

The Problems of Limitation and Prohibition of Military Use of Outer Space

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1. Introductory Remarks

It is the fate of the international law on disarmament that it must always keep pace with ever accelerating technological advances. This is especially true with respect to the regulation of arms limitation and arms control in outer space. As late as the 1960's, it was still maintained that outer space activities would be of no military value¹; today, only 25 years later, according to figures of SIPRI, 75 per cent of the objects launched into outer space have at least some military bearing². Despite of the existence of

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Abbreviations: AJIL = American Journal of International Law; BGBI. = Bundesgesetzblatt; EA = Europa-Archiv; GYIL = German Yearbook of International Law; ICLQ = International and Comparative Law Quarterly; ILM = International Legal Materials; RdC = Recueil des Cours de l'Académie de Droit International; UNTS = United Nations Treaty Series; UST = United States Treaties and other International Agreements.

¹ D. Goedhuis, Some Observations on the Efforts to Prevent a Military Escalation in Outer Space, *Journal of Space Law*, vol.10 (1982), pp.13 (26).

² For detailed information see B. Jasani, *The Military Use of Outer Space*, SIPRI Yearbook 1984, p.351; *idem*, *Military Space Technology and its Implications*, in: *Outer Space* (Jasani ed.), SIPRI 1982, p.41 *et seq.*; further D.O.A. Wolf/H. Hoose, *Die militärische Nutzung des Weltraums*, *Europäische Wehrkunde* 1980, pp.181 and 240; *Verteidigung im Weltraum*, *Österreichische Militärische Zeitschrift* 1983, p.250; D.O.A. Wolf/H. Hoose/M. A. Dausen, *Die Militarisierung des Weltraums* (1983); H. G. Brauch, *Angriff aus dem All: Der Rüstungswetlauf im Weltraum* (1984); D. Baker, *The Shape of Wars to Come* (1982); J. Canan, *War in Space* (1982); R. Engel, *Moskau militarisiert den Weltraum* (1979); O. Wilkes, *The Arms Race in Space*, SIPRI Yearbook 1978, p.104; D. Engels/J. Dietrich-Swidorski, *Militarisierung des Weltraums*, *Blätter für deutsche und internationale Politik* 1984, p.288.

international multilateral or bilateral agreements which prohibit certain military activities in outer space, there is increasing world-wide concern³ over both the ongoing and the future arms race in outer space. This concern has been expressed in a number of recent actions of the United Nations. Although the question of arms race in outer space was not on the agenda of the UNISPACE Conference in Vienna, 1982, it was able to reach agreement on urging countries to actively contribute to the prevention of arms race in outer space⁴. Furthermore, the problem of the arms race was twice on the agenda of the 38th Session of the UN General Assembly which adopted two pertinent resolutions: The first requests the Conference on Disarmament to consider, as a matter of priority, the question of preventing the arms race in outer space and to establish an *ad hoc* working group with a view to undertaking negotiations for the conclusion of an agreement to prevent an arms race in all its aspects in outer space⁵. In a second resolution the Committee on the Peaceful Uses of Outer Space was called upon to consider, as a matter of priority, the questions relating to the militarization of outer space⁶.

What are the reasons of concern? As I have mentioned already, the existing international agreements on arms limitation in outer space only prohibit certain kinds of activities. This implies that everything which is not prohibited is allowed⁷. International law consists of two different sets

³ R. L. Garwin/J. Pike, History and Current Debate, Bulletin of the Atomic Scientists, May 1984, vol.40, p.25, a Draft treaty limiting anti-satellite weapons was presented to the US Senate Foreign Relations Committee in May 1983, Y. P. Velikhov, Effect on Strategic Stability, Bulletin of the Atomic Scientists, May 1984, vol.40, p.125; N. E. Burrows, Ballistic Missile Defense: The Illusion of Security, Foreign Affairs, p.843; K. B. Payne/C. S. Gray, Nuclear Policy and the Defensive Transition, Foreign Affairs, p.820.

⁴ See Report of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, August 9-21, 1982 (UN Doc. A/CONF. 101/18 and Corr. a and 2), paras.13, 14 and 426.

⁵A/Res. 38/70, December 15, 1983, adopted on the report of the First Committee.

⁶ A/Res.38/80, December 15, 1983, adopted on the report of the Special Political Committee. See discussions A/SPC/38/SR.18, 19, 21, 25, 26, 27, 39, 43. The resolution had been adopted by 98 votes to 12 with 8 abstentions. The negative votes were directed against the untrusting of the Outer Space Committee to deal with disarmament in outer space, see the explanation of votes of Australia, United Kingdom, Federal Republic of Germany, Italy, Netherlands and USA (A/SPC/38/SR.43, paras.87, 89, 92, 93, 94, 96). Even States having voted in favor expressed concern that a resolution on outer space had not been decided by consensus and that the resolution lacked reaffirmation of the mandate of the Conference on Disarmament as the sole forum for the discussion of questions relating to the militarization of outer space.

⁷ Different opinion V. S. Vereshchetin, Against Arbitrary Interpretation of some Important Provisions of International Space Law, Proceedings of the 25th Colloquium on the Law of Outer Space, 1982, p.153.

of rules, one containing prohibitions *vis-à-vis* States, the other formulating obligations of States to act. From the point of view of State sovereignty both result in a limitation of sovereignty. Such limitation of sovereignty cannot be assumed, it rather needs a legal basis which can be found in international treaty law as well as customary law. Further, such limitations of sovereignty may be derived from general legal principles provided such inference itself has become part of international law.

Due to the said technological advances of recent years and the attempts of States to make use of them, it is felt that the existing legal framework is, or at least will prove to be, inadequate to halt military escalations in outer space⁸. It has been argued that only the most extreme threats – mainly nuclear ones – are addressed by existing international regulations, whereas a whole range of threats or provocations remains unregulated, as do various types of existing and future weapons systems.

Behind the phrases “arms race in outer space” or “militarization of outer space” specific activities are hidden: The frequent use of satellites for military reconnaissance, communication and navigation, as a countermeasure to the military use of satellites, the development of anti-satellite weapons and finally, the development of new systems for the interception of ballistic missiles. My presentation will concentrate on these aspects.

Although the negotiations in the Conference on Disarmament do not, thus far, look very promising, the USA and the USSR seemed to have recently demonstrated a willingness to enter into negotiations. However, the bilateral talks concerning the militarization of outer space scheduled for September 18, 1984 in Vienna were postponed. They were meant to concentrate on anti-satellite weapons. Even an agreement on a moratorium on the future development and deployment of anti-satellite weapons was under discussion⁹.

