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**LETTER DATED 7 MARCH 2007 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 THIRD
REVISED AND AMENDED VERSION AS OF 12 FEBRUARY 2007 OF THE
COMPILATION OF COMMENTS AND SUGGESTION TO THE WORKING PAPER
ON PAROS CONTAINED IN DOCUMENT CD/1679 DATED 28 JUNE 2002**

We have the honour to transmit the Russian and English texts of the third, revised and amended version as of 12 February 2007 of the Compilation of Comments and suggestions to the CD PAROS working paper (CD/1679), prepared by the delegations of the Russian Federation and People's Republic of China.

We would be grateful if this letter and the attached working paper could be issued and circulated as official documents of the Conference on Disarmament.

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Compilation of Comments and Suggestions to the CD Working Paper on PAROS (CD/1679)¹

(Third, revised and amended version as of 12 February 2007)

I. General Comments

1. Some delegations believed the joint Chinese and Russian initiative is a timely one with a view to cover the loopholes of the current legal system with regard to the peaceful use of outer space. They commended the Russian and Chinese delegations for the Working Paper CD/1679 of June 2002 on draft elements for a treaty on Prevention of Placement of Weapons in Outer Space, Threat or Use of Force Against Space Objects (PPW). The eight subsequent thematic working papers (CD/1769, CD/1778, CD/1779, CD/1780, CD/1781, CD/1784, CD/1785, and CD/1786) are found to be useful in helping identify and consider possible elements of a PPW treaty.
2. Two space-related resolutions (A/61/58, A/61/75) were adopted by the 61st session of the UNGA with an overwhelming majority.
3. Through resolutions and discussions within the UN, a general agreement has developed that an arms race in outer space should be prevented. However, a treaty has not yet been negotiated to comprehensively prevent an arms race in outer space.
4. Delegations also noted the contributions of the four conferences on outer space security, involving governmental, NGO and academic experts, which were held in Geneva in November 2002, March 2004, March 2005 and March 2006. These meetings had served to illustrate the wide interest in an agreement on the non-weaponization of outer space. These meetings urged the CD to start substantive work on PAROS issues at an early date so as to enable full-fledged discussion and negotiation on this matter.
5. It is widely recognized that, in this age of globalization, we are actually becoming dependent on space technology for economic and technological development. In other words, all states have a very real stake in what is happening in outer space. States also recognize that the key threat to preserving outer space security is the likelihood of its weaponization and a subsequent arms race. These states perceive the prospect of weapons in space as destabilizing for disarmament, non-proliferation, and international security, and agree that prevention is less costly than remedy. It was also highlighted that a world free of outer space weapons is just as important as a world free of weapons of mass destruction.

¹ Prepared by the delegations of Russia and China to the CD on the basis of other than the authors' comments and suggestions made by member-states and observer delegations to the CD, the UNIDIR and Weapons of Mass Destruction (WMD) Commission in their working documents, notes, non-papers, addresses, statements, interventions and consultations, as well as official statements by the governments.

6. One state argues that the existing multilateral arms control regime is sufficient, and that there is no need to address a “non-existent” threat of arms race in outer space. There is no problem in outer space for arms control to solve. Having said that, this state declares that it does not have any weapons in space and has no plans to build such weapons. However, it expresses explicitly that as long as the potential for attacks on satellites remains, it will continue to consider the possible role that space-related weapons may play in protecting its space assets from potential future attacks, whether from the surface or from other spacecraft. It declared intentions to “dissuade or deter others from impeding [its right to operate in space]... and deny, if necessary, adversaries the use of space capabilities hostile to its national interests”.

7. A few delegations doubted the importance of a treaty that prevents weaponization in outer space since there are no weapons in outer space yet. They argue that it's pointless to work on something that doesn't exist and that the CD should focus on other issues. Other delegations expressed that it was important to take action just for that reason. It is a much easier task to prevent an arms race in outer space than to control it once started. A delegation came up with the argument that it is more than probable that if one State should start pursuing the weaponization of outer space, others will inevitably follow and it called upon the CD not to miss a golden opportunity to be proactive. A delegation brought up the importance of preventing an arms race in space questioning if we can really afford an expensive competition in outer space when there remain so many other challenges before us such as poverty, hunger, disease and deprivation. One delegation stressed the necessity for the world's space community to avoid terrestrial geopolitical conflict to be drawn into outer space, thus threatening the space assets belonging to all mankind. Delegations believe it is unacceptable to imply that since an arms race does not yet exist, therefore it is not necessary to take action. On the contrary, because there is not yet an arms race, now is the time to prevent weaponization of space. If this does not happen now, very soon the talk will be on “disarmament” and “nonproliferation” rather than on “prevention”. The notion that introducing weapons and the threat of force into outer space could be a sustainable way of securing strategic advantage and legitimate defense objectives is fundamentally flawed. It would threaten the very benefits and developments it is supposed to protect. One special feature of outer space is its asymmetric aspect. Developing a functioning weapon capability in outer space or directed against outer space is an extremely complex and expensive endeavor, but the potential countermeasures could be much less “high-tech”.

8. Since the early days of space exploration two basic principles have governed the use of space: right of access and freedom of navigation. Given the reliance of the military and the civil sectors on each other, true space security requires collaboration in order to deter and protect against attacks on friendly space systems, be they military or commercial.

9. It was stated that a new international legal instrument for comprehensive and effective prevention of an arms race in outer space was urgently required in the light of the circumstances in which certain space-related agreements had been abrogated or are insufficient and the move to establish space weapon systems was practically in place.

10. On the issue of emerging anti-satellite (ASAT) technologies, questions were asked about research being conducted in this area. The answer was that it was difficult to be sure in some instances. There could be suspicions that governments may develop ASAT capabilities when they are funding research on, or the development of, micro-satellites, as such systems are

susceptible to be converted into ASAT weapons. A number of countries are actively researching micro-satellites whose intentions related to ASAT capabilities development are not public. The issue of whether space-based missile systems, such as ballistic missile defence (BMD), fall under the auspices of ASAT weapons is to be debated. A view was expressed that BMD is primarily a nuclear policy issue and not a space policy one, meaning that BMD operates according to a different logic. However, this view was contested by the analysis that a weapon in space is a space weapon regardless of its purpose.

