

Global Perspectives on Space Exploration and Innovation

United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) – Review of Agenda Item 14: Space Exploration and Innovation

Sixty-Eighth Session, 25 June – 2 July 2025

Executive Summary

This white paper provides a consolidated summary of statements delivered under Agenda Item 14: *Space Exploration and Innovation* at the 68th session of COPUOS. The submissions reflect the broadening scope and deepening ambition of national and organizational space programs. Several key themes emerge: growing lunar ambitions, increasing private-sector integration, international coordination via mechanisms such as ATLAC, and commitments to sustainability, education, and open access.

1. Overview of Global Activities in Space Exploration

1.1 Lunar and Deep Space Missions

A new era of Moon and deep space exploration is clearly underway:

- **China** completed the first lunar far-side sample return (Chang'e-6) and launched Tianwen-2 for asteroid and comet exploration.
- **India** announced the Chandrayaan-4 sample return mission and Chandrayaan-5/LUPEX in collaboration with Japan.
- **Italy, Japan**, and the **USA** highlighted contributions to the Artemis program, including habitat modules, rovers, and crew missions.
- **Canada, South Korea**, and **Argentina** are launching payloads (CubeSats, health systems) aboard Artemis missions.

1.2 National Innovations and Firsts

- **Saudi Arabia** executed its first human spaceflight mission with two astronauts and launched the *BioGravity* biomedical initiative.

- **Luxembourg** issued Europe's first license for in-situ resource utilization (ISRU) and advanced support for ESRI and lunar rovers.
 - **South Korea** extended its first lunar mission (KPLD/Danuri) and is preparing a national exploration roadmap through 2045.
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2. Governance, Sustainability, and International Cooperation

2.1 ATLAC and Lunar Governance

- **Canada, France, Italy**, and the **USA** explicitly endorsed the **Action Team on Lunar Activities Consultation (ATLAC)** as a mechanism for coordination of lunar missions.
- **France** and **Chile** stressed the need for interoperability, safety standards, and lunar mission coordination frameworks.
- The **Moon Village Association (MVA)** and **Luxembourg** emphasized inclusive governance of lunar resources, with MVA's GEGSLA framework proposed as a key reference.

2.2 Sustainability and Transparency

- Multiple delegations reiterated adherence to the **Outer Space Treaty** and its principles.
 - **Japan, Italy**, and **France** promoted interoperable systems and shared scientific data as tools for peaceful, inclusive exploration.
 - **Chile** and **Venezuela** underscored the importance of access for developing nations, and **Venezuela** called for continued support for programs like *DropTES*.
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3. Capacity Building, Education, and Private Sector Engagement

3.1 Education and Youth Outreach

- **Venezuela** initiated training programs for over 20,000 youth; **Saudi Arabia's** MADAK Space competition reached 80,000 students across 22 Arab nations.

- **Chile** proposed shared field trials in the Atacama Desert for ISRU, robotics, and astrobiology to foster inclusive research access.

3.2 Public-Private Synergy

- **Japan's** Space Strategy Fund (¥1 trillion target) enables long-term research by startups and academia.
- **Luxembourg** supported *ispace's* rover mission and advanced legal frameworks for commercial ISRU.
- **USA** highlighted the role of the commercial sector in Artemis, the ISS, and future Mars missions.

4. Representative Mission Highlights by Country

Country/Entity	Highlighted Initiatives
USA	Artemis, James Webb, ISS commercialization, 55 Artemis Accord signatories
China	Chang'e-6 success, Tianwen-2 mission, international ILRS cooperation
India	Chandrayaan-3/4/5, Gaganyaan, Venus orbiter, space station plan (BAS)
Japan	LUPEX with ISRO, MMX to Phobos, Artemis rover, private sector funding surge
Italy	Multi-Purpose Habitation Module (MPH), Argonaut lander, Moonlight constellation
Canada	Lunar Utility Vehicle, wearable medical tech, OSIRIS-REx curation facility
Saudi Arabia	Human spaceflight, BioGravity program, STEM outreach across Arab world
Luxembourg	TENACIOUS rover license, ESRIC programs, emergency.lu disaster-relief support
Argentina	ATENEA CubeSat on Artemis II
South Korea	KPLO, Artemis II CubeSat, national roadmap through 2045

France	ATLAC support, lunar safety, atomic clock science via ISS
Russia	Future Russian Orbital Station (ROS), ILRS collaboration with China
Chile	Proposed lunar tech field tests in Atacama; supports BB Governance Working Group
Venezuela	DropTES experiment, “Semilleros Científicos” youth program, women in GNSS
APSCO	Member payloads on Chang’e-6 and -8; ILRS cooperation via CNSA
MVA	GEGSLA framework; support for lunar governance coordination through ATLAC