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Weaponization of Outer Space and Impact on Peaceful Uses[^]

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The advent of access to outer space and successful placement and operation of man-made objects therein promised many potential applications to the humankind. The extension of cold war rivalry beyond the terrestrial limits to outer space cautioned the then super powers, of the potential security related implications and brought to an understanding on non-militarization of space, which culminated into the inclusion of Article-IV in the Outer Space Treaty. The carefully chosen language of this article gave sufficient scope for interpretation of the term 'peaceful purposes' as 'non-aggressive', thus permitting certain types of military uses of outer space. However, over a period of time, several new dimensions for using space for defence related purposes and for testing certain technologies had emerged, rising concerns on escalating an arms race in outer space. This paper examines the initial phase concerns, approaches and understanding, the transitional phase alterations and the present scenario of the principle of peaceful purposes vis-à-vis weaponization of space.

Under the above backdrop of international development, the paper also attempts to elaborate the trends of Indian Space Programme and its space policy that focuses on developmental applications of space. Potential impacts of any arms race in outer space on the peaceful uses of outer space are analysed and need for additional legal measures beyond Article-IV are discussed.

[^] *All the opinions expressed herein belong to the authors and do not represent those of their employer or their country. Any errors contained herein remain entirely the authors'.*

1. Introduction

Space has become very vital for global economy and strategic planning. The space based applications have stretched their wings from advanced exploratory activities to every day activities of a common man. Because of the military potential / advantages, Space is becoming the fourth physical military environment, after land, maritime and air. Placement of weapons under the pretext of national security, are actively considered by some space faring nations. The protection of outer space from weaponization thereby eliminating an arms race in outer space is the minimum desire of the global community beyond the space faring nations. The security of the space systems would eventually depend on the harmonious ambience in outer space, which obviously would necessitate a legal instrument supported by the State practice in letter and spirit.

In this paper it is attempted to review the initial phase developments in the space law formulation and subsequent developments in UN forums, analysis on arms control provisions of Outer Space Treaty (OST), a review on the policy changes towards space militarization and preparations for space security and technology demonstrations of few space faring nations and an analysis on the ongoing activities in various international forums towards reaching a legal instrument, in the first part. Later, a summary of the India's space programme, its objectives and approaches and a brief on the application programmes for peaceful purposes are dwelt upon. Finally, an analysis on the need for a legal instrument to proscribe the weaponization of outer space and the *modus operandi* of realizing this objective is presented.

2. Initial phase developments in the international arena

In this section it is attempted to give a broad look on the initial phase developments in the UN forums to prevent arms race in outer space, particularly pursued by the then super powers with a basic desire to prevent the other side from achieving a military advantage through the use of outer space. As we know, the advent of access to outer space and successful placement and operation of man-made objects therein ushered in a new era of high technology applications to the benefits of human kind along with certain

undesirable side effects as well. It is worth noting that even before the launch of Sputnik, the United States of America proposed to UN General Assembly in its first memorandum devoted to arms control in outer space, pleading for the establishment of multilateral control system with international inspection and participation.¹

Starting from the first outer space achievement of launching of Sputnik on 4th October 1957 by the then USSR, the rivalry between the super powers continued throughout the Cold War era in exhibiting their technical supremacies. This scientific achievement taken up as a programme of International Geo Physical Year triggered a military revolution with extraordinary strategic consequence². Subsequently, the public statements, proclamations and letter correspondences between Mr. D. Eisenhower, the President of USA at that time and the then Soviet Premier, during the period October 1957 to April 1958 revealed their true intentions based on the military potentials of the outer space. The statement of President Eisenhower in his letter dated January 12, 1958, to Soviet Premier (Mr. Bulganin), which reads as - "*I propose that we agree that outer space should be used only for peaceful purposes. We face a decisive moment in history in relation to this matter. Both the Soviet Union and the United States are now using outer space for the testing of missiles designed for military purposes. The time is to stop now*"³, is a testimony of the severity of the situation that prevailed. The international efforts in controlling the perceived threat of arms race in outer space culminated in addressing this issue for the first time in the UN General Assembly Resolution [No. 1148 (XII)] on 14th November 1957 under Disarmament matters handled by the First Committee. This resolution urged States to reach a disarmament agreement which *inter-alia* provide for '*the Joint study of an inspection system designed to ensure that the sending objects through outer space shall be exclusively for*

¹ US memorandum submitted to First committee of UN on 12th January 1957, UN Doc. A/C.1/738, as quoted in UNDIR/2005/29 - 'Common Security in outer space and international law', pp-9

² 'Background paper: peaceful and military uses of outer space: law and policy', February, 2005- Institute of Air & space Law, Mc Gill University

