

An Approach to Arms Control in Outer Space

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“We have . . . created a grotesque situation in which we can destroy ourselves many times over without yet having mustered the political will and moral impetus to save great masses of our fellow human beings from starvation”.

Javier Perez de Cuellar, Secretary-General of the United Nations, at the Second Special Session of the General Assembly on Disarmament, in 1982.

Arms race has become a most crucial issue in the present state of international relations; if arms race reaches outer space, chances of arms control generally would be jeopardised¹.

It is axiomatic that successful disarmament negotiations require a persuasive world public opinion, strong political will of the States concerned, unshakeable mutual trust between the negotiators and verifiable controls and guarantees (which in their turn contribute to the building up of that will and trust). It will be difficult to say if that will and trust exist, but factors do exist which on a rational analysis make it incumbent on the super-powers to enter into such an agreement. The verifiability of arms control measures in space could never have been so reassuring as it is

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Abbreviations: AJIL = American Journal of International Law; ASAT = Anti-Satellite (system); IISL = International Institute of Space Law; ISMA = International Satellite Monitoring Agency; RUSI = Royal United Service Institute for Defence Studies; UNCOPUOS = United Nations Committee on the Peaceful Uses of Outer Space.

¹ Ram S. Jakhur/Riccardo Trecroce, International Satellite Monitoring, For Disarmament and Development, 1980 *Annals of Space Law*, vol.5, at pp.509–510.

today. Therefore, it should really give hope for a successful conclusion of an agreement since the concerned States know so well the reliability of technologies which have to be employed for control verifications. At the same time, the space technology is so dynamic that the negotiation of any arms control agreement cannot be permitted to drag on for years (like other disarmament agreements) lest they become obsolete in the face of new developed space technology. Further, the arms control measures have to be multidimensional and futuristic (for example, accessibility of planetary systems outside the solar system cannot be altogether left out of account).

The developing countries, though they have no present space military capability, are deeply concerned with arms control in outer space. They are quite conscious that besides peace, their all consuming passion, i.e., development and raising the standards of living of their vast masses, can be realised only if huge amounts of money and resources are diverted from military uses to the developmental needs of their countries². This interrelation between development and arms control³ becomes all the more poignant not only because of the disproportionate amounts involved in acquiring space military capability, and the imminence of development which the Third World Countries so ardently cherish, but also because of the tremendous possibilities of the use of space arms control mechanisms for direct developmental purposes. War (more so a nuclear war) is not a divisible phenomenon; a nuclear war anywhere is bound to affect every one everywhere. Therefore, disarmament or control of armaments in outer space is not an exercise to be confined only to the two super-powers which have present space military capability; by tomorrow more States will have acquired such capability. It is the co-operation of all States which alone can make arms control in space meaningful.

This paper first presents a bird's eye view of the developing military uses of space; it then briefly examines the existing conventions having a bearing on arms control in space and points out the gaps that are left unprovided for; it also examines the Soviet Draft Treaty on the prohibition of the use of force in outer space of 1983, and gives the framework of a feasible approach towards arms control in outer space including the prohibition of

² See North-South: A Programme for Survival (popularly known as the Willy Brandt Report) (Pan World Affairs, 1980), Chapter 7: Disarmament and Development.

³ Claude Inis, Jr., *Swords into Plowshares - The Problems and Progress of International Organization* (4th ed. New York 1971), p.302; Barbara Ward / René Dubois, *Only One Earth* (London 1971).

anti-satellite (ASAT) systems. Openness, free accessibility, and internationalisation of the verification system are the key words in this approach. It is believed that no foolproof disarmament in space is possible when its military uses are inseparable from non-military uses, therefore the thrust of the proposed approach is to minimise the dangers through the sharing of information and accessibility to devices. It also considers if the issue of demilitarisation of space could be separated from the general issue of disarmament and if total demilitarisation of space is preferable to partial demilitarisation. A strong plea has been made for departing from the traditional bipolar strategy of deterrence, and adopting a fresh international strategy of progressive arms control in space.

I. The Current and Developing Military Uses of Outer Space

The military uses of outer space⁴ may conveniently be considered under two heads viz.:

A. Devices for peaceful uses of outer space which can also be harnessed for military purposes.

B. Devices purely for military uses.

A. Amongst the first category could be included reconnaissance⁵, communication, navigation, weather prediction, and geodetic study.

Reconnaissance satellites can be fitted with sensors to gather information across the whole of the electromagnetic spectrum. For example, at low frequencies with radio and radar, satellites are able to sweep across a potential enemy's territory, listen to and record radio, telex and radar transmis-

⁴ Ronald D. Humble, *On the Military Use of Space*, RUSI, September 1982, pp.38-44; Paul Stares, *Military Uses of Outer Space: Does Britain have any choice?*, RUSI, December 1982, p.47; Christopher Simpson, *Satellites - New Moons Unite the World*, *Scientific Digest*, December 1981, p.26; Stefan T. Possony, *Deterrence and Open Space*, 8 *Defence and Foreign Affairs* (1980), p.29; Colin S. Gray, *The Military Uses of Space*, *Survival*, September-October 1983, vol.25, no.5, p.194; Stephen M. Meyer, *Soviet Military Programmes and the New High Ground*, *ibid.*, p.204; Maxwell Cohen (ed.), *Law and Politics in Space* (Leicester University Press 1964), pp.63-93; Mortimer D. Schwartz (ed.), *Space Law Perspectives* (Davis, CA 1976).

Michael Sheehan, *The Arms Race* (Oxford 1983), pp.88-107; Bhupendra Jasanani, *Arms Race in Outer Space*, *Alternatives*, vol.4 (1978), pp.59-85. (The information in this section is essentially based on these two studies. They present an excellent picture of the present and future satellite programmes of States).

See also *World-Wide Space Activities*, Report (by the Science Policy Research Division Congressional Research Service, Library of Congress, for the Committee of the US House of Representatives, 1977).

⁵ Jasanani (note 4), pp.60-70.

sions, and then as they return over friendly airspace, relay the recorded transmissions to a ground station. Communications monitoring of this sort is now the most widely used of the super-powers' intelligence instruments⁶.

The reconnaissance satellites can also be fitted with infra-red cameras which detect radiant heat energy. They can thus detect subjects that are underground or disguised by camouflage. It can also detect the presence of something that is no longer there, e.g. the aircraft that might have taken off, by its characteristic heat signature on the concrete runway. Perhaps the most vital role played by infra-red surveillance at present, is the provision of early warning of ballistic missile attack, within seconds of their launch (e.g. the US integrated missile early warning satellite programme [IMEWS]), from the heat emissions of their exhaust trails. The Soviet Union has a similar warning network, e.g. Molniya satellites and COSMOS⁷.

Further, satellite-based communications allow unprecedented control over strategic and tactical situations, enabling secure links to be maintained between ground forces, ships, aircraft, tactical commander and the strategic planners in the home land. It enables the military to communicate simultaneously with terminals which are thousands of miles apart as well as with those which may be just over the next hill. This flexibility is further enhanced by the availability of transportable or even mobile ground terminals. Both super-powers have this capability. About two-thirds of all US military communications are now performed by satellites.

With the help of navigation satellites a navigator can obtain continuous position fixed in three dimensions to within 10 metres, and will further be able to determine the velocity to within about 6 centimetres per second. This will particularly enable the mobile weapon-delivery (ICMBs and cruise missiles) systems to hit their targets very accurately, and would help synchronise the automated battlefield. The United States is developing a Navstar Global Positioning System with the above characteristics. The system's advantages include high precision, global and permanent coverage, no possibility of identifying the system's user, nor limit as to the number of those who can use it, a common reference system for all users, continuity of operation even when some satellites are not used, and the possibility of coupling it with other navigation systems.

