CONFERENCE ON DISARMAMENT

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LETTER DATED 29 JUNE 2005 FROM THE PERMANENT REPRESENTATIVE OF THE RUSSIAN FEDERATION AND THE PERMANENT REPRESENTATIVE OF CHINA TO THE CONFERENCE ON DISARMAMENT ADDRESSED TO THE SECRETARY-GENERAL OF THE CONFERENCE TRANSMITTING THE TEXT OF THE REPORT OF THE INTERNATIONAL CONFERENCE ON "SAFEGUARDING SPACE SECURITY: PREVENTION OF AN ARMS RACE IN OUTER SPACE" HELD FROM 21 TO 22 MARCH 2005 IN GENEVA

We have the honor to forward to you herewith the Report of the International Conference on "Safeguarding Space Security: Prevention of an Arms Race in Outer Space".

The Conference was held on 21-22 March, 2005 and was jointly hosted by the Government of the People's Republic of China, the Government of the Russian Federation, the United Nations Institute for Disarmament Research and the Simons Center for Disarmament and Non-Proliferation Research.

We would be grateful if this letter as well as the Report could be issued as an official document of the Conference on Disarmament, and distributed to all Member States of the Conference on Disarmament and Observer States participating in its work.

(Signed:) HU Xiaodi
Ambassador for Disarmament Affairs
Head of Delegation of the
People's Republic of China to the
Conference on Disarmament

(Signed:) Leonid SKOTNIKOV
Ambassador
Permanent Representative of the
Russian Federation to the
Conference on Disarmament

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* / Re-issued for technical reasons.

Safeguarding Space Security:
Prevention of an Arms Race in Outer Space

Geneva 21-22 March 2005

CONFERENCE REPORT

Co-organised by:
The Government of the People's Republic of China
The Government of the Russian Federation
The United Nations Institute for Disarmament Research (UNIDIR)
The Simons Centre for Disarmament and Non-Proliferation Research

Introduction

Space-based technologies play an increasingly critical role in the maintenance and development of national and international infrastructures. With the benefits of the widespread application of peaceful outer space technology, comes the urgent need for the international community to understand, communicate and cooperatively regulate activities in the outer space. Potential dangers such as the dissemination of dual-use technologies, the shift from the militarization of space to the weaponization of space, and the growing problem of space debris are threatening to undermine security in outer space as well as prospects for its peaceful use by humanity as a whole.

More than 130 States have interests at stake either as space-faring nations or indirectly benefiting from the use of commercial satellites. There is an international consensus on the general principle of 'the importance and urgency of preventing an arms race in outer space', as shown by the regular adoption by the UN General Assembly, without any negative vote, of a number of resolutions since 1990. However, there has been a lack of political and diplomatic action, whereas existing frameworks such as the 1967 Outer Space Treaty and the 1979 Moon Agreement are insufficient for dealing with the challenges that we now foresee.

Understanding the political, legal and technical constraints and assessing avenues for progress are essential to building an international regime capable of effectively and comprehensively dealing with issues concerning space security. It is in light of this urgent need for research and communication that the United Nations Institute for Disarmament Research has held a series of conferences.

The conference on 'Safeguarding Space Security: Prevention of an Arms Race in Outer Space' was held on 21-22 March 2005, and is jointly hosted by the Governments of the People's Republic of China and the Russian Federation, the United Nations Institute for Disarmament Research (UNIDIR), and the Simons Centre for Disarmament and Non-Proliferation Research.

The conference was financially supported by the Government of the People's Republic of China and the Simons Foundation.

Representatives from Member States and Observer States of the Conference on Disarmament, experts and scholars from Canada, China, the Russian Federation, Germany, the United States, the United Kingdom and other countries, totalling more than one hundred people, participated in the Conference.