2. *Lex lata*

The existing international legal régime addressing arms control and arms limitation in outer space consists of multilateral and bilateral agreements, the latter concluded between the USA and the USSR.

⁸ This idea has been most strongly expressed during the discussion in the Conference on Disarmament, see the statements of Sweden CD/PV. 252, p.18; Italy CD/PV. 253, p.18; Argentina CD/PV.253, p.20, and at the Symposium on Preventing an Arms Race in Outer Space, Disarmament, vol.7 (1984), p.65 *et seq.* (Danielson).

⁹ See the various statements which preceded the agreement to start negotiations: Statement of the Soviet Government, June 29, 1984 on negotiations concerning the militarization of outer space, followed by a statement of Robert C. McFarlane on behalf of the President of

The most general provisions are contained in the "Treaty on Principles Governing the Activities of States in the Exploration and the Use of Outer Space, including the Moon and other Celestial Bodies"¹⁰. This treaty represents more or less the culmination of several resolutions of the UN General Assembly¹¹. It formulates the basis upon which space law may be further developed: the two recent General Assembly resolutions described above expressly refer to this treaty.

The key provision of the Outer Space Treaty – Art.III – states that the space activities of States Parties to the Treaty shall be conducted "... in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding". It reinforces Arts.I and II which call upon the States parties to carry on their space activities in accordance with international law, explicitly incorporating the UN Charter.

Art.IV prohibits the placement in orbit, the installation on celestial bodies, or the stationing in outer space of nuclear weapons or any other kinds of weapons of mass destruction. This article reflects principles previously agreed upon in the Nuclear Test Ban Treaty. In addition, the third sentence of paragraph 2 is quite similar to Art.I para.2 of the Antarctic Treaty.

In addition Art.IX requires international consultations prior to any planned space activity or experiment if the State undertaking such activity or experiment has reason to believe that either would cause potentially harmful interference with the peaceful space activities of others. This provision is designed to safeguard the outer space and celestial bodies from contamination and pollution and to protect the legitimate programmes of States from undue interference.

As to its interpretation, the Outer Space Treaty raises several problems which are of relevance with respect to military activities in outer space.

The meaning of the term "peaceful", as used in Art.IV para.2, has not been defined in the Outer Space Treaty and has given rise to two different interpretations: one defining peaceful as "non-military" and the

the United States, June 29, 1984; authorized statement of TASS, July 1, 1984; statement in TASS, July 27, 1984, and statement of Robert C. McFarlane, August 1, 1984. Those statements have been reprinted in EA 1984, p. D 495 *et seq.*

¹⁰ Hereinafter "Outer Space Treaty", January 27, 1967, UNTS, vol.610, p.205; BGBl. 1969 II, p.1967.

¹¹ A/Res.1962 (XVIII), December 13, 1963, for further details see O. O. Ogunbanwo, *International Law and Outer Space Activities* (1975), p.11 *et seq.*

other as "non-aggressive". Under the former interpretation, no military activities could be conducted on the moon and other celestial bodies, while under the latter interpretation, non-aggressive activities whether or not military in nature, are permissible. The former position is supported by the Statute of the International Atomic Energy Agency which distinguishes between a peaceful and a military use of atomic energy. Those advocating the latter interpretation refer to Art.2 para.4 of the UN Charter. This is not the place to delve into this well-known dispute¹². I may point out only that if one reads "peaceful" as referring to "non-military", the second part of Art.IV para.2 becomes quite meaningless.

Under the present circumstances – the development of anti-satellite weapons, the use of satellites for reconnaissance, communication and guidance of strategic missiles, the development of space-based directed high-energy weapons and particle-beam weapons – renewed interest in the meaning to be given to Art.IV has been aroused.

The second question which arises in the context of Art.IV para.2 of the Outer Space Treaty concerns the interpretation of the term "weapons of mass destruction". From the language of the relevant provisions which speak of "nuclear weapons or any other weapons of mass destruction", it becomes quite clear that atomic weapons are regarded as weapons of mass destruction. This notion which also appears in the Sea-Bed Arms Control Treaty¹³ was discussed in the Committee of Disarmament. According to this discussion the term "weapons of mass destruction" should be limited to nuclear, radiological, bacteriological and chemical

¹² S. Gorove, *International Space Law in Perspective – Some Major Issues, Trends and Alternatives*, RdC vol.181 (1983 III), pp.353 *et seq.* (378 *et seq.*) proposes a differentiated interpretation; D. Goedhuis, *An Evaluation of the Leading Principles of the Treaty on Outer Space of 27th January 1967*, *Nederlands Tijdschrift voor Internationaal Recht*, vol.15 (1968), pp.17 (25) follows the former; M. Schweitzer, *Die Entmilitarisierung des Weltraumes durch den Weltraumvertrag von 1967*, in: *Festschrift für Alex Meyer* (1975), p.360 *et seq.*, and I. H. Ph. Diederiks-Verschoor, *Die Bedeutung des Begriffs »friedlich« im Weltraumvertrag von 1967*, *ibid.*, p.303, among others follow the latter interpretation, Harry H. Almond, *Military Activities in Outer Space – The Emerging Law*, *Proceedings of the 24th Colloquium on the Law of Outer Space*, 1981, p.149 *et seq.*; A. J. Butler, *Peaceful Use and Self Defense in Outer Space*, *Proceedings of the 25th Colloquium on the Law of Outer Space*, 1982, p.77 *et seq.*; Y. Kolossov, *Notions of "Peaceful" and "Military" Space Activities*, *ibid.*, p.117 *et seq.*; V. Kopal, *Article IV of the 1967 Space Treaty. Its Present Meaning and Possibilities of Further Development*, *ibid.*, p.119 *et seq.*; G. C. M. Reijnen, *The Term "Peaceful" in Space Law*, *ibid.*, p.145 *et seq.*; Vereshchetin (note 7), p.154.

¹³ BGBl. 1972 II, p.325; for details see R. Wolfrum, "Peaceful Uses" of the Sea: Demilitarization in Being?, *GYIL* vol.24 (1981), pp.200 (220 *et seq.*).

weapons, as well as to any future weapons, the destructive force of which would be catastrophic. Nuclear weapons are generally thought to include all arms which utilize atomic energy in accomplishing their intended purpose, irrespective of their size or destructive force¹⁴. A somewhat different and certainly less inclusive definition was given by the Commission for Conventional Armaments on August 2, 1948 and was recalled in 1979 by the UN General Assembly¹⁵. It declared that weapons 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.

