined delimitation of the end of national air space and the beginning of outer space. (ii) The *functionalists* who argue against the need for

accepted, as a matter of customary international law, that the altitude of 100 kilometers above sea level (the so-called Von Kármán line[43]) can be considered as the legally relevant "edge of space".[44] This means that activities executed and objects placed beyond 100 kilometers above sea level, are space activities and space objects. Although this delimitation continues to be debated in theory and may constantly vary as a result of new technology, states often in practice refer to this boundary in their national legislation to distinguish activities and objects which fall under their national air laws from others.[45] In order to ensure that outer space is indeed used for peaceful purposes as envisaged by the *Outer Space Treaty*, it is imperative that states reach clear consensus on "the vertical limit of State sovereignty"[46] as a matter of urgency.[47]

3 Use of force in international law

Article III of the *Outer Space Treaty* determines that states parties to the Treaty shall carry out their activities in the exploration and use of outer space in accordance with international law, including the Charter, in the interest of maintaining international peace and security and promoting international cooperation and understanding. A discussion of the military use of outer space must therefore necessarily be done with (brief) reference to general international law rules on the use of force.[48]

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such delimitation, as the lawfulness or unlawfulness of space activities should, according to them, be determined solely by the nature of the activity or the vehicle. (iii) The *you-don't-need-to-know* school who also finds it unnecessary to determine the border between air space and outer space.

43 See further Neger and Walter "Space Law" 240. Lyall and Larsen *Space Law* 167-168; Diederiks-Verschoor *Introduction to Space Law* 17.

44 Neger and Walter "Space Law" 240-241. Also see Diederiks-Verschoor *Introduction to Space Law* 19-20. Cheng 1995 *Air and Space Law* 299 explains that "[i]n absolute terms, this point may be put 94 km from the surface of the earth. Conservatively, the figure may be put at 100 or 110 km". He also points out that states may, as they have done with regard to the delimitation of the territorial sea, decide to claim a higher or lower limit, or tacitly or expressly agree on a specific border separating national air space from outer space.

45 Neger and Walter "Space Law" 241. South Africa's *Space Affairs Act* 84 of 1993 defines *outer space* in s 1(xv) as "the space above the surface of the earth from the height at which it is in practice possible to operate an object in an orbit around the earth".

46 Goodman 2010 *Journal of Space Law* 112.

47 Also see Lyall and Larsen *Space Law* 499-500.

48 See further Lyall and Larsen *Space Law* 501-506 for a concise discussion of the use of force in general international law. In contrast with Lyall and Larsen *Space Law* 59 who state that it is a fundamental principle that "international law applies to outer space", Soucek "International Law" 321 prefers the formulation that "[i]nternational law applies to human activities in outer space". He explains that the latter formulation would avoid the perception that "human rules of law stretch across the universe. The universe adopts the laws of gravity and relativity, but not international law. States however have to obey, and this stretches as far as they go into outer space".

The maintenance of international peace and security is one of the main objectives of the United Nations and member states are therefore required to settle their international disputes by peaceful means.[49] Article 2(4) of the *Charter of the United Nations* stipulates that all member states shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state. The Charter recognises the right to resort to force in only two instances: first, under the authority of the Security Council,[50] and second, when states exercise the right of individual or collective self-defence in terms of Article 51. The prohibition on the unauthorised use of force is widely regarded as a rule of customary international law.

4 Military use[51] of outer space

As has already been mentioned above, outer space has been, and will continue to be, of strategic and military importance to states.[52] It has even been contended unequivocally by some that:

> Space has always been militarised. Military considerations were at the heart of the original efforts to enter space and have remained so to the present day.[53]

Although it could conversely be argued that not all space activities have a purely military purpose, it still holds true that many of these activities at least serve a direct or indirect military interest,[54] especially in view of the dual-use character of space technologies.[55] At the time of the negotiation of the *Outer Space Treaty*, both the USSR and the USA already had military satellites in orbit and their rejection of any

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49 See aa 1 and 2(3) of the *Charter of the United Nations* (1945) (*UN Charter*).

50 The Security Council may take action under ch VII of the *UN Charter* if it determines that a particular situation constitutes a "threat to the peace, breach of the peace, or act of aggression" in terms of a 39 of the Charter. Should this be the case, the Security Council can take appropriate measures as provided for in aa 40, 41 or 42 of the Charter.

51 Lyall and Larsen *Space Law* 514 list the following aspects of the military use of outer space: "[T]he employment of military personnel and equipment; the passive or non-aggressive use of outer space; the use of civilian space systems for military purposes; the use of weapons in space; the incursion into space of military weapons; the interference with space located equipment from space; the interference with space located equipment from Earth."

52 Soucek "International Law" 318.

53 Sheehan *International Politics of Space* 2 as quoted in Soucek "International Law" 317.

54 Soucek "International Law" 317.

55 Soucek "International Law" 318. Tronchetti "Soft Law Approach" 365 points out that the number of states using dual-use satellites is increasing.

limitation of their use of satellites for military purposes prevented a total ban on all military activities in outer space.[56]

As a result, in contrast with the *Antarctic Treaty*[57] which prohibits "any measure of a military nature",[58] article IV of the *Outer Space Treaty* determines as follows:

> 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, 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.[59]

From the reading of article IV, the following issues present a number of legal challenges which deserve further attention.

4.1 Peaceful purposes

In keeping with the terminology employed by the *UN Charter*, requiring that states settle their disputes by *peaceful* means, article IV of the *Outer Space Treaty* stipulates that outer space shall be used for *peaceful purposes* exclusively.[60] The term *peaceful* is not defined by the *Outer Space Treaty*, however, and it is consequently not completely clear which activities would be considered as peaceful uses of outer space.[61] In addition, depending on an expansive or a restrictive interpretation of article

56 Lyall and Larsen *Space Law* 513.

57 *Antarctic Treaty* (1959), adopted in Washington DC, the United States of America on 1 December 1959.

58 A 1 of the *Antarctic Treaty* (1959).

59 Apart from the *Outer Space Treaty*, a number of other treaties, declarations and resolutions also deal with the peaceful uses of outer space. For a further discussion on these instruments see Lyall and Larsen *Space Law* 511; Remuss "Space and Security" 520-525.

60 Soucek "International Law" 320 points out that the primary concern of the *Outer Space Treaty*, namely the promotion of peace, is echoed by a number of provisions in the Treaty, for example, a III, which determines that states parties must carry out their outer space activities in the interest of maintaining international peace and security and promoting international cooperation and understanding.

61 Lyall and Larsen *Space Law* 524; Soucek "International Law" 320.

IV, one may argue that the enumerated prohibitions are either a closed list, or merely examples of the type of activities that may be prohibited in outer space.[62]

According to the interpretation of the USA and other Western states, the term *peaceful* means *non-aggressive*.[63] As Lyall and Larsen[64] point out, this interpretation is in accordance with the distinction by the *UN Charter* between the pacific settlement of disputes under Chapter VI and actions under Chapter VII in instances of threats to the peace, breaches of the peace, or acts of aggression. It is not clear, however, if the use of satellites during military conflict for purposes such as mapping, weather navigation, early warning and reconnaissance could be regarded as an aggressive use of space and thus contrary to the *Outer Space Treaty*.[65]

Based on an inclusive reading of the *Outer Space Treaty*, especially taking into account the provision that the use of outer space should be carried out for the benefit of all mankind,[66] some authors argue that the term *peaceful* must rather be interpreted to mean *non-military*, thereby prohibiting all military uses of outer space.[67] However, as Bourbonnièrre and Lee[68] point out, this interpretation is not reflected in the practice of states, which includes the placement of military or dual-use communications and remote sensing satellites in orbit around the earth. Moreover, since the lawfulness of the use of dual purpose technologies in outer space has been generally accepted since the beginning of the space era, an attempt to prohibit it now would in all probability

62 Park 2006 *Hous J Int'l L* supports a narrow definition of peaceful purposes in order to mitigate the potential of space weaponisation. See further in this regard Bourbonnière and Lee 2007 *EJIL* 880-881. They note, however, that "states are generally reluctant to give expansive interpretations to normative dispositions that could restrict their scope or freedom of action on issues of national security" (Bourbonnière and Lee 2007 *EJIL* 881).