Session One: The new space age: weapons, developments and challenges to space security

Session one provided insights into the current trends in the development of space technology and how these affect both international cooperation and space security. International cooperation should be the highest priority of the international community today. The twenty-first century will require the world community to undertake systemic research with the assistance of space-based technologies. One avenue for collaboration would be to work towards the creation of an international outer space agency and to cooperatively conduct large-scale resource-intensive outer space research projects within the framework of the United Nations.

The costs and harm associated with an ill-regulated environment for space activities were exemplified in an analysis of the 'qualitative changes' in conditions in near space. The increasing volume of objects launched for military purposes — such as small satellites and new super-small assets — are threatening to over-populate near space orbits and lead to reduced visibility. The development and dissemination of small size and cheap strike systems, capable of creating small pockets of orbital debris that would deny other parties access to space, if unmonitored, could lead to a new arms race. It could also make space activities more costly by requiring the enhanced protection of satellites. Concern over the 'technical littering' of space and the problem posed by space debris was expressed. In order to meaningfully address these matters, the international community needs to develop a legal regime that builds upon initiatives such as the declaration by the Russian Federation of non-first placement of weapons in space and the joint Chinese-Russian proposal to the Conference on Disarmament (CD 1679) of possible future international legal agreement.

The effects of orbital debris on space security and the urgent need for action were a major focus. Debris are threatening to degrade the already fragile space environment and may render space unfit for human endeavours. The amount of existing debris is considered to far exceed that currently identified by NASA (at 13,000 large pieces), especially at the most heavily used Lower Earth Orbit. Debris will cyclically collide with each other and thus create more remains that effectively form a lethal shell around the earth. Despite the widespread acknowledgement of the danger of orbital debris, Aldworth emphasized that the problem has not deserved sufficient attention. Efforts such as the proposal to set working guidelines in dealing with space debris at the United Nations by June 2007 are considered vital. He further warned against the placement of non-offensive weapons around satellites or non-debris producing weapons — as these weapons themselves could be targeted by parties using low-cost, low-technology weapons that create fields of debris and destroying the other more technologically advanced weapons. An international legal regime should aim to ban the placement of any weapon in space.

Laura Grego, of the Union of Concerned Scientists, presented the findings from a study that examined the technical realities of the four new space projects proposed by the United States military. One project, foresees using space-based assets to attack ground targets, however this project will find it difficult to gather support, as it competes against much less expensive ground-based alternatives. The second project, that comprises space-based ballistic missile defences, requires a very large-scale constellation of assets in space to be effective. According to Grego, such constellations are inherently vulnerable to attack, for the whole system can be subdued once an attack on a single point succeeds. A third project attempts to use space-based weapons to defend satellites from attacks. However, as Grego points out, this third project suffers from the same flaw as the second one. Therefore, making satellites more robust may prove a more reliable option. According to the study, the only advantage to be found in the space basing of weapons is in the attack of other satellites. Placement of anti-satellite (ASAT) weapons is predicted to be among the initial moves that would put weapons in space. Grego concluded with a note on the countries that are best able to do so have also the most interest in ensuring safe use of space.

During the discussions that followed, strong support was expressed for the work of this conference and the principle against the placement of any weapons in outer space and starting work on an international agreement on PAROS at the CD, including the establishment of an Ad Hoc Committee to work without limitation on any issue concerned with outer space security. The central role of the CD as the single multilateral forum for discussions over this issue was reaffirmed, and it was suggested that the Chinese-Russian proposed working paper CD/1679 could serve as the basis for further substantive discussions.

The problem of space debris brought about varying reactions from the participants. On the one hand, there is a need for more expert research into the issue and the publication of these studies, while on the other hand there were doubts voiced over the extent of the seriousness of the issue, accompanied by requests for quantitative evidence of accidents caused by debris.

