ITU Space Sustainability Forum 2024

Summary Report, Outcomes and Future Actions

The recent Space Sustainability Forum held by the International Telecommunication Union (ITU) indicated a broad consensus among governments and the industry on the need for coordinated, pragmatic, and inclusive actions to ensure the long-term viability of space radiocommunications systems for current and future generations, with ITU playing a key role in convening all required space stakeholders .

Co-organized by the Secretary General and the Director of the Radiocommunications Bureau, in response to ITU PP Resolution 219 (Bucharest 2022) and Resolution 74 (RA-23), the event took place in Geneva, Switzerland on 10-11 September, and counted with 53 high level and expert speakers from UN Agencies, Governments, Industry, Satellite Operators, Space Agencies, Civil Society and Academia from all ITU Regions. Over 2000 participants followed the two days meeting (200 in person and 1800 through several online channels).

A list of priorities and notable outcomes from the discussions is summarized below:

1. **Collective Responsibility**:

   Emphasis on maintaining a safe, peaceful, and responsible space environment for all humanity.

2. **Industry's Role**:

   - Importance of sustainable practices in the space industry, driven by environmental, social, and governance (ESG) considerations.
   - Key role in driving innovation and promoting responsible behaviour in space based on experience.

3. **Economic and Social Benefits**: significant benefits of weather, climate, hydrological, and related environmental services from Earth-observation satellites, as well as to support humanitarian action, sustainable development, and disaster response.
4. **Future Generations**: Incorporating the interests of future generations into space sustainability decision-making.
5. **Capacity Building**: Need for capacity-building and user-friendly tools for new entrants in the space sector, supporting regulators in promoting sustainable practices.
6. **Partnerships**: Importance of partnerships among UN agencies and other bodies to leverage data and expertise for space sustainability.

7. **Challenges in Space**:

    - **Space Debris**: A significant challenge, with the number of satellites expected to triple in the next six years compared to the past 60 years.
    - **Space Traffic Management**: Increasing congestion in Low Earth Orbit (LEO) raises the risk of collisions, necessitating effective space traffic management.
    - **Spectrum:** Access to and Efficient use of Spectrum-Orbit resources free of harmful interference, including for space operations.

8. **International Collaboration**:
    - Space is a unifier
    - Essential for addressing space sustainability and debris management.
    - Differences in space policies and limited regulatory frameworks complicate collaboration.
    - Necessity of global cooperation to address space sustainability challenges, with the ITU facilitating information sharing and best practices.
    - Three areas for immediate global cooperation:
        - **Pre-Launch**: Ensuring fair and safe access to LEO orbits with well- crafted regulations.
        - **During Operation**: Developing and implementing technologies to track, monitor, and share data to minimize collision risks.
        - **Post-Operation**: Incentivizing the private sector to participate in space debris solutions.

9. **Role of Private Sector**:
    - The shift from government-centric to private-centric space sectors.
    - Encouraging private sector involvement in tackling space debris challenges.

10. **Sustainability of frequency spectrum and orbit resources:**
    - The ITU's basic texts already encompass the concept of sustainability, emphasizing the rational, efficient, and economic use of these resources.

11. **Urgency of Regulatory Action**:

    There is an urgent need to explore new ITU regulatory approaches to address long-term sustainability.

12. **Challenges with Satellite Constellations**:
    - ITU- BR has observed a significant increase in submitted and registered satellite filings for large constellations, particularly for low-earth orbit (LEO) satellites.
    - Many of these filings are not subject to current coordination, milestone-based deployment and orbital tolerances regulations.
    - Importance of transparency, monitoring, and manoeuvrability in space operations.

13. **Space Situational Awareness (SSA)**:
    - Importance of SSA for safe and sustainable space operations and the need for efficient and scalable systems.
    - Need for interoperability and collaboration in SSA and the importance of education and training.
    - Importance of accurate orbital solutions and the need for deep collaboration and data sharing.
    - Development of the Traffic Coordination System for Space (TraCSS) and the importance of global coordination and data sharing.
14. **Technological Gaps**:
    - Gaps in SSA technologies, including the need for more data, better algorithms, and improved data sharing.
    - The importance of developing international standards and best practices for SSA was emphasized.
    - The role of AI in SSA was discussed, with a focus on its potential for automation and predictive analysis.
15. **Policy and Regulatory Challenges**:
    - The need for clear communication and coordination between national and international bodies.
    - The importance of developing policies that incentivize responsible behaviour and promote data sharing.
    - The role of industry in driving innovation and supporting space sustainability through best practices and standards.
    - The need for harmonized international guidelines on deorbiting spacecrafts after the end of life.
    - The need for implementing national strategies and consequent space laws.
16. **Industry Approaches to Space Sustainability**:
    - importance of international collaboration and transparency.
    - collision avoidance and minimizing debris.
    - data sharing, manoeuvrability, and monitoring in space operations.
    - need for collaboration between industry and regulators.
    - Key role of industry in driving innovation and promoting responsible behaviour
    - space sustainability rating.
    - responsible design and operation of spacecraft and the need for enforceable policies.

- focus on affordability, reliability, and sustainability in their satellite designs.
- importance of national implementation of international obligations and harmonization of national space laws was stressed.

17. **Space Agencies**:
    - shared their experiences and visions for space sustainability.
    - integrated strategy for space sustainability, emphasizing the importance of international cooperation
    - space debris removal and the importance of technical demonstrations
    - the need to protect frequency bands for Earth observation satellites
18. **Future of Lunar Exploration**:
    - importance of sustainability is extended to lunar exploration
    - the need for precise landing technologies and the sharing of information to avoid interference on the lunar surface.
19. **Civil Society and Academia**:
    - importance of education and interdisciplinary discussions.
    - challenges of radio astronomy and the need for international collaboration.
    - importance of involving youth in decision-making.
20. **From discussion to Action:**
    - Follow ITU style: Incremental implementation of concrete and pragmatic steps.

Future Actions:

1. **Data Sharing:** facilitate direct access to points of contact for space operations and ephemeris data.
2. **Awareness and Education**: Increasing awareness and providing education on space sustainability issues, including online resources in the form of toolkit and handbooks.
3. **Regulatory Frameworks**: Need for effective implementation of guidelines.
4. **Technological Solutions**: Development of / access to new technologies for space debris mitigation, space situational awareness and space traffic management.
5. **Partnerships**: Strengthening partnerships among international organizations, governments, and the private sector.

Next ITU Space Sustainability Forum: planned for October 2025.