



# Assuring the Sustainability of Space Activities

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and Cyber-health"**

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# Outline

Promoting Cooperative Solutions for Space Sustainability

- Challenges to space sustainability
- Defining space sustainability
- Technological solutions
  - Debris mitigation
  - Space situational Awareness
  - Debris removal
- Multilateral Policy and Legal Solutions
  - Role of the Committee on the Peaceful Uses of Outer Space
  - Role of the Conference on Disarmament
  - Group of Governmental Experts
  - Draft international Code of Conduct
- Conclusions



# Challenges to Space Sustainability

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- Growth in debris
- Growth in number of space actors, especially from emerging space States
  - In past decade, spacefaring States increased from 27 to over 50
  - Increases crowding in key orbits: GSO and SSO
    - These orbits are a limited resource
- Concern over frequency interference
  - Accidental and deliberate
- Effects of space weather
- Concern over threat of debris-causing anti-satellite weapons



# Space sustainability is...

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**Ensuring that all humanity can continue to use outer space for peaceful purposes and socioeconomic benefit.**

[This will require international cooperation, discussion, and agreements designed to ensure that outer space is safe, secure and peaceful.]



# How Can We Reach Space Sustainability?

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- Different initiatives attempt to deal with space sustainability – some from the civil perspective, some from the disarmament perspective.
- Key considerations:
  - Organizational proliferation
  - Options of legal and policy models
  - International political climate
  - How does one achieve a balance (equity) between the interests of those States already heavily invested in the space environment and emerging space States?



# Other Considerations

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- World needs a broad-scale approach to many of these issues
- Given the unique nature of the space environment, most aspects affect civil, commercial, and military activities

**Without security there is no safety  
and without safety there is no security**



# International Legal Approaches

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- Treaties
  - Legally binding; include notion of “consent to be bound”
- Customary International Law
  - Opinio Juris (belief that something is a law);
  - Widespread State Practice
- Guidelines, Codes of Conduct
- Generally little enforcement in International law
  - Must rely on persuasion
    - State sovereignty overrides any enforcement mechanism
    - ‘Sticks’ such as embarrassment, external political pressure



# International Mechanisms

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- United Nations
  - UN Committee on the Peaceful Uses of Outer Space (COPUOS)
  - [UN Conference on Disarmament]
- Non-Governmental Organizations (NGOs)
- Inter-Governmental Organizations (IGOs)
- Bilateral agreements
- Limited multilateral agreements
  - Interagency Debris Coordinating Committee (IADC)





# National Mechanisms

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- Development of State policies and laws that include adherence to best practices, e.g.,
  - Debris mitigation regulations
  - Radiofrequency regulations
  - Licensing, guidance on best practices



# COPUOS

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- Working Committee of UN (in Vienna)
  - Deals with civil space matters
  - 70 State Members
  - Permanent Observers (can speak and offer information but not vote)
  - Consensus body
  - COPUOS can propose treaties, agreements, conventions, and resolutions for UN General Assembly consideration
  - Subcommittees
    - Science and Technology (meets in February)
    - Legal matters (meets in March)
  - Full committee meets in June



# COPUOS and Space Sustainability

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- COPUOS conducts much of its work through Working Groups, which have a limited lifetime
- In 2010, COPUOS set up a Working Group on the Long Term Sustainability of Outer Space (LTSS)
- In 2011, agreed to Terms of Reference after much painful negotiation
  - Some States uncomfortable with including private sector and non-State actors in discussions



# Conference on Disarmament (CD)

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- CD is the primary multilateral body negotiating disarmament agreements
- Formed in 1979 (several earlier attempts)
- Currently 65 Member States
- Operates by consensus
- Not a committee of the UN, but hosted by the UN
  - Covers a wide range of weapons-related issues
  - Primarily a negotiating body
  - Discussion couched in terms of disarmament



# CD, cont.

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- Current negotiating issues
  - Fissile Materials Cut-off Treaty
  - Negative Security Assurances
  - Nuclear Disarmament
  - Prevention of an Arms Race in Outer Space (PAROS).
- CD has not been able to agree on a program of work for several years



# CD, cont.

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- China and Russia in 2008 introduced a draft treaty:
  - Draft Treaty on the Prevention of Placement of Weapons in Outer Space and the Threat or Use of Force against Space Objects (PPWT)
  - This draft has been met with only lukewarm interest
  - Difficult to define a space weapon
  - Does not deal with ground-based systems



# Group of Governmental Experts

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- In 2010, UN Secretary General sidestepped CD and agreed to appoint a Group of Governmental Experts (GGE) to tackle Transparency and Confidence Building Measures (TCBMs)
- Twelve experts drawn from different States, however, not representing the nominating State
- Expect to have nominations complete by November 2011 and start to work in 2012
- Report by 2013, possibly leading to a proposal that can be carried forward for broad agreement



# Code of Conduct

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- Draft developed in 2010 by European Union for consideration and possible adoption by spacefaring States





# Emerging Consensus

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- Space sustainability is in the interest of all space actors, despite significant differences of approach & resources.
- Many aspects and approaches to space sustainability
  - Legal and policy
  - Technical
  - Economic
- From policy, technical, and economic perspectives the need for achieving space sustainability is becoming more clear to all space faring States



# But...

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- How does one achieve a balance (equity) between the interests of those States already heavily invested in the space environment and emerging space States?
- How can space sustainability be described and sold to policymakers?
- How many of the concepts of environmental sustainability on Earth can be applied to space sustainability?
- How can the international community bring together all of the disparate attempts to solve part of the sustainability challenge into a coherent whole?



# Secure World Foundation

Promoting Cooperative Solutions for Space Sustainability

Secure World Foundation (SWF) is a small, privately-funded non-governmental organization (NGO) dedicated to the secure and sustainable use of space for the benefit of Earth and all its peoples.

<http://www.swfound.org>



# What does the Foundation do?

Promoting Cooperative Solutions for Space Sustainability

- **Engages** with academics, policy makers, scientists and advocates in the space and international affairs communities to support steps that strengthen global space sustainability.
- **Promotes** the development of cooperative and effective uses of space for the protection of Earth's environment and human security.
- **Acts** as a research body, convener and facilitator to advocate for key space security and other space related topics and to examine their influence on governance and international development.



# Key Governance Focus Areas

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- **Space sustainability**
  - Protection of continued utility of space resources
- **Policy and law development**
- **Human & environmental security**
  - Governance of processes toward disaster assistance
  - Governance of environmental change processes
- **Planetary threats**
  - Mitigating the threat of collision from a Near-Earth Object (NEO) through the establishment of effective international governance for response



# Working Methods

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- Partner with a variety of other institutions, including
  - Other NGOs
  - Government offices
  - Universities
  - International organizations
- Permanent observer at Committee on the Peaceful Uses of Outer Space (COPUOS)
- Research and analysis on topical issues
- Maintain a website with space policy resources



# SWF Offices

Promoting Cooperative Solutions for Space Sustainability

- Broomfield, Colorado (near Denver)
- Washington, DC
- Brussels, Belgium



**THANK YOU!**

**QUESTIONS?**