63 Lyall and Larsen *Space Law* 524. Also see Su 2010 *Journal of Space Law* 260-265.

64 Lyall and Larsen *Space Law* 524.

65 Golroo and Bahrami 2008 *Proceedings of the International Institute of Space Law* 247. With reference to the argument by Cheng *Studies in International Space Law* 515, Friman 2005 *FYBIL* finds that peaceful purposes cannot merely be defined as "non-aggressive".

66 A 1 of the *Outer Space Treaty*.

67 Lyall and Larsen *Space Law* 524.

68 Bourbonnière and Lee 2007 *EJIL* 877.

be a futile exercise.[69] The fact remains, however, that dual-use technology may be modified to threaten or destroy the space assets of other states.[70]

Also the fact that the *Outer Space Treaty* allows for the use of military personnel in outer space for scientific research or any other peaceful purposes, seems to suggest that the interpretation of peaceful as meaning the completely non-military use of outer space would be too broad for the purposes of the *Outer Space Treaty*. The wording "scientific research or any other peaceful purposes" implies that scientific research, even though it is conducted by military personnel, is regarded as a peaceful use of outer space. It has therefore been noted that the prohibitions in article IV do not prevent the development of military technologies.[71] However, if the results of the scientific research are to be employed for non-peaceful purposes, it is doubtful whether the research activities would fall within the meaning of *peaceful purposes* in terms of article IV of the *Outer Space Treaty*.

Due to the shortcomings of defining "peaceful" as meaning either *non-aggressive* or *non-military*, Friman[72] proposes that a concilliatory approach should be followed in redefining the term "peaceful" in order to comply with the object and purpose of the *Outer Space Treaty*, which is "to safeguard the exploration and use of outer space as a perpetual and peaceful province of all mankind".[73] She consequently concludes that all lawful non-military uses of outer space would be regarded as peaceful, while military uses of outer space will be considered to be peaceful only if they meet certain treaty-based criteria.[74] Since the weaponisation of outer space would fail to meet most

69 Friman 2005 *FYBIL* 293. Also Park 2006 *Hous J Int'l L* 884 points out that "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'".

70 Park 2006 *Hous J Int'l L* 886.

71 Lyall and Larsen *Space Law* 517.

72 Friman 2005 *FYBIL* 304, 310.

73 Friman 2005 *FYBIL* 302-303.

74 Friman 2005 *FYBIL* 303-304 lists these criteria as follows: "Under the proposed reconciling approach, all lawful non-military purposes would thus be peaceful, whereas military purposes would be peaceful only if they: 1) are for the benefit and in the common interest of all mankind (Article I of the Outer Space Treaty); 2) do not restrict the freedom of exploration and use of outer space by all states (Article I of the Outer Space Treaty); 3) are compatible with international law, including the UN Charter (Article III of the Outer Space Treaty); 4) serve the maintenance of international peace and security (Article III of the Outer Space Treaty); 5) promote international cooperation and understanding (Article III of the Outer Space Treaty); 6) do not inequitably exploit

of these criteria it would, according to Friman,[75] constitute an unlawful use of outer space. Although it is agreed with Friman that the object and purpose of the *Outer Space Treaty* should provide the benchmark against which the military action should be measured to determine whether it may be deemed "peaceful" or not, the problem remains that some of the criteria identified by Friman[76] are in themselves not clear. For example, it is not clear whether action taken in self-defence would be compatible with the maintenance of international peace and security as determined in article III of the *Outer Space Treaty*.[77]

4.2 Militarisation versus weaponisation

From the above discussion, it seems that article IV does not place an unqualified ban on military activities in outer space, but that it limits certain military activities.[78] A distinction should therefore be drawn between the *militarisation* and the *weaponisation*[79] of outer space.

In terms of a strict interpretation of the peaceful principle in article IV of the *Outer Space Treaty*, the non-militarisation (or demilitarisation[80]) of outer space would mean "the prohibition of using space-based facilities for any military purpose".[81] However, Su[82] points out that state practice indicates that states have not followed this strict interpretation of the non-militarisation of outer space and that outer space was in fact militarised since the launch of the first communication satellites. The militarisation of outer space may therefore be described as the passive military use of outer space.

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outer space, but have due regard for the corresponding interests of other states (Article IX of the Outer Space Treaty); and 7) do not subject outer void space or the celestial bodies to national appropriation (Article II of the Outer Space Treaty)."

75 Friman 2005 *FYBIL* 310.

76 Friman 2005 *FYBIL* 303-304.

77 The issue of self-defence in outer space is addressed further here below.

78 Lyall and Larsen *Space Law* 514; Soucek "International Law" 320.

79 In addition to the terms *militarisation* and *weaponisation*, Friman 2005 *FYBIL* 290-291 also employs the term *neutralisation*, which is defined as "the process whereby a space is excluded from the theatre of war and armed conflict". According to Friman it is clear that all celestial bodies are neutralised under article IV, as its wording clearly prohibits any use which has the immediate or ultimate aim of warfare.

80 Friman 2005 *FYBIL* 290 defines *demilitarisation* as "the process whereby all forms of military methods, forces and resources are barred from space".

81 Su 2010 *Journal of Space Law* 255.

82 Su 2010 *Journal of Space Law* 255.

Activities such as reconnaissance and surveillance, which are currently performed by a number of states, may thus be described as militarising outer space. Based on the perceived non-aggressive nature of these activities, such activities are accepted as legal by the large majority of states and thus as not contrary to article 2(4) of the *United Nations Charter*.[83] Su[84] therefore submits that:

> On account of the contribution of passive military uses of outer space to international peace and security, and the interconnection between military activities in outer space and those on earth, demilitarisation of outer space is unlikely.[85]

Thus, ironically, military uses of outer space which are in fact not really peaceful (such as the use of satellites to direct bombing raids) are currently accepted by states.[86] Ultimately, the lawfulness of these passive military uses of outer space will have to be determined on a case-by-case basis[87] by, for example, referring to the main purpose of the space object.[88]

The weaponisation of outer space may be described as "the deployment of weapons of an offensive nature in outer space or on the ground with their intended target located in space".[89] The large majority of states regard these activities as illegal since they are contrary to the basic principles of public international and outer space law.[90] Although outer space is currently not weaponised by any state,[91] recent activities such

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83 Tronchetti "Soft Law Approach" 364; Ospina 2009 *Proceedings of the International Institute of Space Law* 184; Maogoto and Freeland 2008 *Air and Space Law* 25. Su 2010 *Journal of Space Law* 258 points out that even activities such as espionage, which are disliked by many states, are seldom protested about. Also see Christol 2009 *Proceedings of the International Institute of Space Law* 106.

84 Su 2010 *Journal of Space Law* 259.

85 In a similar vein, Friman 2005 *FYBIL* 291 states that "[o]uter void space is already militarised by both military and non-military space assets. Demilitarizing outer void space would necessitate a ban on, inter alia, reconnaissance, surveillance, and communication assets since these may be of a 'dual use' that is exploited for both military and non-military purposes. Seeing as it is virtually impossible to discriminate between the peaceful and non-peaceful military exploitation of the advantages gained by such dual use space assets, the boundary between partial and total militarization of outer void space is obscure at best".