11. Military doctrines that seek full spectrum dominance projected through and from space are counterproductive and jeopardize the security of all humanity. Defense capability is legitimate but aspirations for impregnable defenses tend to undermine deterrence, and lead to new instruments of war and to an arms race.

12. One delegation preferred to negotiate as a first step an instrument best regarded as a space-based weapon ban. One delegation suggested working on building norms in the area of space asset safety, rather than negotiating a treaty in the first place. It makes sense to include measures for space security that are easier to obtain because they more or less serve the interests of all states, such as space monitoring, confidence building, debris reduction, space cooperation, and rules of the road. Delegations also called for space-capable states to guarantee transparency in their outer space activities and to engage in confidence-building measures. Some delegations suggested starting with confidence building measures (CBMs), such as pre-notification of ballistic missile launches.

13. One delegation suggested giving consideration to putting forward in-depth papers on specific topics, such as “definitions”, “the use of outer space for civilian and military purposes”, etc, to explore possible legal methods for ensuring the maintenance of a weapons-free outer space. A new title of CD/1679, i.e., “Elements for Dealing with Outer Space Issues” was proposed. A suggestion of avoiding duplicating the work of the Committee on the Peaceful Uses of Outer Space (UNCOPUOS) in Vienna was also made.

14. As regards working out an international instrument on outer space, it was suggested by some that the most efficient legal approach would be to incrementally secure international instruments in the areas where consensus may exist. In the light of the complicated nature of the related issues, a gradual and pragmatic approach is sensible at this stage.

15. A delegation said that there was not an international consensus on the need for further treaties or further legal codification. Therefore, at this stage, it did not claim to have answers to the many unanswered questions. On the contrary, it has been consistently argued that the time is ripe, indeed over-ripe, for negotiations on non-weaponization of outer space at the CD. The unanswered questions could be properly addressed in the course of negotiations.

16. It was noted that the CD was the designated forum to carry out the relevant negotiations. Negotiation efforts should be coordinated within and between the different forums dealing with specific aspects of outer space: the CD, the UNCOPUOS, the UNGA First Committee, the NPT review process. Delegations said that they would like to see the CD embark without delay on a process that could lead to an agreement to prohibit the weaponization of outer space. However, pending progress on such an initiative, some measures could be taken to increase transparency in

space activities and otherwise to build confidence in the peaceful intentions of all space-faring states. Tackling this issue with foresight is not only important but essential for maintaining a healthy environment for satellite operations.

17. The WMD Commission argues that while “there are already a number of international treaties and instruments regulating space activities . . . they do not cover the challenges posed by space-based weapons or ballistic missile defense. In particular, although some agreements prohibit or restrict the deployment of weapons or use of force in outer space, the provisions are limited in scope and coverage. Moreover, none of the existing legal instruments unequivocally prevents the testing, deployment and use of weapons - other than nuclear, chemical and biological weapons - in outer space.”

18. While existing arms control achievements are substantial, the most important observation of a coverage and gap analysis is that there are currently no codified bans applicable to any nation for the development, manufacture, production and deployment of any conventional weapons to be placed in orbit around the Earth, or stationed in outer space in any other manner. Both Russia and the participants of the Collective Security Treaty Organization have made a voluntary pledge not to be the first to deploy a weapon of any kind in outer space. For a number of reasons it would appear to be prudent for the international community to expressly address these identified gaps.

19. In a nutshell, the existing international legal instruments are inadequate to prevent weaponization of outer space.

20. It was stressed that during discussions at the CD on PAROS, the opportunity should be taken to evaluate prospects for a more comprehensive legal framework regulating the demilitarization of space.

21. A precedent has been mentioned for creating such an overarching legal framework. When the Antarctic Treaty entered into force in 1961, it reserved an entire continent which all agreed would never be militarized or used for hostile purposes. It also prohibited any type of weapon testing. In the negotiation of that Treaty, countries recognized that the peaceful and scientific potential of the area was too important to be compromised through militarization. The Treaty has indeed provided a stable framework for peaceful cooperation over the last 45 years.

22. It was noted that a key consideration for participating States in the Antarctic Treaty process was the judgment that the potential benefits for the global community in terms of peaceful uses and scientific research which could be carried out there under an agreed international treaty regime outweighed any narrower benefits to individual States which could have been accrued through weaponization or military deployment by those States. On the other hand, it was argued by some delegations that, unlike the Seabed Treaty and the Antarctic Treaty, PAROS needed a different type of expertise. These aforementioned treaties did not have to grapple with the specific features of weapon systems. Within PAROS the study of the extremely technical issues related to satellites is necessary.

23. The weaponization of this last frontier (outer space) would not only endanger our security and risk triggering countermeasures, in space as well as on the ground. It would also jeopardize the peaceful uses of outer space.

24. Interconnection of space and development has been emphasized by delegations. Space-based technologies and space in a broader sense offer significant and unique solutions to many of the target goals set by the Millennium Declaration, adopted by the UN in September 2000. For developing countries engaged in civilian space programs, access to outer space free of weapons is essential for their development. A weapon-free outer space is the only way to avoid uncertainties and risks to space assets and to ensure that the exploration and use of outer space would be carried out only for peaceful purposes.

25. Besides creating a new arms race, the weaponization of space means proliferation of space debris. Such debris, resulting from 50 years of space activity, already poses a considerable hazard to spacecraft. This crowding problem could worsen as a large number of space weapons could be deployed in Low Earth Orbit (LEO). The launching and testing of weapons would also increase space debris. Moreover, deploying space-based weapons in the increasingly crowded realm of LEO would leave less room for civilian systems. Those problems would also occur during periods of peace. If a number of satellites were to be destroyed during the course of a war, some scientists warn, they would create so much debris that it would prevent future satellites from being stationed in space and generally limit space access.

