

Space Policy – What is it and Why is it Needed?

Agnieszka Lukaszczyk
Secure World Foundation
alukaszczyk@swfound.org

- Space issues facing the international community
- Why do States decide to develop a space policy and a space agency?
- Space policy development

- Growth in number of space actors, especially from emerging space States
 - In past decade, spacefaring States increased from 27 to 39
 - Launching states = 8
 - S. Korea will soon make it 9
 - Increases number of possible partners for cooperation
 - Increases opportunity for beneficial international agreements on management of space activities

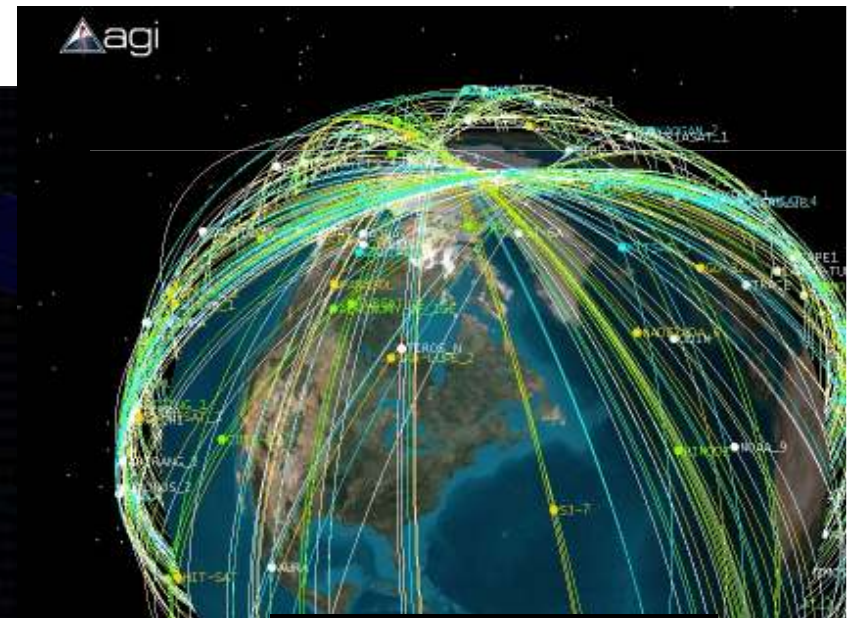
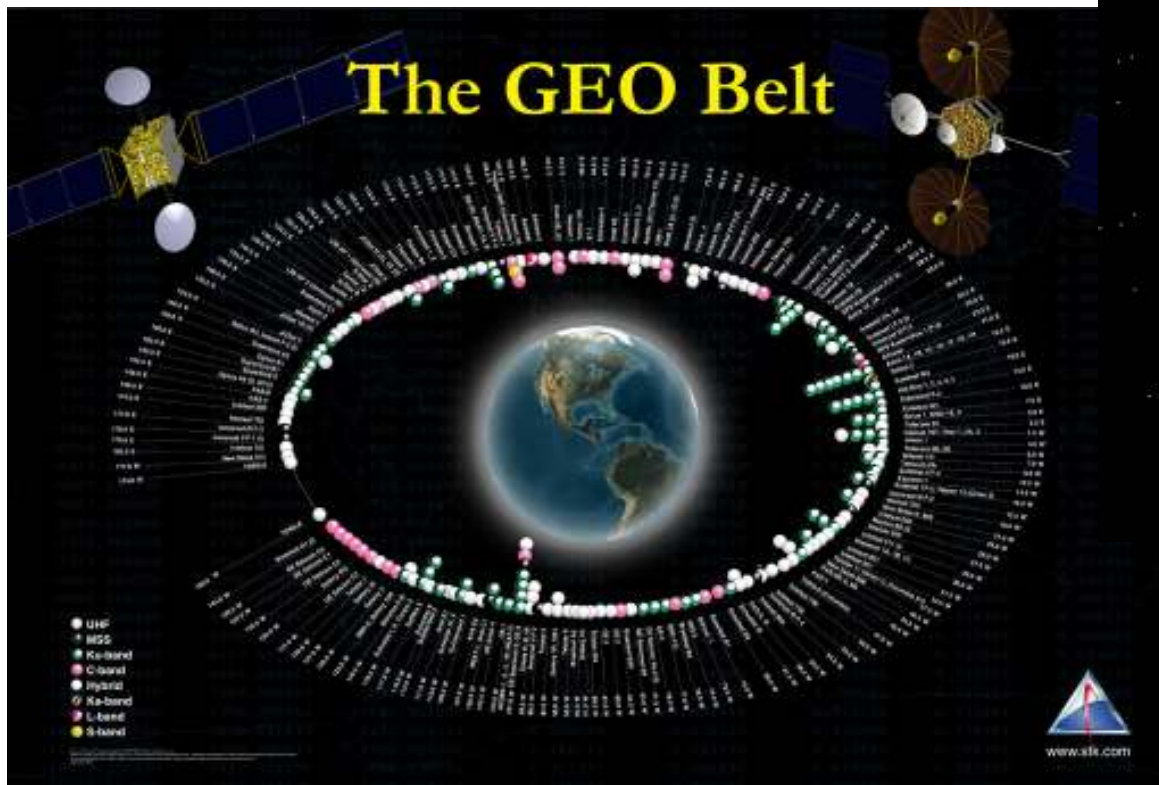
- Rapid expansion of space activities, including space tourism
 - Many more Earth observing systems in low Earth orbit
 - Position, Navigation & Timing (PNT) systems in mid-Earth orbit (MEO)
 - Many more communication satellites in GeoSynchronous Orbit (GSO)
 - Startup space tourism services to near Earth orbit
 - Plans for orbital space tourism

