

GNSS FOR MILITARY USES OR PEACEFUL USES?

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ABSTRACT

Global Navigation Satellite System is originally developed for military purposes, though; its applications are recognized as globally multipurpose for peaceful uses.

Since the early 1990s, it has been used for military purposes in outer space. The last case was that, after US Terrorists Attacks on 11 Sept. 2001, the U.S. used its own GNSS namely GPS for the testing of National Missile Defense on 18 Jan. 2002.

In this paper, the author would verify the illegality of GNSS uses for military purposes, with stress on 'space benefit' under Space Benefit Declaration, and 'international cooperation' under Principle of International Cooperation and Mutual Assistance, which are international customary law to oblige States Parties to use outer space for peaceful purposes, in order to avoid destabilization of outer space.

1. What is GNSS?

Global Navigation Satellite System (GNSS) is a space-based radio positioning system for communication and navigation. It uses either or both Global Positioning System (GPS), developed by the U.S., and Global Orbiting Navigation Satellite System (GLONASS) developed by the USSR, to provide accurate positioning and the real time navigation information for safety. Besides two 'public' GNSS, EU has worked on building Galileo,

which would be operational on commercial basis.

The basic system of GPS, which is operated and financed by the U.S. Air Force, uses the Navigation Satellite Providing Time and Range (NAVSTAR) satellites¹, and its constellation consists of 21 operational satellites and 3 active spares. The orbital constellation consists of 6 orbital planes, each inclined with respect to the equatorial plane by about 55 degrees. The arrangement of 24 satellites and associated ground monitor stations ensure that there are 4-12 satellites above the horizon available for simultaneous measurements for 24 hours.

2. GNSS Applications for Space Benefits

The main benefit of GNSS is to make a single navigation system that offers continuous 'public' services, resulting in reduction of accidents by enhancing accuracy of position and velocity measurements. It has been applied to diversifying current applications², recognized through UNISPACEIII³ and a series of the UN/USA GNSS Workshop⁴. It was concluded that GNSS needs regional and global cooperation for seamless worldwide uses to create international community between civil authorities, governments and industry representatives⁵.

3. GNSS for Military Uses

Since the early 1990s, the U.S. has used GPS for military purposes in outer space.

3.1. National Missile Defense (NMD)

Originally GPS was designed and developed in the late 1960s and the early 1970s as joint

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program of Navy and Air Force as the space-based sensors for communications and navigation for military uses. Its scope was extended early in its development for complementary civil uses as well.

The functions of GPS is not easily divided into civilian or military program as both sectors use communications, navigation, weather, and remote sensing/reconnaissance satellites namely dual-use technology.

Since the 104th Congress, satellites to attack ballistic missiles have been considered in President Reagan's 1983 announcement that initiated a Strategic Defense Initiative (SDI) to study the viability of building a ballistic missile defense system to protect the U.S. and the allies. The Clinton Administration renamed that SDI as the Ballistic Missile Defense Organization (BMDO) to created Theater Missile Defense (TMD) during the Persian Gulf War, rather than NMD. The Bush Administration has changed the name to the Missile Defense Agency (MDA)⁶.

Despite space defense program, NMD is still controversial in the U.S. For example, H.R. 2977 would ban U.S. space-based weapons and require the U.S. President to take action to adhere international treaties to assure that the missile defense system uses satellites for early warning, communication, and other support functions.

On 18 January 2002, the Department of Defense (DoD) demonstrated the operational and live-fire testing of 161 military systems by using GPS, which failed to prove the confident capability of the NMD⁷.

In fact, NMD either in space or on the ground requires GPS for early warning, communications and other support functions.

The above testing relies on data from a GPS beacon for targeting ICBM to help plan the intercept and assist mid-range tracking. To make use of GPS data is suitable for early testing, to verify if the missile defense system is tracking the warhead correctly even though it is not enough acquisition support.