86 Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

87 Su 2010 *Journal of Space Law* 259.

88 Ospina 2009 *Proceedings of the International Institute of Space Law* 184, fn 1.

89 Tronchetti "Soft Law Approach" 364-365.

90 Tronchetti "Soft Law Approach" 365.

91 Park 2006 *Park 2006 Hous J Int'l L* 873 states that "[w]hile the realm of outer space may be heavily militarized, it is not yet weaponized". He explains this statement as follows: "In other words, although space-based devices such as satellites may be used for aggressive military measures, they lack direct destructive capacity and thus are not considered to be space weapons."

as the ASAT test by China, the suspected pursuance of similar capabilities by other states,[92] and the vulnerability of space systems to cyber attacks have created international fear that the weaponisation of space is a real possibility,[93] with obvious implications for space security.[94] Such threats may include the destruction of satellites by anti-satellite weapons, the rendering of satellites as temporarily inoperable through jamming or cyber-attacks, as well as the mere placement of offensive or defensive weapons in outer space, regardless of whether they are eventually used or not.[95] Some experts also argue that weapons that travel through outer space in order to reach their targets (such as hypersonic technology vehicles) also add to the weaponisation of outer space.[96] Due to the generation of vast amounts of space debris it generates, the mere testing of space weapons already poses a risk to space security and to the right of other states to use and explore outer space freely.[97]

Apart from states, the space arena has evolved to increasingly including non-state entities, which are becoming serious actors in outer space activities themselves.[98] Although the commercialisation of outer space has a number of advantages, it may

92 Tronchetti "Soft Law Approach" 365 points out that, apart from China, ASAT weapon tests have previously also been performed by the USA and then USSR. According to Tronchetti, it is also suspected that France and India are currently pursuing such capabilities. Lyall and Larsen *Space Law* 525 describes the four basic modes of anti-satellite technology as follows: "A kinetic weapon destroys and cripples a satellite by collision with either a single missile, or with a number of small objects towards it – the buckshot technique. Launched from the Earth or from a space platform, a kinetic weapon would have the disadvantage of producing a cloud of debris, with all its potential consequences. An alternative is the laser which could be used to knock out a satellite, again from either Earth or from space. A different possibility is the use of radio jamming to either overwhelm a satellite itself or to prevent its signals being used. Last, in a modern age dependent on electronics and the Internet, a less obvious but real possibility is cyber-attack on a perceived enemy, part of which could involve interference with command, control and use of satellite systems."

93 Tronchetti "Soft Law Approach" 365. Also see Su 2010 *Journal of Space Law* 265 for a discussion of the possible weaponisation of outer space by the United States of America.

94 See Tronchetti "Soft Law Approach" 365-366. Tronchetti states that "[i]n the realm of outer space, the idea of security refers to the absence of manmade or natural threats to space assets". Threats to space assets are divided into unintentional and intentional threats. The former include threats arising from space weather, space debris and malfunctioning, while the latter include "premeditated attacks targeting space objects or their respective ground stations" (Tronchetti "Soft Law Approach" 366). Tronchetti interprets the concept *space security* in a restrictive manner as the "absence of intentional threats to space objects, specifically those causing their physical destruction" (Tronchetti "Soft Law Approach" 366). Also see Remuss "Space and Security" 519.

95 Tronchetti "Soft Law Approach" 366. See further Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

96 See further Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

97 Tronchetti "Soft Law Approach" 362.

98 Hofmann 2007 *SAYIL* 233. Also see Goodman 2010 *Journal of Space Law* 109.

also bring with it certain threats to space security.[99] In this regard Goodman[100] cautions that, even though it is not yet a commonly predicted threat, the possibility of space terrorism should not be overlooked. According to Goodman,[101] the threat posed by space terrorism could be much graver than any terrorist acts already known to the world. Therefore, control of private space actors, may eventually become a matter of national (and even international) security.[102]

Specifically satellite technology is an attractive target for space terrorists, as interference with a state's satellites could disrupt military operations and essential daily activities such as financial transactions and telecommunications.[103] These possible attacks will increasingly provide the incentive for states to develop the ability not only to protect their own space assets but also to neutralise the space assets of their enemies.[104]

This leads to the question whether the right to self-defence may be exercised by states in order to protect their assets in outer space. Article 51 of the *United Nations Charter* makes provision for the inherent right to self-defence of all states and reads as follows:

> Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security. Measures taken by members in the exercise of this right to self-defence shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security.

In the instance of anticipatory self-defence, an armed attack has not yet occurred, but the defensive action is taken in anticipation of an armed attack. The attack must, however, be imminent, and the defensive action must be proportionate to the anticipated attack.[105] Although there is divided opinion amongst scholars on whether

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99 In this regard Park 2006 *Park 2006 Hous J Int'l L* points out that commercial entities have enjoyed a certain degree of independence in their space activities, which complicates the space security regime.

100 Goodman 2010 *Journal of Space Law* 110.

101 Goodman 2010 *Journal of Space Law* 110.

102 Goodman 2010 *Journal of Space Law* 109.

103 Goodman 2010 *Journal of Space Law* 110-111.

104 Goodman 2010 *Journal of Space Law* 111.

105 Lyall and Larsen *Space Law* 504-505; Dugard *International Law* 500.

article 51 allows for anticipatory self-defence, states have invoked such action on a number of occasions.[106] Recently a "wider notion of self-defence"[107] called pre-emptive self-defence emerged in the practice of states. In this instance a state will act pre-emptively due to the mere possibility of being attacked. The United States under the Bush administration justified this form of self-defence as a means to counter potential terrorist attacks and the use of weapons of mass destruction.[108] Although the International Court of Justice determined that states could not act in self-defence based on believing attacks to be likely or on wishing to protect perceived security interests,[109] there is still a real concern that states may militarise outer space as a pre-emptive measure,[110] even more so in view of the potential risk of space terrorism.[111]

Article 51 of the *United Nations Charter* requires that self-defence measures must be immediately reported to the Security Council, which may take action it deems necessary to restore international peace and security. The question arises, however, whether the Security Council may take or authorise military action which may be prohibited in terms of the space law proscription in article IV that outer space may be used for peaceful purposes only.[112]

According to Bourbonnière and Lee,[113] article IV of the *Outer Space Treaty* should be interpreted in the context of Chapter VII of the *United Nations Charter*, since article 103 of the Charter provides that

106 See further Dugard *International Law* 501-502.
107 Dugard *International Law* 502.
108 Dugard *International Law* 502.
109 See in this regard *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory* 2004 ICJ Reports 136 para 139; *Armed Activities in the Territory of the* Congo 2005 ICJ Reports 168 paras 143, 148. Also see Dugard *International Law* 502-503.
110 Lyall and Larsen *Space Law* 506.
111 Dugard *International Law* 506 points out that although the International Court of Justice has been reluctant to extend a 51 to also cover self defence against attacks by non-state actors, there is nothing in a 51 that indicates that the right to self-defence may be invoked only after an attack by a *state*. However, he cautions that "[t]errorism is a serious threat to the international peace and security, but it is one that must be contained and confronted by multilateral action under the auspices of the Security Council and not by unilateral action under the guise of self-defence". Also see the discussion by Bourbonnière and Lee 2007 *EJIL* 889 on the deployment of conventional weapons in outer space by private actors.
112 Lyall and Larsen *Space Law* 506.
113 Bourbonnière and Lee 2007 *EJIL* 878.

> [i]n the event of a conflict between the obligations of the Members of the United Nations under the present Charter and their obligations under any other international agreement, their obligations under the present Charter shall prevail.[114]

Consequently, Bourbonnière and Lee[115] argue that the *obligations* in the United Nations Charter would prevail over any of the rights and obligations in the *Outer Space Treaty*. As was pointed out earlier, article 2(4) of the *Charter of the United Nations* stipulates that all member states shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any other state. According to Bourbonnière and Lee[116] an *obligation* to use force arises under article 42 of the Charter as states are under an obligation to abide by the decisions of the Security Council, including a decision to "take such action by air, sea or land forces as may be necessary to maintain or restore international peace and security". The authors therefore submit that

> [t]o the extent that Article IV of the Outer Space treaty does not constitute *jus cogens*, a decision made by the Security Council to use military force in outer space would prevail over any prohibitions or obligations under Article IV of the Outer Space Treaty.[117]

Since the right to self-defence is formulated as a *right* instead of an obligation, article 103 of the Charter would, according to Bourbonnière and Lee's construction here above, not apply to article 51. Hence, in terms of the general rule regarding the application of successive treaties, which determines that later treaties prevail over earlier ones,[118] the prohibitions in article IV of the *Outer Space Treaty* would prevail.[119] However, Bourbonnière and Lee[120] argue that, based on the wording "inherent right" in article 51, the right to self-defence has attained the status of *jus cogens* and therefore prevails over article IV of the *Outer Space Treaty* (unless it is in itself a *jus*

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114 A 30(1) of the *Vienna Convention on the Law of Treaties* (1969) subjects the general rule regarding the application of successive treaties, which determines that later treaties prevail over earlier ones, to a 103 of the *UN Charter*.