The draft "Agreement Governing the Activities of States on the Moon and Other Celestial Bodies"¹⁶ was meant to supplement the Outer Space Treaty. Its Art.3 re-emphasizes the charge of Art.IV para.2 of the Outer Space Treaty that the moon shall be used exclusively for peaceful purposes. Art.3 para.2, however, goes beyond the Outer Space Treaty and bans "any threat or use of force or any other hostile act or threat of hostile act on the moon". It is likewise prohibited to use the moon in order to commit any such act or to engage in any such threat in relation to the earth, the moon itself, spacecraft or manmade space objects. The placing of nuclear weapons and other weapons of mass destruction in orbit around or in another trajectory to or around the moon is prohibited (see Art.IV para.1).

The Outer Space Treaty, by contrast, only banned such weapons from an orbit around the earth. As these provisions are both limited to nuclear weapons and weapons of mass destruction, the question must be raised whether that would allow the establishment of weapons of a conventional type designed to destroy or paralyze space installations of another State.

Prior to the Outer Space Treaty, the "Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water" was concluded¹⁷. As is made evident from the preamble of the Treaty, it was designed as a step toward disarmament and the complete discontinuance of all test explosions of nuclear weapons. According to Art.I thereof, each party undertakes to prohibit, to prevent and not to carry out nuclear

¹⁴ P. G. Dembling, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space including the Moon and other Celestial Bodies*, Manual on Space Law (N. Jasentuliyana/R. S. K. Lee, eds.) (1979) vol.I, pp.1 (12 *et seq.*).

¹⁵ A/Res.34/87 A, December 11, 1979.

¹⁶ ILM 18 (1979), p.1434, hereinafter "Moon Treaty".

¹⁷ Hereinafter Test Ban Treaty, UNTS vol.480, p.43.

explosions in outer space¹⁸. Some types of directed high-energy weapons which require small thermonuclear explosions might jeopardize the Test Ban Treaty.

The "Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques"¹⁹ bans activities which change, *inter alia*, the dynamics, composition or structure of outer space. The scope of the Convention, however, is limited as only "hostile" activities are prohibited. Thus the Convention contributes little to the overall arms limitation, though the electromagnetic pulse bombs designed to disrupt the connection between satellites and their respective groundstations might fall under this Convention.

Although it does not contain any specific arms control measures, reference should be made to the "Convention on Registration of Objects launched in Outer Space"²⁰. If applied properly, this Convention could play some confidence-building role. Art. IV thereof requires States launching space objects to provide the Secretary-General of the UN with information on several questions, including "the general function of the space object". This obligation, however, has not yet been taken seriously. Notwithstanding the fact that 75 per cent of American and Soviet satellites launched so far serve at least partially military purposes, none of the launchings registered has been described of having a military function²¹.

More interesting than the Conventions are the bilateral agreements concluded by the United States and the USSR.

At the end of the first phase of the Strategic Arms Limitation Talks (SALT) between the USSR and the USA on May 26, 1972, two agreements were signed: the "Treaty on the Limitation of Anti-Ballistic Missile Sys-

¹⁸ Legal literature on the treaty E. Schwelb, *The Nuclear Test Ban Treaty and International Law*, AJIL vol. 58 (1964), p. 642; P. Chendrasekhara Rao, *The Test Ban Treaty, 1963: Form and Content*, Indian Journal of International Law, vol. 3 (1963), p. 315; A. Martin, *Legal Aspects of Disarmament*, ICLQ vol. 12 (1963), p. 75; W. Cornides, *Das Moskauer Moratorium und die Bundesrepublik. Inhalt und Tragweite des Vertrages über die teilweise Einstellung der Kernwaffenversuche*, EA vol. 18 (1963), p. 583; K. Stahl, *Die Einstellung der Kernwaffenversuche*, in: *Abschreckung und Entspannung* (Berlin 1977), p. 567 *et seq.*

¹⁹ BGBl. 1983 II, p. 126, ILM vol. 16 (1977), p. 88. The Convention entered into force on October 5, 1978. For further information see H.-J. Schütz, *Beschränkung von B- und C-Waffen und anderen Massenvernichtungsmitteln*, in: *Friedensdokumente aus fünf Jahrhunderten* (J. Delbrück, ed.), pp. 830 (840).

²⁰ For further information on the development and content of the Convention see A. Armando Cocco, *Convention on Registration of Objects Launched in Outer Space*, in: *Manual on Space Law* (note 14), vol. 1, p. 173.

²¹ Goedhuis (note 1), pp. 13 (15).

tems" (ABM Treaty)²² and the "Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Offensive Arms"²³.

The premise of the ABM Treaty was that the development and establishment of an effective anti-ballistic missile system would lead to an increase in the risk of outbreak of war involving nuclear weapons. Thus the parties to the agreement undertake not to deploy ABM systems in defense of the territory of their countries and not to develop, test or deploy ABM systems which are space-based. Some exceptions are provided for, such as the ABM protection of the capital²⁴. The crucial point of the ABM Treaty is the interpretation of the Agreed Statement D to the ABM Treaty.

The question must be asked whether the development of directed high-energy weapons designed to intercept strategic missiles²⁵ has to be regarded as a violation of the ABM Treaty. The Interim Agreement on the Limitation of Strategic Offensive Arms interdicts, *inter alia*,²⁶ interference with the "national technical means of verification of the other Party"²⁷ used for the purpose as described in the provisions of the Interim Agreement. This certainly restricts, at least partially, the establishment of anti-satellite missiles and orbiting hunter-killer-satellites.

The same idea is conveyed in Art.XV of the "SALT II" Agreement²⁸ which was signed on June 18, 1979, but has not yet, however, been ratified by the United States²⁹. Furthermore, Art.IX para.1 contains a relatively unnoticed expansion of the Outer Space Treaty in that it prohibits the

²² ILM vol.11 (1972), p.784, entered into force on October 3, 1972.

²³ ILM vol.11 (1972), p.791. For explanation on both treaties see Letter to the President from the Secretary of State, ILM vol.11 (1972), p.923 *et seq.*; the Interim Agreement was supposed to be continued and confirmed by the SALT II Treaty, EA vol.34 (1979), p. D 367 *et seq.*

²⁴ For detailed information on this treaty see J. Delbrück, Antiraketen-Raketensysteme und Rüstungskontrolle, Abschreckung und Entspannung, Veröffentlichungen des Instituts für Internationales Recht, vol.76 (1977), p.770 *et seq.*

²⁵ According to a speech delivered by President Reagan in March 1983 (Text: EA 1983, p. D 267) such weapons should be developed.

²⁶ For further information on the content of the Interim Agreement see L. Rühl, Die Begrenzung der strategischen Rüstungen: SALT, in: E. Fondran/P. J. Friedrich, Rüstungskontrolle und Sicherheit in Europa (Bonn 1979), p.47 *et seq.*; M. Willrich/J. B. Rhinlander (eds.), SALT, The Moscow Agreement and Beyond (1974); T. W. Wolfe, The SALT Experience (1979).