26. The vulnerability of satellites is tied to the problem of space debris, a problem that space weapons are unable to counter and would only serve to make worse.

27. One delegation stated that fruitful thematic discussions have been carried out in the CD. They helped deepen understanding of related issues. But there is a salient feature which runs through these discussions - that is, the issue of peaceful use and so-called weaponization or militarization are discussed in a disordered manner. With regard to future discussions and negotiations, these and other items should be arranged in accordance with their importance, urgency and the current state of international efforts.

II. Definitions

28. Some countries are suggesting definitions should be included in the proposed treaty. It was suggested that the thematic non-paper on definitions issues of PAROS would form the basis of focused discussions in a working group or in the CD. One delegation reiterated that a technical examination of these definitions would be necessary.

29. It was also recommended that the number of definitions included in an international legal instrument on PPW should be kept to a minimum. It was recalled in this context that the Outer Space Treaty had no definitions. Even with a shortened list, one will have to guard against becoming stuck on any definition. For example, a definition to delimit "outer space" has been discussed by the COPUOS Legal Subcommittee since 1959 without agreement.

30. The working paper (CD/1779) discusses definitions are discussed of related concepts like Outer Space, Space Weapons, Space Objects and Peaceful Use of Outer Space. It also points out that a future treaty might not need specific definitions, as it would be so difficult to reach agreement on them. The Outer Space Treaty and the Moon Agreement do not have specific definitions and this has not led to any legal disputes.

31. Two divergent views exist with regard to whether the future instruments should contain definition provisions. Those in favor of definition provisions hold that the lack of precise definition for key terms could result in different understanding of some basic concepts, and thus hampering the fulfillment of the obligations. A section containing definitions of the major key terms or expressions would help clarify the intended scope of the treaty and establish clarity of purpose. Those against definition provisions have a similar argument as contained in CD/1779. They share the view that definitions acceptable to all would undoubtedly be very positive for a future legal instrument, and point out that divergence among the states is simply too huge to shape any consensus on the definition of many technical terms. Some think that the definition issue can be solved by using a language under the basic obligation provisions that would render the main ideas without usage of terms not agreed upon. Therefore, there would be no need to define those terms.

32. The definition of a “space object” would be useful. It might therefore be best to coin a term or phrase other than “space object” to clarify the intent of the instrument.

33. More clarity might also be gained if a “weapon” were defined in terms of a component of a system, its intended effects and the means it employs to achieve its intended effects.

34. “Peaceful purposes” includes “non-aggressive” military use of outer space. The term “peaceful purposes” could be explicitly defined.

35. “Peaceful purposes” includes “other military purposes”. “Other military purposes” should be clearly defined. “Peaceful purposes” includes appropriate defense activities in pursuit of national security and other goals.

36. The term “trajectory” should be clarified, because objects like intercontinental missiles are not outer space weapons, although they partly pass through outer space.

37. The notion of “peaceful use” should be defined to exclude different interpretations of the proposed Agreement’s provisions aimed to prevent the deployment of weapons, the threat or use of force in outer space.

38. Some definitions that deal with physical issues should not be seen as irresolvable. With "space objects" being ruled by orbital mechanics, it is not necessary to set a precise line where outer space begins.

39. One delegation holds that it is not easy to identify what is or is not a weapon in outer space. The logic is that anything in outer space with the ability to alter its trajectory, including any of the current meteorological, communications, remote-sensing, or navigation satellites currently in orbit, could be a weapon and any of these could, in principle, have its orbit altered so as to

collide with another satellite, with obviously harmful results to the target. The same delegation argues that the inability to define space weapons is the main barrier to a treaty.

40. Banning weapons in space should focus on those systems that are "especially designed" to destroy space objects, including ASAT on the ground, in the sea or air, and space objects themselves specially designed to destroy any other target. While the clause "especially designed" does not resolve the dual-use issue, it would include a large class of the most threatening systems and activities.

41. Another issue is the difference between a generic weapon system and a system that might be used as a weapon (an ASAT vs. the space shuttle). A related issue is a weapon intended for one purpose (anti-ballistic missile (ABM)) but which has a residual capability in another field (ASAT). These points are not captured. The text defining weapons does not include terrestrially based ASAT weapons.

42. The language on location of launchers technically would not cover sea launch activities or any other launch activities that are not undertaken "in the territory of a state."

43. Missing here is any discussion of weapons used to support aggressive military activities—targeting and cueing satellites, for example global positioning system (GPS). A third paragraph should be devoted to uses that go beyond non-aggressive use.

44. The line about "self-protection" for astronauts opens cracks that might be abused; that measure does not seem necessary. This item should not be included as it defeats the purpose, as some states may demand other weapons for "self-defense." Various agreements already pledge all states to help astronauts in distress.

45. There is a need to provide definitions for "space debris" and "launching state". The latter is fundamental for all space activities. As a starting point of reference, the Liability and Registration Conventions can be used, as they provide a definition for "launching state", although not perfect one.

46. One delegation suggested that the treaty must ban only offensive weapons in space. There should be an exception for weapon-like systems for satellite protection against debris.

47. It was also suggested to define "non-destructive" space weapons and "legitimate military activities".

48. On the issue of an arms race in outer space, the language of 'arms racing' can be unhelpful in constructing arguments against the weaponization of space. The real problem lies in the proliferation of space weapons, driven by such factors as perceptions of insecurity and weakened norms. Space weapons could well make the problems of satellite vulnerability and space debris worse, which, in turn, would likely have a negative impact on proliferation. A comment on this issue was that it was unhelpful to focus on definitions of arms racing as this was not the only argument for prohibiting the weaponization of space - the placement of weapons in space is a danger in itself.

49. Since the early days of the space race the international community has referred to the use of "space for peaceful purposes", and to the need to maintain a "space sanctuary". But a distinction must be made between militarization and weaponization of space. Although space is heavily militarized, it is not yet weaponized. Space weaponization is generally understood to refer to the placement in orbit of space-based devices that have a destructive capacity. Space has been militarized since the earliest communication satellites were launched. Today, militaries all over the world rely heavily on satellites for command and control, communication, monitoring, early warning and navigation with the Global Positioning System (GPS). Therefore, most states accept that "peaceful purposes" include military use, even that which is not particularly peaceful, and space is considered a sanctuary only in that no weapons are deployed there.