3.2. NMD and the ABM Treaty

The ABM Treaty has played a significant role to stabilize outer space since the 1970s. In May 1972, the U.S. and the USSR concluded the Treaty on the Limitation of Anti-Ballistic Missile Systems (the ABM Treaty) that prohibits the deployment of ABM systems for the defense of a nation's territory, or an individual region, or defenses that has capability to provide the base for such a defense.

The ABM Treaty bans, in detail, the development, testing, and deployment of sea-based, air-based, space-based, or mobile land-based ABM systems and its system components including interceptor missiles, launchers, and radar sensors. It allows each party to withdraw after giving 6 months notice on the condition that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests⁸.

The Clinton Administration had outlined for NMD in 1999 that needed to deploy 100 interceptor missiles at a single site in Alaska⁹. It might have included space-based sensors, namely GPS and other components that the ABM Treaty would have banned. The Administration was in effort to modify the ABM Treaty to allow a limited deployment.

After the USSR, the Clinton Administration determined that Russia would be the successor to the Soviet Union for the Treaty and signed a Memorandum of Understanding (MoU) on

Succession (targeting Russia, Ukraine, Belarus, and Kazakhstan) in September 1997, however, it did not enter into force.

The Bush Administration announced its intention of withdrawal from the ABM Treaty on 13 Dec. 2001 to enable the U.S. move beyond the limits in the treaty to deploy missile defenses, and that took effect on 13 June 2002. It has sought to develop and deploy an integrated, layered system to defend the U.S., its forces, and allies from missile of all ranges. It preferred 'Missile Defense', rather than 'National Missile Defense', with its concept that could combine defenses against shorter, medium, and longer-range missiles in an integrated defense systems.

3.3. After the U.S. Withdrawal from the ABM Treaty

Russia has regarded the ABM Treaty as the cornerstone of strategic stability, which control the entire network of agreements that reduce offensive nuclear weapons. Therefore, it criticized the U.S. withdrawal from the Treaty, which would upset not only strategic stability between the U.S. and Russia, but also international communities, and would provoke a new, threatening international arms race.

After the U.S. Terrorist Attacks on 11 Sept. 2001, Russia immediately took action to offer its support to the U.S. war on terrorism, by allowing the U.S. forces to use bases in former Soviet republics and by sharing intelligence and Russian knowledge about Afghanistan. Therefore, when the U.S. announced to give Russia the six-month notice of withdrawal from the Treaty on 13 Dec. 2001, a new framework for mutual strategic relations came necessary for stability, and they made efforts for a new treaty limiting strategic offensive weapon until when the U.S. withdrawal took effect.

Both Presidents signed a Joint Declaration outlining a new framework for cooperation between the two nations.

In regard to arms control, Russia had abided the 1993 START-II Treaty (Strategic Arms Reduction Treaty), which has not entered into force, would have banned Russia from the deployment of land-based strategic ballistic missiles with multiple warheads. After the U.S. withdrew from the ABM Treaty, Russia indicated its neglect of START II as a counter to the U.S. decision.

4. 'Peaceful' Controversy

The definition of 'peaceful' in Article IV of the 1967 Outer Space Treaty (the 1967 OST), regarding disarmament of outer space, has been debated for many years. Although the 1959 Antarctic Treaty, which influenced on Article IV, uses 'peaceful' as 'non-military', the U.S. interpreted it into 'non-aggressive' that can read rather subjective in the following cases¹⁰;

- During the 1990-1991 Persian Gulf War, GPS was used as space-based sensors in near real-time for communications.
- During the 2001-2002 Afghan War, GPS supported the U.S. by pointing out the locations where they were as well as enemy target.
- On 18 January 2002, DoD used GPS for the operational and live-fire testing of 161 military systems that demonstrated.

It is classical but important to review Article 2 (4) of the Charter of the United Nations (the UN Charter) to trace back the definition of 'peaceful';

'All members shall refrain in their international relations from the threat or use of force against the territorial integrity

or political independence of any State, or in any other manner inconsistent with the Purposes of the United Nations.'

Taking into consideration that many developing countries depend on the applications of GPS, it is threatening to use it for military purposes in outer space. Therefore military uses of GPS including the testing NMD are inconsistent with *the Purposes of the UN*.

