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Multilateralism in Space: Opportunities and Challenges for Achieving Space Security

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Human activity in space has, from the dawn of the space age, been characterized by a “push me, pull you” dynamic between competition and cooperation. There is no doubt it was the Cold War rivalry between the United States and the then Soviet Union that drove initial efforts to breach the space frontier, and that military competition has long been, and continues to be, a central factor in states’ pursuit of space capabilities. At the same time, even during the height of tensions between the two superpowers, international cooperation in the space exploration and sciences was considered a high priority. Not only did the United States and the Soviet Union seek to cooperate with each other regarding human space flight, but they also reached out to other less-developed space players.

This fragile balance between competitive pressures and cooperative benefits has helped to create the foundation for the rapid expansion of global space activities over the last 50 years that has greatly benefitted economic and social development around the world. There are now some 1,100 active spacecraft on orbit and more than 60 states and/or commercial entities owning and/or operating satellites.¹

However, the ever increasing usage of space by more and more actors is inevitably leading to pressures on the rather weak body of

international legal instruments and multilateral institutions that govern space activities – many of which sprang from the Cold War era and the efforts by the United States and Soviet Union to put boundaries around their military space race. For example, there is more and more competition for the limited resource of frequency spectrum, particularly for satellites in the coveted and ever more crowded geosynchronous (GEO) orbital belt.² The past 20 years have also seen an explosion in the use of space-related technologies for tactical military applications, such as weapons targeting and real-time imaging, creating potential geopolitical instability among major space players as each seeks to reduce its own vulnerabilities in space and exploit those of potential adversaries.

Finally, the February 2009 collision between a working Iridium communications satellite and a defunct Russian Cosmos military satellite – the first-ever collision of two intact satellites that created a very large debris field – spurred concern among satellite owners, operators, and governments about the challenge of tracking, avoiding, mitigating, and removing uncontrolled space debris that threatens satellite operations.³ For all three of these

¹James N. Miller, Testimony to the House Armed Services Committee Strategic Forces subcommittee, 16 March 2010, http://armedservices.house.gov/pdfs/StratForces031610/Miller_Testimony031610.pdf (accessed March 2010).

²GEO is located at 36,000 km in altitude, where satellites essentially remain over the same spot on Earth allowing continuous broadcasting to fixed receiver sites.

³See “Iridium 33 – Cosmos 2551 Collision” at <http://www.agi.com/media-center/multimedia/current-events/iridium-33-cosmos-2251-collision/default.aspx>; and also see *Orbital Debris Quarterly News*, <http://orbitaldebris.jsc.nasa.gov/newsletter/newsletter.html> (both accessed May 2010).

reasons, it is becoming important for multilateral cooperation to avoid harmful competition, accidents, and increased potential for conflict in space, which is legally enshrined as a global commons. This, in turn, increases the need for more attention to, and more focused work by, the three major multilateral institutions aimed at ensuring the global commons of space remains safe, secure, and available for the use of all: (1) the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS); (2) the International Telecommunication Union (ITU); and (3) the United Nations Conference on Disarmament (CD).

This article will review the status of, opportunities for, and challenges to these three multilateral institutions. It will further examine the arguable need for better cross-fertilization of effort among the three, given the interconnectivity of space activities in the civil, commercial, and military arenas, and the potential for competition and accidents to contribute to a climate of tension and potential conflict.

Foundations of Multilateralism

The *Outer Space Treaty* (OST) of 1967 provides the basic foundation for international space law, and could be seen as the central pillar of the current multilateral institutional framework.⁴ OST was primarily negotiated in a bilateral back and forth between the United States and the Soviet Union, both of which submitted drafts to the United Nations (UN) General Assembly in 1966, as a means of mitigating what both sides saw as a risky elevation of the nuclear arms race to space, and to quell growing fears of just such a

nuclear space race among the international community.⁵ Most critically, the OST establishes space as a global commons “not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”⁶ It further prohibits the stationing of weapons of mass destruction in space or on celestial bodies; limits uses of the Moon and other celestial bodies to exclusively peaceful purposes; and forbids the establishment of military bases, the testing of weapons, and military maneuvers on the Moon and other celestial bodies.

As of January 2009, 100 countries have ratified the OST and 26 others have signed, but not yet ratified.⁷ The OST is the basis for the four other international treaties governing space activities, all of which were developed and negotiated under the auspices of COPUOS.

1. The 1968 *Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space (Rescue Agreement)*, with 90 ratifications, 24 signatures and one acceptance of rights and obligations as of January 2009.
2. The 1972 *Convention on International Liability for Damage Caused by Space Objects (Liability Convention)*, with 87 ratifications, 23 signatures and three

⁵One should note that the negotiations took place in the aftermath of the Cuban missile crisis, which itself gave added impetus to superpower efforts to control their nuclear competition.

⁶*Treaty on Principles Governing Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies* (hereafter, *Outer Space Treaty*), <http://www.oosa.unvienna.org/oosa/SpaceLaw/outerspt.html> (accessed April 2010).

⁷“Report of the Legal Subcommittee on its forty-eighth session in Vienna from 23 March to 3 April 2009,” Committee on the Peaceful Uses of Outer Space, http://www.oosa.unvienna.org/pdf/reports/ac105/AC105_935_E.pdf (accessed April 2010).

⁴For a brief history of the treaty negotiations, see Arms Control Association, <http://www.armscontrol.org/documents/outerspace> (accessed April 2010).

acceptances of rights and obligations as of January 2009.

3. The 1976 *Convention on Registration of Objects Launched into Outer Space (Registration Convention)*, with 52 ratifications, four signatures, and two acceptances of rights and obligations as of January 2009.
4. The 1984 *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement)*, with 13 ratifications and four signatures as of January 2009.

According to the UN Office of Outer Space Affairs (OOSA), which implements decisions made by COPUOS and the UN General Assembly on space issues, the legal principles enshrined in these five treaties (*OST, Rescue Agreement, Liability Convention, Registration Convention, and Moon Agreement*) include:

...non-appropriation of outer space by any one country, arms control, the freedom of exploration, liability for damage caused by space objects, the safety and rescue of spacecraft and astronauts, the prevention of harmful interference with space activities and the environment, the notification and registration of space activities, scientific investigation and the exploitation of natural resources in outer space and the settlement of disputes. Each of the treaties lays great stress on the notion that the domain of outer space, the activities carried out therein and whatever benefits might accrue therefrom should be devoted to enhancing the well-being of all countries and humankind, and each includes elements elaborating the common idea of promoting international cooperation in outer space activities.⁸

⁸<http://www.oosa.unvienna.org/oosa/en/SpaceLaw/treaties.html> (accessed April 2010).

Committee on the Peaceful Uses of Outer Space

As noted above, the body of international space law was negotiated under the auspices of COPUOS, which was established in 1959 by the General Assembly to promote research, information sharing, and international cooperation in space; create cooperative space programs under UN auspices; and assume legal problems and issues surrounding the use of space.⁹ COPUOS is the only formal body empowered to negotiate new international space laws. There are 69 member states in COPUOS and a large number of non-governmental and intergovernmental organizations are observers. COPUOS activities are centered in two subcommittees – the Scientific and Technical Subcommittee, and the Legal Subcommittee – which meet annually and report to the annual meeting of the full committee. The last COPUOS meetings were held 3-12 June 2009 and 9-18 June 2010.¹⁰ Decisions within COPUOS are taken via voting by member states, although consensus is usually sought, and reported out to the General Assembly where those decisions are considered, and usually endorsed.

Much of the work of COPUOS is dedicated to information sharing, education, and capacity building in developing countries. COPUOS oversees, for example, the work of the UN Program on Space Applications, implemented by OOSA and aimed at building capacity through international workshops, training courses, and pilot projects on issues, such as satellite navigation systems. The committee

⁹Resolution Adopted by the General Assembly 1472 (XIV), *International co-operation in the peaceful uses of outer space*, http://www.oosa.unvienna.org/oosa/en/SpaceLaw/gares/html/gares_14_1472.html (accessed April 2010).

¹⁰The committee's report is available at http://www.oosa.unvienna.org/pdf/gadocs/A_64_20E.pdf (accessed April 2010).

also oversees implementation of the recommendations emanating from UNISPACE III, a major international conference held from 19-30 July 1999 in Vienna, Austria with the goal of identifying and taking actions designed “to maximize opportunities for human development through the use of space science and technology and their applications.”¹¹ COPUOS, under the Scientific and Technical Subcommittee, continues to follow national, regional and multinational efforts to implement UNISPACE III’s Plan of Action on an annual basis.