Session Two: The Relevance and Urgency of Preventing the Weaponization of and an Arms Race in Outer Space

The consequences of placing weapons in space on the current international order and on space-based human activities are seen as damaging. Since space systems are meant to function autonomously, any technical failure may seriously damage the normal functioning of human activities—and should these systems involve space weapons, the situation may spin out of control and lead to irreversible consequences for human kind. Apart from the debris problem, in the course of placing weapons in space, orbital groups of spacecrafts limit the accessibility of others, thus challenging the nature of space as an unlimited natural resource for all mankind. It was proposed that the UN discuss the issue of jurisdiction in space, taking into account the interests of developing countries. The effect of placing weapons in space on the international strategic status quo could also be destabilizing. Where any country to deploy weapon in space, this would have strategic implications, as the unilateral advantage could invite retaliatory measures from others. This could lead to arms competition in outer space, and to the proliferation of other weapons, whether nuclear or other weapons of mass destruction (WMD). This could bring existing arms control and disarmament efforts to naught and, some fear, bring the international order back to the time of the Cold War.

Science and technology could be regarded as a 'double-edged sword', particularly given the current loopholes in existing international regimes. Due to the emerging new military concepts and theories such as "control of space" and "occupation of space" as well as the research and development of space weapons programs, the growing benefits derived by communities worldwide from space technologies would be harmed. The UNGA has adopted a series of treaties with regard to space security, but they have in common the following four loopholes: they concern exclusively the prevention of testing, deploying and using of weapons of mass destruction in outer space; they neglect the issue of the threat or use of force from earth towards space; they did not fill the gap left by the end of the ABM Treaty; and they lack a provision for universality.

The US policies towards space security have been at the centre of international controversies in many respects. Jeffrey Lewis from the University of Maryland provided his assessment of the extent of seriousness of the perceived American commitment to developing space weapons. Within the two broad categories of the US official policies—the defensive Space Control Project which includes surveillance, denial of access to space to others and defence satellites, and the Space Force Project that is more offensive in nature—Lewis found the latter is yet constrained by its limited funding and the lack of commitment from the Defense Department as well as Congress. Projects such as the space-based ballistic missile defence system, contrary to their much-deserved international attention, are neither obtaining the necessary funding nor are they being pushed forward by the Defense Department for fear of potential public opposition. Listing several other controversial projects, such as an offensive counter-communication system and a space test bed for ASAT weapons, Lewis concluded that they are either being cancelled, delayed or the result of a purely idiosyncratic pursuit by certain individuals within the defence system. Instead, Lewis suggests that programmes that are more deeply embedded within the budget, such as the large amounts dedicated to building capacity in space surveillance sensors with potential ASAT capabilities, will be the eventual indicators of US policy towards weaponization of outer space. The degree of urgency on this matter is measured in years not months.

David Wright from the Union of Concerned Scientists examined the driving force behind the US interest in ASATs and space weapons, and expressed his hope in diplomatic efforts since, in his view, the placement of weapons in space does not ensure against the vulnerability of satellites. The most commonly discussed motivation for weaponizing space within the United States, i.e., to protect vulnerable US space assets, is unfounded in Wright's view. There is no evidence that US assets are susceptible to a 'space Pearl Harbor' scenario of debilitating attack and, referring to Grego's speech, ASATs and other space weapons are neither the effective answer nor the only solution to reducing such vulnerabilities. The real driving force behind the push for space weaponization lies in the intention to ensure US space superiority through offensive ASAT capabilities and space-based missile defence interceptors. To this end, Wright asserts that deploying ASATs or space weapons first does not translate into a lasting advantage, as the monopoly on these weapons will not hold. Neither should this desire be driving national policy, nor should other countries feel compelled to follow suit. There exists a window of opportunity for diplomatic efforts, especially among space-faring nations to assure each other of their peaceful intentions, particularly through unilateral declarations not to be the first to place weapons in outer space, such as the declaration made by the Russian Federation.

Following the presentations, the participants exchanged views over:

- What should be States' response to a situation where one country initiates the placement of weapons in space?
- The verification aspect of a treaty on PAROS.
- The concept of 'deterrence' in reference to security in outer space.