4.1. Disarmament Articles

As long as space technologies are dual-use which exist in outer space already, the space defense strategies would require the more complicated formation of space technologies for war on Earth or in outer space or places between them. Therefore it is necessary to review the existing disarmament articles to avoid destabilization in outer space.

First it needs to be noted that the deployment of GNSS itself is not illegal as long as they do not carry nuclear weapons or weapons of mass destruction¹¹. However, even GNSS seems non-aggressive, it could be categorized as some kind of weapons¹² that support weapons of mass destruction by offering communications and navigation for military purposes.

Article IV of the 1967 Space Treaty bases on the proposal that was made by the U.S. President Eisenhower who submitted it in the United Nation in 1960¹³. He suggested 'to promote the peaceful use of space and utilize the new knowledge obtainable from space science and technology for the benefit of mankind'¹⁴, quoting from the Antarctic Treaty which was concluded in 1959¹⁵. In addition, the USSR President Khrushchev also stated that it 'prepared to conclude an agreement which provide for the prohibition of the use of

outer space for military purposes'¹⁶. Interpreting from those statements, they intended to avoid the next arm race in outer space.

4.1.1. Article IV (1) of the 1967 OST

Despite their first intention, the interpretation of Article IV of the 1967 OST has been open to States Parties for leaving places to install weapons in outer space. In the broad sense, compared with Article IV (2), which uses the term 'prohibit', nothing in Article IV (1) itself prohibits placing of any other type of weapons in outer space, including the moon and other celestial bodies¹⁷. Therefore, it is possible to interpret that, under international law and Article IV (1) of the 1967 OST, States Parties enable to use the whole of outer space for military purpose except placing nuclear weapons and weapons of mass destruction, by ignoring the first intention of two Presidents. Also, it could be interpreted that States Parties enable to use force in outer space for self-defense under the rules of international law and Article 51 of the United Nations Charter¹⁸.

4.1.2. Article IV (2) of the 1967 OST

On the other hand, the original intention of disarmament was taken clearly in Article IV (2) of the 1967 OST that stipulates 'States Parties should use the Moon and other celestial bodies exclusively for peaceful purposes'. No activity of a military nature is allowed on the moon and the other celestial bodies. However, as long as it lacks the term 'in orbit', placing Early Warning Satellites¹⁹ in orbit, under the U.S. space defense programs, is not illegal, even though it would provoke strong arguments over the legality of such military uses of outer space.

According to Article IV (2) '...the testing of any type of weapons and the conduct of

military manoeuvres on celestial bodies shall be forbidden...', and in fact GPS was used for the testing of National Missile Defense on 18 January 2002. That conduct seems to have infringed on Article IV (2), however, the testing was conducted in orbit, not 'celestial bodies', which does not break any law directly.

The illegality of GPS uses for military purposes depends on the definition of 'peaceful' in Article IV consistent with general international law, especially under Article 2 (4) of the UN Charter²⁰.

4.1.3. 'Non-aggressive' or 'Non-military'?

In 1960, the U.S. President Eisenhower before the General Assembly of the UN presented a proposal²¹, and the following statement influenced on Article IV of the 1967 OST.

'3. We agree, subject to appropriate verification, that no nation will put into orbit or station in outer space weapons of mass destruction. All launchings of space craft should be verified in advance by the United Nations.'

At that time, the U.S. seemed in the position of 'non-military' for uses of outer space. However, in 1962, he presented the interpretation of 'peaceful' as follows;

*'Outer space should be used for peaceful, that is, non-aggressive and beneficial - purposes. ...Until this (adequate safeguards) is achieved, the test of any space activities must not be whether it is military or non-military, but whether or not it is consistent with the United Nations Charter and other obligations of law.'*²²

In addition, the U.S. National Space Policy of 1989 and 1996 expressed that 'outer space should be used for peaceful purposes and for

the benefit of all countries, *including activities for national security and defense.*'

That military-oriented tendency arose with support of following assertion;

- (a) 'Non-military' interpretation is not appropriate since space technologies are dual use and also using military personnel and facilities.
- (b) There was nothing in general international law or even the UN Charter that obliged States not to use outer space for military purposes²³.
- (c) The right of self-defense is kept under Article 51 of the UN Charter by Article III of the 1967 OST.
- (d) The term 'peaceful' cannot be defined by Article I (1) of the 1967 OST, because the benefit and the interest of each country is different²⁴.