³ Bess CM Reinjnen, 'The United Nations Space Treaties Analysed'- Frontiers, 1992- p.p 41

peaceful and scientific purpose".⁴ In the subsequent year, multi-national debate on the question of peaceful uses of outer space helped to reach a major milestone of setting up an eighteen nation ad-hoc Committee on the peaceful uses of outer space and requested it to submit a report on the activities of UN bodies relating to peaceful uses of outer space, international cooperation in promoting the outer space activities for peaceful uses and any associated legal problems that might arise⁵. Further boost was given by making this ad-hoc body a permanent United Nations Committee On Peaceful Uses of Outer Space (UNCOPUOS) with 24 member states through General Assembly Resolution under the title 'International Cooperation in the Peaceful Uses of Outer Space'⁶. The major objectives that were brought under the scope of UNCOUOS include the promotion of international cooperation for giving effect to programmes in the peaceful uses of outer space under the auspices of UN and developing an adequate legal framework for the use of outer space. *[In the subsequent years and even till now it has been a customary to pass resolutions to this effect with special mentions on the current issues].*

In the year 1961, UNCOUOS prepared yet another resolution 1721, which was adopted by the General Assembly on December 20, 1961. It included two leading principles, namely application of international law and in particular the UN Charter to outer space activities and the prohibition of national appropriation of parts of outer space and its resources⁷. Another directive in relation to the furnishing of information on the space objects launched by the States to UN was also included, obviously to keep a watch on the space activities of the States. *[It may be noted that this is the forerunner provision with respect registration of space objects, which is being followed even now by some space faring nations which are not parties to Registration Convention].*

The year 1963 witnessed major developments relating to disarmament in general and demilitarization of outer space in space in particular. The treaty banning

Nuclear weapon tests in the Atmosphere, Outer Space and Under Water, which is popularly known as Partial Test Ban (PTB) Treaty came into effect at the initiatives of USA, USSR and UK. This is considered to be the first legal instrument that addressed the issue of weapons in outer space. Taking a cue from this, the First Committee on UN dealing with disarmament matters passed a resolution⁸ which called upon the States to refrain from placing nuclear weapons or any kind of Weapons of Mass Destruction (WMD) in outer space. Interestingly this resolution, which acknowledged the basic initiatives of USA and USSR in this regard, is construed to be the precursor for the subsequent development of Article - IV of Outer Space Treaty (OST) by the scholars⁹. The other resolution¹⁰ that was taken up by the UNCOUOS was on the 'Declaration of legal principles governing the activities of States in the exploration and use of outer space'. This 'Principles Declaration', is considered to be the precursor of the formulation of the Outer space Treaty (OST) in 1967, as the nine basic principles enunciated therein were subsequently developed as the major articles of the OST. It is unfortunate that this major resolution did not include any provision prohibiting the stationing of weapons in orbit, though it was specifically addressed by the Fourth Committee, two months ago. The lack of such provision was even regretted by India and Austria¹¹.

The 'Principles Declaration' of 1963 was further debated in the UNCOUOS in order to enhance its binding obligations through a Treaty mode. Thus born the OST, popularly known as Magna Carta or Constitution of Outer Space, through a UNGA resolution¹², which came into force on October 10, 1967¹³.

⁸ UNGA Resolution No. 1884 (XVIII) dt. October 17, 1963 on 'Question of general and complete disarmament'.

⁹ Ogunsolola O. Ogunbanwo, 'International law and outer space activities', Martinus Nijhoff, 1975

¹⁰ UNGA 1962 (XVIII) of December 13, 1963.

¹¹ C. Wilfred Jenks, 'Space Law', Stevens & Sons' 1965 - pp.303

¹² UNGA Resolution. No. 2222 (XXI) dt. December 19, 1966.

¹³ Some of the articles of OST were further elaborated as further treaties - Agreement on Rescue of Astronauts, Liability conventions, Registration Convention and Moon Treaty

⁴ Section 1 (f) of UNGA Resolution 1148 (XII) Dt. 14th Nov 1957

⁵ UNGA Resolution 1348 (XIII) dt 13th December 1958

⁶ UNGA Resolution 1472 (XIV) dt 12th December 1959

⁷ UNDIR/2005/29 - 'Common Security in outer space and international law'

3. Mid term developments - Multilateral negotiations at the United Nations on the preventions of arms race in Outer Space - UNCOPUOS and CD:

The United Nations General Assembly at its 10th Special Session in 1978, sensing the potential danger of an arms race in outer space, called upon the States to initiate multilateral negotiations on Prevention of Arms Race in Outer Space (PAROS) in accordance with OST¹⁴. The deliberations culminated in the formation of a single multilateral disarmament negotiating forum called Conference on Disarmament (CD). An agenda item on PAROS has been regularly debated in the UN CD since 1981 to evolve a treaty on PAROS¹⁵. While some states like Italy proposed for additional protocols to OST for prohibitions of military or hostile uses of outer space to be taken up by UNCOPUOS, supported by other states too, USA rejected any discussion on disarmament of outer space in UNCOPUOS and preferred to be taken up in CD. Subsequently, an ad-hoc committee was set up in CD 1985 to work on PAROS. While a majority of the States were favouring the formation of a new treaty on PAROS, USA maintained the stand the existing UN space treaties, bilateral and multilateral arms control provisions, customary international law and national laws, which are complementary to each other are adequate to tackle outer space weaponization issues. Without any progress, the extensions of Ad-hoc committee of CD on PAROS after 10 years became difficult and hence got suspended. Renewed efforts to re-establish the Working Group in 1998 too did not fructify followed by a complete standstill since 1998.

4. Other International Treaties, Legal instruments relating regulation of Military Activities in outer space:

In addition to the treaties discussed in the previous sections such as OST, PTBT, and UNGA Resolution on PAROS, few other legal instruments that are directly or indirectly related to regulation of the military activities or advocacy for activities in outer space for 'peaceful purposes' are listed below for the sake of reference.

¹⁴ UNDIR/2005/29 - 'Common Security in outer space and international law' pp.55-56

¹⁵ *Supra* note at 2

- Article 2(4) of UN Charter which obligates the Members to refrain from the threat or use of force in international relations.
- Article -51, the right of self-defence in case of an armed attack, which balanced with certain restrictions.
- Anti-Ballistic Missile (ABM) Treaty (1972) and Protocol (1976), between the USA and USSR, which was intended to limit the deployment, testing and use of missile systems designed to intercept incoming strategic ballistic missiles. (*Later in 2002, USA unilaterally withdrew from this Treaty thereby increasing the speculations on its preparedness for waging an arms race in outer space*).
- Chemical Weapons Convention of 1993, imposing wide-ranging bans on chemical weapons anywhere under the jurisdiction or control of a state party and verifiable. (*Article VIII of OST provides for retaining the right of jurisdiction and control over a space object by the State of Registry*).
- Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1978 - Article II says that "environmental modification techniques" refers to any technique for changing -- through the deliberate manipulation of natural processes -- the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

5. Arms Control and Outer Space Treaty:

Having seen the background of the developments leading to the formation of Outer Space Treaty and other related developments in multilateral forums of UN to prohibit the arms race in outer space, it is pertinent to analyse the ambiguities in the provisions of OST with respect to peaceful uses and prohibition on stationing of weapons in outer space, in particular the Article-IV, that lead to various interpretations and state practices, though such analyses have been already made by various scholars.

Article IV of OST reads as –

[Paragraph -1] 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.

[Paragraph -2] The moon and other celestial bodies shall be used by all the States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installation 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 and 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.

It is apparent that a clear distinction is made between the outer space and the celestial bodies. The 1st operative paragraph, which is referred to as 'no bomb in orbit'¹⁶ provision, bans the placement of nuclear weapons or any kinds of WMDs in the orbit around Earth. It further continues and bans the installation on celestial bodies or stationing such weapons in outer space. If questions are raised whether it allows the placement of conventional weapons in Earth orbit or does it allow the installation of conventional weapons on celestial bodies, the interpretation could be affirmative. It can further be extrapolated that the placement of weapons in the airspace which falls under the territorial jurisdiction of a State is also allowed, as there is no legal definition or demarcation of airspace and outer space¹⁷.

The first operative part of second paragraph emphasizes on 'peaceful uses' and prohibits the establishment military bases etc., only on the celestial bodies. Does it not prohibit the non-peaceful or military activities such as establishment of military bases, installations and fortifications, the testing of any type of weapons etc., in 'outer void

space'¹⁸? Logically the answer should be affirmative. Observing these lacunae, the Indian delegate cautioned that in such a situation Article IV is meaningless and the Space Treaty might become nugatory¹⁹. Thus it is very clearly seen that the Article-IV intends for a limited demilitarization of outer space and total demilitarization of celestial bodies. An inquisitive approach would clarify this differential treatment. It was intended to accommodate the ICBMs with nuclear warheads, which were being tested and just introduced to arsenals by the USA and the then USSR. It is obvious that the major trajectory of ballistic missiles would be in outer space even though they exclude Earth's orbit.

