AN INTRODUCTION TO “OUTER SPACE SECURITY” and
A BRIEF HISTORY OF THE PREVENTION OF AN ARMS RACE IN OUTER SPACE

Two presentations to inform
CD Subsidiary Body 3 discussion
23 May 2018, Palais des Nations

Knowledge for Action

Part I:
• An Update on “Outer Space Security”

What is “outer space”??
• No legal definition
• Some consider 100km to be the delimitation
• From physics standpoint, space gradually begins somewhere between 18km and 160km

Where in space do “human space activities” take place?
• Space is large, but human activities are limited
• Most activities take place in Earth’s orbits
• Presently, there are 1,738 satellites in orbit
  – And an International Space Station!
Where in space do “human space activities” take place?

- Low Earth Orbit (160-2000km)
  - Most diverse orbital ecosystem
  - Nearly every type of application
- Medium Earth Orbit (20,000km)
  - Passes Earth twice a day
  - GPS and military prototypes
- Geo-synchronous Orbit (36,000km)
  - Highest orbit
  - Used mainly by telecom

What are “human space activities”?

- Integral applications
  - Telecommunications, GNSS and Earth imaging
- New generation
  - In-space manufacturing, mega-constellations, deep space habitats
- Current estimated value: US$350b
  - Estimated to reach US$2.7t by 2040

What are “military activities” in outer space?

- “Militarisation” of outer space: use of space capabilities to facilitate military activities on Earth
  - Coordinate global operations
  - Monitor troop movements
  - Targeting etc.
- New trend: increase in commercial actors taking on military services
What are “counterspace” capabilities?

- “Any type of technology that can be used to deny access to the space capabilities of a rival or adversary.”
- Secure World Foundation published a “Global Counterspace Capabilities” assessment.
  - Direct-Ascent
  - Co-orbital
  - Directed energy
  - Electronic Warfare
  - Cyber

What are the “threats” to space activities?

- Threats to “safety, security and sustainability”
  - Safety: freedom from unintended threats
  - Security: freedom from intended threats
  - Sustainability: ability to repeat
What are the “threats” to space activities?
• “Weaponisation” of outer space
  – Not defined
• “Weapon” in outer space
  – Not defined
  – Dual-use technology makes it very difficult to distinguish between “peaceful space object” and “hostile space weapon”
• Is there an “arms race”?

How are space activities regulated?
• 3 levels of governance:
  – National laws, regulations and policies
    • Each country responsible for its own
  – International treaties and agreements
    • Ex. The Outer Space Treaty
  – Voluntary instruments
    • Declarations, guidelines and principles

How does the UN address space activities?
• Two main tracks:
  – Peaceful uses of outer space
    • COPUOS
      – Scientific and Technical Subcommittee
      – Legal Subcommittee
    • Fourth Committee
  – PAROS
    • CD
    • UN Disarmament Commission
    • First Committee

How does the UN address space activities?
• UN bodies also use space to advance their goals
  – FAO
  – Dept of Peacekeeping Operations
  – UN Development Programme
• Space capabilities are enablers for UN Sustainable Development Goals.
Part II:
A Brief History of PAROS

Origins of PAROS

• First mentioned in the Final Document of the 10th Special Session (on Disarmament) of the General Assembly:
  – “in order to prevent an arms race in outer space, further measures should be taken and appropriate international negotiations held in accordance with the spirit of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.”

Origins of PAROS

• A/RES/36/97C: An effective and verifiable agreement to prohibit anti-satellite systems
  – Sponsored by WEOG, introduced by Italy
  – Sought to focus on “anti-satellite systems designed to impair the functioning of, interfere with, damage or destroy satellites of other nations”.
Origins of PAROS

• A/RES/36/99: Treaty prohibiting the stationing of weapons of any kind in outer space
  – Sponsored by Eastern European and Other States, introduced by Mongolia
  – USSR proposed draft text, sought to extend existing ban on nuclear weapons and WMDs being placed in orbit

Establishment of an Ad Hoc Committee on PAROS

• GA called on CD to establish an Ad Hoc committee (A/RES/37/83)
• Formed in 1985 with 3-part programme of work:
  – (a) consideration of issues relevant to PAROS
  – (b) existing agreements relevant to PAROS
  – (c) proposals and future initiative on PAROS

Ad Hoc Committee on PAROS

• Held meetings from 1985 – 1994
• In 1994, two open-ended consultations ongoing:
  – Terminology and other legal aspects
    • Not a sine qua non for new instrument
  – Confidence-building measures (3 clusters)
    • Measures to improve pre-launch notifications
    • Rules of the road
    • Measures for monitoring

Ad Hoc Committee on PAROS

• Division of opinions:
  – Group of 21 and China:
    • Existing legal instruments not enough to prevent arms race
    • Anti-ballistic missile defence leads to ASATs
  – Western States
    • Existing instruments are sufficient, need more adherence
    • No indications of an arms race in space
2000 – 2010

• Introduction of numerous working papers
  – 2000: “China’s position on and suggestions for ways to address the issue of PAROS at the CD”
  – 2002: Russia and China submit “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”
  – 2007: Canada paper on TCBMs
  – 2008: Russia and China submit first draft PPWT
  • Launch of EU ICOC initiative
  – 2009: Canada paper on the merits of TCBMs

GGE on TCBMs

• 2010, establishment of GGE on TCBMs
• Comprised of 15 members
• Reached consensus on a report in 2013 (A/68/189)
  – Nature of TCBMs
    • for Governments to share information and build mutual trust
  – Criteria for TCBMs
    • should be aimed at increasing security, safety and sustainability in outer space

GGE on TCBMs

• Two important subsequent reports
  – UN-Space (A/AC.105/1116):
    • role of the UN entities in supporting Member States in the implementation of TCBMs
  – SG report on national implementation (A/72/65):
    • highlighted the “existing capabilities and gaps regarding the implementation of TCBMs”,
    • stressed the need to put forth further efforts into implementation of TCBMs with a view to preventing an arms race in outer space

GGE on TCBMs

• UN Disarmament Commission Working Group II
  – preparation of recommendations to promote the practical implementation of TCBMs in outer space activities with the goal of preventing an arms race in outer space
• UNIDIR
  – Space Dossier File 2: Towards ASAT Test Guidelines
  – §45 of the GGE report: intentional orbital breakups
Revised text of PPWT

• 2014: China and Russia submit revised text of PPWT (CD/1985)
  – Seeks to ban behaviour, not particular type of tech
  – Seeks to address previous objections to PPWT
    • Does not prohibit ground-based ASATs
    • Verification
• New GGE “to consider and make recommendations on substantial elements of an international legally binding instrument on PAROS, including, inter alia, on the prevention of the placement of weapons in outer space.” (A/C.1/72/L.54)

No First Placement

• Introduced by Russia and Argentina (CD/1991)
• Unilateral pledge not to be the first to place weapons in space.
• 18 States have taken this pledge

Other initiatives

• PAROS Resolution adopted by GA every year
• COPUOS Long-Term Sustainability Guidelines
  – Does not address “self-defence” or “weaponization”
• EU proposed draft Int’l Code of Conduct
  – greater adherence to existing international instruments on space activities;
  – increased measures for safety, security and sustainability in outer space; and
  – cooperative mechanisms

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