Contrary to 'non-aggressive' theory, the definition of 'non-military' has been claimed by the USSR since 1966 at the Legal Subcommittee of the COPUOS²⁵. The representative stated that any program for military purposes must not be justified even for the interest of national or regional security, because it was manifest that such activities would lead to war.²⁶

The definition of 'non-military' is based on the following assertion;

- (a) The 1959 Antarctic Treaty, which influenced on the draft of the 1967 OST, has the definition of 'non-military' in Article I (1) as follows;

1. Antarctica shall be used for peaceful purposes only. There shall be prohibited, inter alia, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of

military maneuvers, as well as the testing of any type of weapons.

- (b) Military aggressive activities are not consistent with international law and violate Article 2 (4) of the UN Charter²⁷. According to Article III of the 1967 OST, it is not appropriate to define 'peaceful' as 'non-aggressive' because it is exceptional interpretation in other international law.

In regard to GPS for military uses, it does not infringe on Article IV (1) or (2) of the 1967 OST, due to the location and the limited terminology of that Treaty. However, such activities threaten international peace and security, which is illegal under Principle of International Cooperation and Mutual Assistance.

4.2. GNSS under Article III of the Moon Agreement

It has been pointed out that the number of ratification for the Moon Agreement²⁸ weakens its persuasiveness. The main obstacle for States Parties to ratify is that the Moon Agreement might prevent them from commercializing their space activities in outer space, as well as from militarizing outer space. Although, its legal significance should be reviewed seriously since unanimous approval was given to the form of the UN General Assembly Resolution of the Moon Agreement.

Article III (3) of the Moon Agreement, which prohibits military uses 'in orbit or other trajectory to or around the moon', does not include 'in Earth Orbit' where GNSS is deployed (20200-km altitude). Then GPS uses for military purposes does not infringe, however, such terminology should not be restrictive to the place where military acts may take place in consideration for that space

technology has been developed faster than space law has.

5. Legality of GNSS for Military Uses

As applications of GPS have been diversified globally, the concern of developing countries focuses on the balance of space benefit and threat of aggressive act in outer space. In order to take precautions, legality of space activities needs to be verified under Principle of Mutual Assistance and International Cooperation²⁹.

5.1. Under Principle of Mutual Assistance

Legality of GNSS for military uses depends on the definition of 'benefit' and 'interests' of Article I (1) of the 1967 OST, which provides 'the exploration and use of outer space, ...shall be carried out for the benefit and in the interests of all countries, ...'. In principle, Principle of Mutual Assistance prohibits space activities for the benefit and in the interests of specific countries or region. Since the current military uses of GNSS were for the Gulf War, Afghanistan War and the testing of NMD, such uses are benefit for specific countries, the U.S. and its allies. Therefore such acts are infringing on Article I (1) of the 1967 OST which is binding.

5.2. Under Principle of International Cooperation

Principle of International Cooperation is international customary law that bases on the UN Charter and the 1970 Declaration of Principle of Friendship and Cooperation³⁰. In Article III of the 1967 OST, the Principle reflects in Article I, IX and X of the 1967 OST.

That Declaration has the same purpose and principles of Article I and II of the UN Charter that obliges States Parties to cooperate each other to maintain international peace and

security. In addition, such cooperation needs to be consistent with the UN Charter, even in outer space, to contribute to develop the mutual understanding, strengthen the friendly relations between States and peoples recalling the preamble of the 1967 OST.

Therefore, GNSS uses for the interest of specific States, including military purposes, which might destabilize international peace and security, are illegal under Principle of International Cooperation.