Similarly, the Scientific and Technical Committee follows progress reports of the UN Platform for Space-based Information for Disaster Management (UN-SPIDER). UN-SPIDER, launched by the General Assembly in 2006, “to provide universal access to all countries and all relevant international and regional organizations to all types of space-based information and services relevant to disaster management to support the full disaster management cycle.”¹² UN-SPIDER implementation is supervised by OOSA, with input from several regional support offices and national focal points, who work with UN-SPIDER staff “to strengthen national disaster management planning and policies, and implement specific national activities that incorporate space-based technology solutions in support of disaster management.”¹³

¹¹“Draft Report of the Committee on the Peaceful Uses of Outer Space on the implementation of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III),” UN General Assembly, 21 November 2003, http://www.unoosa.org/pdf/limited/c1/AC105_C1_L272E.pdf (accessed April 2010).

¹²“Committee on the Peaceful Uses of Outer Space Report on activities carried out in 2009 in the framework of the United Nations Platform on Space-based Information for Disaster and Emergency Response,” UN General Assembly, 23 December 2009, paragraph 1, http://www.oosa.unvienna.org/pdf/reports/ac105/AC105_955E.pdf (accessed April 2010).

¹³Ibid, paragraph 10.

While there has been a great deal of activity in this arena in recent years, a chronic shortage of funding – which although subsidized by the UN regular budget, is primarily provided by contributions of member states – is an ongoing constraint. It should be clear to states that such activities are necessary for ensuring the safety and security of space assets, as newcomers to

...implementation of the voluntary guidelines for the mitigation of space debris at the national level would increase mutual understanding on acceptable activities in space, thus enhancing stability in space...

the arena require assistance not only to most efficiently benefit from the use of space, but also to avoid harmful impact on others. In addition, “buy-in” to best practices is required by all spacefaring states, as the physics of space cannot be avoided, and inevitably mean that what any one actor does in space has the

potential to affect all others, whether positively or negatively.

COPUOS also has been relatively active, and relatively successful if at a slow pace, in studying emerging technical issues and making recommendations for how states might address these problems. The most recent success was the development of a set of voluntary guidelines for space debris mitigation adopted in 2007, based on technical recommendations developed by the Inter-Agency Debris Coordinating Committee (IADC)¹⁴ and subsequently endorsed by the

¹⁴The IADC – comprised of the space agencies of China, France, Germany, India, Italy, Japan, Russia, Ukraine and the United States, plus the European Space Agency – was

General Assembly in January 2008.¹⁵ The accord is a significant achievement for space security, especially regarding Article 4, which pledges nations not to deliberately create long-lived debris.¹⁶ In its most recent report, the Scientific and Technical Subcommittee agreed that “implementation of the voluntary guidelines for the mitigation of space debris at the national level would increase mutual understanding on acceptable activities in space, thus enhancing stability in space and decreasing the likelihood of friction and conflict.”¹⁷

That said, the process took seven years and the guidelines that resulted are less technically specific than those recommended by the IADC (as some states objected to measures that would be more costly), are voluntary, lack any elaboration of how they are to be implemented, and contain loopholes related to national security. All this leads to questions about whether states will adopt them and how strictly they will be adhered to. While there has been some discussion in COPUOS about further strengthening the guidelines, and having the Legal Subcommittee consider how they might be translated into a legally binding mechanism, there has been no agreement to proceed.

established in 1993 as a mechanism for space agencies to exchange information.

¹⁵UN General Assembly, Resolution A/Res/62/217, 10 January 2008, http://www.oosa.unvienna.org/pdf/rares/ARES_62_217E.pdf (accessed April 2010).

¹⁶Gerard Brachet, “Long-term Sustainability of Space Activities,” Annex, p.131, “*Security in Space: The Next Generation – Conference Report*, 31 March-1April 2008, UN Institute for Disarmament Research (UNIDIR), 2008, http://www.unidir.ch/bdd/fiche-activite.php?ref_activite=363 (accessed April 2010).

¹⁷“Report of the Scientific and Technical Subcommittee on its forty-sixth session, held in Vienna from 9 to 20 February 2009,” Committee on the Peaceful Uses of Outer Space, UN General Assembly, 6 March 2009, p.13, http://www.oosa.unvienna.org/pdf/reports/ac105/AC105_933_E.pdf (accessed April 2010).

However, continued consideration of methods to combat space debris is likely to take place at the Scientific and Technical Committee through a new agenda item, “long-term sustainability of outer space activities.” At its 18 February 2010 meeting, the subcommittee established a new working group on the issue. According to the agreement, the working group should:

...examine the long-term sustainability of outer space activities in all its aspects, consistent with the peaceful uses of outer space, and avail itself of the progress made within existing entities, including but not limited to the other working groups of the Subcommittee, the Conference on Disarmament, the International Telecommunication Union, the Inter-Agency Space Debris Coordination Committee, the International Organization for Standardization, the World Meteorological Organization and the International Space Environment Service. The Subcommittee agreed that the Working Group should avoid duplicating the work being done within those bodies and instead identify areas of concern for the long-term sustainability of outer space activities that are not covered by them. [The Subcommittee also agreed that the Working Group should consider organizing an exchange of information with the commercial space industry to understand the views of that community.]¹⁸

This agreement is significant for several reasons. First, it for the first time recognizes the need for COPUOS to liaise more closely with the CD and the ITU on issues related to space safety and security of the future environment. For years, there have been set in

¹⁸“Addendum, Draft Report of the Scientific and Technical Subcommittee on its forty-seventh session, held in Vienna from 8-19 February 2010,” Committee for the Peaceful Uses of Outer Space, UN General Assembly, http://www.oosa.unvienna.org/pdf/limited/c1/AC105_C1_L3_04Add3E.pdf (accessed April 2010).

place rather artificial boundaries among the three UN bodies, both for political reasons and out of competition among the various bureaucracies. There is now a growing appreciation among diplomats dealing with the space portfolio that the emerging challenges to the safe and equitable use of space are interlinked, and that attempting to separate the civil, military and commercial realms of space activities is largely futile. Further, there is also a growing appreciation of the need to link efforts in the political sphere to activities of the technical community – given the highly technical nature of space operations. Since the 1970s, the numerous UN bodies that are active in peacetime space applications – ranging from ITU to the UN Educational, Scientific, and Cultural Organization (UNESCO) – have met annually for the Interagency Meeting on Outer Space Activities, with the last meeting held at ITU headquarters in Geneva, Switzerland on 10-12 March 2010. Results of the meetings, which are coordinated by OOSA, are reported annually to COPUOS.¹⁹ The goal is to ensure that all these UN bodies are, in particular, working to apply space technology to meet human development goals and to minimize duplication. Interestingly, this group does not include the CD. The result is the effective isolation of the political decision-makers charged with efforts to protect space security from potential conflict from those within the UN system who have the most hands-on knowledge about the need for sustained access to space systems, and the most knowledge about how space can be, and cannot be, utilized and how best to ensure safe space operations.

Second, the subcommittee agreed to charge the working group with considering new measures to enhance the sustainability of

space activities and a possible set of “best practice guidelines.”²⁰ Based on the discussions so far, these guidelines are likely to fall under the rubric of “space traffic management” – that is processes, procedures, and new regulations for how spacecraft are launched, operated and disposed of at the end of their working lifetimes. While the need for a space traffic management regime has for many years been a topic for scientific, industry, and academic organizations, the issue has not been widely addressed in the political or legal realm. It is clear that given the increased usage of space and the growing problems of orbital crowding and debris, space operations – like international air travel – will soon require more robust and accepted

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rule sets to avoid accidents and collisions, as well as dampen drivers for conflict in the case of such incidents. One example of the growing recognition of the need for better processes is the decision in 2010 by OOSA and the ITU to exchange, for the first time, data on satellite

positions – which OOSA monitors through the UN Registry of Space Objects and the ITU through its Master International Frequency Register, which registers radio frequency transponders rather than actual satellites. A key problem with the UN Registry is failure by many states to actually register their satellites, especially military or intelligence

¹⁹See <http://www.uncosa.unvienna.org/uncosa/iamos/index.html> (accessed April 2010).