⁶ See Simpson (note 4), p.26.

⁷ James Oberg, Soviet Spy Satellites: The Russians are watching, Science Digest, November 1983, p.47.

The meteorological satellites can be used in conjunction with reconnaissance satellites, so planners know as to when to launch a reconnaissance satellite so that it may find the area to be sensed (photographed) to be free of clouds. For the same reason they are extremely helpful in bombing missions; so are the other military operations dependent upon meteorological factors. This includes targeting data for ICBMs whose vector trajectories are influenced by prevailing weather conditions *en route*. A possible use of accurate meteorological information could also be weather control and its use for hostile purposes. No information is, however, available if such uses are being attempted.

The geodetic satellites (which study the shape of the earth, its gravitational field which is not uniform and the exact positions of various points on the earth's surface) can help in the accurate computation of trajectories of missiles and aircraft.

Not only the USA and the USSR, but some other States⁸ too are engaged in their satellite development programmes. It is estimated that out of all the satellites launched by super-powers, well over half of them are for military purposes. However, none of them, to-date has been registered as such⁹, despite the obligation under the Convention on Registration of Objects Launched into Outer Space, 1975, requiring that the Secretary-General of the United Nations be provided with information concerning space launches including "the general function of the space object".

It is patent that the more the dependence of a State defence system on space-based command, control, communications and intelligence (C³I) facilities, the greater is the need to ensure its survivability in case of any conflict; and equal is the need that the armed forces of the adversary be denied the use of space systems. The importance of space for military command, control and communications is attested to by the simple fact that between 70 and 80 per cent of all US long-haul military C³ is transmitted via satellite relays¹⁰.

B. The hunter-killer satellites: It is this reliance upon satellites which has allegedly caused the super-powers to get alarmed with the definite feasibility of their interception.

The Soviet Union, by 1971, has demonstrated a clear capacity to intercept, inspect and destroy a satellite by a controlled explosion near the target. All these target satellites and hunter-killers were launched by the

⁸ See Jasani (note 4).

⁹ Gray (note 4), at p.202.

¹⁰ *Ibid.*, at p.197.

Soviets with orbital inclinations of around 62°. They are also not capable of reaching higher than 1250 miles. The American satellites, by and large, orbit in quite different orbital planes; and most communications and early-warning satellites operate at a much higher altitude. As such the Soviet ASAT system was not actually aimed at the US satellites. But the fact that the Soviets were "up to something" in space, prodded the Americans into a military response. As one American defence planner has so tellingly put it: "the more you rely on space as a force multiplier, the more probability of action there is against space vehicles. When that threat becomes a real danger you have to put money into counter measures"¹¹.

The likelihood of conflict in space or the use of space in conflict is widely accepted and sometimes grossly exaggerated by defence analysts. The famous "Star Wars" speech of President Reagan of 23 March 1983 bears testimony to it. In his speech he called for (the establishment of a comprehensive defence system with) "the ability to intercept and destroy strategic ballistic missiles before they reach our own soil or that of our allies"¹². He continued, "This would pave the way for arms control measures to eliminate the weapons themselves"¹³.

The USA, instead of pursuing satellite to satellite interception techniques, is developing a system which uses a rocket fired into space by a high flying F-15 aircraft using target data supplied by the NORAD tracking network, called the Miniature Homing Vehicle (MHV) and this system was first tested in January 1984. A back-up system consists of a weapon mounted on a missile or satellite which would destroy its target by impacting fragmentation warheads¹⁴. At the same time, the USA is also making efforts to increase the survivability of its own satellites and ground stations. Six different projects towards protecting US satellites from explosive or laser attack, are being funded. Ways of "hardening" satellites are being sought. Active counter-measures are also being examined.

The use of "directed energy weapons" (DEWs)-lasers and particle-beams, in space are receiving a great deal of attention as ASAT and ABM weapons. A laser-satellite system would pose a threat to other nations' ballistic missile systems and "therefore it is quite possible that the system will be attacked by one or more adversaries while it is vulnerable during the

¹¹ See Business Week, 4 June 1979, at p.142.

¹² The Times (New York), 25 March 1983.

¹³ See Keesing's Contemporary Archives 1983, 32460 A, at p.32470.

¹⁴ See *ibid.*, p.32473, under the sub-title "Military operations in space".

embryonic stages of its development”¹⁵. Once in orbit, laser-weapons could easily be jammed, by blinding them with beams of laser light or by transmitting false instructions to them¹⁶. Scepticism is thus expressed about the military potential of lasers and particle-beam technology. Despite these misgivings, the US intelligence believes that the Soviets have already developed a ground-based laser-weapon capable of destroying American satellites; and are in the process of developing high-energy technology components¹⁷. The US Navy, in 1978, has successfully shot down a TOW missile with a high-energy laser fired from a laboratory test bed. The USAF has also demonstrated it in 1980. In the last two years progress in this field has been marked. The US Defence Department now believes that high-energy lasers’ (HEL) technology has reached the point where chemical laser devices could destroy ICBMs during launch. Space-based HEL weapons’ research is being carried out by the US Defence Advanced Research Projects Agency (DARPA).

The space shuttle which America is now using has the advantage that it can place objects in orbit more cheaply and more frequently and thus would allow the proliferation of US satellites so as to make it more difficult for an enemy to disable US space systems. The shuttle will also make possible the better defence of satellites. These will probably be made heavier by having shielding and by carrying extra fuel so that they can manoeuvre in space, and the shuttle can carry much heavier cargo than existing rockets can. Though the shuttle can only operate in near-earth orbit, it can carry a “space-tug”, a smaller rocket capable of taking loads into high orbit once separated from the shuttle. It has the capacity to manoeuvre close to target satellites and inspect them in orbit. If so desired, the shuttle could sabotage or destroy enemy satellites or even retrieve them for closer inspection back on earth. The shuttle itself could become a weapons platform.

The Soviet Union is working on a shuttle of its own despite its complaints against the American version. The Soviet Craft, designated *kosmolyot*, incorporates many design concepts similar to those in the US space shuttle. It would be even more flexible than the American shuttle because it can be launched both vertically and horizontally. The horizontal launch

¹⁵ Wall Street Journal, 22 December 1980.

¹⁶ New Scientist, 1 January 1981, p.3.

¹⁷ Wall Street Journal, April 23, 1982, p.5. It is said that the Soviets have tested an orbiting satellite killing-laser and may put an effective laser-weapon in space in the next 5 to 10 years, whereas the US may be able to do it by the late 1990s.

system would enable the *kosmolyot* to be injected into far more varied orbital inclinations than is the case with current Soviet ballistic launches. To change orbital plane in space, the Soviet shuttle will use the earth's atmosphere to aid the operation.

II. *The Existing Law*

Although the process of international law-making has not been able to keep pace with the space technology as discussed in the previous section, there already exist a series of international instruments, in the form of treaties and declarations, relating to arms control in space. The important ones¹⁸ are: the Partial Test Ban Treaty, 1963; the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, 1967 (the Outer Space Treaty); the Soviet – US Treaty on the Limitation of Antiballistic Missiles System, 1972 (ABM Treaty); the Convention on Registration of Objects Launched into Outer Space, 1975 (Registration Treaty); the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977; and the Agreement Governing the Activities of States on the Moon and other celestial bodies within the solar system other than the earth, 1979 (the Moon Treaty).