5.3. Under Space Benefit Declaration

GNSS has potential application to create, maintain and share 'space benefit'³¹ that might solve the global problems under Principle of International Cooperation. In 1988, Legal Subcommittee of the COPUOS decided to add the 'space benefit' issue on the agenda of its 1989 session³² and to establish a working group on that agenda item³³ in the same year. Such an attempt was realized during the 1991 session³⁴ resulting in 'Space Benefit Declaration'³⁵, adopted by the General Assembly of the United Nations in 1996. Afterward, in 1999, this Declaration³⁶ contributed to the UNISPACEIII³⁷ resulting in the Vienna Declaration³⁸.

The impact of the "Space Benefit Declaration" on Principle of International Cooperation was analyzed as follows³⁹:

- It provides an authoritative interpretation of the cooperation principle of Article I of the 1967 OST and finalized a North-South debate on the introduction of forced cooperation and transfer of resources. It prevents further confrontation on a general political level.
- It confirmed that the freedom of the exploration and utilization of outer space as well as reminds the space powers - in a productive and mutually fruitful manner -

to fulfill their obligation to conduct their activities for the benefit of all countries, which means that the space powers should foster international cooperation - on an equitable and mutually acceptable basis. It leads to that developing countries interested in space activities have now higher incentives to put their energies in a "demand-pull" instead of waiting for a politically induced "technology push" by their own efforts well-prepared.

Those interpretations of 'space benefit' would give a hint to the definition of 'peaceful' in line with Principle of International Cooperation. For example, Principle I stipulates;

1. International cooperation [...] shall be conducted in accordance with the provisions of international law, including the Charter of the United Nations and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies [...]"

It repeats the contents of Preamble and Article I of the 1967 OST. And Principle III states;

3. All States, [...] should contribute to promoting and fostering international cooperation on an equitable and mutually acceptable basis. In this context, particular attention should be given to the benefit and the interests of developing countries and countries with incipient space programmes stemming from such international cooperation conducted with countries with more advanced space capabilities.

It clarifies that space powers must involve developing countries into space activities. The Space Benefit Declaration does not intend to force cooperation since it stipulates that such cooperation needs 'on an equitable and mutually acceptable bases'. However, it shall

enhance international or intergovernmental space cooperation through implementation of recommendations of UNISPACEIII. In regard to GNSS, that is the aim of holding the UN/USA GNSS Workshop⁴⁰ in 5 developing countries.

6. Conclusion

The application of GNSS has been expanding for peaceful uses even though GPS has been developed for military uses.

After the U.S. Terrorists Attacks on 11 Sept. 2001, the U.S. Space Defense Policy has been developing NMD fully, which provokes destabilization of outer space. Before the withdrawal of the ABM treaty took effect on 13 June 2002, GPS was used for the testing of targeting ICBM to help plan the intercept and assist mid-range tracking for NMD.

Before complete placing weapon in outer space, it is indispensable to review the definition of 'peaceful' in Article IV of the 1967 OST, regarding disarmament of outer space, which has been debated over decades. Even it is clear that the 1959 Antarctic Treaty, which influenced on the 1967 OST, uses 'peaceful' as 'non-military', however, 'non-aggressive' is general opinion inconsistent with Article 2 (4) of the UN Charter.

Although Article IV of the 1967 OST bases on President Eisenhower's proposal, submitted in the UN in 1960, his original intention was not took over to the existing Article IV (1). Even States Parties may use outer space for military purposes, in self-defense in accordance with the rules of international law and Article 51 of the United Nations Charter⁴¹.

Under Article IV (2) of the 1967 OST, no activity of a military nature is allowed on the

moon and the other celestial bodies. However, as long as it lacks the term 'in orbit', placing Early Warning Satellites in outer space, under the U.S. space defense programs, does not infringe on this Article, even though it would provoke strong arguments over the legality of such military uses of outer space.

Military activities in outer space should be considered under Principle of International Cooperation and Mutual Assistance, which are international customary law consistent with the UN Charter.