On the first point, some suggested that States should take time and deliberate their response. Given the complexity of space affairs, the specifics of each scenario must be judged with patience, caution and in coordination with one another. One view was that the US is still far from being able to put weapons in space and that certain activities are rather designed for intimidation purposes. Other voices asserted the importance of prohibiting the placement of weapons in space as a matter of principle. However, should it occur, immediate international efforts should be undertaken to rollback the placement of weapons in space.

Some participants emphasized that outer space security involves many uncertainties and 'murky' situations, such as flight tests that in some circumstances can indicate that space weapons testing is taking place. This also applies to the means developed to verify compliance with a prospective PAROS agreement, since inspector satellites could also have ASAT capabilities. The participants thereby encouraged the international community to think in less black and white terms. And, in an analogy with the Comprehensive Test Ban Treaty, they expressed the hope that efforts to build an international legal framework to safeguard space security should not be deterred by the inherent technical difficulties of verification. The apparent inability of the CD to move forward and achieve substantial progress on PAROS was also addressed. However, many continued to affirm the central role of the CD and advocate both unilateral declarations and collective diplomatic efforts by all States.

When the concept of nuclear deterrence was brought in the discussion with reference to its potential applicability to outer space, it was strongly asserted that there is no ground to make such a comparison. While nuclear deterrence is meant to prevent nuclear attacks between nuclear weapons States, the only country with the capability to implement such an attack in or from or within outer space would be the US. It would seem extremely unlikely that the US would envisage such an attack and therefore seek first-deployment in space, for such a course of action would prompt others to deploy weapons in space and thus potentially launch an arms race in outer space.

The discussions also brought about greater insight into the concepts of 'militarization' and 'weaponization' of outer space. While outer space has been used for surveillance and information-gathering for military purposes, one participant expressed that the term 'militarization' should not be taken for granted, as it also denotes a state of confrontation, and should be applied with more discretion in reference to outer space.

Session Three: Elements of National/Multilateral Political, Legal or Legislative Instruments to Regulating Weapons in Space

In lieu of the division between the two prevailing schools of thought, one advocating the prohibition of any weapons in outer space and the other advocating prohibition of offensive weapons, an approach that aims for 'a comprehensive global cooperative security order' was suggested. The proposed Treaty on Common/Cooperative Security in Outer Space (CSO) puts at its heart the clauses of 'mankind' and the 'peaceful uses' of space, that are stipulated in the 1967 Outer Space Treaty (OST) and were recognized by the UNGA (as early as resolution 1148 in 1957) by consensus from the then superpowers, and the concept of 'common security' that denotes security achieved through cooperation. As research illustrates, in encompassing these clauses and norms, the effort to ensure space security could complement other arms control and disarmament regimes and move security configurations away from 'mutually assured destruction' (security by deterrence) to 'mutually assured security'.

Given the de facto acceptance of passive military uses of outer space (e.g., reconnaissance satellites), the significance of the 'peaceful uses' of space clause was underlined. A three-step proposal was made to formalize and achieve a legal status for the principle of 'peaceful uses' of outer space. First, the General Assembly should vote a resolution reaffirming the principle; second, the General Assembly should request the International Court of Justice for an authoritative definition of the clause on 'peaceful uses'; and third, to open working groups at the General Assembly to discuss the opening of negotiations on a CSO.

Sarah Estabrooks, from Project Ploughshares Canada, presented a survey of the new developments and trends in activities related to space security in 2004. As a widely used term, 'space security' is defined in terms of the 'secure and sustainable access to and use of space' and 'freedom from space-based threats'. Overall, the survey found that access to space for civil and commercial purposes is increasing; that military-commercial interdependence is rising as are terrestrial military operations' reliance on space-based assets; that the US continues to dominate in the application of space-based assets for military purposes and in developing space assets protection and negation capabilities; and that there continues to be a deadlock in international discussions over PAROS. Estabrooks stated that the issue of space weaponization cannot be dealt with independently from other activities in space as they are interlinked. Thus, the division of work currently existing within the multilateral forum (i.e., UNGA, COPUOS, CD, ITU) needs to be corrected.