Coming to the major point of contention, the phrase 'peaceful purposes', which is quite often used in the space treaties, leads to controversial interpretations as it has not been defined anywhere in such treaties. Equally the term 'peaceful uses' was not defined when the UNCOPUOS was formed, the title of which was centred on the same term. The phrase 'peaceful purposes' adopted from the Antarctic Treaty was ambiguous and led to two schools of thought namely, one interpreted as 'non-military use' and the other as 'non-aggressive use'. Interestingly, the super powers took the opposite stands; USSR argued that all military uses (even passive uses) are non-peaceful and hence illegal; whereas USA defended that all military activities in outer space are 'peaceful' so long as they are not 'aggressive'. It was further urged that the term 'peaceful' should include 'peaceful military activities' too²⁰. The dual use nature of a space system further complicates the bifurcation. For example, use of satellite communication network for military purposes like any other user segment or remote sensing satellite data which is used for surveillance by defence personnel or satellite based navigation systems for peace time uses are taken as granted. Here yet another class of grouping comes into picture,

¹⁶ Ogunsoola O. Ogunbanwo, 'International law and outer space activities', Martinus Nijhoff, 1975-pp92-93

¹⁷ Ge`radine Meishan. Goh, 'Keeping the peace in outer space: a legal framework for the prohibition of the use of force'- *Space policy* 20 (2004) 259-278

¹⁸ *A terminology used by Prof. Bin Cheng - Keith Wilson- 'Why are the missiles (and the missile defence) called Peace Keepers? - Corroding the concept of Peaceful Use' - 14, Leiden Journal of International Law 789-828 (2001)*

¹⁹ *Supra note at 16- pp31- referred to UN Doc. A/C.I/PV.1493*

²⁰ *Supra note at 16 - p.p29.*

as 'force support' and 'force application'²¹. The former is considered to be 'peaceful purpose' or 'non-aggressive' and the latter as 'non-peaceful' or 'aggressive'. There are also other interpretations which are categorized as minimalist and maximalist representing 'non-aggressive' and non-military' uses respectively. However, the maximalist interpretation, which was more prevalent in the beginning of the space age, has now given way to the minimalist concept as demonstrated by state practice, which has not been contradicted in a forceful manner, by any state formally protesting military utilisation of space²².

A scholarly definition on 'peaceful purposes' offered by Galloway is quite pragmatic as it does not *per se* categorize the space systems or projects to any category based on their nature but attributed to their use. It reads as - 'Peaceful purposes are those incorporated into plans and designs for space projects and whose uses are beneficial and / or not estimated to be harmful'²³.

Besides Article -IV, to secure the outer space arms control provisions Article 1 (para 2) and Article XII are also quoted. Article 1 Para 2 provides for free access to the States to all areas of celestial bodies, thereby establishment of military bases or testing of weapons could be put under check. Further, Article XII provides for the visit of any Member State representative on the basis of reciprocity and advance notice. However this is viewed by Ivan A. Vlacic that the conditions of reciprocity might offer an unwilling party to nullify the right of inspection, in contrast to Antarctica Treaty provisions²⁴.

6. Recent developments towards Space Militarization - Policy aspects and demonstrations

Having seen the scope of 'peaceful purposes' and the regulatory provisions as professed by the OST, it is attempted to present a bird's eye view on the recent developments with respect to policy aspects

or changes thereupon, demonstration of activities that cause concern to international community on possible arms race in outer space.

As regards to military applications of outer space, the USA is categorical in declaring its intentions through its space policy, which is proclaimed from time to time. Interestingly, the Rumsfeld Commission, which was chartered to assess the organization and management of space activities that support US national security interests, in its report submitted in January 2001, concluded that USA while continuing to promote the peaceful uses of space, should use the nation's potential in space to support its domestic, economic, diplomatic and national security objectives and further *develop and deploy the means to deter and defend against hostile acts directed at U.S. space assets and against the uses of space hostile to U.S. interests*²⁵. The US Space Command's Vision 2020 called for 'full spectrum dominance' arguing that 'the medium of space is the fourth medium of warfare'²⁶.

Subsequently, the new space policy of USA declared on August 31, 2006 under the authorization of the President George Bush, included certain principles which are indicative of the US position on military use of space in the context of national security. A few principles relevant to the present context of discussion are reproduced here below;

- ◆ The United States is committed to the exploration and use of outer space by all nations for peaceful purposes, and for the benefit of all humanity. Consistent with this principle, "peaceful purposes" allow U.S. defense and intelligence-related activities in pursuit of national interests;
- ◆ The United States considers space capabilities -- including the ground and space segments and supporting links -- vital to its national interests. Consistent with this policy, the United States will: preserve its rights, capabilities, and freedom of action in space; dissuade or deter others from either impeding those rights or developing capabilities intended

²¹ *Supra note at 2*

²² UN Document. CD/1165 of 12 August 1992 and Dr. Rajeev Lochan, ISRO, 'Some reflections on collective security in space' - *Collective security in space- Asian Perspectives*, Space Policy Institute, January 2008,

²³ *Supra Note at 17*; Galloway, E, *International Institutions to ensure peaceful uses of Outer Space*, (1984) IX AASL 303at 323.