²⁰Ibid.

gathering satellites.²¹ By contrast, almost all states register the transponders on those satellites with the ITU. Thus harmonization of the two lists is a step toward a better picture of what exactly is in space, which is in turn a necessary foundation for ensuring both sustainability and security in space.²²

And while COPUOS limits itself to addressing the “peaceful uses” of space and avoids any discussion of military space, it is obvious that a key factor in ensuring the long-term sustainability of space for peaceful purposes will be avoiding military conflict in space. Indeed, if COPUOS is able to formulate a set of “best practice guidelines” for space operations, those guidelines are almost inevitably going to include provisions for data sharing, which could serve as transparency and confidence-building measures (TCBMs) for international security. It is already the case that the increased interest of the international community in TCBMs, also confidence and security-building measures (CSBMs),²³ has led to considerable discussion of whether efforts to build such a regime, whether voluntary or legally binding, should be undertaken in COPUOS, the CD, by both, or by neither. What is certain is that there is

While most satellite interference is caused by technical issues or operator error, there has also been an increase in acts of deliberate interference...

growing interest in confidence-building, witnessed by the near universal support since 2005 for a Russian-sponsored General Assembly resolution calling on states to make concrete proposals for new space-related TCBMs – the United States and Israel were the only hold-outs. Under the new administration of President Barak Obama, the long-standing U.S. opposition to multilateral action has waned, and it is likely that the United States will support some forward motion on TCBMs, although it remains unclear in what forum or fora.

Thus, the long-term sustainability work within COPUOS could serve the dual purpose of building much-needed bridges between the key multilateral institutions (as well as with the technical community and industry) assigned with international space governance, and opening an alternative pathway to long-stalled efforts to address the problem of growing military tensions in, and the potential weaponization of, space.

In addition, at the June 2009 meeting, COPUOS Scientific and Technical Subcommittee agreed to launch ad-hoc working groups on a new initiative by the current chair, Ambassador Ciro Arévalo of Colombia: “Toward a UN Space Policy.”²⁴ The initiative is designed to both better coordinate the some 25 UN bodies responsible for some aspect of space to improve UN governance, and to improve how the UN uses space applications including building capabilities in emerging space states. A key goal of the overall initiative is to raise awareness, both within the UN and among member states, of the value of space to humanitarian and development goals – which

²¹Jonathan McDowell, “The United Nations Registry of Space Objects,” http://www.planet4589.org/space/un/un_desc.html (accessed April 2010).

²²Theresa Hitchens, “Future Security in Space: Charting a Cooperative Course,” Center for Defense Information, Washington, DC, September 2004, pp.63-67.

²³The terms of art are slightly different and hold different political connotations for different states.

²⁴“Toward a UN Space Policy: An initiative of the Chairman of the Committee for the Peaceful Uses of Outer Space,” Committee on the Peaceful Uses of Outer Space, Fifty-seventh Session, 3 June 2009, http://www.unoosa.org/pdf/limited/I/AC105_2009_CRP12E.pdf (accessed April 2010).

in turn could promote cooperative behavior in space and to dampen risk of conflict.

If the COPUOS Scientific and Technical Subcommittee can be said to have made reasonable, if slow, progress over recent years, the picture is less positive in the Legal Subcommittee. The Legal Subcommittee for decades has continued to debate basic questions for international space law, such as delineating where outer space begins and how to define a launching state, which is necessary for assigning liability. Further, no substantial legal accords have emanated from COPUOS since the formation of the OST Regime in the 1960s and 1970s. Even the most recent accomplishment of COPUOS, the *Moon Agreement*, has little validity with only 13 ratifications of which there are no space powers.²⁵

It is somewhat ironic that the most progress in setting multilateral legal accords was made during the Cold War period, but perhaps also understandable in that the treaties crafted at that time were essentially based on bilateral understandings between the United States and then Soviet Union about how to protect their best interests in space. At best, the Legal Subcommittee has served as a forum for

...willingness by China to include terrestrial-based ASATs in any discussions or negotiations would in essence be a signal about China's "good faith" on efforts to prevent space weaponization...

²⁵The 13 states include: Australia, Austria, Belgium, Chile, Kazakhstan, Lebanon, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, and Uruguay. France and India, which are space powers, have signed, but have not ratified. Space power as used in the context here is a state that possesses indigenous capabilities to access orbital space.

exchange of information about national implementation of current treaties. For example, at its most recent meeting in June 2009, the subcommittee established a new Working Group on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space.²⁶ At worst, it has done nothing more than serve as a platform for states to assert competing political views – the real problems in the subcommittee are not questions of law, but those of politics.

COPUOS has a mixed record in contributing toward multilateral action to achieve space security. Nevertheless, there is a recent resurrection of interest in establishing new forms of space governance, even if voluntary, within COPUOS and among the member states.

International Telecommunications Union

The ITU is the progeny of the International Telegraph Union, begun in 1865 to coordinate cross-border usage of the telegraph. While certain portions of the radio-frequency (RF) spectrum can be shared, fundamentally there is only so much room for users to operate – thus, telecommunications systems based on RF are regulated by national and international processes designed to prevent interference. The RF spectrum and satellite orbital slots are considered limited natural resources that all states have equal rights to use. Each state manages use of the RF spectrum within its borders, but international coordination is required when RF signals cross borders, as is the case for all satellites. The ITU began coordinating space radio-communications in 1963, and is comprised of governments who

²⁶“Report of the Legal Subcommittee,” paragraph 10c, [http://www.oosa.unvienna.org/pdf/reports/ac105/AC105_935 E.pdf](http://www.oosa.unvienna.org/pdf/reports/ac105/AC105_935_E.pdf) (accessed April 2010).

join as member states as well as industry groups who join either as “sector members” or “associates” and may participate in ITU activities, but do not have voting rights.²⁷ There are 191 member states and more than 700 sector and associate members.²⁸ The legal framework for the ITU was established in 1992 with the signing of the *Constitution of the International Telecommunication Union*, which entered into force in 1994 as a legally binding treaty based on the major principles of efficient use of and equitable access to the spectrum and orbits. Among other things, the constitution empowers the ITU to:

- a) effect allocation of bands of the radio-frequency spectrum, the allotment of radio frequencies and the registration of radio-frequency assignments and, for space services, of any associated orbital position in the geostationary-satellite orbit or of any associated characteristics of satellites in other orbits, in order to avoid harmful interference between radio stations of different countries;
- b) coordinate efforts to eliminate harmful interference between radio stations of different countries and to improve the use made of the radio-frequency spectrum for radio-communication services and of the geostationary-satellite and other satellite orbits;
- c) facilitate the worldwide standardization of telecommunications, with a satisfactory quality of service;
- d) foster international cooperation and solidarity in the delivery of technical assistance to the developing countries and the creation, development and improvement of telecommunication equipment and networks in developing countries by every means at its disposal, including through its participation in the relevant programmes of the United

²⁷ITU, see <http://www.itu.int/net/about/membership.aspx> (accessed April 2010).

²⁸Ibid.

Nations and the use of its own resources, as appropriate...²⁹

Member states of the ITU are bound to abide by the provisions of the *Constitution of the International Telecommunication Union*, as well as the “Administrative Regulations” that govern use of the spectrum, operations of telecommunications facilities, and coordination to avoid harmful interference with other operators. The specific regulations that govern spectrum and orbital band usage – with comprise procedures for frequency notification, coordination and registration of transponders, primarily aimed at avoiding harmful interference – are contained in the Radio Regulations, which are administered by the ITU Radiocommunication Sector and the Radiocommunication Bureau.³⁰ Notably, the constitution exempts military installations, although states are urged to comply with the rules “so far as possible,” especially with the requirements for providing assistance in case of distress and the avoidance of harmful interference.³¹ That said, most states comply, including their military satellites and receiving facilities, if for no other reason than to establish legitimate rights for frequency allocations and orbital slots.³² While the ITU system is a legal framework, the organization has no enforcement powers, and member states are essentially expected to comply in good faith.

²⁹“Constitution of the ITU, Chapter I, Basic Provisions,” <http://www.itu.int/net/about/basic-texts/constitution/chapteri.aspx> (accessed April 2010).

³⁰“Radiocommunication Sector,” ITU, <http://www.itu.int/net/about/itu-r.aspx> (accessed April 2010).

³¹“Constitution of the ITU, Chapter VII, Special Provisions for Radio, Article 48,” ITU, <http://www.itu.int/net/about/basic-texts/constitution/chaptervii.aspx> (accessed April 2010).

³²Tim Bonds and et. al., “Employing Commercial Satellite Communications: Wideband Investment Options for DOD,” Project Air Force, RAND, Santa Monica, Calif., 2000, p.15, see <http://www.rand.org/publications/MR/MR1192> (accessed April 2010).