The possible solutions to the deadlock in international discussions over PAROS that has prevailed since the mid-1990s were examined. Given the complexity involved in determining the nature of space weapons systems and behaviours, a solution would be to apply different legal norms to different situations. Prohibitive, restrictive and permissive measures could be implemented whether the system or behaviour in question resembles a space weapon or simply a harmful force against other space objects. There are two ways to institutionalise these measures into a legal instrument: the comprehensive and the partial approach. While comprehensively banning all space weapons, from their R&D to their deployment and use is desirable, this does not constitute a realistic common ground between countries for breaking the current deadlock and moving negotiations forward. The partial ban on behaviour approach—that is to say banning the deployment of weapons and the use of force in space—could be more realistic.

After having suggested that participants take a broad and comprehensive view when looking at space security, Nancy Gallagher, from the University of Maryland, reflected on a variety of elements that conditioned the apparent shift in the US military doctrine. The US initiative in setting an international code of conduct and of norms against the weaponization of space came in the context of the Cold War thinking on strategic balance and at a time when space science and technologies were still at their infancy. Today's military doctrine under the Bush administration calls for 'coercive prevention'. It has emerged against the background of greater US space capability superiority, wider application of space-based assets and the development of a commercial space industry. Taken together these elements create more incentives for securing space dominance and defending national self-interests. However, Gallagher suggested that such contradictory thinking to the OST has not yet translated into official policy and is likely to face public objection within the US. In conclusion, Gallagher pointed to the need for consolidating the principles and norms of the OST, and raised several concrete points for further exploration: how to define 'non-destructive' space weapons and 'legitimate' military activities; how to set a range on the relationship between 'transparency' and 'control' over military issues that creates favourable conditions for countries to open discussions; what is understood by 'stabilizing' strategic implications in today's environment; and what are the next steps in missile defence now that the ABM Treaty no longer exists.

The participants engaged in substantive discussions over several points raised in the presentations.

- The linkage between efforts on PAROS and other international arms control and disarmament regimes was received positively by many. One participant considered the 2005 NPT Review Conference as an opportunity to make the NPT norms more relevant and contribute to reducing the motivation for placing weapons in outer space. Weaponization of outer space, as one participant expressed, is a form of vertical proliferation. Moreover, it was added that the US proactive posture against proliferation of WMD on earth should constitute the very reason for their not placing weapons in outer space in the first place.
- Views were divided on the issue of whether or not to amend the 1967 OST to extend the ban to cover all weapons. While such a proposal was discussed in official forums, some participants insisted that more might be lost than gained in opening up the OST for amendment.
- On the issue of verification, some suggested that while the issue is being understandably side-stepped in the light of the realities of international negotiations, it should not go without mentioning that, should there be a weapons ban or immunity regime for civil/peaceful space assets, a multilateral verification regime should be put in place.

In response to questions over the point of establishing an alternative forum for work on PAROS, given the continued deadlock at the CD, an alternative forum was proposed to be established under the General Assembly in the form of an open-ended working group. Such a structure would also serve to correct loopholes in existing regimes, such as overlooking weapons other than WMD.

Session Four: Space Surveillance, Monitoring and Compliance for International Instruments

Michael Krepon from the Stimson Center remarked that there still is no general consensus on international instruments giving complete guarantee for real space surveillance and monitoring. Krepon argued that the Code of Conduct Against Ballistic Missile Proliferation (2002), the Proliferation Security Initiative (2003) and the European Code of Conduct for Space Debris Mitigation (2004) are precedents that show that the advances made on space surveillance and monitoring have set general principles, reaching modest commitments and limited confidence-building that do not represent real and effective surveillance and monitoring.