²⁴ Ivan A. Vlacic, 'The Space Treaty: A preliminary Evaluation', *California Law Review- Vol 55:507*, 1967

²⁵ *Report of the Commission to Assess United States National Security Space Management and organization Pursuant to Public Law 106-65, January 11, 2001 (Emphasis added)*

²⁶ *Supra note at 2*

to do so; take those actions necessary to protect its space capabilities; respond to interference; and deny, if necessary, adversaries the use of space capabilities hostile to U.S. national interests;

- ◆ The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space. Proposed arms control agreements or restrictions must not impair the rights of the United States to conduct research, development, testing, and operations or other activities in space for U.S. national interests.

As a sequel to the space policy, the Secretary of Defense, USA was asked to submit to the congressional defence committees a report setting forth a plan, including eight required elements, for the acquisition by the Department of Defense (DoD) of capabilities for operationally responsive space (ORS)²⁷ to support military users and military operations²⁸. The DoD's plan was to establish and stand-up an initial ORS Office by May 2007 with full implementation by October 2007 which include the Tacsat demonstrations, deployment of operational satellites including the planning and procuring small launch vehicles.

Yet another strategic programme taken up by the US Air Force (USAF) is Space Situational Awareness (SSA), which was quoted in the Rumsfeld Commission's Report. The SSA programmes of USA is intended to monitor the threat from human-made objects such as other satellites and space vehicles, anti satellite (ASAT) weapons as well as space debris. It is believed that SSA can serve military objectives such as preparing for defensive and offensive operations and it is

²⁷ *Operationally Responsive Space (ORS) has been defined broadly in DoD as assured space power focused on timely satisfaction of Joint Force Commanders' needs. This definition considers ORS as a subset of space activities designed to satisfy Joint Force Commanders' (JFCs) needs, while also maintaining the ability to address other users' needs, for improving the responsiveness of space capabilities to meet national security requirements.*

²⁸ *Under the Section 913 (c) of the John Warner National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2007 - The letter from Deputy Secretary of Defense to the Chairman of the Committee on Armed Services, Dt. April 20, 2007, available at <www. .. > accessed on*

expected to constitute a basis for policies of transparency and confidence in space²⁹.

With this background on the preparedness of USA towards pursuing its national interests in the outer space, which is proclaimed as the province of all mankind, in the above mentioned manner, the recent shooting down of a defunct spy satellite through SM-3 interceptor on February 2008, on the basis of the hazardous potential of the onboard fuel of the satellite, has been viewed as a demonstration of its space capability to counter any harmful interference in space.

The China's aggressive progress in all spheres of space activities such as human space flight demonstrations, lunar mission and the planning of the manned missions to Moon and Mars have been over shadowed by its ASAT test in January 2007³⁰. However, this demonstration exhibited by China, which was very actively pursuing along with Russia in Conference on Disarmament for the establishment of a treaty to effect the PAROS, was viewed by the strategic analysts as a caution to USA³¹.

More recently the Japanese Government has passed a bill in order to pursue the military support activities in outer space to the extent of using remote sensing spy satellites for the cause of national security³². This policy change of Japan, which has demonstrated as a peace lover to the core, is again a noteworthy development. Though *per se* it does not propose installation of any weapons, it is inferred that this is a mandatory reaction to the trajectory of the North Korean missile, Taepodong over Japanese territory in August 1998, in the interest of national security³³.

The French Government too followed the suit by declaring its military space programmes in its White Book on Defence Promises, in July 2008. It promises for the establishment of a Joint Space Command,

²⁹ *Lawrence nardon, 'Space Situational Awareness and International Policy', Document de travail 14, October 2007; Available at <www. ... > dt of acces: ...2008*

³⁰ *Smashing of the Feng Yun -1C satellite by the KT-1 rocket by kinetic energy killing method.*

³¹ *Aviation Week on Space Technology (Jan29, 2007)*

³² *Space War, May 21, 2008 Dt. Of access May 23, 2008*

³³ *Andrew L Oros, 'Explaining Japan's tortured course to surveillance satellite', Review of Policy Research-Vol24, No. (2007)© Policy Studies Organization*

development of reconnaissance satellites and Early Warning Systems etc³⁴.