²⁷ Art.5 para.2.

²⁸ Reprinted in Department of State Bulletin, July 1979, p.23; Friedensdokumente aus fünf Jahrhunderten (note 19), p.725.

²⁹ As to the legal consequences of the lacking ratification see R. F. Turner, Legal Implications of Deferring Ratification of SALT II, Virginia Journal of International Law, vol.21 (1981), p.747.

development, testing and deployment of systems for placing in orbit nuclear weapons and weapons of mass destruction. In addition, this agreement bans testing development and deployment of fractional orbital bombardment systems³⁰.

Finally, the so-called "Accident Measures Agreement"³¹, in conjunction with the "Prevention of Nuclear War Agreement"³², are bilateral treaties which oblige both the Soviet Union and the United States to refrain from interference with the attack early warning systems of the other side. This again might prohibit the development of anti-satellite weapons.

3. Military Activities in Outer Space – New Developments and their Legal Implications

Of the several types of military satellites launched each year, the following seem to be most important to armed forces: reconnaissance, navigation and communication satellites³³.

Of the military satellites launched by the People's Republic of China, the USSR and the United States, 40 per cent have been used for photographic reconnaissance purposes from a low altitude orbit of about 200 km. Besides, there exist electronic reconnaissance satellites designed to detect and monitor radio signals. Reconnaissance satellites serve a wide range of purposes, including arms control verification, crisis monitoring, early warning of attack, weapons targeting, and execution of current strategic employment policies. This versatility might carry benign as well as adverse implications for national security and international stability.

At the beginning, doubts have been raised upon the legality of satellite reconnaissance. For example in 1960, Zhukov³⁴ has pointed out – while drawing a parallel to the U 2 incident – that from the viewpoint of the security of a State, it makes absolutely no difference from what altitude espionage over its territory is conducted. In the very year, the USSR even

³⁰ For further information on the content of the SALT II Agreement W. K. H. Panofsky, *Arms Control and SALT II* (1979); Wolfe (note 26); E. Riedel, *Vereinbarungen über die Begrenzung strategischer Rüstungen, Friedensdokumente aus fünf Jahrhunderten* (note 19), p.683 *et seq.*

³¹ Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War, September 30, 1971, effective since September 30, 1971, UNTS vol.807, p.57.

³² Agreement on the Prevention of Nuclear War, June 22, 1973, UST vol. 24, p.1478.

³³ The following remarks are based upon the information offered in the report of Outer Space (note 2); especially on reconnaissance satellites see the report of B. G. Blair, *ibid.*, p.125.

³⁴ G. B. Zhukov, *Space Espionage Plan and International Law*, International Affairs, vol.6 (1960), pp.53 (56); V. S. Vereshchetin, *International Cooperation in Outer Space*

proposed a ban on satellite reconnaissance.³⁵ However, after the entering into force of the SALT I Agreement which relied on "national technical means of verification" – a term since then used frequently in arms limitation agreements³⁶ – the general attitude of the USSR *vis-à-vis* satellite reconnaissance has changed to a certain degree. National technical means of verification are protected from interference by the ABM as well as the SALT I and SALT II Treaties. Although reconnaissance satellites are not explicitly mentioned in the treaty texts, it is beyond doubt that they are the primary system for verification. Thus anti-satellite attacks against reconnaissance satellites used to monitor compliance with the ABM or the SALT II Treaty are banned by those treaties. However, taking into account the wording of the Interim Agreement (SALT I) as well as of the SALT II and the ABM Treaties, it is still open for discussion whether all forms of reconnaissance are legal or only those which serve the purpose of verification within the context of the agreements just mentioned.

For many weapons systems it is important to know the exact position and velocity of the missile. This is particularly true for missiles launched from sea-based platforms. Navigation satellites begin to fulfil these requirements. Naval surface ships, as well as submarines, aircraft and missiles, determine their positions and velocities using continuously emitted satellite signals. Both the USA³⁷ and the USSR³⁸ have developed such navigation systems.

As some 70 to 80 per cent of military communications, which includes command and control, are carried out using artificial satellites, there is a vital military interest in communications satellites. Their military value results from the fact that satellites provide communication coverage over a large geographical area while also being physically remote and, hence, less vulnerable to direct attack³⁹.

(1980), p.105 *et seq.*, raises the more general question as to whether activities in outer space are restricted by the principle of sovereignty.

³⁵ M. Russell, *Military Activities in Outer Space: Soviet Legal Views*, Harvard International Law Journal, vol.25 (1984), pp.153 (178).

³⁶ G. Bluhm, *Die Überwachung der Abrüstungsmaßnahmen, Abschreckung und Entspannung* (1977) p.509; Delbrück, in: *Friedensdokumente aus fünf Jahrhunderten* (note 19), p.1327; Greenwood, *Reconnaissance, Surveillance and Arms Control*, Adelphi Paper No.88 (1972).

³⁷ For further information see K. D. McDonald, *Navigation Satellite Systems: their characteristics, potential and military applications*, in: *Outer Space* (note 2), p.155 *et seq.*; C. S. Gray (ed.), *American Military Space Policy* (1982), p.32 *et seq.*

³⁸ G. E. Perry, *Identification of Military Components within the Soviet Space Programme*, in: *Outer Space*, p.135 *et seq.*

³⁹ For further details Gray, (note 37), p.28 *et seq.*

Due to the only limited demilitarization of outer space through Art. IV of the Outer Space Treaty, such satellites are not prohibited although they serve a military purpose. Even though they were prohibited, this would not justify the establishment of an anti-satellite weapons system.

With the increasing role of satellites and other spacecraft for improving the fighting efficiency of the military forces on earth, these space systems will be targets in any major future armed conflict. Obviously, some weapons have already been developed or, at least, are under development to destroy these satellites. The anti-satellite systems (ASAT) range from ground-based missiles to orbiting killer-satellites. The ground-based anti-satellite weapons are of two types – missiles⁴⁰ and high-energy laser weapons. It seems to be accepted that conventional anti-satellite weapons as well as other anti-satellite weapons might pose serious threats to satellites. In addition, the destruction of the connection between a satellite and its groundstation by electromagnetic pulse bombs has been discussed⁴¹. Another possibility having the same effect would be to create anomalies in the wave carrying environment⁴².

A laser is a device that emits a beam of light composed of rays that are almost perfectly parallel. Three types of lasers are being considered for weapon applications: chemical lasers in which the energy required to produce the laser light comes from a chemical reaction, free electron lasers which require electric power as the initial energy input, and x-ray or gamma-ray lasers. In x-ray lasers, the x-ray energy released in a nuclear explosion is used. Instead of x-rays from a nuclear explosion, neutrons from such an explosion can be used⁴³.