- Increased need to guarantee the sustainability of space activities
 - Increasing crowding in key orbits
 - Increasing amounts of debris in space

Crowding in Key Orbital Regimes

Promoting Cooperative Solutions for Space Security

- Polar orbits (Earth observation satellites)
- Geosynchronous orbits (communications satellites)



Polar Orbits

Debris in Orbit

Promoting Cooperative Solutions for Space Security



- How to improve use of space resources for the benefit of humanity
 - Major issue: improvement of delivery of public good space benefits to the end user, e.g.,
 - Response to natural disasters
 - Management of natural resources (water, forests)
 - Integration of space data with terrestrially-derived data
- Low level of member states ratifying space treaties
- Need for coordinated international approach to the long-term threat of near Earth objects (NEOs)—asteroids, comets

- Advance technological development, e.g.,
 - Information technologies
 - Communication
 - Health
 - Resource management
- Advance in-country scientific capacity
- Improve use and management of State resources
- Advance industrial capacity & economy
- Gain international prestige as part of the “space club”
- Improve national security

States Vary Widely in Resources and Ambitions

Promoting Cooperative Solutions for Space Security

- States with large economies and advanced technology:
 - Develop full range of capabilities, including human spaceflight
 - Russia, United States of America, China
- States with medium to relatively large economies:
 - Generally develop wide range of capabilities:
 - Enhance overall scientific and technological prowess
 - provide a range of benefits to their citizens
- States with modest resources:
 - Cannot match investments of larger States
 - Nevertheless can develop an active, but more narrowly focused, space program

- For success today, space activities require:
 - Public and private long term funding
 - Clear focus on policy goals
- Investment in space systems largely a governmental activity:
 - The scale of the investment
 - Public goods (improved weather forecasting, natural resource management, national security, etc.)
- Important partners:
 - Private sector
 - Universities, other educational entities
 - Other States

Policy Logic Coalitions

Promoting Cooperative Solutions for Space Security

Policy is shaped by coalitions of actors with a stake in the outcome

	SCIENCE	TECHNOLOGY	COMMERCE	SECURITY	AUTONOMY	FINANCE
ACTORS	Scientists	Engineers	Business	Defense & Intelligence	Politicians	Treasury
VALUES	Shared knowledge	Innovation, Competitiveness	Competitiveness, Profit	Stability predictability	National security, Prosperity	Fiscal discipline, Priorities
VIEW SPACE AS	Object of Scientific exploration	Opportunity to improve quality & technological Capability	A growing business opportunity	Space for intelligence, Force enhancer	National prestige, foreign policy tool, Intl negotiating power, regional autonomy	In cost vs. benefit terms
FUTURE TRENDS	Global science	Sharing costs & risks	Global supply chains	Situational awareness	Regional cooperation	Cost sharing