50. The international community has not reached consensus yet on such key terms as "outer space" and "space weapon". This makes it difficult to fulfill the obligation "not to place or use space weapons" contained in a treaty due to the different interpretation of what constitutes "space weapon".

51. In one delegation's opinion, it is not a simple task to find a widely acceptable definition of what constitutes either "militarization" or "weaponization" of space. Views also differ on whether weapons used for the defensive or peaceful use of space would be classified in the same way as offensive space or anti-space capabilities.

52. Specific comments on the definitions proposed in CD/1779:

- (i) **Outer space:** It is important that the discussions in the CD and COPUOS are conducted in connection with one another. Since any definition that is absolute in terms of a defined height raises questions, such as on how to handle for example elliptical orbits with their lowest point under that height, and if the concept of "freedom of space" is to be understood applicable only in the defined outer space. Thus the possibility of negotiating a treaty without a strict definition of the term Outer Space, or a definition based on the ability to orbit the earth instead of a given height, should be seriously studied.
- (ii) **Outer space object:** Even though the definition as suggested sounds complicated it appears to be comprehensive. But it raises the question of how to define "being launched into orbit". At what point of a launch does an object become an outer space object? When the launcher lifts off, when the launcher, with object, crosses into outer space or when the object and launcher separates, or at another time? Since this definition deals with objects as targets, it is important to sort out when they in accordance with the treaty become immune to threat or attack. One delegation suggests that "space object" simply refers to all man-made objects placed in outer space, excluding non-man-made objects, as non-man-made objects are usually not targets of attacks. It was also proposed that ballistic missiles are also not "space object" because they pass through instead of staying in outer space.

53. A further point for discussions could be the commonality between the definitions of "outer space objects" for targets vs. "placement" for weapons. It is suggested to start by

defining a space object and then define a weapon in space as an outer space object carrying any kind of weapon.

54. **Space weapons:** This definition will probably always be elusive. Some delegations suggest that Space weapons should probably be described as a common name for "Ground-to-space", "Space-to-space" and "Space-to-ground" weapons. This can be said without any discussion on what constitutes a weapon.

55. Concerning the definition of space weapons, one point of debate was whether a nation's nuclear-tipped intercontinental ballistic missiles (ICBMs) and space-based BMD should be considered as space weapons. Regarding weapons capable of targeting objects in outer space, such as ICBMs, it was argued that these should not be included in the definition of space weapons because only those weapons specifically designed to physically attack objects in space, weapons with latent or residual ASAT capabilities ought to be considered as space weapons. However, space-based BMD should be considered as a space weapon because a weapon in space is a weapon in space, regardless of its purpose there. It was noted that there is a difference between 'objects in space' (e.g. warheads) and 'space objects' (e.g. satellites), and that certain states are working towards a suitable definition on this front. It was generally thought that the definition needed more input from a variety of interested actors.

III. Basic Obligations

56. Paragraph 1: a) The words "testing", "production", "deployment", "transfer" and "use" could be used to elaborate the intended prohibitions; b) Include new sub-paragraph "prohibition on the deployment of weapons on orbital trajectories to and from celestial bodies including the Moon, or in orbit around the Moon or any other celestial body".

57. Paragraph 2: a) The reference to "general principles of international law" in Article V of CD/1679 could perhaps cover the issue of "threat or use of force" curbing the need for definitions; b) The concept of a temporary operational disruption, displacement or other non-damaging interference with a space object by another space object may also need to be addressed; c) Frame the inherent use ban of this obligation to include the testing of any weapons against space objects or "for anti-satellite purposes".

58. Paragraph 3: International trade in dual-use space hardware, software and technical data is enormous, thus this obligation could be hard to fulfill. Suggestions: a) Consider controls or limitations on launches of weapons into outer space on behalf of other states; or b) Focus on the use of the hardware, software and technical data, which have to be consistent with the obligations set out in the instrument.

59. Should include prohibition of objects not only in orbit, but also in a trajectory status taking the spirit of Article 3 (3) of the Agreement Governing the activities of States on the Moon and other Celestial Bodies.

60. It was proposed that such an instrument need not be a blanket prohibition on all weapons in space. A gradation of measures could be envisaged: from prohibitive measures, through

restrictive measures and to permissive measures. For example, measures relating to lasers would therefore not be prohibitive but rather restrictive (allowing the use of only certain categories of lasers while banning other uses).

61. A treaty should not only focus on deployment restraints but also on the whole process from research to use. A test ban for space weapons is the key issue in this process as it limits capabilities before they emerge and is the most visible part to be monitored. In addition, there should be a monitoring system also focusing on the production process and production facilities.

62. A concern was voiced that it could be counter-productive to seek to include measures to prevent temporary and reversible disruption of normal functioning of outer space objects. Jamming technology is already widely available, as are other types of electronic warfare.

63. During years of discussions on PAROS, a variety of views have surfaced. They may be summed up into two categories: 1) Complete prohibition, which bans all military uses and activities ranging from research, development, production, testing, placement to use of space weapons in order to achieve the ultimate goal of "non-militarization of outer space". 2) Partial prohibition, which bans only certain types of activities and behaviors to attain the objective of preventing weaponization of outer space. Some delegations believe that it is neither feasible nor possible to seek complete prohibition of military uses of outer space. The military satellites were taken for an example: since the technique of military satellites is similar to that of the civil ones, in practice, military satellites can serve civil purposes and the opposite is also true. Thus the boundary between military and civil satellites getting more and more obscure and to prohibit military satellites will be controversial. Besides, one cannot deny the positive roles of military satellites in, among others, communications, navigation, meteorology, early warning, and verification of arms control agreements. It has been indicated by a number of delegates that the scope of a possible legal instrument should only deal with weaponization. On such concepts as weaponization or militarization, it is crucial to build up further deliberations by arranging and acquiring a clear understanding of the complex and sophisticated technical problems.

