A High-Level Panel for Peace in the Highest Places

Presentation to the Secretary-General's Advisory Board on Disarmament Matters

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A High-Level Panel for Peace in the Highest Places

I'd like to take this opportunity to express my profound gratitude for the invitation to address this esteemed Advisory Board. It is a privilege to speak to you on behalf of a civil society organization that seeks to make a contribution to the international efforts to advance a global security regime based on the rule of law.

Humanity relies on space for wonder, exploration, communications and commerce. Space technology guides our daily lives. Satellites enhance our understanding of the weather and climate change; they enhance global communication, which in turn serves to advance culture, finance, emergency management, navigation and environmental and natural resource management. These benefits could be lost in a degraded space environment where satellites are compromised either by intent or by the mere negligent creation of debris. Imagine modernity coming to a standstill because of excess garbage.

We stand at a threshold moment where progress in cooperatively protecting space must advance.

There is a legal regime in place that defines our collective relationship to space. The 1967 Outer Space Treaty (OST) ensures that space is not "subject to national appropriation" and that the exploration and use of outer space shall be conducted "in accordance with international law, including the United Nations Charter, in the interest of maintaining international peace and security." Unlike the 1959 Antarctic Treaty, which requires activities on that continent to be "exclusively for peaceful purposes," the OST permits military uses of space, though it nevertheless prohibits the placement of weapons of mass destruction (WMD) in the heavens. Military uses of a non-aggressive nature have proved most effective in areas of targeting, fire direction, communications, and intelligence gathering.

Some argue that the OST only permits "non-aggressive" military uses such as reconnaissance, communications, navigation, and early-warning missions, and that "aggressive" missions such as stationing of weapons in outer space are prohibited by the UN Charter's prohibition against the "threat or use of force" against the territorial integrity of any Member State. Others argue that the right of self-defense permits nearly unlimited force application. Others argue that there should be an immediate demilitarization of space.

A useful point of reference is the actual unique language of the Treaty with its clear intent to ensure that space be used in the "interest of all states" in the "common interest of all mankind," and be considered the "province of all mankind." This last expression of common interest resonates with the language of the UN Convention on the Law of the Sea's concept of the global commons of the deep sea bed being the "common heritage of humanity."

Do not these declarations, embodied even in operative sections of the OST, imply the need to make certain that any uses of outer space do not impair our common security? Do we not, therefore, have a need to take steps to expand our legal instruments, in light of new technologies, to fulfill this declared and legally compelling obligation? Can such a process be done without impairing the benefits of existing militarization of space while still preventing its weaponization? Can we advance global cooperation and security while ignoring the near consensus of almost all nations of the world to prevent an arms race in space?

These are but a few of the numerous useful questions regarding the peaceful uses of space which cannot ultimately be resolved without intense, good-faith multilateral negotiations. These negotiations are unlikely to take place in the near-term either in the context of the First Committee of the General Assembly, the Conference on Disarmament (CD), or the UN Committee on the Peaceful Uses of Outer Space (COPUOS). Moreover, despite near universal consensus to prevent an arms race in space, evidenced by consistent overwhelming votes to that effect each year in the General Assembly since 1981, the necessary consensus to move forward now has not been reached. No nation wants an arms race and obviously no one, except possibly some lonely Luddite, wants space debris to end modernity. A way forward must be found.

In May of 1998**,** a Galaxy IV satellite failed. Eighty percent of US pagers went blank, 37 million people were immediately affected, some radio and television stations went off the air, and some gas stations and retail stores could not validate credit card transactions. Imagine the consequences of a robust anti-satellite test program or a dedicated organized attack on space assets. Imagine if we do nothing to prevent further space debris.