115 Bourbonnière and Lee 2007 *EJIL* 878.

116 Bourbonnière and Lee 2007 *EJIL* 878-879.

117 Bourbonnière and Lee 2007 *EJIL* 879.

118 See aa 30(1)-(5) of the *Vienna Convention on the Law of Treaties* (1969).

119 Bourbonnière and Lee 2007 *EJIL* 879 explain as follows: "In this context, the prohibitions in Article IV of the Outer Space Treaty would arguably prevail in all circumstances except where the Security Council decided expressly or impliedly that military action, including the deployment and the use of force in contravention of Article IV of the Outer Space Treaty, was sanctioned in terms of Article 51."

120 Bourbonnière and Lee 2007 *EJIL* 879-880.

cogens norm.)[121] Therefore, according to the authors, in the case of the lawful use of force under articles 42 and 51 of the Charter, states would not be bound by the prohibitions in article IV of the *Outer Space Treaty*, including the prohibitions on the deployment of nuclear weapons and weapons of mass destruction and the construction of military installations on the moon and other celestial bodies. Conversely, in the case of the unlawful use of force in the form of aggression, article IV of the *Outer Space Treaty* would, according to Bourbonnière and Lee,[122] prevail. The authors' viewpoint gives rise to a number of concerns: First, the assertion that article 51 has attained the status of *jus cogens* has not been unequivocally established in international law. Second, if one accepts that both article 51 of the Charter and article IV of the *Outer Space Treaty* are *jus cogens* norms, the question immediately arises how these competing norms should be balanced.[123] Third, the authors seemingly argue that the deployment of nuclear weapons and weapons of mass destruction, and the construction of military installations on the moon and other celestial bodies, would form part of the lawful use of force in terms of articles 41 and 52 of the Charter. In its advisory opinion on the *Legality of the Threat or Use of Nuclear Weapons*,[124] the International Court of Justice did not conclusively answer the question whether the threat or use of nuclear weapons was prohibited in all circumstances.[125] The court however *inter alia* decided unanimously that

> [a] threat or use of nuclear weapons should be compatible with the requirements of the international law applicable in armed conflict, particularly those of the principles and rules of international humanitarian law, as well as with the *specific obligations under treaties and other undertakings which expressly deal with nuclear weapons* …[126]

In view of this statement by the court, it is submitted that a threat or use of nuclear weapons in outer space (even in the instance of self-defence) would not be compatible with article IV of the *Outer Space Treaty*, which expressly prohibits the use of nuclear

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121 Bourbonnière and Lee 2007 *EJIL* 880 point out that if art IV of the *Outer Space Treaty* also has the status of a *jus cogens* norm, "the right to individual and collective self-defence could perhaps conceivably be confined by its terms".

122 Bourbonnière and Lee 2007 *EJIL* 880.

123 As Moussa 2008 *IRRC* 973 points out, there is seemingly no clear answer to this question in international law.

124 *Legality of the Threat or Use of Nuclear Weapons* 1996 ICJ Reports 226.

125 *Legality of the Threat or Use of Nuclear Weapons* 1996 ICJ Reports 226 266-267.

126 *Legality of the Threat or Use of Nuclear Weapons* 1996 ICJ Reports 226 266. My emphasis.

weapons in outer space. It is furthermore difficult to conceive of the use of nuclear weapons in outer space, in the light of the current nuclear disarmament efforts by states.[127]

Lyall and Larsen[128] also reach the conclusion that the right to self-defence applies to outer space, but they hold a more cautionary viewpoint. They also motivate their viewpoint with reference to article 30(1) of the *Vienna Convention*, which subjects the general rule regarding the application of successive treaties to article 103 of the *United Nations Charter*, and argue that a state would be permitted to act in self-defence in order to defend its personnel and space technologies if the action taken is within the boundaries set by article 51 of the Charter.[129] This includes that the defence must be *proportionate* to the attack.[130] They therefore caution that:

> Precision weapons should be used properly, 'harmful interference' with the activities of others be avoided as far as possible, and the creation of debris should be minimised in the general interest.[131]

The authors furthermore point out that the decision to act in self-defence is complicated by the speed and density of modern communications. As a result, a swift military decision needs to be taken by a state[132] by relying on conflicting data which may be received simultaneously. Moreover, an act of self-defence by one state may lead to other states taking responsive action, which will inevitably result in the

127 See further Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space on the effects of the weaponisation of outer space on arms control and nuclear disarmament.

128 Lyall and Larsen *Space Law* 526.

129 Lyall and Larsen *Space Law* 503-504.

130 Lyall and Larsen *Space Law* 504.

131 Lyall and Larsen *Space Law* 527. In this regard Duberti 2011 *Proceedings of the International Institute of Outer Space Law* 86 argues that, due to the grave effects of space debris, the destruction of a satellite should be regarded as unlawful. He therefore suggests that in exercising its legitimate right of self-defence, a state may attack a satellite that was used for military purposes by another state by using technical means that would merely complicate or disable its operation.

132 According to Christol 2009 *Proceedings of the International Institute of Space Law* 106, the possession of nuclear weapons in the case of an identified threat would justify a more immediate response than occurred in the Caroline incident. Consequently, the limits on the use of force as prescribed in the *Caroline* case would not be applicable in the event of such a threat. He asserts that "[t]he magnitude of the probable harm and the resultant shortness of time within which a responsive decision would have to be taken would require extreme protective measures owing to the threat produced by such weapons".

undermining of international peace and security.[133] Lyall and Larsen[134] therefore caution that states should be reluctant to engage in pre-emptive self-defence in outer space.

This cautionary statement by the authors should also be extended to anticipatory self-defence, as it would be difficult to reconcile the potential ongoing damage caused by space debris as the aftermath of the defensive action with the proportionality principle.[135] In a contribution on the environmental dimension of space arms control, Su and Zhu[136] point out that the space environment is significantly more fragile than earth due to its "poor capability of regeneration" and that the "overproliferation of space debris would render the Earth orbit unusable" for future generations.[137] They therefore regard a weapons-free outer space (which would include the banning of the testing, deployment and use of space-based weapons and ASATs) as a prerequisite for the sustainable use of outer space.[138]

Due to the legal uncertainties relating to the use and control of the right to self-defence in outer space, the submission by Filho[139] that this right should preferably not be used in outer space and that states should reach an agreement to ban preventative or pre-emptive self-defence in outer space is supported. The grave consequences that the application of the right to self-defence may have in outer space require a *sui*

133 Lyall and Larsen *Space Law* 528.

134 Lyall and Larsen *Space Law* 528.

135 As Filho 2011 *Proceedings of the International Institute of Space Law* 482 points out, "it is practically impossible [to] make a proportional defense without knowing yet which and how will be the presumed attack". Also Maogoto and Freeland 2008 *Air and Space Law* 26 observe that "[t]he use of space weapons, with the capability to render massive destruction and injury (either directly or indirectly), may well violate the principles of proportionality".

136 Su and Zhu 2011 *Proceedings of the International Institute of Space Law* 50-51.

137 Su and Zhu 2011 *Proceedings of the International Institute of Space Law* 51. The authors refer to research indicating that "space debris in orbits higher than about 800 km above the Earth's surface will be up there for decades, above 1,000 km for centuries, and above 1,500 km effectively forever. … The last few decades have witnessed dramatic proliferation of space debris. Now over 21,000 orbiting debris larger than 10 cm in diameter are tracked; and as estimated there are over 100,000 pieces larger than a marble". Duberti 2011 *Proceedings of the International Institute of Space Law* 85 regards space debris (for example, caused by the destruction of satellites) as one of the most important threats to space security. For a further discussion on the legal implications of space debris see Ferreira-Snyman 2013 *CILSA* 19-51.