7. International efforts on legal measures towards non-weaponization of Space

As seen in the initial part of this paper, international efforts were pursued through various forums like UNCOPUOS or UN Conference on Disarmament to reach a viable solution in terms of an agreement or a treaty, beyond Article -IV of OST. Though these attempts have not really achieved desired results, it must be admitted that they have served the purpose to the extent of restraining the arms race in outer space. Beyond this, it has been proved that space and space systems have become very vital for an effective warfare as seen from the Operation Desert Storm in 1990 for the first time and successive warfares or military operations undertaken by USA³⁵. Because of military role of space a vulnerable situation has arisen for the security of space assets, as they are also becoming potential targets of attack in order to suppress the military capabilities of an opponent. The recent ASAT tests have further aggravated the situation. Thus the issue of space security is becoming more prominent for space faring nations as well as space users and again the international effort on reaching Common Space Security has become a need. The nations where space systems are utilized more effectively for military applications are preparing to face the eventualities and started implementing various military models involving space systems under the context of national security. Integrated space command has become a component of the military force of advanced space faring nations.

With these developments, the topic of space weaponization or arms race in outer space is becoming more serious amongst various international forums. But the consoling factor is, though certain advanced nations have fully prepared for engaging themselves in space warfare, the reports indicate that so far the deployment of any

space weapon has not taken place³⁶. An approach of restraint is essential as the result of any aggressive actions would be catastrophic. It is also obvious that loss of space assets would be strategically more disadvantageous to a nation which engages the space systems to the maximum extent either for military or civil applications.

With this background it is attempted to review the various legal measures proposed by various multilateral forums and other institutions. Though the proceedings on PAROS have been stalled in CD in 1998, an interesting development of proposing a treaty based prohibition for the deployment of weapons in outer space, jointly by People's Republic of China and the Russian Federation has taken place in June 2002, which could be more significantly related the abrogation of anti Ballistic Missile Treaty by USA in early 2002. A Working Paper entitled 'Possible elements for a future international legal agreement on the prevention of the deployment of weapons in outer space, the threat or use of force against outer space objects³⁷' was placed before the CD for discussion. This working paper proposed for certain basic obligations on the States towards the objective of not placing 'any kind of weapons' in orbit or on celestial bodies and not station such weapons in outer space, in order to fulfil the ambiguities seen in the Article -IV of OST. It included some measure for confidence building measures and proposed for setting up an Executive Organization for implementation of the Treaty. USA has been opposing to this move as it is not in favour of any treaty or agreement which would impair its rights to conduct research, development, testing, and operations or other activities in space for U.S. national interests.

Interestingly, in US Congress a bill 'To preserve the cooperative, peaceful uses of space for the benefit of all humankind by prohibiting the basing of weapons in space and the use of weapons to destroy or damage objects in space that are in orbit and for other purposes' has been placed in the successive

³⁴ *Space Review - 'French Military Space Policy; More of the same', Monday, July 7, 2008.*

³⁵ *Kosovo in 1999 and Iraq in 2003 - 'Background paper: peaceful and military uses of outer space: law and policy', February, 2005- Institute of Air & Space Law, Mc Gill University*

³⁶ *Keith Wilson, 'Why are the missiles (and the missile defence) called Peace Keepers? - Corroding the concept of Peaceful Use' - 14, Leiden Journal of International Law page798 (2001)*

³⁷ *CD/1679 Dt. June 28, 2002*

years since 2001(H.R.2977), subsequently in 2002 (H.R.3616)³⁸ and lastly in 2005 (H.R.2420 Dt May, 18, 2005) by Rep. Kucinich et.al. This bill called 'Space Preservation Act of 2005'³⁹, provides for ban on basing weapons in space and use of weapons in space as its detailed title implies. Further, it suggests for formulating an international treaty in this regard. Section 4 reads as -"*The President shall direct the United States representatives to the United Nations and other international organizations to immediately work toward negotiating, adopting, and implementing an international treaty banning space-based weapons and the use of weapons to destroy or damage objects in space that are in orbit*"⁴⁰. This bill was referred to Committee on Science, Committee on Armed services and International Relations and it is indicated that this bill would never become law⁴¹.

Subsequently, in the forum of UN Conference on Disarmament, as the initiative of PRC and Russian Federation taken up in 2002 was not successful. With a renewed interest, they put up a set of working papers in May 2006 on the definitional issues⁴² relating to the proposed arms control treaty, on the Transparency and Confidence Building Measures (TCBMs)⁴³ and on the Verifications Measures⁴⁴ in order to provide clarifications to the apprehensions and to gain confidence of the States, towards reaching the objective. However, in the UN First Committee on 25th October, 2006, USA voted against the annual resolution on PAROS for the first time and subsequently proclaimed its new space policy in 2006, which vehemently opposed any move to curb its rights to access to space and non-aggressive military research activities in outer space. However to overcome this impasse, based on the past year discussions on the working papers, the PRC and Russian Federation presented a Draft Treaty the Prevention of Weapons in Outer Space, the Threat or use of force against outer space

objects, in February 2008. This includes the definitions on outer space, outer space object, weapons in outer space, placement of weapons etc. Interestingly the definition on placement covers the sub-orbital flights too, which do not get into orbit. Besides covering the weapons of any kind, it assures the right of self defence of a state as enunciated in UN Charter and includes certain confidence building and verification measures.