Achieving real surveillance and monitoring is possible if a Code of Conduct for Space were to be established. Taking into account the rules that already exist (the OST, Astronaut Agreement, Liability Convention, Registration Convention, ITU), their gaps and introducing key provisions (no simulated attacks, no dangerous manoeuvres, no harmful use of lasers, mitigation of space debris, space weapon restrictions), it should be possible to devise a code of conduct that prevents the misuse of space assets and grants space security for all through surveillance and monitoring. This requires, besides a great deal of work by experts, a set of reassurance measures (cooperative monitoring, transparency, registration, notification, traffic management, no commercial interference) based on effective verification. Within this framework, governments must set up national programmes for verification and prevention of weaponization of space.

The importance of a verification regime for an international agreement on PAROS was highlighted and the specific practical elements of verification were examined. Efforts on PAROS, such as the Russian-Chinese joint proposal to the CD, are in essence prohibitive measures. To that end, verification would be the essential element to an international agreement. On-site inspections including a permanent base for inspection at space stations was suggested as an option for verification. This could be a cheap option, predictable and technically feasible, unlike ground-to-space surveillance and verification systems or the use of special satellite for inspections. Nevertheless, while the objective of verification is easily judged, it is practically a difficult task to define the 'object of verification', in this case to define 'space weapons' and 'threat or use of force towards space objects'. Not all provisions of a treaty can be reflected in the verification context and not all international legal instruments require a verification regime. Verification of compliance with PAROS could be achieved under a separate protocol, but will require a further assessment of the political, financial and technical context on which the agreement is based. Notwithstanding the essential role of verification, in order for substantive progress on an international legal agreement on PAROS to be achieved, it could be reasonable to postpone discussions on verification, while measures to enhance confidence and transparency must encouraged.

The importance of treaties, particularly those related to arms control (including outer space), for global peace was discussed. Today, outer space has the same strategic importance for States that nuclear weapons had a few decades ago. Information technology now represents the difference between winning and loosing a war, allowing States to collect specific data to prevent and/or execute attacks. Space weapons, can in fact, support the use of weapons on earth. For granting security for all countries, it was thought important to prevent world and space weaponization

through general agreement on and implementation of treaties for arms control, including effective surveillance and monitoring.

The continued development of ballistic missile defence technology, the deployment of ballistic missile defence systems and the policy of pursuing space control must all be considered as part of the outer space weaponization problem. The fundamental legal instrument governing outer space activities, the OST, has loopholes with regards to the prevention of outer space weaponization, and no international consensus has been reached on how to address the serious challenges facing outer space. However, important proposals concerning verification have been made (like the non-paper entitled Verification Aspects of PAROS, presented on 26 August 2004 at the CD by the Chinese and Russian Delegation to the CD). These proposals are valid points of reference in defining the capabilities and characteristics of effective verification measures, like on-site inspections carried out at launch sites and made by international observer teams.

Effective verification measures are indeed important to enhance confidence of States parties to a treaty. However, as no weapon has yet been deployed in outer space, the measures under discussion are purely preventive in nature, and consensus must be achieved first on prevention, rather than verification. If prevention of outer space weaponization is reached on the basis of a common political will, other issues, such as verification, could be easier to approach.

Following the presentations, the participants exchanged views over what should be taken into account to approach space surveillance and monitoring:

- The need to work more on a treaty that prevents the weaponization of outer space, and that contains methods of verification.
- The utility of a code of conduct that includes elements of no deployment of weapons and use of no harmful lasers (taking into account the fact that not all kind of lasers can be banned).
- The need for a clear definition of space weapons as an important part of a treaty and for the development of a serious verification regime that must include all States parties. The issue of the ill-defined scope of the concept of verification was pointed as part of the problem, since it prevented the development of an effective verification regime.
- The importance of political willingness and of not considering the lack of agreement on verification as an obstacle for a treaty preventing outer space weaponization, having in mind that before talking about verification, its important to define what is going to be verified.
- The use of a group of experts to establish general concepts that will benefit the implementation of a Treaty.