Doubts have been raised whether, in general, the development or at least the establishment of ASAT-weapons stationed in outer space would not represent a violation of the Outer Space Treaty. Two factors speak against this assumption: the negotiations between the United States and the USSR on this matter and the fact that at recent meetings of the UN Committee on Outer Space it appealed to the two main space powers to resume their talks

⁴⁰ Jasani, in: Outer Space (note 2), pp.1 (76 *et seq.*).

⁴¹ Jasani, *ibid.*; M. Felden, Recent Advances in the Use of Space for Military Purposes and on Second Generation Nuclear Weapons, in: Outer Space (note 2), p.257 *et seq.*

⁴² Felden, p.259 *et seq.*

⁴³ For further details see B. Jasani, The Reagan Star War Syndrome and Militarization of Outer Space, Bulletin of Peace Proposals, vol. 14 (1983), p.243 *et seq.*; Felden (note 41), p.260 *et seq.*; the technical problems of space-based high-energy lasers are discussed by Gray (note 37), p.60 *et seq.*, using laser as a weapon of missile defense see Space-based missile defence, A report by the Union of Concerned Scientists, March 1984, p.27 *et seq.*

on a ban on anti-satellite weapons. If the Outer Space Treaty already restricted or prohibited such anti-satellite weapons, both motions would have been superfluous.

More specific doubts as to whether the use of such laser weapons in outer space is legal stem from the fact that x-ray and gamma-ray lasers derive their energy from small nuclear explosions. As noted above, there is no agreed definition on the term "nuclear weapons and any other kinds of weapons of mass destruction" as used in Art. IV para. 1 of the Outer Space Treaty. It is more than doubtful whether this phrase covers laser weapons irrespective of whether they are chemical, electronic or free electron lasers, for none of them has a destructive effect comparable to those of atomic bombs⁴⁴.

In 1976⁴⁵ and 1977⁴⁶ the USSR initiated in the United Nations a definition of the term "weapons of mass destruction" which would have included laser weapons. The proposals, however, will have only an indirect effect on laser weapons insofar as the primary standard applied to characterize weapons of mass destruction is massive damage to major segments of human population etc. It would be difficult to maintain credibly that space-based lasers could directly produce massive destructive effects on population.

The second type of potential beam weapons consists of a stream of highly accelerated atomic or subatomic particles such as electrons, protons, neutrons or heavy ions. These are accelerated to close to the speed of light⁴⁷.

⁴⁴ A. M. Jones, *Implications of Arms Control Agreements and Negotiations for Space-Based BMD Lasers, Laser Weapons in Space* (K. B. Payne ed.) (1982), pp. 36 (73 *et seq.*) basing himself upon the fact that the 1948 definition had been accepted by the USSR by jointly introducing on November 2, 1979 with the USA a draft resolution calling on the members of the United Nations to conclude a convention on the prohibition of the development and manufacture of new types of weapons of mass destruction and new systems of such weapons (UN Doc. A/C.1/34/L.7). It was included in A/Res.34/79, December 11, 1979; for the interpretation of this term see C.-G. Hasselmann, *Weapons of Mass Destruction, Article IV Outer Space Treaty and the Relationship to General Disarmament, Proceedings of the 25th Colloquium on the Law of Outer Space*, 1982, p. 99 *et seq.*

⁴⁵ "On the definition of new types of weapons of mass destruction and new systems of such weapons" (CCD/514, August 10, 1976), in: Report of the Conference of the Committee on Disarmament, GAOR, 31st Session, Suppl. No. 27 (A/31/27/ vol. II, p. 276).

⁴⁶ Revised draft agreement on the prohibition of the development and manufacture of new types of weapons of mass destruction and new systems of such weapons (CCD/511/ Rev. 1, August 8, 1977), in: Report of the Conference of the Committee on Disarmament, GAOR, 32nd Session, Suppl. No. 27 (A/32/27/ vol. II, p. 19).

⁴⁷ J a s a n i, in: *Outer Space* (note 2), p. 81 *et seq.*; G r a y (note 37) excludes the possibility of a military utilization of electron particle-beam weapons, p. 46.

It has been mentioned that x-ray and gamma-ray lasers, which rely on small thermonuclear explosions or small hydrogen and neutron bombs, may jeopardize the Test Ban Treaty. The latter bans nuclear weapons tests and other nuclear explosions in the atmosphere and in outer space. However, this Treaty prohibits only the testing of such weapons in outer space but neither their development as such nor their deployment in outer space. The same is true with respect to particle-beam weapons.

Finally, the electromagnetic pulse bombs deserve mentioning. The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, however, only outlaws those techniques which have a longlasting effect. It is more than doubtful whether electromagnetic pulse bombs fall within such category.

To sum up, existing international multilateral and bilateral agreements between the USA and the USSR do not generally limit anti-satellite weapons systems. Only attacks upon satellites used for verification under the ABM, the SALT I and the SALT II Agreements are banned by these treaties.

The possibility of using outer space as a basis for the development and deployment of a strategic defense against a ballistic missile attack has received much public attention during recent years⁴⁸. The weapons envisaged are based upon the same technical characteristics as the anti-satellite weapons systems: besides conventional systems, high-energy lasers could be used. Obviously testing of both systems is under way.

It is readily apparent that the development, testing and deployment of a ballistic missile defense system might be inconsistent with the ABM Treaty. As was mentioned above, the treaty bans the development, testing, and deployment of ABM systems and components that are sea-based, air-based, space-based or mobile land-based. Under the interpretation offered at the time of signature, the treaty's prohibition takes effect at the point that the ABM system or component enter the phase of field testing. The Treaty, and its 1974 Protocol, limit the USA and the USSR each to a single ABM deployment area with 100 interceptor missiles. Additionally,

⁴⁸ Statement of John H. Gibbons, Senate Committee on Foreign Relations, April 25, 1984, on New Technologies for Defense against Strategic Ballistic Missiles; Appeal of 244 Soviet Scientists, April 10, 1983; S. Bardwell, *Strahlenwaffen und die Reagan-Rede vom 23. März 1983*, *Europäische Wehrkunde* 1983, p.377; A. Knoth, *The BMD of the Future, Military Technology* (1983), p.14; above all *Space-Based Missile Defense, A report by the Union of Concerned Scientists, March 1984*; St. Menaul, *The Technology of Ballistic Missile Defence* (1983) describes the technicalities; sceptical W. E. Burrows, *Ballistic Missile Defense: The Illusion of Security*, *Foreign Affairs*, vol.63 (1984), p.843 *et seq.*

the treaty imposes restraints on air defense systems and on early warning radar so as to limit their possible use in ballistic missile defense⁴⁹.