It is interesting to note that some initiatives are volunteered by some research institutions and scholars who articulate their proposals on non-weaponization of space. The Henry L. Stimson Center, Washington has proposed a Model Code of Conduct for Responsible Space-Faring Nations in 2007, with a central objective as - *To preserve and advance the peaceful exploration and use of outer space*. It offers certain rights such as access to space, self defence etc. and obligates certain responsibilities such as refraining from harmful interferences against space objects, sharing of information relating to space operations, mitigate & minimize space debris etc, on space faring nations. The international response to this code of conduct is to be watched.

Having seen the developments on the international efforts to prohibit the weaponization of space and before going to discussion on the need for an internationally acceptable legal measure and its realization plan, it is felt necessary to provide a glimpse on the space activities of India, which is centered around the theme of peaceful and developmental uses of outer space.

8. Indian Space Programme: *the approach and accomplishments*

As seen through, while the space activities were vigorously pursued by the super powers for technology demonstrations and thereby achieving technical supremacy and gaining military advantages, a unique approach was adopted by India in the early sixties with a strong conviction that high technology applications could be used to serve the common man and society. Probably the Indian socio-economic conditions under the state of a developing country that got its freedom a decade ago, with a large geographical sprawl filled with a massive population of diverse cultures has prompted the scientist cum industrialist Dr. Vikram

³⁸ Jhon Carter McKnight, 'Let's weaponize space' - *Space Daily*, Dt. Jan 30, 2003; Dt of access: Aug 28, 2008

³⁹ Bill- H.R.2420-109th Congress, 1st Session- Thomas Library of Congress- Dt of access: Aug 28, 2008

⁴⁰ *Space News*, Dt. 30 July 2002.

⁴¹ <http://www.govtrack.us/congress/bill=h109-2420> (dt. of access: Aug 27, 2008)

⁴² CD/1779 Dt. May 22, 2006

⁴³ CD/1778 Dt May 22, 2006

⁴⁴ CD/1781 Dt. May 22, 2006

Sarabhai⁴⁵ to think differently to conceive a long term vision of pursuing high technology programmes and reaping the benefits there from to serve the society. Thus Indian space programme was born out of necessity and pursued with a passion.

The conceptualization of the programme with a strong backing of the Government support, regardless of the resources crunches that prevailed, gave birth to two major application programmes in the areas of satellite communication & meteorology and space based remote sensing, besides the formulation of an overall programme to achieve end-to-end capability of sustaining a space system. Foreseeing the threat of denial of critical technologies from the advanced nations, which would obviously disrupt or stall the operational services that would be ushered in through space systems, India judiciously chose the path of self reliance to develop the critical space technologies. Self reliance was targeted as a strategy for sustainable development since large scale benefits can accrue to a large country like India only when it has its own space segment specifically tailored to meet its requirements⁴⁶.

The approach of India in space activities has undoubtedly paid rich dividends in the building of the nation. The establishment of country wide telecommunication networks, application of broadcasting services (far beyond routine entertainment services), for tele-education, tele-medicine and operationalization of remote sensing applications and services for a variety of national needs in the areas of agriculture, forestry, fisheries, rural development and urban planning etc., using state-of-the art space systems are a reality to-day. It is hardly to be emphasized that the Indian space programme has set a model through this approach.

While military applications provided a strong rationale for several programmes across

the globe, India practically demonstrated that peaceful uses of outer space can be a strong contributor to development and can justify investments in space. For example, India's Tele-education programme with more than 34,200 class rooms through 61 networks, Tele Medicine programme connecting 261 remote, rural and district hospitals with 45 super speciality hospitals and 417 Village Resource Centres in 21 States are enabled by space based systems. These services and applications are being provided with eleven satellites in geostationary orbit and nine satellites in low earth orbits.

The space infrastructure built over four decades and the operational services implemented through space systems, demand a high level of security for ensuring uninterrupted services to the nation. However the concern about the space security is not unique to India as every developing and developed country, which depends on space services, would experience the same. But the approach of India towards the space security is again somewhat unique. The Indian space security architecture include five crucial elements⁴⁷ of a firm foundation namely - i) *Self reliance to evade the perils of technology denials and export control threats*, ii) *Sustained unflinching support-base from society including the policy maker, law maker, media, industry*, iii) *International Cooperation- a crucial apparatus for cooperative activities and enhancing national, regional and global security*, iv) *The Rule of Law-compliance to national and international legal regimes*, and v) *Security Commitments- peaceful purposes and non-proliferation*.