64. A few others think that space-related assets and capabilities are, and will continue to be, part of modern military doctrines.

65. The basis of the CD/1487 and CD/1569 has been that current international efforts might first seek to concentrate on a non-proliferation agreement concerning the test, deployment and use of all space-based weapons. More recent efforts by China and Russia in their joint working papers have promoted a ban on the application of military force against space objects not only from space-based sources but also from Earth-based sources.

66. Many delegations are of the view that, the core obligations of the future legal instrument on outer space should be "not to place in orbit around Earth any objects carrying any kinds of weapons, not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner". In addition, the above-mentioned obligations should be supplemented by committing "not to use or threat to use force against space objects".

67. If deployment in space of objects carrying weapons is prohibited, but development of those weapons continues to be allowed, it might tempt countries to build up stocks of weapons that, in times of growing tension, could be launched in spite of a prohibition. The country with the largest launch capabilities would then be clearly in an advantage. This problem should be clearly addressed in the treaty.

68. Some delegations welcomed the approach in the Russian/Chinese working papers of a "PPWT" (Prevention of Placement of Weapons in Outer Space Treaty) instead of a "PAROS treaty". They are of the view that the ambition should be to prevent an arms race that hasn't started yet. However, the fact that it's not known what it looks like makes a treaty on preventing an arms race a much more complicated issue than a non-weaponization treaty. They also support that such a non-weaponization treaty, as it is suggested in CD/1679, is to have three basic obligations: non-placement of weapons; no use or threat of use of force; no support to actors violating either above.

69. Ballistic missiles would not be covered by the scope of the treaty, neither as weapons in space nor as targets in space. Some delegations expressed concerns over the potential destabilizing effects of plans of space based missile defense systems. While they understood the logic for excluding ABM from this particular treaty, they stressed the remaining importance of this issue that must be addressed somehow down the road. Thus, the three basic obligations should be defined and limited, some of which are problematic and require further study and discussion.

70. The logic behind the use of the term "placement" instead of "deployment" was well understood. Nobody called into question that "placement" is a more appropriate term, as it conveys the idea of space being free of weapons without addressing the question if they are combat ready or not.

71. To draw the line at prohibition of placement but not development on the grounds of verifiability is questionable from one delegation's point of view. That delegation is not convinced that the problem of verification would outweigh the benefits of also including prohibition of development in the treaty. It would thus favor that also the development of space-based weapons should be prohibited by the treaty and that it should be further discussed how such provision could be effectively verified.

72. The same delegation thinks that also the development of dedicated ground-to-space weapons such as direct ascent ASAT-systems should be prohibited by the treaty. With the due concern over the complexity of this issue, as a number of systems have residual ASAT-capability, this delegation feels that the problem should be explored.

73. The third obligation (not to cooperate with those States that are in breach of the first two obligations-CD/1679) is a logical conclusion of the first two and should be verifiable like any non-proliferation and arms control treaty such as the NPT. It was suggested that the scope of this obligation should also cover non-state actors.

74. In one delegation's view a somewhat broader scope should be elaborated when it comes to the prohibition of the means to wage war in space.

75. “The temporary and reversible application of military force against satellites in the form of electronic jamming of signals to and from artificial satellites by terrestrial sources appears to be a part of current state practice despite International Telecommunication Union regulations that have been designed to avoid interference with satellite signals. Based on a limited survey of open source material, it also appears that intentional interference with satellite signals from another orbital source has yet to be witnessed. The deliberate degradation of one’s own signals, particularly with global navigation satellite service (GNSS) signals, also appears to be a part of current state practice. These forms of state practice could serve to hinder the immediate adoption of any proposed ban that would include the Earth-to-space engagement scenarios, either directly or indirectly” (CD/1784).

76. “...a period of discussion is needed in the CD, possibly within an Ad Hoc Committee, to agree on an appropriate scope of activity for the PAROS agenda item. A space-based weapon test, deployment and use ban would appear to be one immediate candidate for international consideration given its predominately non-proliferation focus” (CD/1784).

IV. The Use of Outer Space for Peaceful and Other Military Purposes

77. In Paragraph 2, a variation of the OST could be considered in this context: "States Parties shall carry on activities [...] in outer space [, including the Moon and other celestial bodies] in accordance with the general principles of international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding".

78. Some concrete steps towards securing the peaceful use of outer space were accentuated. It was suggested that the UNGA: pass a resolution defining the “peaceful uses of outer space” (prohibiting weapons in space but allowing military uses of space); seek an advisory opinion of the International Court of Justice on the definition of the “peaceful uses” clause; and convene an open-ended working group or establish an Ad-Hoc Committee within the CD to discuss a treaty on cooperative security in outer space.

79. It is widely recognized that space is a global resource, and is increasingly part of our collective critical infrastructure - from global communication and navigation links to the collection of environmental and natural resource management information. Activities in outer space encompass civil, military and increasingly commercial endeavors that are all consistent with the peaceful uses of outer space. The exploration, exploitation and sustainable use of outer space should continue to be carried out for the benefit and in the interests of all States. As the **Outer Space Treaty** makes clear, outer space "shall be the province of all mankind".

80. Respect for the safety and security of space assets and the capabilities of all countries is a prerequisite for ensuring the continued flow of space-enabled services to all countries, including developing countries. The hope was expressed that the Conference would contribute to this goal.

81. A treaty should also include provisions on cooperation and assistance ensuring that the use and exploitation of outer space will always take place for the benefit of all States regardless of

their level of scientific and economic development, in accordance with the preamble of the 1967 Outer Space Treaty. This is all the more important in view of the growing gap between States that have outer space capabilities and those which do not.

V. CBMs

82. Transparency and Confidence Building Measures are a good step towards enhancing trust and international cooperation amongst states. They facilitate management of situations which could otherwise lead to international tension.

83. Moving from CBMs to actual verification measures, should be considered to evidence upon which objective compliance determinations could be made, and to feed into the dispute resolution mechanism.