138 Su and Zhu 2011 *Proceedings of the International Institute of Space Law* 51.

139 Filho 2011 *Proceedings of the International Institute of Space Law* 480, 482. Filho points out that in the area of outer space "[t]here is no clarity on how to use [self-defence], how to employ proportional means in the operation, how to reach a minimally fair outcome, and how to stop it" (Filho 2011 *Proceedings of the International Institute of Space Law* 480).

generis interpretation of article 51 in the context of outer space. The unique circumstances in outer space make it difficult to apply article 51 (which was formulated with reference to earth-based circumstances) in space. It is therefore suggested that *peaceful* uses of outer space should be interpreted to mean a prohibition on the use of all forms of force in outer space, similar to the prohibition in the *Antarctic Treaty* referred to earlier.

It is doubtful, however, if states will be willing to merely waive their right to self-defence in outer space. It is inconceivable that a state will not exercise this right in the event of an armed attack against its space assets (or even the threat of such an attack). The importance that states attach to this right is evident, for example, from the fact that the 2008 *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and the Threat or Use of Force against Outer Space Objects* guarantees the right to self-defence by determining that nothing in the treaty "may be interpreted as impeding the exercise by the States Parties of their right of self-defence in accordance with Article 51 of the Charter of the United Nations".[140] The right to self-defence is even construed wider in the 2014 draft of the Treaty, which now makes provision for both the right to individual *and collective* self-defence by the states parties.[141]

Because of the difficulties in reaching international consensus on the military uses of outer space (including issues such as self-defence), it is proposed that as an interim measure the United Nations Security Council should adopt a binding resolution in this regard. The increasing potential for conflict concerning the security of space assets, and the consequent weaponisation of outer space, is becoming a real concern. The result will inevitably be "a less secure outer space"[142] with serious implications for the

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140 A V of the *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (2008). The fifth revised *Draft International Code of Conduct for Outer Space Activities* (2014) proposed by the European Union, also guarantees the inherent right of states to individual and collective self-defence as recognised in a 26 of the UN Charter. The text of the revised Code is available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

141 A IV of the *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (2008) now reads as follows: "The Treaty shall by no means affect the State's Parties inherent right to individual or collective self-defense, as recognized by Article 51 of the UN Charter".

142 Tronchetti "Soft Law Approach" 362.

freedom of all states (including future generations) to use and explore outer space. Moreover, the conflict will in all probability not be confined to outer space, but may escalate to earth-based armed conflict, which will be a serious threat to international peace and security. In order to avoid this, the Security Council should adopt a resolution in terms of Chapter VII of the Charter to reaffirm the prohibition of all forms of armed conflict in outer space (including the use of self-defence).[143]

The adoption of such a resolution will inevitably depend on the political will especially of the major space powers such as the United States, Russia and China. It is encouraging to note, however, that specifically Russia and China have in the past supported the prohibition of the deployment of weapons in outer space.[144] As early as in the 1980s Russia (as the then Soviet Union) made specific proposals to the United Nations General Assembly on the banning of space weapons (including earth-based weapons targeting space) in order to facilitate the conclusion of a treaty on the prohibition of the use of force in outer space.[145] On its part, China in 2003 made a public declaration against the militarisation of space and calling for the use of space technologies for peaceful purposes.[146] Yet in view of the current space policy of the USA which provides for the use of space weapons in support of its defence and national security objectives,[147] it would be premature to regard these actions as reflecting the collective viewpoint of all the space powers.[148] As pointed out here below, the motives of China and Russia for supporting the non-weaponisation of outer space are also questioned by some.

4.3 Space weapon

143 Maogoto and Freeland 2008 *Air and Space Law* points out that the United Nations should make a shift from its current strategy of issuing regular calls for the prevention of an armed race in space, to "the establishment of rigorously enforced moratorium on the deployment of weapons in outer space, which might offer a window of opportunity to negotiate a total ban of weapons in outer space. Naturally, this would require a significant shift in political will among the major space-faring nations, which although a difficult task, should be encouraged through negotiation and broader political pressure".

144 Maogoto and Freeland 2008 *Air and Space Law* 26-28.

145 Maogoto and Freeland 2008 *Air and Space Law* 26-27.

146 Maogoto and Freeland 2008 *Air and Space Law* 27-28.

147 Gertz 2014 http://freebeacon.com/national-security/u-s-opposes-new-draft-treaty-from-china-and-russia-banning-space-weapons/.

148 As Maogoto and Freeland 2008 *Air and Space Law* 28 point out "the future of space security will depend on how effectively *all* States strive for the 'de-weaponization' of outer space and pressure the major space-faring nations, and how those nations are able to set aside their differences".

Although it is generally accepted that the weaponisation of outer space should be regarded as unlawful, the meaning of the term "space weapon" is not defined in any of the current space treaties, nor in any domestic legislation.[149] If a broad approach is followed, a space weapon would include any "space and terrestrial-based systems *capable* of destroying, damaging or interfering with space assets".[150] In contrast, a narrower definition would limit a space weapon to "space systems whose *specific goal* it is to destroy and damage an object in space".[151]

However, as was already mentioned above, most space equipment has a dual purpose – both civilian and military. As a result, most space objects designed to be used for peaceful purposes in outer space have the potential to become space weapons and destroy or damage other active space systems.[152] This ambiguity is further highlighted by the strategy to place weapons temporarily in orbit for a limited number of days or weeks, or to use technologies that merely disrupt the space activities of other space actors, for example, by using passive measures such as encryption and earth-based jamming.[153]

Tronchetti[154] therefore proposes a broad definition of the term *space weapon* as:

149 Soucek "International Law" 363; Park 2006 *Hous J Int'l L* 882. Duberti 2011 *Proceedings of the International Institute of Space Law* 81 identifies the following types of space weapons: electromagnetic and radiation weapons; kinetic energy and hypervelocity weapons and directed energy weapons.

150 Tronchetti "Soft Law Approach" 363-364. Own emphasis. Duberti 2011 *Proceedings of the International Institute of Space Law* 81 refers to the following broad definition of a space weapon: "[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 interference [sic] with the normal functioning of an object or being in outer space, or being in the earth environment". Duberti favours a broad definition of the term space weapon as this includes anti-satellite weapons (ASATs).

151 Tronchetti "Soft Law Approach" 364. Own emphasis. Su 2010 *Journal of Space Law* seemingly refers to this narrower definition when he states that "[t]echnically, ground-based weapons targeting outer space objects are not placed in outer space; hence, they are not considered as part of the weaponization of outer space".

152 Tronchetti "Soft Law Approach" 364. Lyall and Larsen *Space Law* 516-517 states in this regard as follows: "Military satellites are permitted, and in practice some of these may be 'active' weapons. This could include the kinetic, laser and radio possibilities that might be used in anti-satellite measures (ASATs)."

153 Park 2006 *Hous J Int'l L* 883.

154 Tronchetti "Soft Law Approach" 364.

> [a]ny device, whether in space or on Earth, created or modified to cause permanent or temporary physical or operational damage to an object in outer space by means of physical contact, projection of energy, or any kind of voluntary interference.[155]

Although the advantage of this definition is that it is broad enough to include both space and earth-based systems, and that it refers to the destruction as well as the temporary inoperability of space objects as a result of an attack,[156] it is not clear whether it refers only to devices which have the specific purpose of being used as a weapon or whether it also includes a space object which has the potential to cause damage to assets in outer space.

An attempt to provide a treaty-based definition of the term "space weapon" may be found in the 2008 *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects*.[157] The draft document defines a "space weapon" as

> any device placed in outer space, based on any physical principle, which has been specially produced or converted to destroy, damage or disrupt the normal functioning of objects in outer space, on the Earth or in the Earth's atmosphere, or to eliminate a population or components of the biosphere which are important to human existence or inflict damage on them …[158]

Several concerns have been raised with the Draft Treaty, however, including the following.[159] The draft document does not explicitly prohibit the testing and development of anti-satellite weapons, but allows for their research, development, production and terrestrial storage. Only the threat or use of such weapons against space objects for hostile purposes is prohibited.[160] The Draft Treaty thus places the emphasis only on space-based weapons. As a result, dual-use systems, which are not specifically produced to destroy space-objects, do not fall within the Draft Treaty's definition of a "space weapon".[161]

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155 Tronchetti "Soft Law Approach" 364.
156 Tronchetti "Soft Law Approach" 364.
157 A I(c) of the *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (2008).
158 A I of the *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (2008).
159 Tronchetti "Soft Law Approach" 370-371.
160 Tronchetti "Soft Law Approach" 370.
161 Tronchetti "Soft Law Approach" 371.