Top-level policy, including possible revisions to the *Constitution of the International Telecommunication Union*, financial plans and strategy, including plans for providing technical assistance to developing countries and setting equipment standards, are made by ITU Plenipotentiary Conferences, which are held every four years. The next Plenipotentiary Conference will be held in Guadalajara, Mexico on 4-22 October 2010.³³

World Radiocommunication Conferences (WRCs) are normally held every two to three years, but in recent years the intervals have stretched to four years. The WRCs are set to review and revise the Radio Regulations and the Table of Frequency Allocations, which identify what portions of the spectrum can be used by specific types of systems (such as mobile telecommunications or broadcast television), including allocating or reallocating frequencies for uses by new technologies.³⁴ At the last WRC, held 22 October to 16 November 2007, an agreement was reached on assigning certain frequencies for international mobile communications.³⁵ The next WRC is set for 23 January to 17 February 2012.

The two formal meetings essentially serve as fora for resolving disputes about spectrum and slot allocations, rules, regulations and technical standards. Each country gets one vote at the Plenipotentiary and WRC conferences, although in practice geographic regions usually coordinate their voting. According to ITU officials, however, every effort is made at such meetings to obtain consensus.

³³See ITU, <http://www.itu.int/plenipotentiary/2010/index.html> (accessed April 2010).

³⁴See ITU, <http://www.itu.int/ITU-R/index.asp?category=conferences&mlink=wrc&lang=en> (accessed April 2010).

³⁵“ITU World Radiocommunication Conference concludes after four weeks: International treaty sets future course for wireless,” ITU Press Release, 16 November 2007, http://www.itu.int/newsroom/press_releases/2007/36.html (accessed April 2010).

The process for allocating spectrum and an orbital slot to an individual user is complex, and can take a decade to resolve. Essentially, a government must apply to the ITU for the rights to use certain frequency bands and orbital slots before launching a new satellite or satellite network in any orbital plane, as well as Earth stations for communications with satellites and terrestrial stations within a certain area of an Earth station. Governments must apply even when the satellite owner and operator is a private company; most governments also include the majority of their military satellites in the ITU process. Assignments are given on a first-come, first-serve basis – provided that the proposed system will comply with the existing Table of Frequency Allocations and that no other user nation objects. A state can object if the proposed satellite’s operations will interfere with the use of the same frequency bands by users within its borders.³⁶

According to a background paper on spectrum and orbit coordination procedures by the ITU Radiocommunication Bureau,³⁷ the procedure for application has three stages: (1) advance publication; (2) coordination; and (3) notification. The coordination process is a formal regulatory obligation on all parties, and the results confer rights and obligations on all – and failure by a potentially affected government to respond to the coordination process within four months after publication of the request is considered acceptance of the new allocation. Once the coordination process, which is complex and differs for different types of systems, is completed, the applying government must follow a set of procedures for notification and registration of its new assignments in the Master International

³⁶“Frequently Asked Questions,” ITU, <http://www.itu.int/ITU-R/terrestrial/faq/index.html#g005> (accessed April 2010).

³⁷This background paper was provided to the author thorough personal correspondence with the ITU Radiocommunication Bureau.

Frequency Register that lists all ITU approved allocations. However, governments are obliged to bring the system into operation no later than seven years following the advance publication; failure to do so may cause the applicant to lose the allocation.

While the ITU system is complex, it has been successful in managing use of the limited resources of spectrum and orbital slots on a multilateral basis – also, due to the fact that owners and operators are aware that avoiding interference is in their own interests. One critical key in the success of the ITU has been the practice of reserving some frequency allocations for new users from the developing world, which has lessened, although not totally eliminated, concerns about perpetuating the digital divide between developed and developing states – given that a majority of the satellites in operation are owned and operated by governments or companies registered in the developed world, and that owners and operators do their best to hang onto RF and slot allocations as long as possible by piecemeal replacement of their satellite networks.³⁸

However, satellite operators and ITU officials say that in recent years there has been a trend of more incidences of interference – including deliberate interference – as spectrum and orbital crowding has grown. The ITU defines interference as: “The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information, which could be extracted in the absence of

such unwanted energy.”³⁹ It defines “harmful” interference as that “which endangers the functioning of a radionavigation service or other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance” with the Radio Regulations.⁴⁰

The first step in resolving interference issues is for the parties involved to engage in bilateral negotiations, and if the incident is considered serious enough, the affected party can alert the ITU. If bilateral discussions are unsuccessful, the affected party can ask for the assistance of the ITU Radiocommunication Bureau in resolving the problem. However, the ITU has no power to force the offending party to stop the interference – it can only arbitrate. While ITU officials say in most cases a simple inquiry by the ITU usually causes the offending party to find ways to resolve the situation, in the case of deliberate interference because of political issues, there is not much recourse. According to an official at the ITU Radiocommunications Bureau, at the World Radiocommunication Seminar held in Geneva 8-12 December 2008, there were 69 cases of harmful interference reported to the ITU in 2008, 11 of which involved space services and 58 of which involved terrestrial services.⁴¹

While most satellite interference is caused by technical issues or operator error, there has also been an increase in acts of deliberate interference, such as jamming of satellite broadcasts. The most recent incident involved Iranian jamming of European satellite

³⁸For background on this issue, see: “Report on WRC-03 (Geneva, 9-June-4July 2003),” 29 July 2003, European Radiocommunication Office website, <http://www.ero.dk/wrc-03> (accessed April 2010).

³⁹“Glossaire,” RR1.166, ITU, <http://www.itu.int/ITU-R/terrestrial/seminars/glossary/index.html#Q0524> (accessed April 2010).

⁴⁰Ibid.

⁴¹Ben Ba, “Harmful Interference,” Document WRS08/PRES/39-E, World Radiocommunications Seminar, 8-12 December 2008, Geneva (available on ITU website only for ITU members.)

broadcasts, especially those of Eutelsat Communications headquartered in France. The jamming began in earnest in December 2009 and worsened until 11 February 2010, the anniversary of the Iranian revolution, when according to a report in *Reuters*, some 70 Eutelsat radio and television programs were being jammed.⁴² In January 2010, French officials asked the ITU to step in on the matter, particularly in the case of jamming of BBC World Television Persian language broadcasts, which are carried by Eutelsat.⁴³ However, despite ITU efforts at intervention, the Iranian jamming is continuing, according to ITU officials. Indeed, the European Union (EU) at a 23 March 2010, meeting of Foreign Ministers called on Iran to stop the jamming, and pledged to take action if the Iranian government failed to respond – although, exactly what action was not defined.⁴⁴ On 26 March 2010, the ITU’s radio regulations board – in a first for the organization – issued a public exhortation to Iran to stop the jamming. “In this case there is evidence that there is a deliberate attempt to block the satellite transmissions and so they are saying this should be stopped. This is prohibited under the regulations.”⁴⁵ Iran has not admitted the

⁴²Luke Baker, “EU ready to act on Iran satellite jamming – draft,” 19 March 2010, *Reuters*, <http://www.alertnet.org/thenews/newsdesk/LDE62I13N.htm> (accessed April 2010).

⁴³Peter B. de Selding, “France Seeks ITU Help To Halt Satellite Signal Jamming By Iran,” *Space News*, 8 January 2010, http://www.spacenews.com/satellite_telecom/100108-france-seeks-itu-signal-jamming-iran.html (accessed April 2010).

⁴⁴“EU slams Iran’s jamming of satellite signals as ‘unacceptable’,” *DW-World.DE* Deutsche Welle, 23 March 2010, <http://www.dw-world.de/dw/article/0,,5377813,00.html> (accessed April 2010). According to a *Reuters* report, retaliation could include sanctions, such as blocking exports or Eutelsat’s blocking Iranian broadcasts in retaliation. See Luke Baker, “EU ready to act on Iran satellite jamming – draft,” 19 March 2010, *Reuters*, <http://www.alertnet.org/thenews/newsdesk/LDE62I13N.htm> (accessed April 2010).

⁴⁵Stephanie Nebehay, “UN tells Iran to end satellite jamming,” *Reuters*, 26 March 2010, www.reuters.com/article/idUSTRE62P21G20100326; and Luke Baker, “EU ready to act on Iran satellite jamming – draft,” 19 March

jamming, and has responded to all concerns by saying that it is investigating the matter.

Two other longstanding disputes that have remained unresolved as well, despite ITU intervention, involve Cuban allegations of deliberate U.S. government jamming of radio and television broadcasts from Cuba, and interference with Slovenian broadcasts by Italian broadcasters who, according to Slovenian charges, are using uncoordinated frequencies.⁴⁶ Discussions on both issues are apparently continuing.