84. Since the International Code of Conduct against Ballistic Missiles Proliferation (HCOC) aims to increase confidence by such transparency measures as pre-launch notification, its relevant wording can be incorporated into CD/1679 to win the support of HCOC subscribing states.

85. The wording of CBMs for a future outer space treaty should refer to multilaterally negotiated and internationally accepted languages rather than copying non-negotiated text. In this context, the experience gained in civil space activities could be used for elaborating Codes of Conduct.

86. A regime of prior notification of launches of space launchers and ballistic missiles should be established. It could be supplemented by the setting-up of an international center responsible for the centralization and redistribution of collected data, so as to increase the transparency of space activity.

87. The States parties should transmit in writing to an international center notification of launches of space launchers (carrying satellites or other space objects) and ballistic missiles which they have planned. Such notification could take place one month before the planned date of launch (launch windows in terms of weeks or days, and time of each launch) and would be confirmed 24 hours before the actual launch.

88. As for space launchers, apart from the planned date of launch, the launching state should communicate the geographic impact area.

89. Regarding space objects, the owning State or State of registry should communicate the following information: name of owning State or State of registry; orbital parameters (perigee, apogee, nodal period, inclination); general function of the space object; Reference to its unarmed character; indication of maneuverability; physical characteristics (mass, planned lifetime).

90. With respect to missiles with a ballistic trajectory having a range of 300 km or more, the launching State should communicate: date of launch, launching area, impact area.

91. An international notification center should be set up. The center would essentially fulfill the following function:

- (i) Receive notifications of launches of ballistic missiles and space launchers transmitted to it by States parties;
- (ii) Receive the information transmitted by States parties on launches actually carried out. State-parties, possessing detection capabilities shall communicate to the international center, on a voluntary basis, data relating to launches detected by them;
- (iii) Place through a data bank the above-mentioned information at the disposal of the international community.

92. The view was expressed that other measures for space security ought to be also included, such as: space monitoring; debris reduction; space cooperation; “rules of the road”, and further confidence building. It would also lay the necessary foundation for any future treaty.

93. Negotiating a treaty might take time and therefore immediate work on building norms in the area of space asset safety is essential. Improved space surveillance and data exchange would not only help get a better handle on dangerous space debris and improve collision avoidance, but would also increase transparency of space operations that, in and of itself, would be a CBM.

94. Meanwhile, the view was expressed that the CBMs under discussion should be linked to the negotiations on a new international legal instrument on outer space, and CBMs should form a constituent part of the treaty so as to have more practical significance.

95. A number of concrete CBMs was suggested that could be taken in parallel to negotiating a treaty on the prevention of weaponization of outer space and that would enhance security in outer space. Among other steps, nations could agree not to undertake weapon tests, because they would create significant amounts of debris.

96. Establish “rules of the road”, or a code of conduct, to regulate activities in outer space. A code of conduct in outer space, as proposed, would mean: no simulated attacks on space assets and satellites; no dangerous maneuvers; advance notice of maneuvers; no harmful laser use; mitigation of debris; advance notice of launch; regulation of access and launch; and no interference with national technical means. A code of conduct would require: cooperative monitoring, transparency, notification, traffic management and tracking, and verification.

97. It was suggested that states may seek inspiration from the Incidents at Sea Agreement, which defines good practice, in particular to avoid collisions and ambiguous situations.

98. Self-declared moratoria on tests and placement of weapons in space would also be an important political gesture of good will. Unilateral declarations by states not to be the first to place weapons in space could be very useful in promoting a “coalition of the willing” to prevent weaponization.

99. Space exploration is costly and is best served through international cooperation. A regime of international collaboration in space would prevent certain countries from the temptation of putting weapons in space by allaying their security concerns.

100. A working paper (CD/1778) was presented to the CD. In the paper CBMs are put in three categories including measures aimed at enhancing transparency in outer space programs, transparency on outer space objects in orbits and measures related to the rules of conduct during outer space activities. The paper also suggests different types of Confidence-Building Measures, including: exchanges of information, demonstrations, notifications, consultations and thematic workshops. While the list is not by any means exhaustive, it nevertheless could assist Member States in their consideration and general discussion of transparency and confidence-building measures in outer space. One delegation suggested in its comments on the paper to add 'bilateral or multilateral cooperative outer space projects, including common space-related infrastructure' as the fourth category of the CBMs. In addition to ongoing work in the Conference on Disarmament (CD), there are a number of other confidence-building and transparency measures relating to activities in outer space that could be examined for their potential contribution to enhancing international peace and security: space traffic management, moratorium on anti-satellite weapons tests, improved space object characterization, and low technology cooperative launch monitoring.

101. In 1989 the creation of a space surveillance system was proposed, which consists of radar and optical sensors, for the international community to track the trajectory of space objects. This was presented in the Conference on Disarmament (CD/937 and CD/PV.570) and evolved into a proposal to establish an international trajectography centre (UNITRACE). Given the rapid advances in technology and easier access to high-quality open source information, the UNITRACE proposal could be revisited and updated.

102. For the commercial sector, voluntary guidelines for the commercial industry might not be very effective, but voluntary guidelines for states to apply, as appropriate, at the national level through national mechanisms could be a feasible alternative. Any exchange of information on commercial space programs would have to take into account the need to preserve key business interests.

103. Confidence-building measures (CBMs) are not designed to address the capabilities of others, rather they address perceptions of intent; thus they succeed best when they lead to a transformation in perceptions. Some previous CBMs in outer space have worked well, such as the 1975 Apollo-Soyuz Test Project, concerning the use of compatible docking systems that led to the first international handshake in space.

104. The Russian Federation's resolution on transparency and confidence building in outer space activities in the 60th and 61st sessions of the UN GA were significant events. A simple first step in securing outer space and engendering confidence could be for interested parties to develop recommendations on possible CBMs together. In this way CBMs could contribute to favorable conditions for a new agreement or treaty. Transparency is the key for any specific CBM. The Russian Federation's no-first-space-weapon-deployment pledge is a good example of how states could take unilateral measures to build confidence. Such CBMs could be of a voluntary nature initially with the possibility that they might form part of a future treaty.