Under Article III (3) of the Moon Agreement, GPS uses for military purposes do not infringe. Although it lacks the term of 'in Earth orbit' to apply the case of GPS, such terminology should not be restrictive to the place where military acts may take place in consideration for that space technology has been developed faster than space law has.

Space Benefit Declaration supplements the definition of 'peaceful' by Principle I, which repeats the contents of Preamble and Article I of the 1967 OST. According to Principle III, it clarifies that space powers must involve developing countries into space activities.

In conclusion, due to the location of GPS and the limited terminology of Article IV of the 1967 OST, there is no specific article, which prohibits States Parties from using GPS for war or NMD. However, such military uses in outer space are destabilizing outer space, threatening international peace and security, and illegal under Principle of International Cooperation and Mutual Assistance.

¹ Introduction to GPS Applications, <<http://ares.redsword.com/GPS/apps/introduction/toGPS.htm>> (Last accessed: 2 Oct. 2002)

² The current GNSS applications are as follows;

- Forest management and mapping to assess the forest resources, accurate and updated information on forest.
- Precision agriculture to improve production efficiency by adjusting crop treatments to conditions existing at specific areas within fields with GPS, GIS and remote sensing system.
- Disaster management to interconnect the safety management operations vertically and horizontally.
- Environment and Geographic Information System to identify water sector features in different parts of the country.

Besides above, GNSS is used for aviation, maritime, land transportation, mapping, geodesy and land surveying, Earth science, meteorological and climate applications, atmospheric sensing and sounding, agriculture, timing and telecommunications, spacecraft, mineral prospecting, and public safety.

³ The Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), based on General Assembly Resolution 52/56: International Cooperation in the Peaceful Uses of Outer Space, UN Doc. A/Res/52/56 (1997).

⁴ A/AC. 107.771, 'United Nations/United States of America Workshop on the Uses of Global Navigation Satellite Systems', aiming (a) to bring the benefits of the availability and use of GNSS signals to the awareness of decision makers and technical personnel from potential user in particular in developing countries; and (b) to identify actions that could be taken and partnerships to be established by potential users.

⁵ See, A/CONF.184/BP/4, 27 May 1998

⁶ In regard to the budget for space defense program, the 107th Congress of the U.S. has showed the figure that the FY 2002 budget of \$15.761 billion, a FY2003 request of \$18.481 billion, which includes the management of a Space-Based InfraRed System (SBIRS) in order to develop new early warning satellites, space control capabilities, and management of

military and intelligence space activities in general.

⁷ Arms Control Association: Arms Control Today, Boese, W., "December Missile Defense Tests Yield One Success, One Failure", online at <http://www.armscontrol.org/act/2002_01-02/misdefestjanfeb02.asp> (Last accessed: 02 Sept. 2002)

⁸ United States Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements, Text and Histories of the Negotiations, Washington, D.C. (1990).

⁹ Congressional Research Service: The Library of Congress, CRS Issue Brief, Order Code IB10034, Steven Hildreth, A., and Woolf, Amy F., "National Missile Defense: Issues for Congress", online at <http://www.fas.org/spp/starwars/congress/1996_r/crs96441.htm> (Last accessed: 5 Sept. 2002)

¹⁰ Congressional Research Service: The Library of Congress, CRS Issue Brief for Congress, Order Code IB92011, Marcia S. Smith, "U.S. Space Programs: Civilian, Military, and Commercial", online at <<http://www.cnie.org/nle/crsreports/science/st-57.pdf>> (Last accessed: 4 Sept. 2002) at 6

¹¹ In the United Nations Commission for Conventional Armaments, it was resolved that 'weapon of mass destruction should be defined to include atomic explosive weapons, radioactive material weapons, lethal chemical and biological weapons, and any weapons developed in the future which have characteristics comparable in destructive effect to those of the atomic bomb or other weapons mentioned above', UN S/C.3/32/Rev.1 (18.8.48).

¹² 'What weapon is in outer space already? It's GPS.' the lecture was given by Prof. John M. Logston, Space Policy Institute, George Washington University, at Department of Space Policy and Law, Summer Session Program 2002 of International Space University.