There is a concern among many in the satellite industry that if instances of deliberate, or wilfully ignored, interference are not resolved, nor punished, more actors might be tempted to violate the ITU rules – leading to a breakdown of the system. A breakdown of the ITU regulatory system would, in the end, do no

Although progress in the CD is not plausible for the foreseeable future, there is a growing possibility that diplomats at the conference will take up the issue of “soft law” regarding space activities...

operator any good – as a break out of “interference wars” would result in large-scale broadcast outages. Eutelsat, in its 2010 report to the COPUOS Legal Subcommittee, raised this issue with regard to the Iranian jamming: “This matter could affect the credibility in general of satellites by posing a threat to the secure

2010, *Reuters*, <http://www.alertnet.org/thenews/newsdesk/LDE62I13N.htm> (both accessed April 2010).

⁴⁶See Peter B. de Selding, “France Seeks ITU Help To Halt Satellite Signal Jamming By Iran,” *Space News*, 8 January 2010, http://www.spacenews.com/satellite_telecom/100108-france-seeks-itu-signal-jamming-iran.html (accessed April 2010).

transmission of programmes by satellites” and asked the COPUOS Legal Subcommittee to look into the issue as a violation by Iran of the *Outer Space Treaty*.⁴⁷

Conference on Disarmament

The Geneva-based Conference on Disarmament was established by the General Assembly in 1979 as the only multinational forum dedicated to the negotiation of arms control and disarmament treaties and agreements, and currently has 65 member states and about 40 observer states. It meets in three annual sessions starting in January, and takes decisions – including on procedural issues such as a program of work – by consensus. The CD has been debating the question of “Prevention of an Arms Race in Outer Space (PAROS) since 1985, when an ad-hoc committee was formed – by consensus – to examine the issue. This committee was disbanded in 1994, and since then, discussions of PAROS have taken place in the CD on an informal basis.⁴⁸

Even though the United States was one of the key countries that called for the development of the CD ad-hoc committee, the chief naysayer on any formal activity regarding PAROS has been the United States, which in the past has simply rejected the need for any new space arms control agreements. As Karen House, U.S. delegate to the 63rd Session of the UN General Assembly, told the First

Committee (the GA committee dedicated to disarmament issues) on 20 October 2008: “There is much rhetoric about the prevention of an arms race in outer space. For nearly three decades, the United States has consistently pointed out that it is not possible to define the nature of a space-based weapon. The United States also believes it is not possible to develop an effectively verifiable agreement for banning either space-based weapons or terrestrial-based anti-satellite (ASAT) systems.”⁴⁹

Since the late 1990s and early 2000s, the primary “movers” behind the PAROS agenda at the CD have been China and Russia, which long have been concerned by U.S. interest in space-based missile defense – a program that both nations view as a threat to their nuclear deterrence capabilities. On 27 June 2002, Russia and China introduced into the CD a joint working paper, “Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects.”⁵⁰ The paper noted that there was an increasing threat of “armed confrontation and combatant activities” in space, and it further stated: “Only a treaty-based prohibition of the deployment of weapons in outer space and the prevention of the threat or use of force against outer space objects can eliminate the emerging threat of an arms race in outer space and ensure the security for outer space assets of all countries, which is an essential condition for the maintenance of world peace.”⁵¹

⁴⁷“Report on the activities of Eutelsat IGO to the forty-ninth session of the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space (2010), European Telecommunications Satellite Organization Intergovernmental Organization (Eutelsat IGO), http://sz0129.wc.mail.comcast.net/service/home/~Eutelsat%20Igo%20statement%20to%20COPUOS%20LSC.pdf?auth=co&loc=en_US&id=304020&part=2 (accessed April 2010).

⁴⁸See “Outer Space Background and History,” <http://www.reachingcriticalwill.org/legal/paros/osbackground.html> (accessed April 2010).

⁴⁹Karen E. House, “United States Public Delegate to the 63rd Session of the United Nations General Assembly,” Delivered in the Debate on Outer Space (Disarmament Aspects) of the General Assembly’s First Committee, 20 October 2008, *Arms Control Update*, U.S. Delegation to the Conference on Disarmament, Geneva, <http://geneva.usmission.gov/CD/updates/1020OuterSpace.html> (accessed April 2010).

⁵⁰See “CD,” http://www.reachingcriticalwill.org/political/cd/speeches02/chiruswp_062702cd.html (accessed April 2010).

⁵¹Ibid.

Between 2002 and 2008, Russia and China submitted a number of “non-papers” on various issues related to PAROS, although the CD itself was, and continues to remain, deadlocked over its proposed agenda of work, which also covers nuclear disarmament and the potential negotiation of a treaty on fissile materials – as states with different priorities insisted on linking activities on one agenda item with those on another, resulting in a long-standing lack of consensus as to just what the CD ought to be discussing and negotiating. On 12 February 2008, Russian Foreign Minister Sergey Lavrov, on behalf of Russia and China, formally presented the CD with a draft treaty: *Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects* (PPWT), and called for the immediate launch of CD negotiations based on the draft.⁵² Russia and China also called on CD members to make comments based on the draft as a foundation for future discussions.

The United States administration of George W. Bush objected to the draft treaty – the administration rejected in principle multilateral treaties and pursued a policy of “space control,” including the development of offensive space capabilities. In particular, the United States criticized the draft treaty text for failing to bar development, testing, and deployment of ground-based ASATs.⁵³ The United States national security community had been challenged in January 2007 by China’s successful testing of a kinetic energy, hit-to-kill, ASAT based on a ground-based rocket on

one of its own aging weather satellites. The Chinese test, while breaking no new technical ground – indeed, both the United States and Russia tested ASAT systems in the 1980s – did violate the norm of self-restraint on testing of such weapons, created a large and dangerous debris field that will continue to threaten satellite operations for decades, and elicited widespread concern about the renewed potential for a space arms race. In the United States, in particular, it hardened the attitudes of those in national security policy-making circles arguing for “space control” programs. “Space is no longer a sanctuary,” said then-Secretary of the Air Force Michael Wynne. “This change is seismic in nature.”⁵⁴

While the substance of U.S. concerns with the PPWT did not change with the 2008 election of President Barak Obama, the new administration came into power with a much different view than the previous one on the value of multilateral diplomacy and fora. In part, this new American flexibility helped underpin the 29 May 2009 agreement to a formal program of work (CD/1864) – for the first time in more than a decade – which included a decision to establish a working group on PAROS “to discuss substantively, without limitation, all issues...”⁵⁵ While Russia and China expressed regret that the breakthrough decision did not call for formal PAROS negotiations, they did not insist on linking the discussions to formal negotiations; the lack of linkage to treaty negotiations was exactly the reason that the United States could sign on.

However, this new consensus at the CD to move forward with a work program shattered almost immediately after it was reached.

⁵²PPWT, <http://reachingcriticalwill.org/political/cd/papers08/1session/Feb12%20Draft%20PPWT.pdf> (accessed April 2010).

⁵³Karen E. House, “United States Public Delegate to the 63rd Session of the United Nations General Assembly,” Delivered in the Debate on Outer Space (Disarmament Aspects) of the General Assembly’s First Committee, 20 October 2008, *Arms Control Update*, U.S. Delegation to the Conference on Disarmament, Geneva, <http://geneva.usmission.gov/CD/updates/1020OuterSpace.html> (accessed April 2010).

⁵⁴Michael Sirak, “Air Force Leadership: Chinese ASAT Test Marked Turning Point; Space No Longer Sanctuary,” *Defense Daily*, 12 February 2007.

⁵⁵See CD, <http://www.reachingcriticalwill.org/political/cd/papers09/2session/CD1864.pdf> (accessed April 2010).

Pakistan, reversing its decision to go along with the program's mandate for the launch of negotiations on a Fissile Material Cutoff Treaty, played out the rest of the CD's 2009 session with a variety of procedural objections to implementing the agreement.⁵⁶ At the beginning of the CD's January 2010 session, it became even more clear that Pakistan had no intentions of allowing treaty negotiations to go forward due to concerns in the Pakistan military about somehow bridging the gap between its nuclear arsenal and that of India – concerns that were exacerbated by the 2008 agreement by the Nuclear Suppliers Group to endorse a civil nuclear cooperation agreement between the United States and India.⁵⁷ The CD remains at a standstill with no resolution in sight, despite the pressure for achieving some measure of success at the review conference of the foundational *Nuclear Non-Proliferation Treaty* (NPT) and the importance of fissile material negotiations to forwarding the NPT goals.