The critical question, however, is whether the ABM Treaty prohibits the development of high-energy laser weapons as a ballistic missile defense system⁵⁰.

An Agreed Statement between the Heads of the US and USSR delegations reads:

"In order to insure fulfillment of the obligation not to deploy ABM systems and their components . . . the Parties agree that in the event ABM systems based on other physical principles . . . are created in the future, specific limitations of such systems . . . would be subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV of the Treaty"⁵¹.

The interpretation of this statement gave rise to significant controversies⁵². It should be read within the context of the other Treaty provisions, taking into account the distinction made in the ABM Treaty between systems deployed at operational complexes (see Art.III) and systems used for development and testing (see Art.IV). This leads to the following conclusion: The ABM prohibits all ABM deployments which are not permitted (Art.III), Art.IV permits testing at designated test sites, of certain systems not deployable under Art.III. However, these systems are severely restricted by Art.V. Further the ABM Treaty does not permit the deployment of a system which consists of other than the traditional elements of an anti-ballistic missile system (interceptor missiles, launchers and radars) and is capable of substituting for the existing system. Art.II para.1 defines an anti-ballistic missile system in functional terms as a "system to counter strategic ballistic missiles or their elements in flight trajectory". Art.II contains a prohibition on the deployment of ABM systems or their components except as specified therein, and it permits deployment only of anti-ballistic interceptor missiles, launchers and radars. Devices other than the traditional ones can be used as adjuncts on an anti-ballistic missile system

⁴⁹ E. Riedel, Vereinbarung über die Begrenzung strategischer Rüstungen, in: Friedensdokumente aus fünf Jahrhunderten (note 19), p.683.

⁵⁰ This question has been answered favorably by P. L. Meredith, *The Legality of High-Technology Missile Defense System: The ABM and Outer Space Treaty*, AJIL vol.78 (1984), pp.418 (320), primarily based upon late statements given by the Head of the US delegation ambassador G. Smith (Department of State Bulletin, vol.67 [1972], p.147, and Secretary of State Rogers, Department of State Bulletin, vol.67 [1972], p.920).

⁵¹ Agreed Statement on ABM Treaty para. D, ILM vol.11 (1972), pp.796 (797), this statement was originally designated as Agreed Interpretation E to the Treaty.

⁵² Perhaps described best by Jones (note 44), pp.36 (47 *et seq.*).

provided that such devices are not capable of substituting for one or more of these components. The Treaty does not prevent research and development of lasers⁵³. As to the development of space-based lasers Art.V must be taken into account. Their deployment has been excluded, however, the agreed statement states that "specific limitations" would be discussed following full-scale testing prior to deployment. The whole issue becomes further complicated by the fact that the ABM Treaty neither offers a definition of the term "space-based" nor of the term "strategic ballistic missile"⁵⁴.

To sum up, the ABM Treaty prohibits field testing of prototypes of space-based anti-ballistic missile systems, but permits the non-space testing of fixed, land-based systems. Agreed Statement D bans the operational deployment of fixed, land-based laser system components but permits development and full scale testing of prototypes at designated test ranges even if the system tested is envisaged to be deployed in space. Since there has been no agreement on the term "space-based", testing of suborbital lasers may take place. Furthermore, due to the lack of an accepted definition of the phrase "strategic ballistic missiles", the ABM Treaty does not preclude testing of orbital lasers against orbital targets. Finally, the ABM Treaty does not restrict testing of space-based laser components against non-ballistic missile targets.

After all, the existing legal régime does not provide for a waterproof prohibition against the testing and developing of new anti-ballistic missile weapons systems.

4. Initiatives to Limit the Arms Race in Outer Space

The issue of preventing military competition in outer space in general was taken up by the UN General Assembly's Tenth Special Session on Disarmament. Upon the initiative of the Italian Government, it adopted a broadly phrased resolution calling for "further measures" and "appropriate international negotiations" to prevent "an arms race in outer space"⁵⁵. As a follow-up, the Italian Government introduced to the Committee on Disarmament a proposal for the elaboration of an additional protocol to the

⁵³ See Letter of Submittal by the Secretary of State to the President on the ABM Treaty and the Interim Agreement, reprinted in: U.S. Arms Control and Disarmament Agency, *Arms Control and Disarmament Agreements (1982)*, p.222.

⁵⁴ Discussed by Jones (note 44), p.55 *et seq.*

⁵⁵ A/Res. S-10/2, para.80, June 30, 1978.

Outer Space Treaty. The latter was designed to prohibit any measure of a military or other hostile nature in the use of outer space, including the moon.

The salient question remained whether or not such a prohibition was meant to include devices for defensive purposes. In its explanation, the Italian delegate stated that "of course, the use of reconnaissance, surveillance and communication satellites and, indeed, of any space system which would reinforce strategic stability by ensuring, *inter alia*, the verification of disarmament and other limitation agreements, would not be prejudiced".

Further, during the Tenth Special Session on Disarmament, France proposed the establishment of an international satellite monitoring agency to observe the implementation of international disarmament agreements⁵⁶, which met with a positive response.

The negotiations between the USA and the USSR, however, which started at the same time as the passing of the resolution of the General Assembly's Tenth Special Session, were much more specific.

A first round of bilateral talks on maintaining outer space free from anti-satellite systems was held upon the initiative of the USA in Helsinki in June 1978, followed by discussions in Berne in February 1979 and in Vienna in April 1979 – just prior to the SALT II summit. The talks were suspended without having achieved any substantive result⁵⁷.

The idea of limiting military activities in outer space – especially those directed against satellites – was first introduced to the United Nations by the USSR when she submitted in 1981 a draft Treaty on the Prohibition of the Stationing of Weapons of any Kind in Outer Space⁵⁸. The Soviet initiative was paralleled by other disarmament proposals including a prohibition on chemical weapons, cessation of production of all types of nuclear weapons, and a ban on neutron and radiological weapons. As Soviet Foreign Minister Andrei Gromyko pointed out in a letter⁵⁹ to the UN Secretary-General, the initiative was to be understood as a continuation of Soviet efforts to achieve demilitarization of outer space. Although the Outer Space Treaty prohibited the placing of nuclear weapons or other weapons of mass destruction into orbit, other types of weapons remained

⁵⁶ UN Doc. A/S-10/AC.1/7; for further details see the report of the Secretary-General on "The Implications of Establishing an International Satellite Monitoring Agency", 1983 (A/AC.206/14).

⁵⁷ J a s a n i, in: Outer Space (note 2), p. 113.