9. Need for additional legal measures and *modus operandi*

It has been seen that the need for preventing and /or controlling the militarization of outer space has been pursued right from the initial phase of space explorations and operations. There existed a consensus amongst the states that the trends of space activities during and even after the Cold War era could lead to an arms race in outer space which should be controlled. The threat perceptions on the space assets and the

⁴⁵ Dr. Vikram Sarabhai, fondly remembered as the Father of the Indian space programme, served as Vice President and Scientific Chairman of the UNISPACE-I held in Vienna in 1968

⁴⁶ Rao, U. R. *Remote Sensing for National Development*, Indian Space Research Organisation, ISRO-SP-56-91. October 1999.

⁴⁷ Dr. Rajeev Lochan, ISRO, 'Some reflections on collective security in space' - *Collective security in space- Asian Perspectives*, Space Policy Institute, January 2008,

resulting catastrophic effects to human kind in general and the concerned states in particular added strength to the argument.

Further, the threat perceptions posed on to the space systems of any country, which engages such space systems for very vital services like national development or national security, would cause severe repercussions. Thus the need for security of space assets arises, which is only one dimension of common space security. In order to avoid the loss of space systems, some states are planning redundant space systems. Also, the space systems are shielded in order to protect against minute debris or laser dazzling from ground or space. But the irony of this situation is the manufacturing and operational cost of the space systems would be increased exponentially. Whether a developing or less developed country could afford to sustain this? In the case of India, space systems are effectively used for peaceful purposes for national development. If the systems meant for such applications are to be proofed against perceived threats, cost would make such application programmes unaffordable or unsustainable. Yet another dimension to this complex issue can be shown. The countries have to depend on the select states only for getting critical technologies required for such proofing, which either would be denied or exorbitantly priced. Thus in order to clear up the threat perceptions and to ensure the common space security in the interest of all nations, there is a strong need for appropriate legal measures.

Coming to the legal measures being considered in various international forums, it is proposed to analyse the pros and cons of treaty based compliance system. As is seen in the CD proceedings, the draft treaty on prevention of placement of weapons could not see progress though it is acceptable to most of the nations. Another possibility is to amend the OST. Unfortunately UNCOPUOS is not willing to amend Article-IV as it considers that the topic of 'military uses' is beyond the scope of 'peaceful uses'. Further decision making processes in such UN forums are extremely slow. It may be recalled that the proposal for formulating a comprehensive space treaty in place of the existing treaties on various topics which call for many amendments, is in the preliminary stages of

discussions/ exchange of views and publication of papers.

It is also to be remembered that a treaty does not offer an everlasting binding on a State after the ratification, as it also provides for withdrawal with sufficient notice. The withdrawal of USA from the ABM treaty in order to proceed on the outer space militarization process is a classic example.

At this juncture, the proposal⁴⁸ articulated by Ge`radine Meishan. Goh⁴⁹, a scholar of Leiden University for a protocol to the existing OST is interesting. The protocol includes provisions on comprehensive prohibition on the use of force in outer space, right to self defence, pacific resolution of disputes etc., and proposes for three bodies for three different functions namely - enforcement, monitoring and interpreting. This approach could be a via-media instead of cumbersome amendment process of the existing treaty through UNCOPOUS or formulation of a new treaty through CD.

As it is seen, over a period time, the scope of military use of outer space has been growing and this trend if unchecked will be an impediment to enhance the peaceful uses and also affect the transfer of knowledge and technologies thereby reducing overall economic, social and cultural benefits of space to humanity as a whole. Peaceful use of outer space can not be compromised under the pretext of national interests. Appropriate forums should continue the debate and evolve certain 'code of conduct' or 'rule of road' for outer space activities for sustained use of outer space for peaceful purposes.

10. Conclusion:

The space activities encompassing technology and applications, since inception and subsequent evolution have proved to be beneficial to human kind and have also enabled military applications due to their inherent dual use nature. The efforts of international community in different UN forums to curb the possible arms race in outer space have not received adequate response, as the use of space systems for military support services have been practiced by many nations.

⁴⁸ Ge`radine Meishan. Goh, 'Keeping the place in outer space: a legal framework for the prohibition of the use of force', *Space policy* 20 (2004) 259-278.

⁴⁹ *International Institute of Air & Space Law, Leiden University, The Netherlands* (2004)

Convincing interpretation of the phrase 'peaceful purposes,' is yet to be resolved as it is used for the convenience of the state practices. The enactment of a new legal instrument of international law to prohibit the weaponization of outer space is taking its own course. In the absence of placement of any weapons in outer space by any nation so far, the preparations of a few advanced nations in this direction with national security concerns, are posing some threat perceptions on space systems that are engaged even for peaceful purposes. Common space security architecture should be evolved and practised by all the space faring nations in order to maintain a weapon-free outer space.