The definition of a "space weapon" has not been significantly amended in the 2014 Draft Treaty. Article 1(b) now reads as follows:

> [T]he term "weapon in outer space" means any outer space object or its component produced or converted to eliminate, damage or disrupt normal functioning of objects in outer space, on the Earth's surface or in the air, as well as to eliminate population, components of biosphere important to human existence, or to inflict damage to them by using any principles of physics.

It seems that the revised definition is not much more than a grammatical revision of the 2008 version and thus still does not address the concerns pointed out here above. One notable change in the 2014 version of article 1(b) is the use of the term "outer space object"; instead of "device" in its description of a space weapon. However, the definition of an "outer space object" in the revised article 1(a) is much more concise and arguably vaguer than its 2008 counterpart,[162] and reads as follows:

> [T]he term "outer space object" means any device placed in outer space and designed for operating therein.[163]

This vagueness is exacerbated by the fact that a definition for "outer space" has been omitted from the revised Draft Treaty.

Article IV of the *Outer Space Treaty* makes no mention of conventional weapons or any other military systems, but specifically prohibits the placement of nuclear weapons and weapons of mass destruction in orbit around the earth, or the placement of such weapons on celestial bodies. This is most probably due to the preoccupation of states with the dangers of radioactive fallout caused by nuclear tests and the development and use of nuclear weapons at the time of the negotiating of the treaty, when the use of conventional weapons in outer space was not foreseen.[164] It is thus not clear whether the lack of an explicit prohibition on the use of conventional weapons in outer

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162 In the of the *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (2008) the term "outer space object" is defined as "any device, designed for functioning in outer space, being launched into an orbit around any celestial body, or being in the orbit around any celestial body, or on any celestial body except the Earth, or leaving the orbit around any celestial body towards this celestial body, or moving from any celestial body towards another celestial body, or placed in outer space by any other means …".

163 The definition of a "space object" in a 1(d) of *the Convention on International Liability for Damage Caused by Space Objects* (1972) is equally vague. It defines a "space object" as including the "component parts of a space object as well as its launch vehicle and parts thereof".

164 Lyall and Larsen *Space Law* 513-514; Su 2010 *Journal of Space Law* 267.

space suggests that the use of such weapons is implicitly permitted.[165] In this regard, Bourbonnière and Lee[166] argue that the deployment of conventional weapons in earth orbit for peace-keeping purposes under articles VI and VII of the Charter of the United Nations will be permissible under article IV of the *Outer Space Treaty*.

In contrast with nuclear weapons, which are "a defined technology", the legal meaning of the term *weapons of mass destruction* (which may include radiological, biological and chemical weapons)[167] within the context of the *Outer Space Treaty*, is not clear.[168] In addition, the prohibition in article IV on the testing of any type of weapon specifically *on celestial bodies* may, according to some, imply that the prohibition does not apply to such tests in outer void space itself.[169] Friman[170] however, argues that in view of the title of the *Outer Space Treaty* and its preamble, which sets out the legal boundaries within which the treaty articles must operate, as well as the wording of articles IX and XI of the *Outer Space Treaty*,[171] the prohibition on the non-peaceful uses of outer space should extend to outer void space. Moreover, as was already pointed out earlier, due to the generation of vast amounts of space debris, the mere testing of space weapons (irrespective of whether it is done on a celestial body or in outer void space) already poses a risk to space security and to the right of other states to use and explore outer space freely.

Due to the explicit prohibition on nuclear weapons and weapons of mass destruction, it is widely accepted that the use of military support systems is not incompatible with the *Outer Space Treaty*.[172] The use of nuclear power sources (which are often utilised

165 See Su 2010 *Journal of Space Law* 267.

166 Bourbonnière and Lee 2007 *EJIL* 888.

167 See further Lyall and Larsen *Space Law* 515 for the attempts to define this term.

168 Lyall and Larsen state that, although the specific legal content of the term is unclear, "[t]he basic element of the concept of WMD [weapons of mass destruction] appears to be … that a weapon of mass destruction indiscriminately kills a large number. Whether that is a large number of innocent persons or a large number of persons *simpliciter* (i.e. including military personnel) remains obscure …" (Lyall and Larsen *Space Law* 515 fn 76).

169 Lyall and Larsen *Space Law* 517. Wilson 2001 *LJIL* 801 submits that states are allowed to use outer void space for a range of military purposes, excluding the stationing of nuclear weapons and weapons of mass destruction.

170 Friman 2005 *FYBIL* 310.

171 Friman 2005 *FYBIL* 307 points out that both aa IX and XI refers to the "peaceful exploration and use of outer space" and a IX clarifies that such peaceful exploration and use extends to outer void space by stating that outer space *includes* the moon and other celestial bodies.

172 Soucek "International Law" 320.

by the USA and Russia) is also not prohibited.[173] Also intercontinental ballistic missiles carrying nuclear warheads are not prohibited by the treaty, since they are not placed in (a full) orbit around the earth and therefore fall outside the prohibition in article IV.[174] The ballistic missile defence shield developed by the United States to protect itself and its allies against missile attacks is, however, a more contentious issue, since the kinetic energy interceptors launched into space to destroy enemy missiles also have the potential to be used as anti-satellite weapons.[175]

In dealing with the *lacunae* in article IV, some authors have suggested that, based on the reasoning of the Permanent Court of International Justice in the *Lotus*-case,[176] it may be argued that what is not expressly prohibited under article IV, may be permitted in law.[177] It is agreed with the submission by Su,[178] however, that due to the grave consequences of the weaponisation of outer space (which could eventually lead to an arms race in outer space and even armed conflict on earth) the *Lotus* principle should not be applicable to outer space.[179]

5 The way forward?

After the conclusion of the space treaties in the 1960s and 1970s, it became apparent that states were no longer willing to adopt further binding obligations regulating space activities and that international space law could, therefore, be developed only by adopting soft law instruments.[180] As a result of their non-mandatory character, these instruments are generally more easily negotiated by states than is the case with

173 Lyall and Larsen *Space Law* 516.

174 Soucek "International Law" 320; Filho 2011 *Proceedings of the International Institute of Space Law* 478-479. In this regard Lyall and Larsen *Space Law* 519 explain as follows: "[b]allistic and anti-ballistic missiles remain a potential military use of space. However, ballistic missiles are not vehicles in Earth or other orbit although they may briefly intrude into space. This means, *inter alia* that ballistic missiles with nuclear or WMD warheads are not covered by the prohibition on the stationing of such weapons in space under OST Art. IV though other space treaties may apply."

175 Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

176 *Lotus Case (France v Turkey)* 1927 PCIJ Reports, Series A, No 10.

177 Bourbonnière and Lee 2007 *EJIL* 880.

178 Su 2010 *Journal of Space Law* 271.

179 Su 2010 *Journal of Space Law* 272 states that "[t]he lack of a specific prohibition does not mean space weaponization is permitted under international law. Relying on the *Lotus* principle would undermine the international legal framework and instigate a laissez-faire attitude in the international community".