Still, it is by no means clear that discussions within the CD would result in the near-term or medium-term establishment of negotiations on PAROS or the PPWT. First of all, while the Obama campaign signaled support for an eventual space weapons treaty, the administration's stance has shifted considerably over the last year toward a more cautious approach and, according to American insiders, there is a serious debate within the administration on what, if any, multilateral agreements for space security should be pursued. Led by the Department of Defense (DOD), a review of U.S. national security

space posture was begun in May 2009.⁵⁸ In July 2009, the National Security Council began a review of U.S. National Space Policy, last revised by the Bush administration in

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2006.⁵⁹ The space posture review originally was slated to be finished by 1 February 2010, but in January stalled and will now not likely be completed until year end or even the beginning of 2011. While Pentagon officials cited the need to wait for the new

National Space Policy before formally deciding on a national space posture – which would outline what space systems would be pursued by DOD, the Air Force, and the intelligence community – U.S. officials familiar with the internal discussions also noted that fierce infighting between the National Reconnaissance Office (NRO) and DOD on responsibility and budgeting for satellite assets had contributed to the delay.⁶⁰

The National Space Policy review was originally given a deadline of 1 October

⁵⁶Jonathan Lynn, "Geneva nuclear arms talks fail to overcome block," *Reuters*, 31 August 2009, <http://in.reuters.com/article/worldNews/idINIndia-42108520090831> (accessed April 2010).

⁵⁷Eric Auner, "Pakistan Raises New Issues at Stalled CD," *Arms Control Today*, March 2010, http://www.armscontrol.org/act/2010_03/CDStalled (accessed April 2010).

⁵⁸Andrea Shalal-Esa, "U.S. harvesting canceled satellites for future uses," *Reuters*, 11 May 2009, <http://www.reuters.com/article/domesticNews/idUSTRE54A6HY20090511> (accessed April 2010).

⁵⁹Frank Moring, "U.S. Space Policy Review Underway," *Aviation Week & Space Technology*, 22 July 2009, http://www.aviationweek.com/aw/generic/story_generic.jsp?channel=space&id=news/Review072209.xml&headline=U.S.%20Space%20Policy%20Review%20Under%20Way (accessed April 2010).

⁶⁰John T. Bennett, "Flournoy Confirms Space Posture Review Delay," *Defense News*, 2 February 2010, <http://www.defensenews.com/story.php?i=4481146> (accessed April 2010).

2009,⁶¹ and then was delayed until December 2009, and as of today remains unfinished. While the review is expected to call for a renewed emphasis on multilateral cooperation in space, there is little evidence that U.S. agreement to PAROS negotiations on a space weapons ban will be forthcoming, due to ongoing concerns about the verifiability of such a treaty. At the October 2009 session of the General Assembly First Committee, Garold Larson, then acting head of the United States mission to the CD, said: “In consultation with allies, the Obama administration is currently in the process of assessing U.S. space policy, programs, and options for international cooperation in space as a part of a comprehensive review of space policy. This review of space cooperation options includes a “blank slate” analysis of the feasibility and desirability of options for effectively verifiable arms control measures that enhance the national security interests of the United States and its allies.”⁶²

Second of all, despite China’s strong diplomacy surrounding the need for a PPWT, it remains unclear whether the Chinese government would be willing to trade-off ASAT development capabilities in exchange for a space-based weapons ban. However, Chinese diplomats over the last few months have shifted their rhetoric to insist that an ASAT ban could be considered in future negotiations on the PPWT.

The Pentagon’s 2009 annual report to Congress on Chinese military power, released in late March 2009, stated that: “China is

developing the ability to attack an adversary’s space assets. People’s Liberation Army (PLA) documents emphasize “destroying, damaging, and interfering with the enemy’s reconnaissance/ observation and communication satellites,” suggesting that such systems, as well as navigation and early warning satellites, could be among initial targets of attack to “blind and deafen the enemy.” The same PLA analysis of U.S. and Coalition military operations also states that “destroying or capturing satellites and other sensors... will deprive the opponents of initiatives on the battlefield and [make it difficult] for them to bring their precision guided weapons into full play.”⁶³

Concomitantly, willingness by China to include terrestrial-based ASATs in any discussions or negotiations would in essence be a signal about China’s “good faith” on efforts to prevent space weaponization – in that while it is not certain that the United

...there is a gathering impetus for “soft law” action to mitigate the twin problems of space safety and security.

States would under any circumstances agree to negotiations of a space-based weapons ban, it is certain that the United States would not enter such negotiations without the inclusion of terrestrial-based ASATs. In addition, India – with an eye to rival China – has been sending signals that it too is working to develop ASAT capabilities. At a January 2010 meeting of

Indian scientists, the director general of India’s Defense Research and Development Organization (DRDO) said that India is

⁶¹Joanne Irene Gabrynowicz, “President Orders Sweeping Policy Review,” 5 July 2009, *Res Communis*, <http://rescommunis.wordpress.com/2009/07/05/president-orders-sweeping-u-s-policy-review> (accessed April 2010).

⁶²Amy Klumper, “Obama Space Policy to Emphasize International Cooperation,” *Space News*, 30 November 2009, <http://www.spacenews.com/policy/091130-obama-space-policy-emphasize-international-cooperation.html> (accessed April 2010).

⁶³“Annual Report to Congress: Military Power of the People’s Republic of China 2009,” Office of the Secretary of Defense, U.S. Department of Defense, http://www.defense.gov/pubs/pdfs/China_Military_Power_Report_2009.pdf (accessed April 2010).

“working to ensure space security and to protect our satellites. At the same time, we are also working on how to deny the enemy access to its space assets.”⁶⁴

Many Indian experts now believe that India would not be willing to negotiate any space weapons treaty until it has successfully demonstrated ASAT technologies. India’s political and military elites, these experts say, never reconciled themselves with the fact that India’s failure to conduct a nuclear test prior to the 1968 NPT accord demoted India to a “have not” status, and are determined not to make the same mistake again. “If and when globally negotiated restraints are placed on such strategic defensive systems or technologies – perhaps restraints of some sort of ASAT testing, hit-to-kill technologies – India will already have crossed the technical threshold in that regard, and acknowledgement of such status [will be] grand-fathered into any such future agreement.”⁶⁵ Indeed, according to Indian diplomats, the thinking in India is that efforts toward PAROS have been superseded by events, and that any international accords will need to focus instead on managing the already on-going ASAT arms race – and the time for a treaty negotiation is nowhere near mature. Needless to say, development by India of ASATs would, in turn, almost assure similar efforts by Pakistan – and thus mitigate any support of a weapons ban treaty. And certainly, if India resists near-term moves to launch the PAROS talks, Pakistan will also.

Although progress in the CD is not plausible for the foreseeable future, there is a growing possibility that diplomats at the conference will take up the issue of “soft law” regarding

space activities and norms in other fora. In particular, Russia and the United States are moving closer toward mutually embracing an effort to push the UN General Assembly to more formally take up the creation of TCBMs under a so-called Group of Governmental Experts (GGE) that would report to the Secretary General, according to Russian and American diplomats who have been involved in recent bilateral talks on the issue of space. The renewed interest in bilateral space cooperation, including improved sharing of orbital positioning data, stems largely from the collision of an Iridium communications satellite with a defunct Cosmos satellite in February 2009 mentioned earlier.

Every year since 2005, Russia has been the key sponsor of a General Assembly Resolution calling for the development of TCBMs. The latest version of the resolution was adopted at the First Committee meeting in October 2009 – and was significant because the voting marked a change of U.S. policy under the Obama administration. Rather than voting against the resolution, as the United States did during the Bush administration, the United States abstained.⁶⁶ The resolution invites all UN nations to submit concrete proposals to the Secretary General and instructs the Secretary General to compile a report containing all the proposals for the October 2010 meeting of the First Committee.

Russia has further proposed that future TCBMs could be developed under three categories: (1) measures aimed at enhancing more transparency of space programs; (2) measures aimed at expansion of information on space objects in orbits; and (3) measures related to the rules of conduct during space

⁶⁴Peter J. Brown, “India targets China’s satellites,” *Asia Times*, 22 January 2010, http://www.atimes.com/atimes/South_Asia/LA22Df01.html (accessed April 2010).

⁶⁵Ibid.

⁶⁶“Transparency and confidence-building measures in outer space activities,” UN General Assembly, First Committee, Sixty-fourth Session, 16 October 2010, <http://www.reachingcriticalwill.org/political/1com/1com09/res/L40.pdf> (accessed April 2010).

activities.⁶⁷ More specifically, the Russian proposal, which was submitted to the CD in a 14 August 2009 letter from Ambassador Valery Loshchinin, calls for:

1. Exchange of information on:

- the main directions of the states' outer space policy;
- major outer space research and use programs;
- orbital parameters of outer space objects.

2. Demonstrations:

- experts visits, including visits to space launch sites, flight command and control centers and other objects of outer space infrastructure on a voluntary basis;
- invitation of observers to launches of spacecraft on a voluntary basis;
- demonstration of rocket and space technologies.