Session five: The Road Ahead

Opening remarks made by Theresa Hitchens from the Center for Defense Information underlined that there is still time for an international effort to block the advent of space weapons, through prevention and space surveillance. This international effort must focus on engaging States with 'no clear' political willingness to participate in the banning of weapons in the outer space (namely the United States), in areas where it is directly in their national interest to cooperate with other space-faring powers in the near-term.

According to this 'effort-focus', scientific and diplomatic efforts are needed to shape an understanding that outer space weaponization will endanger various national interests, thus discouraging States from pursuing destructive anti-space capabilities. The work on space debris mitigation can be a good opportunity to start building this understanding, because this known hazard to operations in space, which that makes no distinction between enemy and friendly assets, has a clear link to States' national interests. A specialized committee and an inter-agency body (COPUOS and IADC) have already started setting voluntary guidelines for all space-faring powers hoping to have clear, generally accepted and implemented international guidelines for space operations. This logic could be used to the whole area of space security. Namely by emphasizing the need for better and more reliable space surveillance data to monitor debris, share basic orbital data within an integrated network, improve satellite registration and tracking of space objects. Hitchens concluded that it is important to include all States in the dialogue on outer space security, rather that isolate one State because of its position on space weaponization. Measures that promote œoperation amongst space-faring powers in areas where they have mutual interests are the key for progress on ensuring outer space security.

Rebecca Johnson from the Acronym Institute alerted the participants to the ambiguous position of the European Union in its cooperation with the US on space programmes. Johnson addressed the particular issue of NATO agreement on developing an 'Active Layered Theatre Ballistic Missile Defence Programme', a system designed to protect troops on the ground from short-range ballistic missiles. NATO has adopted a vague term of 'multilayered protection against incoming threats' in the pursuit of a coherent system that integrates systems from theatre missile defence, mid-range missile defence to communications control and sensors. Johnson warned against the vagueness of such term for it renders missile defences less susceptible to detailed concrete measures and embeds the US interest in space dominance in the NATO agenda. The EU overall holds a position in support of PAROS, especially with initiatives from certain European governments, like Germany and the United Kingdom. While the European Space Agency advocates the peaceful development of space assets and the peaceful use of space. There is an underlying contradiction between the EU space policy and the NATO space defence policy that needs to be addressed. Johnson called on the EU, NATO and the European Space Agency collaborate more and for the EU to engage more with the wider international community. It was also suggested that the proposal by Egypt and Sri Lanka to the General Assembly should be made more relevant and that a group of experts on verification should be proposed

Discussion on how to preserve security in outer space and prevent an arms race in outer space put forward three options to choose from:

1. Refraining from any restrictions on the use of outer space. This would lead nowhere and jeopardize the peaceful use of outer space since various types of weapons would be put in orbit.
2. Putting limited restrictions on the use of outer space by relying on international pressure and national political willingness. This option depends on international political efforts to oppose the weaponization of outer space. However, political willingness is not enough to maintain outer space peaceful, and needs to be combined with legal binding instruments to restrict the development and deployment of space weapons.
3. Developing strict legal measures to nip the danger in the bud. This seems to be the most promising road. Over the years the international community has developed a number of instruments regulating the access and use of outer space. These include: regulating the protection of space vehicles, international liability for damage caused by space objects, confidence-building measures, prohibition of the placement of nuclear weapons or other WMD into orbit around the earth or on celestial bodies, prohibition of the militarization of the moon, prohibition of the development, testing and deployment of missile defence system and their components in outer space. However, these instruments, which are components of this option, are still quite limited. The OST only prohibits the deployment of nuclear weapons and other WMD in outer space, leaving unchecked other types of conventional and/or new concept weapons. To face this problem, we need to patch up the international legal system on outer space, in particular we need to ensure that we develop a comprehensive regime preventing weaponization of outer space and an arms race in outer space. There exist already a sound intellectual basis on which to build. This is reflected by the proposals made by several States at the UN and CD. The CD in particular constitutes a competent negotiating body of which States must take full advantage to establish a general agreement on the principles and regulations regarding the peaceful use of outer space. With these two elements, the intellectual basis and the existence of a negotiating body, States should be looking at commencing a relevant international legal regime to prevent the weaponization of outer space.