180 Tronchetti "Soft Law" 626; Tronchetti "A Soft Law Approach" 372.

treaties.[181] Hence, soft law[182] documents are currently the main instruments for further developing and defining outer space norms.[183]

Proponents of a hard-law approach to prevent the weaponisation of outer space, however, maintain that the adoption of a legally binding treaty will be the most effective measure to ensure the non-weaponisation of outer space, as a violation of the treaty would make a state legally responsible towards the other states parties.[184] Notwithstanding the fact that most states are (theoretically) in agreement that the weaponisation of outer space should be prevented,[185] all attempts to conclude a legally binding treaty prohibiting the placement and use of all kinds of weapons in outer space have, up to the present, been very challenging.[186] The most recent attempt to achieve this, is the Russia/China *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects*, submitted to the Conference on Disarmament in 2008 and 2014 referred to earlier. Although the Draft Treaty may be regarded as a point of departure in the formulation of a treaty prohibiting the weaponisation of outer space, the criticism that has been raised by governments against the draft document makes it unlikely that it would be easily accepted by the majority of states.[187] The 2008 Draft Treaty was rejected by

181 Tronchetti "Soft Law" 625-626.

182 Dugard *International Law* 33 describes soft law as "imprecise standards, generated by declarations adopted by diplomatic conferences or resolutions of international organizations, that are intended to serve as guidelines to states in their conduct, but which lack the status of 'law'". Tronchetti "Soft Law" 624 summarises the role of soft law in the general system of international law as follows: "1) it can give guidance on how to interpret and implement existing treaty provisions; 2) it may represent the beginning of a process leading to an international treaty; 3) it may contribute to the formation of customary law; 4) it may be declaratory of existing unwritten rules." Klabbers *Introduction to International Institutional Law* 202 is of the opinion, however, that the concept *soft law* should be discarded mainly because it is premised on the jurisprudentially dubious notion that legal rules can be more or less binding, which is not really supported by international tribunals. Furthermore, the fact that soft law is often conceived as informal standards-setting without any control, makes it a convenient tool for the exercise of pure political power.

183 Tronchetti "Soft Law" 627; Tronchetti "Soft Law Approach" 372.

184 Tronchetti "Soft Law Approach" 368. Maogoto and Freeland 2008 *Air and Space Law* propose in this regard that "[w]e must move towards the negotiation of a comprehensive international legal instrument addressing the issues of space weaponization, based on the accepted principle that space is the common heritage of mankind …". Also see Park 2006 *Hous J Int'l L* 893.

185 Tronchetti "Soft Law Approach" 386.

186 Tronchetti "Soft Law Approach" 368-369.

187 Tronchetti "Soft Law Approach" 370-371. Su and Zhu 2011 *Proceedings of the International Institute of Space Law* 51 submit that, notwithstanding the criticism against the draft treaty, it provides a "constructive basis for a more solid space security regime", as it has been taken note of in a number of UN General Assembly resolutions.

the Bush administration from the onset *inter alia* by characterising it as an attempt by Russia and China to gain a military advantage, and the dismissal of the Draft Treaty has continued under the Obama administration.[188]

After the revised draft of the Treaty was submitted by Russia and China to the Conference on Disarmament on 10 June 2014, Frank Rose, the US Deputy Assistant Secretary of State, Arms Control, Verification and Compliance informed the Conference that the revised Draft Treaty fails to address "significant flaws" already identified in the 2008 version. According to Rose, some of the fundamental problems with the 2014 Draft Treaty are the lack of an "effective verification regime to monitor compliance", and the fact that "terrestrially based anti-satellite systems posing the greatest and most imminent threat to space" are not covered by the Draft Treaty. A former Pentagon strategic analyst, Mike Schneider, has added that the serious definitional problems (such as that of a "space weapon") in the Draft Treaty have contributed to the United States' rejection of the Treaty.[189] In addition, there also seems to be still some concern regarding Russia and China's motives with the Draft Treaty, which are considered by some observers as an attempt to limit their adversaries' military capabilities.[190]

Due to the difficulties in creating a binding treaty, the appropriateness of soft law to prevent an arms race in outer space and to protect space assets is also increasingly supported in the area of space security.[191] These soft law guidelines could be drafted in various forms, for example as guidelines or rules of the road, with the purpose of creating transparency in order to avoid "accidental military engagement in outer space",[192] or as codes of conduct which provide certain behavioural and operational rules to be followed by states when conducting space activities,[193] or as transparency

188 Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-shhets/critical-issues/5448-outer-space.

189 Gertz 2014 http://freebeacon.com/national-security/u-s-opposes-new-draft-treaty-from-china-and-russia-banning-space-weapons/.

190 See further Farnsworth 2014 http://legacy.armscontrol.org/act/2014_0708/News/Fate-of-Space-Code-Remains-Unclear%20.

191 Tronchetti "Soft Law Approach" 372.

192 Lyall and Larsen *Space Law* 529-530.

193 For a discussion of some of these soft-law codes see Tronchetti "Soft Law Approach" 376-383.

and confidence-building measures (so-called TCBMs)[194] with the purpose of sharing information on the location and scope of space launches and activities, among other things, or information on domestic space policies programmes, in order to improve international relations.[195] In this regard Tronchetti[196] submits as follows:

> First and utmost soft law provisions, and in particular TCBMs, are being recognised as a useful tool to enhance space security because they contribute to create mutual understanding and to reduce tensions among States. In particular, these measures diminish and even eliminate the cause for mistrust, fear and miscalculation concerning military activities in outer space and intentions of other States, factors which may generate the perception of an impaired security of national space objects and provide justification for the placement and use of weapons in outer space.

The question obviously remains whether states will be willing to share such information, as the military use of outer space is usually closely linked to national security issues.[197]

As with the non-binding space debris mitigation guidelines, it could be argued that soft law rules will have a moral and political value, as there is an expectation that states will comply with its provisions.[198] Non-compliance may be viewed in a negative light by a state's international partners and thus damage the political reputation of the state.[199] Especially in instances where there is an urgent need for legal clarity, a soft law instrument offers a solution as it can be negotiated in a relatively short period of time and implemented immediately, because its applicability is not dependent on ratification by states.[200] It could thus furthermore be argued that soft law guidelines have a legal value, as they impact on the international law-making process by providing the premise on which customary international law may develop, and which

194 See further on TCBMs, Takaya-Umehara 2009 *Proceedings of the International Institute of Space Law* 123-132; Kapustin 2009 *Proceedings of the International Institute of Space Law* 186-190; Gopalakrishan, Bhaskaranarayana and Murthi 2009 *Proceedings of the International Institute of Space Law* 140-142.

195 Tronchetti "Soft Law Approach" 372.

196 Tronchetti "Soft Law Approach" 373.

197 In this regard Tronchetti "Soft Law Approach" 375 points out that, similarly, a state's decision to comply with a treaty is also influenced by security and strategic interests. Should a state deem a treaty to be no longer in its interest, it may breach the treaty and bear the consequences or if possible withdraw from it.

198 See in the context of space debris mitigation, Welly 2010 *Journal of Space Law* 307; Tronchetti "Soft Law" 620.

199 Welly 2010 *Journal of Space Law* 307.

200 Tronchetti "Soft Law" 626.

may eventually lead to the conclusion of a binding treaty.[201] In addition, propositions for the creation of an outer space inspection system or even a world space organisation to ensure the continued peaceful use of outer space should also be revisited.[202]

The European Union's draft *Code of Conduct for Outer Space Activities*[203] is a good example of an attempt to regulate the military use of outer space by means of a soft-law instrument. The Code, which will not be legally binding, aims to improve safety and security in outer space by means of principles and guidelines voluntarily agreed upon by states.[204] A number of states, such as Australia, Canada and Japan, have already indicated their support for the Code. Also, the USA seems to be inclined to accept the Code due to its non-binding nature.[205] However, some countries, including Brazil, Russia, India and China, have expressed concerns that the Code could be used as a means to constrain their capacity to undertake future space activities and that the language on self-defence in the Code could encourage an arms race in space. Specifically Brazil, India and some Latin-American countries have expressed their disappointment at not being consulted properly in the development of the Draft Code.[206]

Apart from the obvious politically motivated difficulties and time-constraints involved in reaching an international agreement on the militarisation of outer space, it seems that there is divergent opinion amongst states on the correct forum where this issue should be addressed. While some countries such as Egypt, Pakistan and Russia have argued that the United Nations General Assembly is the appropriate body to debate and vote on the Draft Code of Conduct, the USA and some European Union member

201 Tronchetti "Soft Law" 621; Tronchetti "Soft Law Approach" 375; Welly 2010 *Journal of Space Law* 311. See further Tronchetti "Soft Law Approach" 373-376 for a discussion of the advantages of a soft-law approach. Also see Walter "Privatisation and Commercialisation of Outer Space" 503.