105. While CBMs are no substitute for a treaty, a combination of transparency regimes, CBMs, codes of conduct and structures against debris-creating weapons, could, taken together, go almost as far as a total weapons ban. They are a way of dampening national threat perceptions and establishing consensus on mutual interests. They contribute to the development and adoption of commitments that will preserve outer space from an arms race.

106. There was the view expressed that the study by governmental experts on the application of confidence-building measures in outer space (A/48/305) contained many ideas and proposals whose adoption and development consistent with scientific and technical progress would promote confidence-building measures and lead to greater international cooperation for the benefit of humankind and the prevention of an arms race in outer space. A fresh evaluation containing specific recommendations would therefore be highly useful in providing a basis for taking effective steps to foster a cooperative climate of trust.

107. It was noted by one state that the Asia-Pacific Regional Space Agency Forum (APRSAF) had been held in order to exchange opinions about the international cooperation in space development in this region. This state believes that these multilateral and bilateral efforts play an important role as measures to increase transparency and promote confidence-building among the countries involved in the area of space environment utilization.

108. A growing convergence of views has been recognized on the elaboration of measures to strengthen transparency, confidence and security in the peaceful uses of outer space.

109. Some delegations proposed that the dialogue between the various bodies with an interest in outer space, in particular, the Conference on Disarmament and the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), should be enhanced.

110. Discussions on the utility of CBMs based on the actual state of each measure are still necessary.

VI. Verification

111. It was suggested that as no weapons have yet been deployed in outer space, the verification measures under discussion are purely preventive in nature, and consensus must be achieved first on the prevention of deployment of weapons in outer space, rather than verification. Once a ban on the weaponization of outer space is realized, other issues, like verification, might be easier to approach.

112. Some countries suggested verification should be included in the proposed treaty.

113. Verification measures could include: open source information analysis; state declarations; terrestrial observation of space objects; space-based observation of space objects; sensors on board space objects for in situ-sensing, and on on-site inspections. The negotiating parties of the treaty would first need to agree on the obligations to be verified and the level of confidence to be required.

114. CBMs could be included in this article.

115. As a further confidence building measure, there should be a moratorium on the testing of all kinds of weapons and development of weapons in outer space.

116. Verification is an essential element of the proposed treaty that could provide for the settlement of any concerns over other States parties' adherence to the treaty. It was suggested that verification issues could not be easily postponed.

117. Others argued that the technical challenges in ensuring effective verification of compliance with such an agreement, coupled with the political difficulties, meant that the development of a verification mechanism would have to be postponed and addressed within an additional protocol.

118. It was suggested that with current technology, and coupling in new reporting requirements for launchers and operators, an international system could be put together to carry out space surveillance with reasonable accuracy.

119. Verification of a treaty for outer space could adopt a layered approach of sufficient intrusiveness to discern weapon-related developments from non-weapon developments, even in an industry where military and civilian technologies are similar and missions frequently dual-use.

120. According to the 1975 Convention on Registration, launching states are required only to report the initial insertion orbit of a satellite, not its final destination. That is a critical loophole that needs to be plugged to ensure verification.

121. Space monitoring could be developed further. Some space-faring nations have a space tracking network that can be linked. With existing technical equipment and use of Internet, a lot of information can be gathered and exchanged, as is already being done to a degree.

122. While understanding concerns about verification of any treaty that includes terrestrially based ASATs, testing of such weaponry could be banned and that ban could be verified.

123. A number of steps could be undertaken at an early stage, including better implementation of existing commitments, elaboration and adoption of CBMs.

124. Specific issues contained in the Russian-Chinese thematic paper on verification (CD/1781) deserve a careful technical study. In this context one of the relevant issues is the cost of verification.

125. Verification is more than a purely technological issue and will require extensive discussion.

126. It was noted that due to the complex nature of verification of outer space activities, which bears on the security interest of all countries, as well as to technical and financial constraints of verification, currently it was extremely difficult to negotiate a verification provision. For the time being, to put on hold the verification issue until conditions are ripe, and to negotiate a treaty

without verification provisions could be a practical alternative. Elaborating the treaty without verification measures, which could be added at a later stage, might be a preferable option. Transparency and Confidence Building Measures could, for a certain period of time, compensate for the lack of verification measures in the new treaty. Most states acknowledge that Confidence Building Measures do not replace verification but may function as a start to a step-by-step approach on preventing the weaponization of outer space.

127. It seems difficult to verify if a country is or is not developing space weapons. It is also hard to ascertain that a deployed space object is usable as a weapon or not.

128. One delegation is of the view that a control regime could probably be set up in handling the issues of dual-use technology. Pre-launch inspections, though controversial, would have some value here. There are about twenty-two active launch sites at present, giving space launch a potential 'bottleneck' advantage in terms of verifying and monitoring space-related activities. However, as satellites get smaller and the technology improves, mobile space launch vehicles will become a greater possibility, thus making this task more difficult.

129. A verification framework or blueprint designed to apply to any potential treaty proposal on preventing the weaponization of space was outlined. In designing the blueprint, four considerations need to be taken into account:

- (i) Flexibility, in order to apply to multiple treaty designs;
- (ii) Details of intrusiveness levels and confidence issues to facilitate decision-making;
- (iii) Reliable estimates of costs associated with each verification method; and
- (iv) Possible synergies between verification methods to increase cost-effectiveness.

130. With these considerations in mind, the optimal way to structure a verification system with layered approach. Six layers were outlined: on-site verification; launch detection and post-launch confirmation; space situational awareness; on-orbit inspection; detecting the use of laser and other directed energy weapons; and re-entry vehicle detection and characterization.

131. In addition, outsourcing is always a possibility, for example the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO Preparatory Commission) has such potential.

132. However, the blueprint model was criticized for relying on more traditional verification measures when the current trend is moving away from such systems and their associated high management costs. An alternative is to think of verification as a system of collective sharing and information analysis.