Citing a NASA program, the Weapons of Mass Destruction Commission reported that there are approximately 11,000 objects of space debris larger than 10 cm orbiting the earth.[i] This "space junk" includes parts of decommissioned satellites, discarded rocket debris and even nuts and bolts.[ii] A small paint chip can be deadly, since such material can travel in low orbit at ten times the speed of a rifle bullet. A marble-sized piece of debris would impact a satellite with the same energy of a safe dropped from a five story building's roof. Such debris becomes increasingly hazardous because eventually it will hit other debris, dramatically increasing the quantity and indiscriminately harming anything in its path, such as weather satellites, the International Space Station, the Space Shuttle, or the Hubble Space Telescope. How long should we ignore such risks? Will we adequately address such risks if we do not promote a cooperative regime in space?

Some say a quick fix is a "rules of the road" approach. An analogy is clear. In 1972 after several hazardous naval incidents, the navies of the United States and the Soviet Union, and eventually many other countries, adopted accords for the "Prevention of Incidents On and Over the High Seas." These so-called "IncSea" agreements were created to prevent collisions, dangerous maneuvers, simulated attacks, blinding

bridges of vessels with lasers, and other reckless acts at sea. Could similar rules, negotiated by senior military officials, yet not codified into formal ratified treaties, be useful to protect against dangerous activities that could create space debris? Could there be a formal agreement to protect satellites from harm? Is there a step-by-step approach to prevent asymmetrical warfare that will "blind" satellites and destroy their intelligence gathering capacities? Imagine the dangers of a situation where there are tensions between major powers during which reliance of satellite imagery is degraded.

Several experts such as Michael Krepon of the Henry Stimson Center have proposed a Code of Conduct be promptly instituted that could include provisions to:

- Minimize satellite-killing debris in space;
- Avoid and reduce the risk of collisions in space;
- Avoid or announce in advance dangerous maneuvers in space;
- Create special caution areas around satellites;
- Cooperate on space traffic management; and
- Refrain from flight testing or deploying space weapons.

There already are, in addition to the Outer Space Treaty itself, several existing legal instruments setting forth sanctioned conduct in space:

- The 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space;
- The 1975 Convention on the Registration of Objects Launched Into Outer Space; and
- The 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies.

In addition, the Scientific and Technical Subcommittee of COPUOS recently adopted space debris mitigation guidelines, expected to be adopted by the General Assembly this 62nd session. These guidelines were derived from "the fundamental mitigation elements of a series of existing practices, standards, codes and handbooks developed by a number of national and international organizations",[iii] including the Inter-Agency Space Debris Coordination Committee. They reflect a "rules of the road" approach, like that advocated by those championing a Code of Conduct, and as such, are voluntary rather than legally-binding, to be adopted through national mechanisms "to the greatest extent feasible."[iv]

However useful in mitigating dangers of space debris, these instruments do not clearly prohibit what could turn into an arms race in space should one or more countries pursue offensive weapons in space or anti-satellite capacities from earth to injure space assets. The placement of weapons in space will adversely and immediately affect the cooperative security foundation of the nuclear Non-Proliferation Treaty and, if pursued unilaterally, possibly the very foundation of the UN system itself. Moreover, such attempts to dominate the world will degrade the very cooperation needed to: effectively address nuclear non-proliferation and disarmament; cultivate and enhance the diplomatic environment needed to protect the climate, the oceans and other

global commons and; generate the political will needed to solve problems of terrorism and poverty. Thus, we must make serious efforts to prevent space from becoming another theater for an arms race.

An arms race could take on forms unlike the Cold War. For example, a weaker space power that feels threatened could respond asymmetrically by attacking satellites. Asymmetrical warfare, according to the US Pentagon, means countering an adversary's strengths by focusing on its weaknesses. This allows leveling a playing field by simpler means. An anti-satellite weapons program is a good example of a less expensive and technically challenging manner of responding to conventional superiority that might rely on satellites.[v] And just imagine the commercial crisis taking down a few satellites could cause. What benefit to "the common interest of mankind" could an arms race in space provide?