The Partial Test Ban Treaty prohibits nuclear weapons tests in the outer space (besides those in the atmosphere and under water). The Outer Space Treaty¹⁹ establishes certain important principles:

i) Outer Space, including the moon and other celestial bodies, shall be free for exploration and use by all States (Art.I);

¹⁸ The other agreements not discussed in this paper are: The International Telecommunications Convention (1973 and 1982); the Hot-Line Agreement (1963) and the Hot-Line Modernization Agreement (1971); the Prevention of Nuclear War Agreement (1974).

SALT II which was signed on 18 June 1979, but was not ratified, *inter alia*, states that "each party undertakes not to develop, test or deploy . . . systems for placing into earth orbit nuclear weapons or any other kind of weapons of mass destruction, including fractional orbital missiles" (Art.IX, para.1[c]). This is a more inclusive ban than is specified in the Outer Space Treaty of 1967.

¹⁹ See Marko G. Markoff, "Disarmament" and "Peaceful Purposes" Provisions in the 1967 Outer Space Treaty, *Journal of Space Law*, vol.4 no.1 (1976), pp.3-22, for an incisive analysis of the demilitarisation provisions of the treaty; see also Soraghan, *Reconnaissance Satellites: Legal Characteristics and Possible Utilization for Peace-Keeping* (1967), *McGill Law Journal*, p.458; Morénoff, *World Peace Through Space Law* (Charlottesville 1967), pp.93-213.

ii) Outer Space, including the moon and other celestial bodies, is not subject to national appropriation (Art.II);

iii) International Law, including the Charter of the United Nations, is applicable to activities in space (Art.III);

iv) Complete non-militarisation of the moon and other celestial bodies (para.2 of the Art.IV). They may be used "exclusively for peaceful purposes".

v) The following specific military activities in the outer space are prohibited:

- the placing in orbit around the earth of any objects carrying nuclear weapons or any other kinds of weapons of mass destruction;
- the stationing of such weapons in outer space in any manner; and
- the installing of such weapons on celestial bodies (para.1 of Art.IV).

It has been controversial as to what are "weapons of mass destruction"²⁰. In the absence of an agreed explanation of this expression, the possibility is left open for space powers to characterise some weapons as having none or limited destructive capability. It has been asserted that laser and ASAT devices are not weapons of mass destruction²¹, so their deployment is permissible under the Treaty as of other weapons not falling within the prohibited category. ICBMs and FOBs are also said to fall in the non-prohibited category²², and so would the conventional weapons launched through satellites. Since the prohibitive provisions are not accompanied with any inspection measures, the enforcement can become illusory. This is a serious lacunae of the Treaty.

The adoption of para.2 of Art.IV provides an important lesson, however, that a general agreement to ban military uses of celestial bodies could be possible since they were not till then utilized for such purposes and which showed a rather narrow range of possibilities for strategic use.

Art.XII serves as a verification measure for the enforcement of the prohibitions contained in para.2 of Art.IV. It provides that all stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty

²⁰ See Stephen Gorove, *Limiting the Use of Arms in Outer Space: Legal and Policy Issues*, The 25th Colloquium on the Law of Outer Space, 1982 - IISL, pp.93-97; The 1980 Session of the UNCOPUOS; Highlights of Positions on outstanding legal issues, 8 *Journal of Space Law* (1980), pp.174-187.

²¹ See D. Goedhuis, *What Additional Arms Control Measures Related to Outer Space could be Proposed?*, in: B. Jasani (ed.), *Outer Space - A New Dimension of the Arms Race* (Sipri 1982), pp.301-302.

²² See Markoff (note 19), p.4 note 5.

on a basis of reciprocity. However, this article does not apply to space. This restricted application of the article was deliberate²³.

The States have also agreed to make public, to the greatest extent feasible and practicable, the nature, conduct, locations and results of such activities (Art. XI). If the qualifying clause (in parenthesis) had been dropped, and this were made a binding and verifiable obligation, a great step in the demilitarisation of space would have been taken. Obviously the States were not prepared to go that far then.

The use of the expression "peaceful purposes" in this Treaty and other UN documents has been a subject-matter of great controversy. It has been questioned as to what this expression means in the context of a treaty dealing only with partial disarmament? Is there any difference in the implications of the expression "exclusively for peaceful purposes" used in para. 2 of Art. IV on the one hand, and "peaceful purposes" and "peaceful exploration" used in other provisions? What is the implication of "common interests" provision of Art. I para. 1?

One school interprets "peaceful" as meaning "non-aggressive" and therefore condones defensive military activities²⁴. The second school of thought, which is also widely supported, interprets "peaceful" as "non-military"²⁵. It bears mention that India had proposed²⁶ that the expression "exclusively for peaceful purposes" as used in para. 2 of Art. IV be extended to all outer space area, but it was not accepted in the legal sub-committee of UNCOPUOS.

In the present submission, it hardly serves any useful practical purpose to muster arguments for the view that the States intended "peaceful" to mean "non-military" and that in any case the expression "use in the interests of all countries" in Art. I is a superior and more basic treaty obligation and necessarily implies "use for non-military purposes"²⁷, or that "peaceful" means only "non-aggressive". It is true that the Treaty does not contain a clause for authoritative interpretation and the States with military capability in space are actually using it for military (non-offensive) pur-

²³ Art. X makes provision for observance of the flight of space objects launched by the other States; with their consent only. Art. XIII envisages space activities by intergovernmental organisations too.

²⁴ See Markoff (note 19), p. 6 note 11, for the authorities which interpret "peaceful" as "non-offensive".

²⁵ *Ibid.*, p. 7 note 13.

²⁶ UN Doc. A/AC.105/C.2/SR.66, at p. 6 (July 25, 1966), proposal of Mr. Rao (India).

²⁷ See Markoff (note 19), p. 15 *et seq.*; Manfred Lachs, *The Law of Outer Space*, p. 106 (1972).

poses. Reconnaissance through satellites has been accepted as national means of verification in the bilateral strategic arms limitation agreements. It is also true that official protestations have been made against the use of space objects which were harmful to the interests, recognized and protected by positive international law, of other States and in certain cases those space activities were even stopped for this reason²⁸. Therefore, no international consensus could be inferred either way on the basis of any practice limited to a few States²⁹. The facts speak for themselves. The alternatives could only be either to seek an authoritative interpretation of the Treaty provisions or to arrive at an agreement that "peaceful" wherever used in the context of space activities shall mean "non-military".

The terms "weapons" and "military" used in Art.IV and elsewhere also need to be clearly defined³⁰.

The ABM Treaty along with its 1974 Protocol prohibit the development, testing or deployment of space-based ABM systems or components (Art.V para.1). Each party has also undertaken not to interfere with the national technical means of verification of the other party (Art.XIII para.2). Therefore, any ASAT system, which could be used as an ABM system, has been prohibited and its development and deployment require an additional agreement between the States parties concerned. The comprehensive ballistic missile defence as proposed by President Reagan would be inconsistent with the Treaty obligation of the party "not to deploy ABM systems for a defense of the territory of its country and not to provide a base (therefor) ... except as provided in article III of this Treaty"³¹.

The Registration Convention requires (Art.IV) that the Secretary-General of the United Nations be provided with information concerning space launches, including "the general function of the space object". The provision is mandatory, and yet it has been flouted by both the super-powers. The potentialities of this provision as a verification measure, if strictly enforced, are discussed below.