⁵⁸ UN Doc. CD/274, April 7, 1982, reprinted in: American Military Space Policy (note 37), p. 115 *et seq.*

⁵⁹ UN Doc. A/36/192, Annex.

which were not covered. If accepted, the draft treaty would prohibit parties to the agreement from deploying, in orbit, conventional high-explosive weapons or directed-energy (laser or particle-beam) weapons.

Art.1 of the draft treaty contains a general ban on weapons in orbit. Art.2 requires that all parties use space objects "in strict accordance with international law", and Art.3 obliges each party "not to destroy, damage, disturb the normal functioning or change the flight trajectory of space objects of other States parties, if such objects were placed in orbit in strict accordance with article 1 para.1". Finally, Art.4 allows the parties to verify the provisions of the treaty using national technical means in accordance with international law and it bars States from hindering such monitoring by other parties⁶⁰.

The proposal was discussed briefly in the First Committee of the General Assembly. The USSR offered a resolution⁶¹ calling on the Committee on Disarmament to discuss the conclusion of a treaty on the prohibition of the stationing of weapons of any kind in outer space; it was adopted⁶² with the Western industrialized States abstaining.

At the same session, several Western European States presented a resolution that the Committee on Disarmament should consider the following two questions: negotiating an effective and verifiable agreement aimed at preventing an arms race in outer space and negotiating an effective verifiable agreement to prohibit anti-satellite systems⁶³. The resolution was adopted with the East European Socialist countries abstaining⁶⁴.

The Soviet draft treaty did not meet with a convincingly favorable response. The following objections, as I see it, legitimately, were raised. The draft was ambiguous in its scope as it did not define the terms "weapon" and "orbit". Moreover, it did not cover satellite weapons that could strike their target directly from the ground. It said nothing about dismantling anti-satellite weapons which had already been acquired and deployed, nor did it provide for destruction of current systems or at least for the prohibition of their future use. The crux, however, is Art.3 of the draft treaty. It obliges the States parties not to destroy, damage or disturb space objects which, in the opinion of the acting State, operate in accordance with the draft treaty. Accordingly, this provision would create a

⁶⁰ The draft has been commented by R. Y. Strodé, in: American Military Space Policy (note 37), p.85 *et seq.*; Jones (note 44), p.85 *et seq.*

⁶¹ UN Doc. A/C.1/36/L.8.

⁶² A/Res.36/99, December 9, 1981, repeated in A/Res.37/83, December 9, 1982.

⁶³ UN Doc. A/C.1/36/67.

⁶⁴ A/Res.36/97 C, December 9, 1981, repeated in A/Res.37/99 D, December 13, 1982.

right of the acting State to attack space objects believed not to operate in accordance with the treaty. This would have not only limited the launching of satellites but it would have vested also States with the right to react by using force against space activities believed to be illegal. Thus, such a provision would violate Art.2 para.4 of the UN Charter. International law rests on the abolition of armed force. If a State violates international law – be it customary or conventional international law – the other States are empowered, by right, to take a variety of actions. However, no State possesses the right unilaterally to enforce international law by resort to the use of armed force.

Finally it should be mentioned that the Soviet draft did not afford protection to satellites not launched by signatories.

The USA never responded officially to the 1981 Soviet draft though the US delegation voiced criticism in the Committee on Disarmament. However, a private US group presented a draft treaty to the US Senate Foreign Relations Committee⁶⁵, the ideas of which are in large parts taken up by a second draft Treaty on the Prohibition of the Use of Force in Outer Space and from Space against the Earth⁶⁶ presented on August 23, 1983 by the USSR to the United Nations. The covering letter emphasizes that the draft advocates a complete ban on the testing and deployment in space of any space-based weapon for the destruction of objects on the earth, in the atmosphere and in outer space. Furthermore, the draft excludes the future development of anti-satellite weapons and calls for their destruction should such weapons already have been deployed.

Art.1 of the draft prohibits the use or threat of force in outer space and the atmosphere and on the earth through the utilization of space objects in orbit around the earth, on celestial bodies or stationed in space in any other manner. The use of force against space objects is likewise prohibited. Art.2 requires that States Parties undertake not to test or deploy any space weapons for the destruction of objects on earth, in the atmosphere or in outer space, not to utilize space objects as means to destroy targets on earth, not to disturb or destroy space objects of other States and finally not to create new anti-satellite systems and to destroy any existing anti-satellite system. Verification shall take place as normally by national technical means, interference with such verification is prohibited.

Within the Committee on Disarmament the discussion in 1982 and 1983 focused on the establishment of an *ad hoc* working group and the scope of

⁶⁵ Reprinted in Garwin/Pike (note 3), p.105.

⁶⁶ UN Doc. A/38/194, Annex.

its mandate⁶⁷; the same is more or less true for the deliberations in 1984⁶⁸.

5. Conclusion

The evaluation of the existing international law has shown that it provides neither for a prohibition of satellites used for military purposes, nor for a ban of developing, testing and deploying of ASAT-weapons systems in general nor for the prohibition of at least the development of certain kinds of anti-ballistic missile weapons (such as lasers) to be used in outer space. The plea for a demilitarization of outer space as voiced by the USSR initiative of 1981 or in the United Nations is thus to be understood. This, however, does not mean that the suggested approach would be the most reasonable one.

Demilitarization and arms control *per se* contain no value: their value rests rather in that they might reduce the risk of an outbreak of war. Accordingly, every initiative in the field of disarmament has to be questioned as to whether it will serve this purpose. This will only be the case if the following prerequisites are met. Every attempt to achieve partial demilitarization, or at least an arms limitation, must be embedded into the existing legal and factual framework and must be in line with the leading principles which have governed the régime of arms limitation and arms control so far. The two essential features characterizing the military relationship between the two blocs are the balance of power and the establishment of confidence-building measures. Any arms limitation agreement which envisages a destabilization of this balance, either by freezing the superiority or by providing for a more advantageous prospect of development for one side, would clearly be counterproductive. It would increase but not decrease the risk of war. A complete and true demilitarization of outer space can only be negotiated successfully when a balance of power exists with respect to the weapons systems stationed on earth. If such a

⁶⁷ CD/329 reads: "Reaffirming the principle that outer space – the common heritage of mankind – should be preserved exclusively for peaceful purposes ... the Committee on Disarmament decides to establish an Ad Hoc Working Group to undertake negotiations for the conclusion of an agreement/or agreements – as appropriate – to prevent an arms race in outer space in all its aspects". The counter proposal (CD/413), however, wants to restrict the mandate of the Ad Hoc Working Group to identify "through substantive examination, issues relevant to the prevention of an arms race in outer space". See also CD/527.