3. Notifications of:

- the planned spacecraft launch;
- the scheduled spacecraft maneuvers which may result in dangerous proximity to spacecraft of other states;
- the beginning of descent from orbit of unguided outer space objects and the predicted impact areas on Earth;
- the return from orbit into atmosphere of a guided spacecraft;
- the return of a spacecraft with a nuclear source of power on board, in case of malfunction and danger of radioactive materials descent to Earth.

4. Consultations:

- to clarify the provided information on outer space research and use programs;
- on ambiguous situations, as well as other issues of concern;
- to discuss the implementation of the agreed TCBMs in outer space activities.

5. Thematic workshops:

- on various outer space research and use issues, organized on bilateral and multilateral basis, with the participation of scientists, diplomats, military and technical experts.⁶⁸

U.S. diplomats state an interest in the development of TCBMs on a voluntary basis, and the United States and Russia are conversing about the potential for convening a GGE. The question for the United States will be ensuring that the GGE, in its terms of reference, does not directly link the development of TCBMs with negotiations of a PAROS treaty or the PPWT.

As China is traditionally a co-sponsor of the UN General Assembly resolution on TCBMs, and as all of the member states of the EU voted for the latest version, it is likely that if the United States and Russia agree on a GGE that such a group will be established via a resolution at the October 2010 First Committee meeting, which would imply it could start work in early 2011.

Meanwhile, the First Committee at the 2009 meeting also endorsed the draft "Code of Conduct on Outer Space Activities" adopted by the EU Council of Ministers in 2008.⁶⁹ The proposed code, which was presented to the CD in 2009, in effect would be another approach to TCBMs by establishing best practice guidelines for space activities and pledging signatories to certain norms of behavior. In particular, the draft code, which would be voluntary, would pledge signatories to: "refrain from any intentional action which will or might bring about, directly or indirectly, the damage or destruction of outer

⁶⁷"Transparency and Confidence-Building Measures in Outer Space Activities and the Prevention of the Placement of Weapons in Outer Space," Permanent Mission of the Russian Federation to the UN Office and Other International Organizations in Geneva, <http://www.geneva.mid.ru/disarm/d-01.html> (accessed April 2010).

⁶⁸See [http://disarmament.un.org/library.nsf/a61ff5819c4381ee85256bc70068fa14/871f014d29f0686b8525762500713d4f/\\$FILE/cd-1874.pdf](http://disarmament.un.org/library.nsf/a61ff5819c4381ee85256bc70068fa14/871f014d29f0686b8525762500713d4f/$FILE/cd-1874.pdf) (accessed April 2010).

⁶⁹Carol Naughton, "United Nations First Committee 2009, Keeping Space Peaceful," <http://www.acronym.org.uk/un/0905.htm> (accessed April 2010).

space objects unless such action is conducted to reduce the creation of outer space debris and/or justified by imperative safety considerations.”⁷⁰

During the course of 2009, the EU consulted with a number of non-EU states, including the United States about the content of the draft code, and is now in the process of re-drafting the text. According to European diplomats and experts, the hope is that a new version can be adopted during the second half of 2010 under the Belgian EU presidency and then opened for signature by other states – perhaps, via COPUOS or through the UN General Assembly, albeit the code is envisioned as a free-standing accord along the model of the Hague Code of Conduct on Ballistic Missiles rather than a COPUOS or CD initiative.

Canada also has developed an initiative for confidence-building measures, which has been proposed to the CD as an alternative to the Chinese-Russian PPWT. Submitted to the CD as a working paper on 29 March 2009, and codified as a CD document on 5 June 2009, the Canadian proposal envisions “a declaration of soft legal principles” that would in effect provide a middle ground between the EU draft code and the PPWT.⁷¹ Accordingly,

The fact remains that what any one actor does in space has the potential to affect all others, whether positively or negatively.

Canada has suggested that the proposal could be adopted either as a voluntary code or as a legally binding treaty. The key provision of the Canadian proposal would be a commitment by states “not to test or use a weapon against any satellite so as to damage or destroy it,” as well as establish a ban on the placement of weapons in space.⁷² Canada elaborated on its proposal in a statement to the First Committee in October 2009, noting that in addition to the two above proposed commitments, states should also agree not to use a satellite as a weapon.⁷³

Conclusions

Efforts at multilateral approaches toward developing new regulations and legal measures to ensure the sustained, safe, and secure use of space remain difficult. The critical obstacle for all three of the major institutional frameworks – COPUOS, ITU, and CD – on space governance is the desire to obtain consensus. The CD is particularly unable to reach agreements by the fact that consensus is required, even for procedural matters – a fact that is aggravated by the linkages in the long-standing agenda between

0B92E5F37A9CC12575FC003BCE37/\$file/CD_1865_E.pdf (accessed April 2010).

⁷²Ibid.

⁷³“Statement on the Prevention of an Arms Race in Outer Space,” Permanent Mission of Canada to the UN, 19 October 2009, [http://www.unog.ch/80256EDD006B8954/\(httpAssets\)/C40D0B92E5F37A9CC12575FC003BCE37/\\$file/CD_1865_E.pdf](http://www.unog.ch/80256EDD006B8954/(httpAssets)/C40D0B92E5F37A9CC12575FC003BCE37/$file/CD_1865_E.pdf) (accessed April 2010). While Canada would be most interested in seeing its proposal adopted formally by the CD, in either voluntary or treaty form, Canadian diplomats say that the government is becoming increasingly frustrated with the never-ending impasse of the CD. Thus, it is conceivable that Canada may seek to push its proposal via other avenues – considering that Canada was a leader in the passage of the *Ottawa Convention* banning landmines (*Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction* of 1997), which was pursued as a free standing treaty outside of any multilateral forum.

⁷⁰See http://www.eu2008.fr/webdav/site/PFUE/shared/import/1209_CAGRE_resultats/Code%20of%20Conduct%20for%20outer%20space%20activities_EN.pdf (accessed April 2010).

⁷¹“Working Paper On the Merits of Certain Draft Transparency and Confidence-Building Measures and Treaty Proposals for Space Security,” Canada, Conference on Disarmament, CD 1865, 5 June 2009, [http://www.unog.ch/80256EDD006B8954/\(httpAssets\)/C40D](http://www.unog.ch/80256EDD006B8954/(httpAssets)/C40D)

nuclear disarmament, space security, and conventional disarmament issues, each having a different priority for different states.

From the struggles in all three fora, it is clear that there is a widespread reluctance among states to enact new legal restraints on space activities in any domain. Indeed, some states seem intent on avoiding the legal responsibilities that they arguably already have accepted. Thus, the development of any new treaty in the near-term is unlikely – whether it is designed to establish safety measures or arms control for space.

On the other hand, it is apparent that there is a gathering impetus for “soft law” action to mitigate the twin problems of space safety and security. This movement can be attributed to the fact that over the last decade more states have become “vested” in space, and thus now, understand the need for cooperative behavior in what is a “commons” environment. This momentum could be furthered by the push by the COPUOS Chairman to develop a UN space policy.⁷⁴ Such a policy could serve to build a better appreciation among UN organizations and Member States about the criticality of space operations to human security and development, and to increase space capacity in the developing world. A UN space policy could serve as yet another driver toward more urgent action to protect space assets and avoid conflict that could endanger the space environment for peaceful uses.

This advent of “soft law” approaches for space should not be surprising, in that the same phenomena took place in humankind’s exploitation of the seas and the air. For example, in the maritime arena, the United

⁷⁴Ciro A. Arévalo Yepes of Colombia is currently the Chairman of COPUOS and will serve in that capacity until 2010. See “Towards a UN Space Policy,” 3 June 2009, 52nd Session of COPUOS, http://www.oosa.unvienna.org/pdf/limited/I/AC105_2009_CRP12E.pdf (accessed May 2010).

States and Soviet Union, in 1972, signed the *Incidents at Sea Agreement* to set “rules of the road” for the actions of military ships and aircraft on the high seas so as to avoid accidents and accidental conflict.⁷⁵ This bilateral confidence-building agreement – which is not a treaty, and thus should be seen as an instrument of soft law – was aimed at applying, and amending, the *Convention on International Regulations for Preventing Collisions at Sea* also promulgated in 1972 – although, based on an earlier 1960 agreement on collision avoidance – by the International Maritime Organization for civil ships on the high seas.⁷⁶ The *Incidents at Sea Agreement*, which still stands, includes, for example, a prohibition on simulated attacks, as well as basic navigational operations, such as maintaining distance when conducting surveillance operations on ships of the other party.⁷⁷ In addition, military-to-military meetings were prescribed to discuss any incidents that did occur or concerns of either party. The original U.S.-Soviet agreement has been replicated by other states on bilateral and multilateral bases since that time.