²⁸ Markoff, p.15 note 41.

²⁹ See Jakhu/Trecroce (note 1), pp.522-525; also UN Doc.A/AC.105/L.2(10-9-1962); Manfred A. Dauses, *Recent Questions of Space Law*, 22 *Law and State* (1980), p.19.

³⁰ See Gorove (note 20).

³¹ See Pamela L. Meredith, *The Legality of a High-Technology Missile Defense System: The ABM and Outer Space*, 78 *AJIL* (1984), p.418.

The Moon Treaty provides (Art.3) that:

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

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

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

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

The Moon Treaty, thus, ensures a complete demilitarisation of the moon. Certain activities directed from the moon to the earth or satellites are also prohibited. In addition the Treaty provides for sharing of information (Art.5) and inspection of space devices etc. of one State by the other(s) to ensure compatibility of their activities with the Treaty (Art.15).

These instruments thus indicate that only certain military activities in space have been controlled, and only partial verification/enforcement machinery for certain prohibited activities has been provided for. The norm of complete demilitarisation of space and a foolproof collective verification system are still far from being achieved. In fine, while the existing space law emphatically enshrines the spirit of peaceful uses of outer space, it does not have adequate contents or instrumentalities to prohibit the military uses.

III. The Current Proposals

The inadequacy of space law and increasing militarisation of space have become two striking features of the present day scenario. Although the Tenth Special Session of the General Assembly on Disarmament paid attention to them and called upon States to take measures in order to prevent arms race in outer space as early as in 1978, there was no concrete proposal on the subject till the USSR tabled a proposal on the conclusion of a treaty, to the 36th Session of the General Assembly on 20th August 1981, on the “Prohibition of the Stationing of Weapons of Any kind in

Outer Space"³². This has been followed up by an improved proposal for the concluding of a treaty on the "Prohibition of the Use of Force in Outer Space and from Space with regard to Earth", made at the 38th Session of the General Assembly³³, in 1983. The specific aims of the Draft Treaty, *inter alia*, are:

- banning altogether the testing and deployment in outer space of any space-based weapons intended to hit targets on earth, in the atmosphere and in outer space;
- complete renunciation by States of the development of new anti-satellite systems and for the elimination of such systems already in their possession;
- non-destruction of, or damage to, the space objects of other States, non-disruption of their normal functioning, non-change in their flight trajectories in any other way;
- ban on the testing and use of manned spacecraft for military purposes, including anti-satellite aims.

Arts.1 and 2 of the Draft Treaty, which lay down the main obligations, may be reproduced in full.

Art.1: "It shall hereby be prohibited to resort to the use of the force or the threat thereof in outer space, in the air space and on the earth involving the use to that end of space objects in orbit around the earth, on celestial bodies or placed in outer space in any manner whatsoever as means of destruction.

It shall likewise be prohibited to resort to the use of force or the threat thereof in relation to the space objects in orbit around the earth, on celestial bodies or placed in outer space in any manner whatsoever".

Art.2: "In accordance with the provisions of Article I, the states parties to the present Treaty shall undertake:

1. Not to test and not to deploy, by putting in orbit around the earth, placing on celestial bodies or otherwise, any space-based weapon designed to hit targets on the earth, in the air and outer space.

2. Not to use space objects in orbit around the earth, on celestial bodies or placed in outer space in any other manner whatsoever, as means of destruction of any target on the earth, in the air and in the outer space.

3. Not to destroy, nor damage, nor disturb the normal functioning or modify the trajectory of the flight of space objects of other states.

³² This proposal was approved by the General Assembly but no further step was taken thereafter.

³³ See Soviet Review, vol.20 no.37, September 12, 1983 (Publication of the USSR Embassy in India), for the text of the proposed treaty and the covering letter addressed to the UN Secretary-General by Gromyko.

4. Not to test, nor create new counter-satellite systems, and scrap whatever systems of this kind they already have.

5. Not to test, nor use, for military, including counter-satellite, end, any manned spaceships”.

In the present submission, the following comments on these two articles will be apposite:

(i) The basic philosophy seems to be somewhat unclear. Whereas Art.1 aims at the prohibition of “use of force or threat thereof” only, in outer space, Art.2 seems to be aiming at non-militarisation/de-militarisation of outer space by prohibiting the testing and deployment of all space-based weapons, new counter-satellite systems etc. Does the prohibition of “use of force or threat thereof” refer only to non-aggressive uses of outer space?

(ii) It is significant that this draft treaty does not use the expression “peaceful purposes” (in the text), the use of which in the Space Treaty has been the subject-matter of unending controversy.

(iii) The Draft Treaty makes no reference to the prohibitions which already exist under the UN Charter or earlier treaties (particularly the Space Treaty of 1967), and gives the impression as if these prohibitions are being proposed for the first time.

(iv) It makes no attempt to define as to what “use of force” or “threat thereof” specifically in the context of the instrumentality of space objects, would mean. Thus it leaves the state of our law on the point as ambiguous as it is under the UN Charter (if not more so).

(v) Art.1 para.2 seeks to prohibit the use of force or threat thereof in relation to the space objects in orbit. Though it would also cover the ground-launched weapons which enter orbit – the kind of ASAT weapons which the USSR³⁴ is alleged to have tested and deployed, since the para. reads “placed in outer space in any manner whatsoever”, it would have been better to assuage the apprehensions of the other party by mentioning it specifically.

This clause has to be read in conjunction with paras.4 and 5 of Art.2.

(vi) Testing and deployment of any space-based weapon designed to hit targets on the earth, in the air and outer space is sought to be prohibited by Art.2 (1). It raises the following important questions:

(a) Does it cover objects on celestial bodies? Perhaps the expression “outer space” is supposed to include celestial bodies too. Earth, however, would include oceans too.

³⁴ See Gray (note 4), at p.203 note 2.

(b) Is it technologically possible to test the weapons on the earth designed to be placed in space to hit targets everywhere? If the answer is in the affirmative, does the paragraph cover such activities?

(c) It does not define as to what is a "weapon", a definition which is crucial to this clause. Is any device capable of hitting targets a "weapon"? And is the capability to hit targets in itself (without destructive potential) objectionable?

(d) If the testing and deployment is for a space-based weapon not designed to hit targets, it would not stand prohibited. Can such space-based weapons be contemplated? What if the weapon is not to hit, but only to fly past, the targets, yet having tremendous destructive capability? In the present submission, even these weapons shall stand prohibited under paras.4 and 5 of Art.2.

(vii) Art.2 (2) aims at prohibiting the use of space objects as means of destruction of any target on the earth, in the air and in the outer space. This clause clearly seeks to prohibit only one use of space objects, i.e. destruction of targets. Are other uses not prohibited? Further, can the objectionable use be prevented since it cannot be said if the use is going to be lawful or unlawful? As a practical measure only penal action may become possible *post facto* if this obligation is breached. Secondly, what about the use of space objects for destroying and eliminating used satellites or unidentified flying objects etc.? Has such a use not to be considered as legal?

(viii) Paras.3, 4 and 5 of Art.2 aim at the counter-satellite systems which are considered to be the present deep concern of both the USA and the USSR. It is said³⁵ that the latest devices in the process of being perfected are laser-beams and charged particles.