Consideration should be given to expand prohibitions on WMD to include all types of orbital weapons including kinetic kill devices and other more exotic weapons such as directed energy beams. Discussions regarding such prohibitions, however, are often stymied due to the lack of a clear definition of "space weapon", and a robust discussion to clarify this and other definitional issues is required. Space weapons obviously can take many forms: space strike weapons (which operate in space for one or more orbits and strike a land-, sea- or air-based targets); orbital anti-satellites to destroy satellites; ballistic missile defense weapons based in outer space to destroy ballistic missiles during their boost phase or mid-course phases of flight, or; anti-satellite weapons that are ground-based but directed at space assets.

There are numerous approaches to defining a space weapon, including some that simply incorporate disruption of electronic signals or other means of interference, thus altering trajectories. There is much to commend the clarity of the Canadian-proposed definition put forth in the CD in February of 1999 (CD/1569) which simply defines a weapon as any device or component of a system designed to inflict physical harm through deposition of mass and/or energy on any other object. [vi] This focuses on the aim of preventing harm.

Some define a space weapon by its capacity to orbit the earth at least once or has or can acquire a stable station at some point beyond earth orbit. But how then do we cover weapons that can injure space assets such as some earth-based ballistic missiles, fractional orbit bombardment systems or ballistic missile defense interceptors? Does this imply the need for a space-based weapons approach and a separate, but complementary, approach for ASAT weapons? Possibly.

Some experts such as former US Ambassador Thomas Graham advocate for a review and expansion of the Outer Space Treaty, which has more than 90 states party. The prestigious WMD Commission, chaired by Dr. Hans Blix, recommended that a Review Conference could "address the need to strengthen the treaty and extend its scope."[vii] But the subject is complex; numerous interests have manifested since the Treaty's inception over forty years ago. We clearly want to protect early warning systems for

arms control security purposes and intelligence and verification values. We want to safeguard sensing, telecommunications, navigation and ground-based military capabilities dependent on space assets. An expanded Treaty could include prohibitions on all weapons in space, both offensive and defensive. But, we need to agree on a definition of a weapon since there are numerous dual-use technologies. Obviously military uses such as the Global Positioning System maintained by the US Air Force must be permitted. Inspections of payloads of launches will be needed, perhaps modified by principles of "managed access" such as that found in the Chemical Weapons Convention. Advancing transparency and information-sharing will be an element. Is a new legal instrument needed to accomplish these goals?

Dr. Detlev Wolter argues effectively in his landmark book, Common Security in Outer Space and International Law, that we need a new Treaty of Common (Cooperative) Security in Outer Space. He argues that this instrument must address:

1. Principles of cooperative security in outer space
    - Transparency and confidence-building;
    - Defensive force configuration;
    - Non-proliferation and disarmament;
    - Protection against unauthorized and accidental missile attacks and attacks in violation of non-proliferation regime
2. Prohibition of active military uses of a destructive effect in outer space
3. Destruction of existing ASAT systems
4. Confidence building measures
5. Protective regime for civil space objects and passive military uses of a non-destructive nature in outer space
6. Implementation: monitoring and verification by an International Satellite Monitoring Agency
7. Codification of further legal standards of peaceful uses of outer space.

Do we stand at a moment of decision regarding the peaceful uses of space? Former US Ambassador Jonathan Dean certainly believes we do:

"*…humanity is on the verge of an irreversible shift to active, destructive, military uses of outer space, a global revolution in human security which will almost certainly surpass in significance the introduction of nuclear weapons*."[viii]

Thus we can identify two very pressing issues which need prompt attention:

1. Preventing space debris from adversely affecting the present and future uses of space.
2. Preventing an arms race in space

In order to advance understanding and effective avenues to address these two challenges, we recommend that the Secretary-General of the United Nations convene,

at the earliest possible time, a high-level expert panel.[ix] This panel need not be more than ten persons. Its mandate will be to help fulfill the aspirations embodied in the OST to advance the peaceful uses of space for the common interests of all mankind, to protect space for peaceful uses, and to prevent an arms race in space. Its mandate will include analyzing the present situation, taking into account space-related developments, achievements and challenges that have arisen since the OST's inception, and making recommendations regarding the most effective way forward. The panel will certainly use the legal foundation of OST for its point of reference but must include experts well-versed in commercial, communications, intelligence, military, scientific, ethical, and diplomatic aspects of the issue. The panel, which could be called The High Level Panel on Ensuring the Peaceful Uses of Space for All Humanity, will report specifically to the Secretary-General with specific recommendations regarding forums, agendas, and proposals. It should present its report no later than January 2009.