⁶⁸ Only the statements of Canada CD/PV.216, p.10, Sweden CD/PV.239, p.22 and CD/PV.252, p.17 *et seq.*, Argentina CD/PV.253, p.20 *et seq.*, Italy CD/PV.253, p.16, USA CD/PV.258, p.23, and USSR CD/PV.258, p.27, tackled the issue of disarmament of outer space substantially.

balance does not exist and an agreement on the demilitarization of outer space were to be concluded, there would inevitably be an increase of the armaments on earth. In short, a demilitarization of outer space, partial or complete, which is not embedded into the global arms limitation and arms control system and which does not take into account the present factual situation on armament will, paradoxically, provoke the risk of increased militarization on earth.

One more general remark should be made here. Speaking of the balance of power: this not only describes a factual situation but psychological elements. If a State decides to develop and deploy a new and more efficient weapons system – be it anti-ballistic missiles based on laser or be it more sophisticated ballistic missiles – that State is acting by one of two grounds: it is seeking to achieve military superiority or it wants to reduce its existing or assumed military inferiority. At least in the latter case, the need for follow-up armaments would be reduced if the very State can be sure that the other State is not preparing to start war. Insofar confidence-building measures⁶⁹ may have the effect of cutting down on the armaments spiral.

It is against this background that the initiatives for a total or a partial disarmament of outer space will be evaluated.

A total demilitarization of outer space would certainly not contribute towards promotion of world security. For the banning of all military activities from outer space would affect the launching of reconnaissance satellites, as well. Those satellites, however, are essential as the very extensive information obtained through them makes a surprise attack much more difficult. Thus, in the interest of confidence-building, the free use of reconnaissance satellites cannot be renounced of. As it seems to be difficult to distinguish between reconnaissance satellites and others, all satellites should be equally protected.

The 1983 Soviet draft is somewhat ambiguous in that Art. 1 envisages the prohibition of “space objects” which evidently includes satellites. However, not all satellites are banned but rather those utilized as “instruments of destruction”. It could, however, always be argued that satellites serving reconnaissance, navigation, or communication and command functions should be regarded as “instruments of destruction”.

The next question to be addressed is whether a treaty agreement prohibiting anti-satellite weapons would have a stabilizing effect. The answer goes without saying. The verification which has been provided for by the

⁶⁹ For further information see H.-J. Schütz, *Militärische Vertrauensbildende Maßnahmen aus völkerrechtlicher Sicht*, Veröffentlichungen des Instituts für Internationales Recht (1983).

ABM, SALT I and SALT II Agreements depends upon reconnaissance satellites⁷⁰; any development, testing, or deployment of anti-satellite weapons, though not expressly forbidden, endangers the impact of these agreements. The conclusion of an agreement prohibiting anti-satellite weapons systems would close a gap in the existing legal framework on arms limitation.

In general, it is to be feared that the establishment of anti-satellite weapons might have a destabilizing effect. If one side once achieves the possibility to "blind" the other side by deactivating all the reconnaissance-, navigation-, or communication- and control-satellites, it certainly would gain superiority and might be tempted to try the first strike. Thus, an agreement banning anti-satellite weapons in general might have the same effect as the ABM Treaty as it assures that every State is vulnerable to a second strike.

The Soviet proposal of 1983 would certainly be a valid platform to negotiate a treaty banning anti-satellite weapons⁷¹. It covers both development and deployment, future and already deployed systems. Unlike the 1981 initiative it similarly prohibits space-based as well as earth-based anti-satellite weapons.

The acceptability of the Soviet proposal depends entirely upon whether it provides for effective verification. The draft certainly requires further elaboration as the "national technical means of verification" will not suffice to ensure the destroying of already established anti-satellite weapons systems. It will be necessary to supplement national verification by some form of international control. In that respect a very interesting approach has been introduced into the negotiations of the Conference on Disarmament on the prohibition of chemical weapons⁷².

⁷⁰ Besides, other international agreements exist which provide satellites: Art. VII Antarctic Treaty (UNTS vol. 480, p. 43); the Treaty of Tlatelolco (UNTS vol. 634, p. 281), Art. III of the Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and Subsoil thereof (A/Res. 2660 (XXV) Annex).

⁷¹ Art. 2 paras. 3 and 4 read: "3. Not to destroy, damage, disturb the normal functioning or change the flight trajectory of space objects of other States.

4. Not to test or create new anti-satellite systems and to destroy any anti-satellite systems that they may already have".

As to its interpretation see – for the Soviet view – Chr. Karakashev, *Aspects of the New Soviet Initiative for Concluding an Agreement on the Nonuse of Force in Outer Space and from Outer Space to Earth*, Proceedings of the 26th Colloquium on the Law of Outer Space, 1983, p. 307 *et seq.*

⁷² See, for example, the Working Paper on Principles and Rules for Verifying Compliance with a Chemical Weapons Convention submitted by the Federal Republic of Ger-

Finally, the question has to be raised as to whether supplementing existing rules with respect to new anti-ballistic missile systems should be addressed here again. The answer is self-evident. The ABM Treaty is based upon the assumption that the establishment of ABM systems would be strategically destabilizing. Anti-ballistic missile weapons systems would undermine the balance of power because they would magnify the advantage of striking first. Thus, they are perceived as components of a first strike strategy rather than as defensive weapons. Since the ABM Treaty does not effectively ban the development of anti-ballistic missile systems, such supplementation is needed. The 1983 Soviet draft again provides an appropriate starting point for respective future negotiations as it seems to cover all the components of new anti-ballistic missile systems not already prohibited by the ABM Treaty⁷³. The salient question will again be verification. As has been demonstrated by the experience of the ABM Treaty, technical means of verification will not suffice and will demand supplementation by some kind of international control. As long as the legality of installing devices like the radar station near Krasnoyarsk can be questioned and there are no means to verify whether or not it complies with the ABM Treaty, the last step towards increasing mutual confidence has not yet been taken.

many (UN Doc. CD/265, March 24, 1982). It emphasizes: "There is agreement that such verification should not be confined exclusively to national measures but that it should be a combination of national and international measures and mechanisms to be implemented by a special standing international body". This Working Paper envisages at least occasional on-site inspections. The same approach has been followed by a Working Paper submitted by the United Kingdom (UN Doc. CD/244, February 18, 1982).

⁷³ See Art.2 paras.1 and 2: "In accordance with the provisions of article 1, States Parties to this treaty undertake:

1. Not to test or deploy by placing in orbit around the Earth or stationing on celestial bodies or in any other manner any space-based weapons for the destruction of objects on the Earth, in the atmosphere or in outer space.

2. Not to utilize space objects in orbit around the Earth, on celestial bodies or stationed in outer space in any other manner as means to destroy any targets on the Earth, in the atmosphere or in outer space".