Perhaps the Soviet Draft Treaty of 1981 intended to make a reference to US Space Shuttle only, by seeking to prohibit the stationing of weapons on "reusable manned space vehicles". But that Draft Treaty did not specifically mention the ground-launched weapons which enter orbit (which the USSR itself was said to be developing). The 1983 Draft Treaty is, therefore, an improvement since it seeks to prohibit the testing and creating of all counter-satellite systems and scraping of those that they already have. On an ordinary reading of para.4 of Art.2 it should appear that any counter-satellite system, whether earth-based or space-based, is sought to be prohibited.

³⁵ *Ibid.*, at p.198. See also J a s a n i (note 4), at pp.83-84.

The testing and use of manned spaceships for military, including counter-satellite, ends, is also sought to be prohibited.

A question may well be posed, is it always detectable (technologically) that the system being developed is exclusively a counter-satellite one? If such detection is not possible, neither can its testing or use be prevented. Further, the use of the word "military" in para.5 makes it ambiguous. The word "military" qualifies the word "ends". Obviously, it is not possible to distinguish a manned spaceship on a military mission from the one on a civilian mission, besides the difficulty of defining as to what is meant by "military". The intention clearly is not to prohibit all manned space flights.

(ix) There are certain basic difficulties regarding verification and enforcement too. Art.4 provides the only modality of enforcement, and that is the use by each member State of "available national technical control facilities" in a way corresponding to the generally recognised principles of international law. It raises a host of questions:

(a) The principles of international law and Art.51 of the UN Charter permit individual or collective action in self-defence. It is, however, highly controversial if the right to self-defence arises only after the armed attack has actually taken place or it also includes pre-emptive action. In the context of counter-satellite systems, the ambit of the right of self-defence would be subjected to further controversies. Existing international law leaves a dubious room for unilateral action by a State aiming at interference/destruction of the satellite of another State if it believes that it has been attacked or imminently threatened, under the guise of self-defence.

Further, traditional international law does not prevent non-aggressive use of space³⁶, whereas at least some treaty provisions seek to prevent even certain military uses of outer space.

Art.4 would thus permit the use of national technical control facilities against the merely military uses of outer space (even when no aggression, actual or imminent, can be inferred at all from the circumstances of a given situation). However, since non-compliance is not always unambiguous, a provision of this type greatly increases the risk of conflict arising through accident or erroneous interpretation of incomplete technical intelligence.

(b) Art.4 permits the use of only the "available" control facilities. Does it imply that no new control facilities can be invented, or even if invented, they cannot be used? In either case the provision is inequitable in the face of the situation in which the present technological capabilities of States *vis-à-vis* outer space are grossly unequal.

³⁶ See Markoff (note 19), p.3 *et seq.*

And in any case "national technical control facilities" cannot provide an objective system of verification which may generate universal confidence. A solution only lies in an internationally institutionalised system of verification.

(c) Art.4 and Art.8 ill go together. Art.8 provides for the settlement of all disputes in connection with the treaty, by peaceful means under the UN Charter. How can the unilateral use of national technical control facilities in case of the non-observance of the provisions of the treaty be reconciled with the obligations under Art.8? Or is it the intended interpretation that the unambiguous non-observance of treaty provisions presents no dispute at all to be settled according to Art.8?

The above would seem to suggest that the "use" under Art.4 should be limited to surveillance only.

(x) The last but the most serious difficulty with the Soviet Draft is its Art.7. It provides: "Nothing in the present Treaty affects the rights and duties of states under the U.N. Charter". It may be recalled that there are some writers who find the justification for the exercise of the right of anticipatory self-defence in the UN Charter itself. A reference to Art.51 (right of self-defence) has been made above. The UN Charter also does not prevent "non-aggressive" activities, even though they might be "military" in character. It has been asserted, for example that "Weapons in orbit do not necessarily imply imminent or actual attack, any more than does the presence of warships in international waters"³⁷.

In the present submission, the obligations under the Space Treaty or under the Soviet Draft Treaty go beyond the rights and duties of States under the UN Charter (or existing international law). Yet, they are perfectly compatible with the UN Charter because the Charter comprehends all such actions which may ensure the maintenance of international peace and security, either in a positive or in a negative sense, including disarmament or regulation of armaments (Arts.1, 2, 11 [1], 26 of the Charter). The proposed Soviet Treaty obviously aims at prohibiting certain uses of outer space which would otherwise be non-prohibitive under the UN Charter. In order to maintain consistency in the Soviet Draft, it is, therefore, suggested that the proposed Art.7 be deleted.

Notwithstanding these shortcomings, the Soviet Draft Treaty demonstrates a definite improvement upon previous efforts on the subject. It was considered by the First Committee (disarmament and related international security matters) at the 38th Session of the General Assembly. The

³⁷ See Gray (note 4), p.204 note 2.

summary records³⁸ of the discussions indicate that the great majority of the countries welcomed the Soviet Draft, although the Western countries had some reservations with regard to its contents. The United States, on the other hand, rejected the Soviet Draft. The General Assembly adopted a resolution, on the recommendation of the First Committee, taking note of the Soviet Draft Treaty and requesting the Conference on Disarmament "to consider as a matter of priority the question of preventing an arms race in outer space"³⁹. The Assembly also requested the Conference, *inter alia* to intensify its consideration of the Soviet proposal. The establishment of an *ad hoc* working group was suggested for this purpose. The resolution as a whole was adopted by consensus; the USA cast a negative vote. It was a historic moment that countries of all regions, ideologies and interests participated in the adoption of the resolution. But the Conference on Disarmament could not make any progress. The obvious reason was the continuous disharmony between two super-powers.

IV. Problems and Propositions

It is relatively more difficult to prohibit those space devices which are already in military use and are implicitly accepted by States through practice and acquiescence, whereas it is comparatively easier to prohibit those space weapons which are still not deployed and used. In the first category would fall the reconnaissance, communication, navigation, weather prediction, and geodetic study satellites. In the second category would fall ASAT weapons including lasers and particle-beams. The approach adopted in this paper is that since the first category of devices are already in use and it is impossible to separate their military uses from non-military ones, they can at best be controlled and regulated, whereas the second category of devices should be completely prohibited since once deployed, their control and regulation would become difficult. The future arms control strategy should, therefore, be based on this two-tier approach.

A

It has to be appreciated that the first category of devices would lose much of their harmful potential if the information gathered through such uses is made freely available to all (subject to the permission of the country

³⁸ Summary Records of the First Committee of the General Assembly A/C.1/38/PV-41.

³⁹ GA Res.38/70 of 15 December 1983.

to which the information/data relates) and all the space facilities and devices are made open to inspection by all⁴⁰, subject to appropriate rules and regulations. The Registration Convention could be harnessed for this purpose. It obligates the States to submit to the Secretary-General of the UN information, *inter alia*, concerning "the general function of the space object" launched. At present such information is not being submitted nor does it seem to be insisted upon. The fact of no satellite having been registered for a military purpose thus far, cannot be otherwise explained. It is strange indeed that no State has thus far complained against the violation of this vital requirement even though the convention requires full and open access to the information in this Register (Art.III). It indicates that while the space powers have deliberately connived at this mutual concealment, the space have-nots are ignorant of the potential of this. It would be preferable if the States launching any satellite are obligated to declare their plans in advance to the Secretary-General, along with the mission and purpose of the satellite⁴¹. The Secretary-General should be under an obligation to collect this information; the violation of this obligation should be visited with appropriate sanctions including naming the defaulter at the least. The Stanley Foundation publication "Cooperation or Confrontation in Outer Space" has also observed, "Formalized extension of disclosure of military activities through unilateral initiatives or international agreements could make a positive contribution to peace and security". A foolproof system of control would also envisage that verification of the stated mission of the satellite is made possible through inspection of the space devices.