202 Maogoto and Freeland 2008 *Air and Space Law* 24.

203 The fifth revised *Draft International Code of Conduct for Outer Space Activities* (2014) was made public by the EU on 31 March 2014. Text available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

204 Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

205 Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

206 Farnsworth 2014 http://legacy.armscontrol.org/act/2014_0708/News/Fate-of-Space-Code-Remains-Unclear%20.

states have disputed the appropriateness of such negotiations within the realm of the United Nations.[207]

In its 2013 Report[208] the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) states that the Committee agreed that due to its work in scientific, technical and legal fields, as well as its facilitation of international dialogue on issues relating to the exploration and use of outer space, "it had a fundamental role to play in ensuring that outer space was maintained for peaceful purposes".[209] The view was furthermore expressed by some delegates that the Committee should commence with analysing the "legal basis for and modalities of the exercise of the right to self-defence in accordance with the Charter of the United Nations, as applied to outer space".[210] Some delegates submitted that the Committee was the only United Nations body aimed at promoting the peaceful use of outer space and therefore any concept that violated the legal principles relating to the peaceful use of outer space, such as the concept of the right to self-defence or the use of weapons in outer space, should not be accepted in the Committee, as this would be in contradiction of its fundamental tasks.[211]

The view was further expressed that the current outer space legal regime was not adequate to prevent the placement of weapons in outer space and that, in order to ensure the peaceful use of outer space and prevent its militarisation, a binding legal instrument had to be prepared. While some delegates recommended that the Committee cooperate and coordinate in this regard with other United Nations bodies such as the Conference on Disarmament, others were of the opinion that it would be more appropriate if disarmament issues be dealt with exclusively in forums such as the Conference on Disarmament. One delegation even expressed the view that "no actions by the Committee were needed regarding the weaponisation of outer space

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207 Farnsworth 2014 http://legacy.armscontrol.org/act/2014_0708/News/Fate-of-Space-Code-Remains-Unclear%20.

208 *Report of the Committee on the Peaceful Uses of Outer Space* 56th session (12-21 June 2013).

209 Ch II para 36 of the *Report of the Committee on the Peaceful Uses of Outer Space* 56th session (12-21 June 2013).

210 Ch II para 39 of the *Report of the Committee on the Peaceful Uses of Outer Space* 56th session (12-21 June 2013).

211 Ch II para 41 of the *Report of the Committee on the Peaceful Uses of Outer Space* 56th session (12-21 June 2013).

and that there was no scarcity of appropriate multilateral mechanisms where disarmament could be discussed". Although it could be argued that a change in forum would not change the national stances of states, Park[212] suggests that the creation of a new discussion forum on space security (that would include diplomats, academics, military officers and industry representatives) might place additional, unified pressure specifically on the USA to change its position on space security and the weaponisation of outer space.

6 Conclusion

It should be apparent from the above exposition that article IV of the *Outer Space Treaty* cannot adequately deal with the current issues relating to the military use of outer space. The legal vacuum in this area may have grave consequences for maintaining peace and security not only in outer space but also on earth.[213] The legal uncertainty surrounding the military use of outer space is further exacerbated by the lack of coordination in relation to arms control initiatives. Apart from the Draft EU Code of Conduct and the Russia/China Draft Treaty, there are currently a number of individual UN initiatives in this regard, such as the Group of Government Experts on Transparency and Confidence Building Measures in Outer Space Activities, the United Nations Committee on Peaceful Uses of Outer Space and the standing debate on the prevention of an arms race in outer space within the Conference on Disarmament.[214]

It is therefore imperative that an international dialogue on the military use of outer space is facilitated under the auspices of a consolidated forum to address the legal uncertainties which may impair the peaceful use of outer space. It is submitted that since the UNCOPUOS has been specifically established to address issues relating to outer space, it is best suited to address the military use of outer space. Due to the

212 Park 2006 *Hous J Int'l L* 906-907. Park refers to a statement by a representative of the US State Department in 2002, that a change in venues "would not change national positions. States would still have the same concerns that they have in existing fora" (Park 2006 *Hous J Int'l L* 906).

213 This is supported by the *General Assembly Resolution on the Prevention of an Arms Race in Outer Space* A/RES/62/20 (10 January 2008) which recognises that the "prevention of an arms race in outer space would avert a grave danger for international peace and security".

214 Farnsworth 2014 http://legacy.armscontrol.org/act/2014_0708/News/Fate-of-Space-Code-Remains-Unclear%20.

unique nature of outer space issues, they should not be dealt with in a forum which primarily focuses on earth-based situations.

Although it is agreed with the proponents of a hard law approach that a legally binding instrument should be adopted to regulate the military use of outer space, it is submitted that, as an interim measure, soft law guidelines should be developed to provide a framework for the eventual creation of a consolidated and binding legal instrument on all aspects relating to the use of outer space. In this regard the *United Nations Convention on the Law of the Sea* could serve as a valuable example.[215]

As Lyall and Larsen[216] observe:

> Once one state begins to assert unilateral authority to weaponise outer space with the implicit threat of the use of those weapons, other states will use that precedent to assert their own unilateral authority.

Should this happen, the "point of no return" referred to by President Eisenhower in 1960 may be reached much sooner than anticipated.

215 *United Nations Convention on the Law of the Sea* (1982).
216 Lyall and Larsen *Space Law* 532.

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LIST OF ABBREVIATIONS

ASAT	Anti-satellite
CILSA	Comparative and International Law Journal of Southern Africa
FYBIL	Finnish Yearbook of International Law
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
EJIL	European Journal of International Law
Hous J Int'l L	Houston Journal of International Law
IRRC	International Review of the Red Cross
ITU	International Telecommunications Union
LJIL	Leiden Journal of International Law
Melb J Int'l L	Melbourne Journal of International Law
SAYIL	South African Yearbook of International Law
TCBMs	Transparency and confidence-building measures
UN	United Nations
UNCOPUOS	United Nations Committee on the Peaceful Uses of Outer Space
WMD	Weapons of mass destruction

SELECTED LEGAL CHALLENGES RELATING TO THE MILITARY USE OF OUTER SPACE, WITH SPECIFIC REFERENCE TO ARTICLE IV OF THE OUTER SPACE TREATY

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SUMMARY

Since the end of the Second World War the potential use of outer space for military purposes persisted to be intrinsically linked to the development of space technology and space flight. The launch of the first artificial satellite, Sputnik 1, by the USSR in 1957 made Western states realise that a surprise attack from space was a real possibility, resulting in the so-called "space-race" between the USA and the USSR. During the Cold War space activities were intrinsically linked to the political objectives, priorities and national security concerns of the USA and the Soviet Union. After the Cold War the political relevance and benefits of space continued to be recognised by states. In view of the recent emergence of new major space powers such as China, the focus has again shifted to the military use of outer space and the potential that a state with advanced space technology may use it for military purposes in order to dominate other states. Article IV of the *Outer Space Treaty* prohibits the installation of nuclear weapons and weapons of mass destruction in outer space and determines that the moon and other celestial bodies shall be used for peaceful purposes only. Due to the dual-use character of many space assets, the distinction between military and non-military uses of outer space is becoming increasingly blurred. This article discusses a number of legal challenges presented by article IV of the Outer Space Treaty, relating specifically to the term *peaceful*, the distinction between the terms *militarisation* and *weaponisation* and the nature of a *space weapon*. It is concluded that article IV is in many respects outdated and that it cannot address the current legal issues relating to the military use of outer space. The legal vacuum in this area may have grave consequences not only for

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maintaining peace and security in outer space, but also on earth. Consequently, an international dialogue on the military uses of outer space should be facilitated under the auspices of the UNCOPUOS to address these uncertainties as a matter of urgency. Although it is agreed with the proponents of a hard law approach that a legally binding instrument should be adopted to regulate the military use of outer space, it is submitted that, as an interim measure, soft law guidelines should be developed to provide a framework for the eventual creation of a consolidated and binding legal instrument on all aspects relating to the use of outer space.

KEYWORDS: aggression, militarisation; *Outer Space Treaty*; peaceful purposes; satellite; self-defence; soft law; space debris; space security; space weapon; use of force; weaponisation