I would like to reiterate my gratitude towards the Secretary-General's Advisory Board for this opportunity to address these concerns. The Global Security Institute, and indeed, a majority of the world's peoples and governments, believes that it is highly important that every effort be expended by the world's highest political body to address humanity's most pressing cosmic challenge.

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[i] NASA, Orbital Debris Program Office: http://www.orbitaldebris.jsc.nasa.gov. Also cited in Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms, report of the Weapons of Mass Destruction Commission, 2006: p.147. See: www.wmdcommission.org.

[ii] COPUOS defines space debris as "all man-made objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional." See A/AC.105/890, available at: http://www.unoosa.org/pdf/reports/ac105/AC105_890E.pdf.

[iii] ibid, p. 42.

[iv] COPOUS adopted seven guidelines:

1. Limit debris released during normal operations;

2. Minimize the potential for break-ups during operational phases;
3. Limit the probability of accidental collision in orbit;
4. Avoid intentional destruction and other harmful activities;
5. Minimize potential for post-mission break-ups resulting from stored energy;
6. Limit the long-term presence of spacecraft and launch vehicle orbital stages in the low-Earth orbit (LEO) region after the end of their mission; and
7. Limit the long-term interference of spacecraft and launch vehicle orbital stages with the geosynchronous Earth orbit (GEO) region after the end of their mission.

[v] Anti-satellite threats range from the reasonable to the bizarre:

- Nuclear detonations. It is technologically feasible for a country to set off a high-altitude blast giving off an electromagnetic pulse that would "fry" nearby commercial satellites and create enough radiation to destroy hundreds more in low-orbit within months.
- Interceptors. A simple conventional warhead filled with pellets or sand could destroy a satellite by exploding nearby. These can even be deployed from the ground.
- Lasers. More than 20 countries are developing ground-based laser technology capable of damaging communications satellites or blinding imaging satellites in low-earth orbit.
- Information and electronic attack**.** Hackers can infect a computer program upon which a satellite depends, causing it to change orbit or even shut down. Radio frequency weapons can jam or short out circuits at ground control stations.
- Simple sabotage. Attacks on ground control stations that receive and relay information.

[vi] Russia and China offer a more detailed definition of space weapons in their comprehensive review of "Definition Issues Regarding Legal Instruments on the Prevention of the Weaponization of Outer Space," a working paper submitted to the CD: "any devices, installations or establishments based in outer space, including the Moon and other celestial bodies, which strike and damage objects in outer space, in the atmosphere, on the ground, in the sea or disrupt their normal functions, as well as any devices or installations based on the ground, in the sea or in the atmosphere, that strike and damage space objects, impair their normal functions or change their orbits." See: See CD/1779, working paper submitted to the Conference on Disarmament by the People's Republic of China and the Russian Federation, 22 May 2006.

[vii] Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Weapons, Report of the WMD Commission, Stockholm: 2006. www.wmdcommission.org.

[viii] Jonathan Dean, former US ambassador for arms control, as quoted in Wolter, Detlev. Common Security in Outer Space and International Law. United Nations Institute for Disarmament Research, Geneva, 2006: v.

[ix] This recommendation is similar to the provision included in recommendation #45 of the WMD Commission report, which calls for states to "set up a group of experts to develop options for monitoring and verifying various components of a space security regime and a code of conduct, designed *inter alia* to prohibit the testing or deployment of space weapons." See WMD Commission report, p. 148.