Whatever be the technical legal interpretation put on the provisions of the Outer Space Treaty⁴², it is generally accepted in spirit that outer space is "a common heritage of mankind" and its exploration and use shall be

⁴⁰ Egypt made a proposal at the UNISPACE'82 that "Information collected by military satellites should not be considered as peaceful uses of outer space except ..." (A/CONF.101, NP(1), para.75). In the present submission it is totally unrealistic, because firstly, there is no method to identify if the satellite is military or civilian. Secondly, it is the information whether collected by military or civilian satellite, which can be put to military use. However, there do not seem to be any reliable methods by which the use of information gathered by satellites could be prevented for military purposes.

⁴¹ It may be noted that the USA had insisted upon the requirement for an advance notification system regarding planned moon missions, in Art.5 of the Moon Treaty. (See 1979 Journal of Space Law, pp.166-167). The Moon Treaty (Art.5), however, provides for the conveying of this information after launching only, and Art.15 makes all space devices of a State open to others as a verification measure.

⁴² See Markoff (note 19), pp.3-22. See also Dause (note 29), pp.7-38.

carried out "for the benefit and in the interests of all countries . . ." (Art. I of the Outer Space Treaty). From this principle it would follow that a country cannot claim monopoly over the information gathered by their use. The very nature of outer space impresses and obsesses one's mind with its "indivisibility" and "openness", both in metaphorical and physical senses. The exploration and use of outer space has, therefore, to transcend all limitations of national sovereignty and has to be free for all countries. It is submitted that logically freedom of exploration and use necessarily implies free accessibility to the information/data gathered by the exercise of that freedom. The concept that outer space is a common heritage of mankind or the principle that it has to be used for the benefit of all, will have little content if "free use" were to be separated from the benefits of those uses.

A parallel can also be drawn from the 1961 Antarctica Treaty, Art. VII(3) of which provides, "All areas of Antarctica, including all stations, installations, and . . . points of discharging or embarking cargoes or personnel in Antarctica, shall be open at all times to inspection by any (appropriately designated) observers . . .". Such a provision if adopted with respect to outer space, would make the military exploitation of space impossible⁴³.

Even after inspection and sharing of information, there might be certain disputes if the use of the outer space was unauthorised. They ought to be resolved on a case-by-case basis through a standing consultative body, which may be set up independently or under the International Satellite Monitoring Agency (ISMA), discussed below.

The systems of control in outer space which have thus far found favour in bilateral arms limitation agreements are the "use of national technical control facilities"⁴⁴. But obviously reliance on the verification of controls by each State cannot be a substitute for an international system of arms control in outer space. A national system of verification would leave room for inadequate verification, misreading and misinterpretation of data, and consequent unilateral retaliatory action, besides the fact that all States may not have equally developed control facilities. The word confidence in international agreements on arms control can only be built up through international (not bilateral or unilateral) verification systems.

⁴³ See D. L. Hafner, *Anti-Satellite Weapons: The prospects for arms control*, in: Jasani (note 21), p.311, at p.315.

⁴⁴ The Soviet Draft Treaty of 1983 also mentions the "national technical control facilities", as the method of enforcement of the treaty.

The setting up of such an International Satellite Monitoring Agency was proposed by the President of France in May 1978 at the Tenth Special Session of the General Assembly⁴⁵. He suggested the study of the implications in the creation of such an agency. It was to focus on two important elements – information and verification. Out of 38 States which sent written reactions⁴⁶ to the French proposal, 12 supported it (including India). 12 States (including Germany and Japan) supported the proposal in principle, subject to further study. The support of these two States is significant because after the USA and the USSR, they have the most highly developed satellite capabilities. Germany, as the front line State in the European arena, has a crucial interest in maintaining a stable East-West military balance. 11 States (including Canada, Romania and the United Kingdom) refused to make any sort of commitment before the plan was given much further consideration. Only 2 States (Cuba and the United States) responded negatively. The US rejection was based on the “overwhelming political, organisational, technical and financial difficulties” involved in the implementation of the proposal. The USSR and other Warsaw Pact States did not respond at all. The strongest support came from many developing States without indigenous satellite capability.

The difficulties involved are, no doubt, many, as pointed by the States in their replies. What shall be the scope of the data collected? What would be done with the data collected (questions of storage, retrieval and continuous processing)? Would it be freely distributed – as raw data or as processed/semi-processed information? Would the prior consent of the sensed State be necessary before sensing, or for the distribution of data/information to others? Would it have a right of access and/or verification of data and information? How to achieve an agreed interpretation of the data? What shall be the nature and powers of ISMA in the context of other agencies in the UN system? What shall be the decision-taking modality in the proposed agency? How would disputes within the agency over judgments about compliance with control agreements be resolved? How would the overall cost of ISMA be met? These and many other problems will obviously be required to be resolved before the ISMA comes into being.

⁴⁵ A/S-10/AC.117, UN GA Res.33/71 J. See Jakhu/Trecroce (note 1), p.509 *et seq.* (for a detailed analysis of the reactions of States to the French proposal).

⁴⁶ UN GA A/34/374. Monitoring Disarmament Agreements and Strengthening of International Security, Report of Secretariat, 27 August 1979.

The progress report⁴⁷ of the Group of Governmental Experts on ISMA proposal identified those areas which would require much more elaborate research. It also suggested a gradual approach to the establishment of ISMA in order to keep costs at an acceptable level.

Though the seriousness of the problems involved cannot be minimised, it may well be hoped that given the political will, they would not be insurmountable. Because of the advantages which ISMA holds out, the experiment is worth being attempted.

Satellite reconnaissance by ISMA will be a non-military peaceful activity in the interest of the international community, unlike the present ongoing national reconnaissance activities. Any international agreement means evolution of common interest in the form of some restriction on the freedom of action (sovereignty or domestic jurisdiction or privacy) of States. Such voluntary (mutually agreed) restrictions in furtherance of the general aims of international law cannot be considered as impermissible or undesirable. Quite to the contrary, they imply the furtherance of the domain of international law (to the exclusion of exclusive interests). Since ISMA will be established as a result of an international agreement, the participating States will be voluntarily accepting the surveillance of their territories to the permissible extent. The developing space law calls for the development of new norms⁴⁸ to meet altogether new situations thrown up by man's technological conquest over nature, in a new environment altogether. There would be little rational justification to solve all such problems through thus-far-known concepts and principles. Perhaps, reconnaissance and surveillance through satellites is one such situation. Human ingenuity in the legal field must keep pace with (rather look ahead of) the human ingenuity in the technological field and its dynamics.

If ISMA is established, it could be entrusted with the task of ensuring that all information gathered through any satellite of any State is made available to all States, as well as for inspecting the satellites of any State for purposes of verification.

The ISMA could also be put to use for monitoring agreements for pollution control, and for preserving the world's environment. The possible spin off of ISMA for peaceful and development purposes has also to

⁴⁷ UN GA Doc.A/34/540, 18 October 1979. The Group was expected to prepare a second more comprehensive report. (See Jakhu/Trecoce [note 1], p.526 note 30.) The present writer could not have access to that report.

⁴⁸ See D. Dieter Fleck, *The Use of Outer-Space and the Development of the International Order*, 15 *Law and State* (1977), p.101.

be fully taken into account. Remote sensing of the resources of the territory at the request of a State, on payment, could help the developing States in their developmental efforts as well as enable the ISMA meet the operational costs substantially. Most of the developing countries cannot afford to establish their own remote sensing satellite systems. It is understood that remote sensing and satellite surveillance basically involve the same technology.