¹³ Cf. A/AC.105/C.2/SR.65 (22.7.66), at 9-10 (USA); *ibid.* /SR.66 (25.7.66), at 6-7 (USSR).

¹⁴ 'Introduction to Outer Space', An Explanatory Statement prepared by the President's Science Advisory Committee 1 (1958)

¹⁵ 1 Dec. 1959, Comnd. 913 (1959), 402 UNTS 71.

¹⁶ "President Khrushchev to the President", 38 Department State Bull. 814 (1958).

¹⁷ Cheng, B., "Studies in International Space Law", Clarendon Press Oxford (London: 1997) at 518

¹⁸ Cheng, B., "Military Use of Outer Space", *The Utilization of the World's Air Space and Free Outer Space in the 21st Century*, (Kluwer Law International: 2000) at 330.

¹⁹ The present Early Warning Satellites are as follows;

- Space Based InfraRed System (SBIRS): DoD of US has attempted to develop more capable satellites to provide early warning of foreign missile launches for support missile defense objectives.

- Space-Based Lasers: SBL have been funded since President Reagan announced the 'Star Wars' program in 1983 in the context of missile defense.

²⁰ The Charter of the United Nations, Article 2 (4): 'All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any States, or in any other manner inconsistent with the Purposes of the United Nations.'

²¹ GAOR. GA(XV) A/PV.868 (22.9.60), at 45, para. 48

²² A/AC.1/PV.1289(3.12.62), at 13.

²³ See, Cheng, B., "The Military Use of Outer Space in International Law", in E.G. Bello and Prince Bola A. Ajibola, San (eds), 1 Essays in Honour of Judge Taslim Olawale Elias 81992), at 63.

²⁴ *Supra note 1*, at 109

²⁵ The Committee on the Peaceful Uses of Outer Space, established on 12 December 1959 under UNGA Resolution 1472 (XIV)

²⁶ A/AC. 105/C. 2/SR. 58, p3-14

²⁷ 'All Members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of

any state, or in any other manner inconsistent with the Purposes of the United Nations'.

²⁸ Agreement Governing the Activities of States on the Moon and Other celestial Bodies, 18 Dec. 1979, 18 *ILM* 1434; 1363 UNTS 3.

²⁹ *Supra note 1*, at 109

³⁰ Declaration on Principles of International Law Concerning Friendly Relations and Co-operation Among states in Accordance with the Charter of the United Nations, UNResolution2625 (XXV), 24 Oct. 1970

³¹ On the early handling the subject, see, Jasentuliyana, N., "Article I of the Outer Space treaty Revisited", *Journal of Space Law* 1989, (17,2), at 129-144, here at. 130-136

³² See, the Report of the Legal Subcommittee on the Work of Its twenty-seventh session, UN Doc. A/AC. 105/411 of April 8, 1988, paras. 37-72.

³³ See, the Report of the Legal Subcommittee on the Work of Its Twenty-Eighth Session, UN Doc. A/AC. 105/430 of April 26, 1989, paras. 53 and 60.

³⁴ See, the Main Committee the Report of UNCOPUOS 1990, UN Doc. A/45/20, para. 120

³⁵ Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries, UNGA Resolution 51/122, 13 Dec. 1996

³⁶ See, UN Doc. A/AC.105/385, 411 and 430

³⁷ Based on UNGA Resolution 52/56: International Cooperation in the Peaceful Uses of Outer Space, UN Doc. A/Res/52/56 (1997).

³⁸ See, The Space Millennium: Vienna Declaration on Space and Human Development, which was the final resolution to be adopted by UNISPACE III.

³⁹ See, Marietta Benko and Kai-uwe Schrogl, "The UN Committee on the Peaceful Uses of Outer Space Adoption of a Declaration on 'Space Benefits' and Other Recent Developments", in *ZLW*, Jg 2/1997 at 233.

⁴⁰ See, Chapter 2

⁴¹ *Supra note 18*, at 330.