The participants exchanged comments, expressing the following ideas:

- Monitoring should not been seen as an expensive option because monitoring will be supported by capacity-building measures.
- We need to re-enforce political commitment and involve major world players.
- Awareness is not a problem, because it is already growing and ‘on the way’.
- Taking a cooperative approach is important, as long as it goes in the direction of securing and monitoring the use of outer space, and guaranteeing the universal access to outer space.

Closing Session – Summary of Discussion and Thinking Ahead

In his concluding remarks, Mr. Hu Xiaodi, Ambassador for Disarmament Affairs of the People's Republic of China, pointed out that the Conference has galvanized the consensus on peaceful uses of outer space and deepened all parties' understanding of the importance of safeguarding space security and preventing an arms race in space through legal and political means. In his view, this Conference has brought about a range of useful recommendations, including improving the 1967 Outer Space Treaty, constructive engagement and cooperation, verification, unilateral declaration on no-first-deployment of weapons in outer space, a space code of conduct, negotiate a legal instrument to prevent the weaponization in outer space, ensure space common security etc., that need to be further explored by the international community. Finally, he called upon all participants to work together to preserve a peaceful outer space for future generations.

Ambassador Leonid Skotnikov, Permanent Representative of the Russian Federation to the Conference on Disarmament, welcomed the substantial contribution provided by this conference by highly competent participants, concerned international organizations and other expert scientists and academics. The position of various nations to preserve outer space free of weapons was reaffirmed on this occasion. Space security was pointed out as a key global security issue, along with the non-proliferation of WMD and fighting terrorism. Any action by any State that would mean placing weapons in outer space would undoubtedly undermine international security, representing a major step back in disarmament efforts. This conference has offered a deeper understanding with regard to international legal instruments to safeguard space security. The existing treaties have loopholes and are insufficient for effectively preventing an arms race in outer space today. Ambassador Skotnikov argued that prevention is not unattainable if agreement on an international legal instrument on PAROS can be reached. The CD is the most fitting multilateral forum for discussions over the issue of PAROS, and it is important that initiatives be followed up. Ambassador Skotnikov expressed his hope that the flexibility already shown by Russia and China would be reciprocated.

Patricia Lewis, Director of UNIDIR, provided a summary of the issues addressed and noted that the discussions have brought the issue of space security on to a new level of political immediacy and urgency. The momentum of debates around the world was considered an encouraging prospect. Patricia Lewis took note of the following points:

- Space is for everybody and havoc in space means havoc for everybody.
- Cooperation is the key to dealing with space activities, not only because space is a common heritage for all but also because of the significant costs incurred in space exploration.
- The gap in technological capabilities is increasing. The volume of investment in technology R&D and involvement in space activities by commercial investors is something we should remain attentive to as we all have an interest at stake.
- Space debris havoc would damage the interests of all and put human exploration of space to an end.

Thinking ahead, it should be a priority for the international community to achieve a programme of work. There remains outstanding issues demanding further studies and discussions—such as a

clear and authoritative definition on ‘weaponization’ and ‘reversible/permanent damages’, and on the specifics for establishing a verification regime either under the UNGA or at the CD.

Patricia Lewis considered the annual review undertaken by the ‘Space Security Index’ as an important element of international work on the issue. Moreover, the principle of ‘cooperative security’ is a positive input and as are the proposals made to the General Assembly by countries such as Egypt and Sri Lanka. Patricia Lewis considered that since the US and other nations’ interests indeed coincide on the issue of outer space, constructing discussions around the issue of common interests could serve to bring about a breakthrough in international forums. The Chinese-Russian joint working paper should deserve further consideration at the CD. To conclude, Patricia Lewis looked expectantly at the next country to make a significant move to follow the Russian declaration of no-first deployment of weapon in space.

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