B

The ASAT systems have come into the picture because of the need to protect the reconnaissance and surveillance roles of satellites and growing military dependence on their C³I functions, as discussed above. They are still being developed; they have not as yet been perfected. A treaty banning the testing, use and deployment of ASAT systems, ought to be attempted now. Once the advantages of offence over the defence through the ASAT systems come to predominate (which technology is constantly attempting), such an agreement would become an impossibility.

In formulating a ban on ASAT systems, an attempt at banning certain "devices" in space is not likely to be as helpful as prohibiting an "activity", as the ABM Treaty of 1972 did⁴⁹. For example, the agreement could provide that the signatories undertake not to use, not to deploy, and not to test any weapon or device for damaging or destroying satellites. As in the ABM Treaty, questions regarding whether one side had or had not tested, used or deployed some device in an ASAT role (and what it should do to restore the status *quo ante*) could be resolved on a case-by-case basis, in a standing consultative commission.

This approach does leave room for certain ambiguities. For example, rendezvous and docking of two space vehicles which may be perfectly peaceful will bear a general resemblance to actions appropriate for an attack on satellites; similarly some weapons designed and deployed for other missions (e.g. ABM interceptors) may have marginal ASAT capabilities⁵⁰. The problem could be resolved by adopting the Treaty to changing technology on a case-by-case basis. When the ABM Treaty was drafted, the two sides anticipated that anti-aircraft systems and early warning radars

⁴⁹ See Hafner (note 43), at p.318 *et seq.*

⁵⁰ The American space shuttle was initially characterised by Soviet commentators as an ASAT system, but later they changed their stance when they came to know more about the capabilities of the shuttle. But as mentioned above the shuttle is also being used for experiments on ASAT roles.

might soon possess marginal ABM capabilities. Art. VI of that Treaty addressed the problem by prohibiting tests of non-ABM device in an ABM mode.

Another issue concerns prohibition of interference with satellites, not resulting in their actual damage or destruction, e.g. blinding photographic surveillance satellites with lasers, jamming satellite's radio or radar receivers, giving radio commands which cause satellites to malfunction, or deflecting satellites from their orbits. Again, the devices which can cause these interferences cannot be banned since they have peaceful uses too, but there is every case for prohibiting these provocative acts of interference, thus averting the alarm and suspicion they might cause⁵¹.

However, the activities which need to be controlled ought to be defined in a fairly comprehensive manner, and explanations added to eliminate possibilities of strained interpretations. For example, protection of ground, air or space stations and other vital installations for the launching or guiding of satellites is as important as the safety of satellites themselves. Secondly, it is immaterial whether the device originates from the ground, air, space or from under water, it is its effect which is the subject-matter of prohibition. Thirdly, the protection of satellites is sought not only against the existing devices, but also against those that might be developed in future (e.g. directed energy weapons).

Further, an ASAT agreement, though initially it may be negotiated and entered into only between the USA and the USSR since they are the nations directly involved and having ongoing ASAT programmes, the agreement once entered into must be adopted by all States. Other nations are on the way to acquiring ASAT capability.

The problem of dismantling the existing ASAT systems is another thorny issue to be negotiated. There is no question that the existing ASAT systems must be done away with if the ASAT accord has to have any meaning. The agreement on dismantling, it is felt, should not pose much problem because of the present almost matching ASAT capability of the USA and the USSR. The American shuttle is said to have made up the technical gap from which the United States so long suffered in space technology *vis-à-vis* the Soviets.

Verification measures would be the most troublesome to be negotiated, since even a marginal ASAT capability if clandestinely retained by one side can prove disastrous to the other. There are too many devices with a marginal ASAT capability, and it would be hard to verify whether they

⁵¹ See Hafner (note 43), at p.319.

were being prepared or tested for ASAT use. The developed surveillance capabilities of satellites themselves could prove helpful up to a point, but what can inspire universal confidence is a foolproof collective verification system. These are the negotiators themselves who can really assess the reliability of the verification systems, in the context of their own technological developments. As observed earlier, this verification system cannot be based on national technical control facilities, it has to be international and could be entrusted to the proposed ISMA.

It is axiomatic that any arms control accord can succeed and survive only with mutual confidence and co-operation. The stakes are so heavy and because the alternatives offer only a Hobson's choice, the two super-powers (essentially) must proceed with that confidence and trust in the other.

The Soviet Union, by its proposed Draft Treaty has already met many of the objections voiced against its 1981 Draft Treaty presented to the General Assembly. The 1983 Soviet Draft Treaty has given a concrete expression to their repeated affirmation that it wants to keep outer space free from arms race. The Soviet Union has thus laid down a challenge to the United States to test them in their earnestness on ASAT arms control. The ball is now in the US court, and the United States must respond favourably.

Certain very cogent arguments against dependence on the ASAT systems have been mentioned by scholars⁵²; they deserve the fullest attention of the two super-powers and also need to be publicised to the general public to create a climate against the investment of scarce resources in the development of ASAT systems. Firstly, the cost of ASAT competition (each side trying to be one-up) is so prohibitive that either or both sides would at some stage come to the conclusion that their satellites cannot be readily defended, and so they will have to shift away from satellites for vital military functions. Secondly, the ASAT weapons may just be redundant in certain situations. It would take 12 to 78 hours or more, it is estimated, before most of the satellites could be successfully attacked and destroyed by ASAT weapons. (In fact both the sides are busy evolving capabilities for ensuring the survivability of their satellites in the face of ASAT attack. The whole exercise is so contradictory. Either the dependence on satellites is meaningless or the dependence on the ASAT systems, in such a situation).

Neither side could leave the forces unprotected during this period, so they will devise or use alternative means of protection. Thirdly, if recon-

⁵² *Ibid.*, pp.315-318.

naissance/surveillance satellites gather necessary targeting information before conflict breaks out (which they must since that is their very function), shooting them down afterwards may not serve much of purpose. Fourthly, the mal-functioning of the ASAT weapons system is a prelude to an imprudent attack and ultimately an all-out war; whereas with a general ban on ASAT weapons, the mal-functioning of a satellite would not cause the same anxiety. Finally, the ASAT systems would put the existing verification machinery based on satellites, in jeopardy.

V. Concluding Remarks

We witness a curious spectacle. On the one hand we have actions and policies for the growing sophistication in the militarisation of outer space, on the other we have anguished concern⁵³ that escalation of armed race in outer space should, at any rate, be prevented. It is significant that the position of the Group of 77, has, however, been consistent and they have sought complete demilitarisation from the beginning. They had sharply attacked the limited demilitarisation in the discussions on the draft Space Treaty⁵⁴ and had pressed for the inclusion of a general prohibition of non-peaceful use of space and celestial bodies. The Group has again unequivocally stated their position in a Declaration at the Second UNCOPUOS, 1982 "that testing, stationing and deployment of any weapons in space should be banned. The Group of 77 considers necessary the adoption of a legal instrument that definitely bans the emplacement of weapons in outer space and verifiable controls and guarantees"⁵⁵.

The approach of the Group of 77 may be explained (though only partly) by the fact that they have no military capability in outer space at present. But equally important has been their concern for the developmental needs of the developing countries as well as world peace. After the elimination of colonialism, their one consuming passion has been the improvement of their economic lot, to give content and substance to their freedom on the one hand and to put an end to neo-colonialism on the other. It is expressed in all UN forums whether it be UNCLOS, UNISPACE or UNCTAD. It is axiomatic that adequate resources for development can be available to

⁵³ See for example UN: Final Document of the Special Session of the GA on Disarmament, A/Res./S-10/2, 13 July 1978, ILM 1978, p.1016 para.80; GA Res.37/83 adopted at the 37th session in 1982; GA Res.38/70 of 15 December 1983.