A space agency is not sufficient

- A policy (or group of policies) allows government to focus its investments and to shape the evolution of the space arena
- Without a formal policy, activities tend to evolve in an ad hoc manner among different agencies and may lack coherence and long-term sustainability
- A well-structured space policy can assist capacity-building and sustainable development
 - Science and technology education
 - Technology development

- All space activities are ultimately funded by individuals
 - but expectations of risks and rewards differ:
 - Public sector: tax payers (many, low individual risk)
 - Private sector: investors (fewer, higher risk)
- Private sector can, and should be, a major partner in executing space policy
- The policy challenge is to establish the “right” level of investment in publicly-funded space activities
 - Has implications for other policies; e.g., remote sensing data distribution policy; telecommunications

Avoid *ad hoc* policy making that results in regulatory and political inconsistencies and creates industry uncertainty

- Ongoing tension between –
 - Government promoting certain public good activities for long term societal benefit and
 - Market forces that promote short to medium term investment decisions

- Technology development:
 - Governments are generally not good at picking “winners” and can waste lots of taxpayer funds on dead-end projects
 - Governments can help with funding more basic and generic research
- Public policy must confront issues of:
 - Public safety
 - Resource allocation (e.g. spectrum; comparative investment)
 - Environmental protection (Earth and space)
 - Technology transfer

REDUCE MARKET RISK

- Targeted R&D programs for key technologies
- Supportive regulatory environment
- Low-interest loans or loan guarantees
- Direct subsidies
- Liability indemnification

IMPROVE RETURN ON INVESTMENT

- Tax relief for risky investments
- Patent licensing
- Provision of infrastructure
- Guaranteed government contracts

- The public is generally poorly informed about the benefits of space technology and the value of investing in space activities.
 - Important to invest in public awareness programs about the value of space activities to individual and collective welfare
 - E.g., in U.S., focus on human spaceflight reduces appreciation of benefits from Earth observations,
- Space-related non-governmental organizations (NGOs) can play a significant role in building awareness, e.g.,
 - Space Generation Advisory Council (SGAC)
 - Planetary Society
 - World Space Week

- Increasing numbers of space actors means greater opportunities for cooperative activities
- Developing partners creates the potential for expanding capacity beyond the capabilities of any one country
- International forums assist capacity building
 - Global Earth Observations System of Systems (GEOSS)
 - Committee on Earth Observation Satellites (CEOS)
 - UN Committee on the Peaceful Uses of Outer Space(COPUOS)
 - UN Office of Outer Space Affairs (OOSA)
 - Scientific unions , professional societies

- Ability to continue to use space for its benefits not guaranteed
 - Increasing crowding in some key orbits
 - Increasing amounts of orbital debris
 - Use of space weapons threatens space environment
 - Anti-satellite weapons
 - Jamming of satellite signals

New Entrants Should Consider

Promoting Cooperative Solutions for Space Security

- Ratifying the 1967 Treaty on Outer Space and the later international agreements
 - Also, incorporating treaty provisions in State law, regulations
- Taking active part in COPUOS and its subcommittees
- Contributing constructively to other international space-related organizations
- Taking an active role in assuring the long term sustainability of outer space.
 - Adherence to the Orbital Debris Guidelines
 - Membership in technical committees focused on sustainability

Major 2010 US Policy Changes

Promoting Cooperative Solutions for Space Security

- Tone is less nationalistic than previous one, recognizes that the U.S. depends on other countries for many aspects of space activities
- Emphasis on international cooperation in many areas
- Recognition that the near-Earth space environment is threatened by:
 - Orbital crowding
 - Orbital debris
 - “Wake-up call” from
 - 2007 antisatellite test (creation of debris)
 - 2009 Iridium-Cosmos collision (more debris creation)
- Emphasizes planetary defense from Near Earth Objects



Secure World Foundation

Promoting Cooperative Solutions for Space Security

Secure World Foundation (SWF) is a private operating foundation 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 Security

- **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.

- **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

THANK YOU!

QUESTIONS?