In the arena of air operations, the International Civil Aviation Organization (ICAO) was created in 1944 under the *Convention on International Civil Aviation* signed in Chicago, and known as the *Chicago Convention*,⁷⁸ in order to establish

⁷⁵*Agreement Between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on the Prevention of Incidents on or over the High Seas (Incidents at Sea Agreement)*. See Federation of American Scientists, <http://www.fas.org/nuke/control/sea/text/sea1.htm> (accessed April 2010).

⁷⁶*Convention on International Regulations for Preventing Collisions at Sea*, International Maritime Organization, http://www.imo.org/Conventions/contents.asp?doc_id=649&opic_id=257 (accessed April 2010).

⁷⁷*Incidents at Sea Agreement*.

⁷⁸“Chicago Conference – Introduction,” International Civil Aviation Organization (ICAO), http://www.icao.int/cgi/goto_m.pl?icao/en/chicago_conf/intro.html (accessed April 2010).

international air routes and harmonize a set of technical rules, including setting standards for flight worthiness and air traffic control procedures.⁷⁹ ICAO was established as a specialized agency of the UN Economic and Social Council. The convention was based on many of the principles enshrined in the 1919 *Paris Convention on Aerial Navigation*, agreed by 27 countries in the wake of World War I, including the concept of sovereign airspace and rights to peaceful overflights.⁸⁰ The *Chicago Convention* further granted each state the right to prevent, for military reasons, foreign aircraft from flying over certain delineated airspace; outlaws foreign aircraft carrying weapons, i.e., military aircraft, from flying over national territory; and allows states to prohibit photographic aerial reconnaissance over their territory.⁸¹ The United States was the key state pushing for a new aviation convention, as both a way to incentivize trade in the post World War II era, and restore peace and security in Europe.⁸² There are now 190 States signed as “contracting parties” to the *Chicago Convention* and that participate in ICAO activities.

Given developments in sea and air domains, there is cause for optimism about the near-term to mid-term development of a body of voluntary, and perhaps regulatory, rules for best practices, procedures, and behavior in

space activities. In particular, the development of norms – through codes of conduct – for the use of space could lay the groundwork for more robust efforts to reduce risks and avoid

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conflict. Given that a trend toward an ASAT arms race is now becoming plausible, steps toward constraining this dangerous momentum should be a top priority for the established spacefaring states.

It would therefore be incorrect to assert that the continued failure of the international community to find new legal pathways for space governance and conflict prevention means that the current multilateral institutions themselves are failures. While progress along these lines remains slow, there is progress being made in all three bodies on the space portfolio.

There also is a growing recognition that there is a requirement for the three multilateral space governance bodies to work more closely together, to avoid duplication and working at cross purposes. For one thing, lack of coordination among COPUOS, ITU, and CD have made it relatively easy for states to practice “venue shopping” as a means of preventing undesired actions. For example, during the George W. Bush presidency, the United States insisted that any discussions of transparency and confidence-building measures be restricted to COPUOS, which has no remit over military space assets, in order to ensure no constraints were developed on its military space program, and that there was no opening for a “slippery slope” in the discussions toward PAROS. Likewise, Iran is now insisting that the Eutelsat interference issue remain inside ITU – which is largely made up of technical specialists and where

⁷⁹International Civil Aviation Organization (ICAO), http://www.icao.int/cgi/goto_m.pl?icao/en/hist/history02.htm (accessed April 2010).

⁸⁰Lloyd Duhaime, “Convention on International Civil Aviation, the Chicago Convention, 1944,” 28 September 2009, <http://duhaime.org/legalresources/internationalaw/lawarticle-667/convention-on-international-civil-aviation-the-chicago-convention-1944.aspx> (accessed April 2010).

⁸¹“Convention Relating to the Regulation of Aerial Navigation,” Department of Civil Aviation, Government of Thailand, <http://www.aviation.go.th/airtrans/airlaw/1914.html> (accessed April 2010).

⁸²Ruwantissa Abeyratne, “The Role of Civil Aviation in Security Peace,” *International Journal of Space Law*, 1 June 2002, <http://www.highbeam.com/doc/1G1-96120687.html> (accessed April 2010).

there are no mechanisms for enforcement – rather than brought to the COPUOS for discussion, which is more of a political body, and where the issue could be raised of a possible legal violation by Iran of its obligations under the *Outer Space Treaty* as well as the ITU Constitution.

However, it is becoming clearer to spacefaring states that it is impossible, and indeed, dangerous to attempt to create artificial barriers between civil, commercial, and military uses of space – in that all space assets share the same vulnerabilities and are fundamentally constrained by the laws of physics. As Canada noted in its October 2009 statement to the First Committee, there is a:

...growing importance of renewed efforts of UN institutions engaged in the “governance structure” of space, such as the Committee on the Peaceful Uses of Outer Space (COPUOS) and the International Telecommunications Union (ITU), to collaborate more effectively in addressing cross-cutting issues affecting the continued utilisation of outer space for peaceful purposes.⁸³

It will be particularly important for the two bodies, COPUOS and ITU, to work more closely together as the GEO belt becomes more crowded, and if COPUOS begins to discuss “best practice guidelines” for operations in GEO – as the ITU already has developed a body of standards. It would be, at the least, a waste of time for COPUOS to attempt to “reinvent the wheel,” and at worst, a problem for satellite operators if COPUOS attempts to override or unravel current practice under ITU regulations. There is some reason for concern, in that during the late 1990s, COPUOS and the ITU argued over

defining the GEO belt – although, COPUOS’s Legal Subcommittee had not established a definition, many delegations questioned the ITU’s legal capacity to define GEO orbits for regulations.⁸⁴ One sign that COPUOS members are aware of the need for coordination came in the February 2010 report of the Science and Technical Subcommittee, which recognized the need for communication with the ITU and other organizations and the avoidance of duplication.

In addition, an effort to merge data from the ITU’s frequency registry and the UN registry of space objects managed by OOSA could serve as a first step toward developing an international data base of orbital positions that will be critical not only for developing any variant of a space traffic management regime, but potentially for verifying any future space arms control agreement. It is unlikely that the international community will be satisfied with continuing to rely on space surveillance data provided by the United States military, if for no other reason than political suspicion.

Canada and Russia, as key players in the space security debate, are at the forefront of the growing push for better coordination between COPUOS and the CD in pursuit of TCBMs. Again, it is sensible that the two bodies establish better processes for sharing information and for cooperative efforts, given that any future TCBMs will by necessity affect the conduct of civil, commercial, and military space activities alike.

Further, in any future PAROS negotiations, experts from COPUOS, and OOSA, and the ITU could be useful in helping to elucidate technical aspects of treaty proposals,

⁸³“Statement on the Prevention of an Arms Race in Outer Space,” Permanent Mission of Canada to the UN, 19 October 2009, [http://www.unog.ch/80256EDD006B8954/\(httpAssets\)/C40D0B92E5F37A9CC12575FC003BCE37/\\$file/CD_1865_E.pdf](http://www.unog.ch/80256EDD006B8954/(httpAssets)/C40D0B92E5F37A9CC12575FC003BCE37/$file/CD_1865_E.pdf) (accessed April 2010).

⁸⁴Ingo Baumann, “Diversification of Space Law,” in *Space Law: current problems and perspectives for future regulation*, Marietta Benko and Kai-Uwe Shroegel, eds., *Essential Air and Space Law 2* (Eleven International Publishing, the Netherlands, 2005), p. 50.

particularly regarding verification. There is precedent within the CD for experts from specialized multilateral agencies to informally assist with forwarding arms control talks; for example, the International Atomic Energy Agency has been routinely interacting with the CD and member state delegations to explain how its nuclear safeguards regime might be translated into verification procedures for a future Fissile Materials Cutoff Treaty. There has been, by comparison, almost no interaction between the CD and COPUOS and ITU on any basis – even for basic information exchange about the activities of the latter two bodies that might have impact on CD deliberations.⁸⁵ The fact remains that what any one actor does in space has the potential to affect all others, whether positively or negatively. This fact alone should make it abundantly clear that integrated multilateral approaches to space security are not a luxury, but a necessity.

⁸⁵COPUOS officials could help in educating CD diplomats, who are from foreign ministries and have little specialized knowledge about space activities, about the importance of protecting and sustaining the peaceful uses of space; and ITU officials could be similarly useful in explaining technical problems of avoiding RF interference, as well as helping to identify what technical data could be useful for both TCBMs and any form of a PAROS treaty.