⁵⁴ See *D a u s e s* (note 29), at p.18.

⁵⁵ See A/CONF.101/5, 13 August 1982, and A/CONF.101/11 (1982), para.13.

them only when they are released from military spending. Further, as discussed above, the satellites have direct economic/developmental uses too, like mapping of resources, locating of mineral deposits, improved communications and consequent education and propaganda for socio-economic development and change, and the like. All developing countries are not in a position to develop their own network of satellite systems for the purpose. They are, therefore, attracted to a proposal like the setting up of an international satellite monitoring agency, which may serve the interests of peace and development.

The genesis of the anomaly, referred to above, lies in the perpetual mutual suspicion and distrust between the super-powers. This distrust can be eliminated only by a foolproof system of verifiable controls and guarantees established through a treaty. The Group of 77 Declaration underlines this need. The possibilities of reliable surveillance which have been opened up by satellites themselves, must be fully harnessed through the proposed ISMA for the enforcement of verification norms. It is again so anomalous that the super-powers are engaged in developing their ASAT systems to protect their satellites which they find indispensable for military uses, but they are not prepared to put faith in a verification system based on the same satellites. Either the one or the other attitude is obviously irrational and unscientific, and it is most likely the latter.

The approach to demilitarisation of space has thus far been that it is not realistic to separate the issue of demilitarisation of space from the question of general disarmament. That is the reason why aspects of the problem of arms control in space have been discussed also at the disarmament negotiations, besides being discussed in the Committee on the Exploration and Peaceful Uses of Outer Space. In this connection it needs to be appreciated firstly, that the United States with the development of its shuttle has now achieved parity with the Soviet Union in space military capability. This might not have been true earlier. One of the important motivations in retaining a technical military superiority is gaining a tactical advantage over the other and retaining it. That superior space capability does not appear to be possessed either by the USA or the USSR at present, and both sides seem to realise it. Secondly, the military systems based on space do not as yet appear to have been perfected to a degree as to form an integral part of the defence strategy of a State. The "Star Wars" speech of President Reagan of March 23, 1983 itself suggests that the United States is in the process of formulating its space policy in the context of its over-all defence system. Thirdly, the two super-powers already have an over-kill nuclear capability as well as their delivery and counter delivery systems. Space only provides

another environment through which certain devices can be delivered, the general purpose of those devices remaining the same even if delivered through space. Thus, demilitarisation of space by itself is not going to place either side at any disadvantage, and "it is clearly easier not to arm an environment that has never been armed than to disarm one that has been armed". It, therefore, requires serious reassessment by policy-makers if the question of arms control in space should be continued to be linked with the question of general disarmament.

The question is also debated if the approach should be towards total demilitarisation of space or only partial demilitarisation. Thus far the States and UN forums have adopted a partial demilitarisation strategy only. The Moscow Nuclear Test Ban Treaty, the Outer Space Treaty⁵⁶, the Moon Treaty deal with specific aspects of space demilitarisation only, as discussed above. The arguments against⁵⁷ total demilitarisation of space are based, it is hoped, on its linkage with the question of general disarmament. But for the reasons mentioned in the preceding paragraph, it does not seem to be necessary that the two questions be kept docked with each other. It has to be recognised that total demilitarisation is the best strategy in the present climate, partial demilitarisation is only the next best. As early as the early 1960s, the late Vikram Sarabhai⁵⁸, the then Chairman of the Indian Committee on Space Research, had maintained that the demilitarisation of space may be realised even before the achievement of general and complete disarmament.

The strategy of arms control in space suggested in this paper has boldly emphasised the effective implementation of the Registration Convention, free access to information gathered by satellites and open inspection of space devices and facilities. This kind of approach was suggested by Vikram Sarabhai too in the 1960s. If anything, the conditions for its adoption are more propitious now than they were then.

Instead of reliance on the use of "national technical control facilities" for verification, the French proposal for an International Agency for Satellite Monitoring merits unstinted support. The great merit of ISMA lies in its

⁵⁶ This writer does not subscribe to the view that the Outer Space Treaty of 1967 has brought about total demilitarisation of space. This may be *de lege ferenda* but it is not factually true; that satellites are being used for military purposes is officially recognised. In any case the interpretation of the treaty has been subjected to serious controversy.

⁵⁷ See Goedhuis (note 21), at pp.303-304.

⁵⁸ See V. C. Trivedi, Legal Problems of Outer Space, Proceedings of the Indian Society of International Law (1963), at pp.86-87.

possible use for a developmental role as well. Many developing countries (including India) have enthusiastically supported the proposal.

To protect the satellites it has been suggested that instead of "devices", certain "activities"⁵⁹ in space be prohibited viz., use, deployment, testing of any weapon or device for damaging or destroying satellites. Interference with satellites needs to be equally prohibited. Ground stations and other space installations wherever located need to be as much protected as the satellites themselves. The objectionable devices from wherever originating need to be guarded against. The existing ASAT capabilities must be destroyed. But "an ASAT agreement confined to the extant formally proclaimed interceptor programmes would be ludicrously inadequate to accomplish its mission"; it must cover such devices also that might be developed in future. An ASAT agreement must ultimately be universal, although it may be negotiated in the beginning by the Space powers. It is a welcome sign that the Soviet Union and the United States are presently meeting at Geneva to enter into new negotiations on the whole range of issues concerning outer space arms.

The chances of such an agreement succeeding are now, when none of the two super-powers have any tactical advantage over the other in this field. From the same perspective, and on the basis of our hind sight, we should consider measures even beyond the immediate earth-space environment, rather than later when advances in science and technology make such agreements more difficult to achieve.

The Soviet Draft treaty of 1983 is in fact a reply to the Star Wars speech of President Reagan of March 23, 1983. This Draft Treaty gets over many of the patent criticisms made of the 1981 Soviet Draft Treaty. This too suffers from certain drawbacks and ambiguities, no doubt; they require to be eliminated. It must, however, provide for an international modality of enforcement and verification; use of "available national technical control facilities" would not do.

Eugan Sanger made the fateful prophecy of the military use of space in 1965, "the military will install a weapons' complex consisting of transport and reconnaissance systems and of offensive and defensive installations of such efficiency that as long as they exist war on earth will be impossible"⁶⁰.

This prophecy has come so true; the military has been busy perfecting these systems all these years. But human history tells us that greater pre-

⁵⁹ See Gorove (note 20), p.95. It may be more rewarding if the permissible and prohibited activities are separately identified.

⁶⁰ Eugan Sanger, *Space Flight* (New York 1965), p.132.

paredness for war has inevitably led to war and a strategy based on balance of terror at best ensures a temporary uneasy "absence of hostilities". It is time that this strategy is given up and the beginnings are made towards demilitarisation of at least one environment around us. We must not lose sight of the very timely warning of the late President Chernenko, "The solution of the question of space weapons is now of primary importance. Militarisation of outer space, if not blocked securely would cancel everything that so far has been achieved in the field of arms limitation, escalate the arms race in other areas and acutely increase the danger of nuclear war"⁶¹.

⁶¹ See TASS, 6 December 1984. Cf. Soviet Review, vol.21 no.50, December 1984, pp.2-3.