133. "The "*Paxsat A*" concept - a contraction for "Peace Satellite" - was developed ... to verify international agreements banning weapons from outer space. The *Paxsat A* study - A Study of the Feasibility of a Spacecraft Based System to Determine the Presence of Weapons in Space - asked a fundamental question, "Can space observations determine the role or function of an object in space?" The answer was a qualified yes."(CD/1785) The *Paxsat A* study showed that, to a high degree of certainty, the nature and function of an unknown spacecraft with a capability

to damage or destroy another object could be inferred directly by observation or through the process of elimination.

VII. Settlement of Disputes

134. Introduction of a third party mechanism might be useful. The entire section on Settlement of Disputes could be redrafted to mirror Paragraphs (2) and (3) of Article 15 of the Moon Treaty, along the following lines:

"A State Party which has reason to believe that another State Party is not fulfilling the obligations incumbent upon it pursuant to this Agreement or that another State Party is interfering with the rights which the former State has under this Agreement may request consultations with that State Party. A State Party receiving such a request shall enter into such consultations without delay. Any other State Party which requests to do so shall be entitled to take part in the consultations. Each State Party participating in such consultations shall seek a mutually acceptable resolution of any controversy and shall bear in mind the rights and interests of all States Parties. The Secretary-General of the United Nations shall be informed of the results of the consultations and shall transmit the information received to all States Parties concerned".

"If the Consultations do not lead to mutually acceptable settlement which has due regard for the rights and interests of all States Parties, the parties concerned shall take all measures to settle the dispute by other peaceful means of their choice appropriate to the circumstances and the nature of the dispute. If difficulties arise in connection with the opening of consultations or if consultations do not lead to a mutually acceptable settlement, any State Party may seek the assistance of the Secretary-General [in this context, the Executive Organization perhaps], without seeking the consent of any other State Party concerned, in order to resolve the controversy".

135. The joint working paper could also benefit from including provisions for the gathering and examination of agreed verification information as part of the operation of the dispute resolution mechanism.

136. A number of questions of detail will need to be settled. For example, which rules of procedure are to be applied? How will decisions be reached? Will the decisions be binding? If so, what would be the enforcement mechanism(s)?

137. The relevant text of CD/1679 should be maintained since it is much better than the relevant part of the "Compilation of Comments and Suggestions to the CD PAROS Working Paper" of July 31, 2003.

138. The relevant content of CWC and BWC can be consulted in this article.

VIII. Executive Organization

139. This section needs significant expansion to address issues related to membership and authority of the Executive Organization, its exact mandate in relation to the settlement of disputes, and the case of whether an existing organization could be pressed into service in lieu of creating a new body.

140. Paragraph 1 a). Revise as: receive for consideration inquiries by any State Party or a group of States Parties to the Treaty related to a dispute aroused by a suspected violation of this Treaty by any State Party to the Treaty;

141. Paragraph 1 d). This obligation could be read as an unbounded set of incentives or penalties. The treaty would need to set out clear provisions of objective criteria and verified evidence to ascertain non-compliance, and details of the decision-making mechanism.

142. The obligation of the executive organization and the mandate of meetings of State Parties should be clearly stipulated.

143. This Article should address issues related to membership and authority of the Executive Organization and its mandate to consider and resolve disputes. The CWC offers some useful food for thought in this regard, as does the IAEA Statute.

144. The role of the Executive Organization in registration - one of the fundamental verification means - should be explored.

IX. Amendments to the Treaty

145. The second half of Paragraph 2 shall spell out explicitly the amendment procedure of the OST: "Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by the majority of the States Parties to the Treaty and thereafter for each remaining State Party to the Treaty on the date of acceptance by it".

146. This part should be consistent with the relevant content of the Vienna Convention on the law of the treaties.

X. Signature and Ratification of the Treaty

147. Instruments of ratification should be deposited with UN Secretary General.

XI. Entry-into-Force of the Treaty

148. Ratification of P5 should not be the precondition for treaty EIF, in order to avoid the fate of the CTBT. This is unduly restrictive and could act to condemn the entry-into-force to failure. It

might be more effective to define a number of ratifications for EIF rather than to establish an explicit list of countries. It is better to avoid such a placement of P5 in an EIF formulation. One may consider two options:

Option 1: List all states with a space launch capability but indicate that the ratification of a specified number (i.e. not all) of them would trigger entry-into-force.

Option 2: Request ratification by a specific number of "states that can successfully launch objects into outer space" or something along those lines, rather than naming them.

149. It is the lack of political will rather than the EIF clause that obstructed CTBT from EIF. Conversely, the point was made that the future treaty should be ratified by all P5 states. Otherwise the effectiveness of the Treaty will be weakened.

150. A doubt was expressed over the relevance of ratification by 20 states as a precondition for the treaty EIF. It was underlined that the treaty would be effective only if ratified by all the states with capabilities in outer space.

XII. International Cooperation

151. The elements of cooperation and assistance of peaceful use of outer space should also be added to the proposed treaty.

152. "International cooperation" and "CBMs" are closely related, so they can be merged into one section. The proposed language is as follows: "Each State party shall endeavor to establish joint projects and programs with other State parties to further promote peaceful uses of outer space for the benefit of all humankind".

153. "States shall follow the principle of mutual cooperation and assistance in the most adequate way, on an equitable and mutually acceptable basis, taking into account the particular needs of developing countries".

XIII. Possible Additional Elements

154. Periodic review conferences.

155. An obligation not to enter into international obligations contrary to the obligations of the treaty.

156. Naming of the depository governments.

157. A requirement that a state party to the treaty may not make reservations.

158. A special provision banning anti-satellite weapons.

159. A specific language for issues of registration and liability.

160. Specific technical measures to mitigate and prevent debris creation, as well as to track and to eliminate debris.

161. In February 2005 the COPUOS Scientific and Technical Sub-Committee proposed a set of guidelines on space debris mitigation. These guidelines will be officially submitted to COPUOS member states before the Sub-Committee's next meeting in February 2007. If approved at the COPUOS plenary in June 2007, they will then be submitted to the UN General Assembly in the form of a draft resolution later that same year.
