A Handbook for New Actors in Space

Summary

This document provides an overview of a upcoming Handbook for New Actors in Space currently being developed by the Secure World Foundation (SWF). The handbook is intended to reach two categories of new actors in space: States developing national space policies and regulations; and start-up companies, universities, and other non-governmental entities beginning their first foray into space activities. The goal of the handbook is to provide both groups with a broad overview of the fundamental principles, laws, norms, and best practices for peaceful, safe, and responsible activities in space. This will help ensure the long-term sustainable use of space so that humanity can continue to derive the many benefits space activities have to offer for the foreseeable future.

Our motivation for developing the handbook is the fundamental change that is taking place in the space domain. The world is currently experiencing a rapid diversification and increase in the number of actors involved in space activities. More than 70 States, commercial companies, and international organizations currently operate more than 1,200 satellites in Earth orbit, which together provide a wide range of socioeconomic benefits. The number of space actors is accelerating, driven largely by the commoditization of space technology and the lowering of barriers to participate in space activities.

The increased availability of space technology and capabilities has both advantages and disadvantages. On the positive side, it is leading to greatly increased innovation, lowering of costs, and greater access to beneficial capabilities and services available from satellites for all countries. However, the accelerated growth in space activities and the influx of new actors also has the potential to exacerbate many of the current threats to the long-term sustainable use of space, such as on-orbit crowding, radio-frequency interference, proliferation of space debris, and the chances of an incident in space sparking or escalating geopolitical tensions on Earth. We believe the proposed handbook will help maximize the potential positive benefits and minimize the negative consequences of this trend.

Over the next year, SWF will be working with governments, satellite operators, academia, and civil society to develop the content of the handbook. Our goal is to make it a clear, concise, and useful resource that is understandable to new actors and reflects the knowledge the space community has already developed over the last six decades of activities in space. It will be interdisciplinary in nature, linking information and perspectives across technical, legal, and policy disciplines. Where possible, it will provide selected, concrete examples of how existing actors have approached various issues, and highlight differences between existing practices and solutions. We envision it will begin as a publication available in both printed and electronic forms, and eventually accompanied by a website with many more details and links to other resources.

As part of the process of developing the handbook, we are soliciting feedback from the space community on the topics and content. The attached outline provides the overall structure and topics that we currently plan to include in the handbook. An electronic copy is also available on our website at www.swfound.org/handbook.

We welcome any and all feedback on the detailed outline. Feedback can be submitted electronically through a form on our website at www.swfound.org/handbook. Your feedback is essential to ensure that no important perspectives or issues are overlooked as we prepare a document that we hope will be a useful resource for new entrants into the realm of space activity.

About Secure World Foundation

SWF is a private, endowed operating foundation dedicated to the secure and sustainable use of space for the benefit of Earth and all its peoples. SWF works with governments, industry, international organizations, and civil society to develop and promote ideas and actions for international collaboration that achieve the secure, sustainable, and peaceful uses of outer space.

Detailed Outline

Chapter 1 - The International Framework

1. The freedom to access, explore, use, and exploit outer space
2. Legal implications of the lack of a defined boundary between airspace and outer space
3. International governmental responsibility and potential liability
4. International registration and registration practices
    a. Orbital
    b. Suborbital
5. International frequency coordination and allocation
6. Space debris and environmental protection
    a. Protection of the Earth Environment
    b. Space Debris Mitigation and Prevention
    c. Use of Nuclear Power Sources in Space
    d. Protection of celestial bodies
7. Space traffic management
8. Status of humans in space travel
9. Use of space resources and construction of permanent facilities
10. Remote Sensing and Radio Broadcasting
11. Bilateral and multilateral agreements for space activities
12. Dispute resolution
    a. Arbitration and mediation
        i. Optional Rules for Arbitration of Disputes Relating to Outer Space Activities
        ii. UN Model Law on International Commercial Arbitration
    b. Recourse to domestic courts
    c. Avenues open to States
        i. Diplomatic resolution
        ii. Creation of a claims commission for Liability Convention causes of action
        iii. Recourse to the international legal system (ICJ, etc.)
13. Standards and best practices

Chapter 2 - National Frameworks

1. National space policy
    a. Definition of rationales, objectives, and principles for space activities
    b. Delineation and coordination of roles and responsibilities for government agencies and entities
    c. Intra-governmental decision-making processes for space policies and activities
    d. Science, technology, and innovation policy
    e. Export control and technology transfer
2. National legislation and regulation
3. National agencies and regulators
    a. Oversight and control
    b. Jurisdiction through national registries of space objects
    c. Sources of risk and risk allocation (responsibility and liability)
        i. Oversight and control
        ii. Licensing
        iii. Insurance requirements
        iv. Waivers
    d. Frequency coordination through national administrators of the spectrum
    e. Broadcasting
    f. Remote sensing oversight and licensing
    g. Space traffic management and space debris mitigation
    h. Operation of spaceports
    i. Export controls
    j. Tangible property rights
    k. Intellectual property rights and responsibilities
    l. Government contracts

Chapter 3 - Responsible Space Operations

1. Launch activities
    a. General safety considerations for licensing/operating a space launch facility
    b. Launch vehicles
    c. Range safety
    d. Environmental considerations
    e. Interaction with air traffic management
    f. Payload deployment
    g. Multiple payloads and cubesat deployment
2. On-orbit activities
    a. Importance of space situational awareness (SSA)
    b. Sources of SSA information (governments and private sector)
    c. Standards for data-sharing formats and messages
    d. Conjunction assessment procedures and standards
    e. Collision maneuver planning and execution
    f. Debris mitigation and post-mission disposal
    g. Debris remediation (active debris removal)
3. Atmospheric re-entry
    a. General background
    b. Planned de-orbits
    c. Natural atmospheric decay