

Japan's Space Policy Overview

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KAZEKI Jun
Director General
National Space Policy Secretariat
Cabinet Office, Government of Japan

Outline

<Brief Background>

- Government Structure on Space Policy
- Security Environment Surrounding Japan
- Japan's New Strategy Architecture

<Current Japan's Space Policy>

- Basic Plan on Space Policy (2023)
- Space Security Initiative (2023) / Space Architecture for National Security
- Recent positive movements in Japan

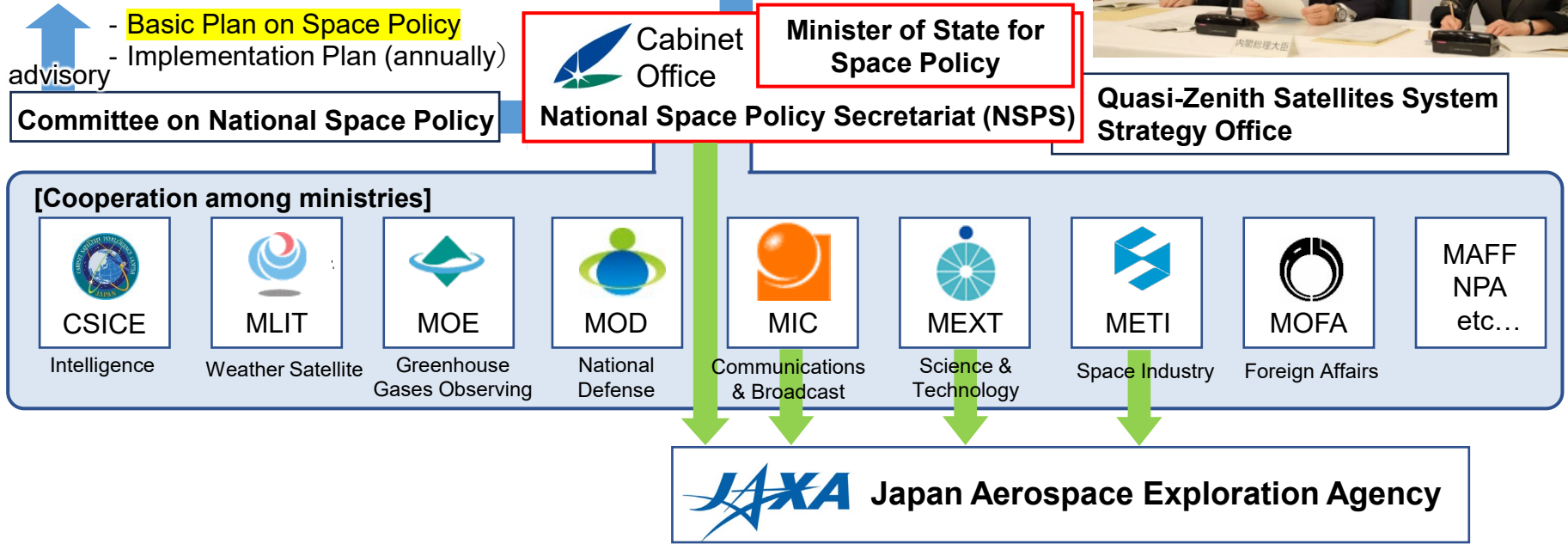
<Selected Specific Topics>

- Space Debris Countermeasures
- NSPS Activities

Government Structure on Space Policy

Strategic Headquarters for Space Policy

- Chair: **Prime Minister**
- Deputy Chair: Chief Cabinet Secretary and Minister of State for Space Policy



CSICE: Cabinet Satellite Intelligence Center
 MLIT: Ministry of Land, Infrastructure, Transport and Tourism
 MOE: Ministry of the Environment
 MOD: Ministry of Defense

MIC: Ministry of Internal Affairs and Communications
 MEXT: Ministry of Education, Culture, Sports, Science and Technology
 METI: Ministry of Economy, Trade and Industry

MOFA: Ministry of Foreign Affairs of Japan
 MAFF: Ministry of Agriculture, Forestry and Fisheries of Japan
 NPA: National Police Agency

Security Environment Surrounding Japan

◆ Global Security Environment and Challenges

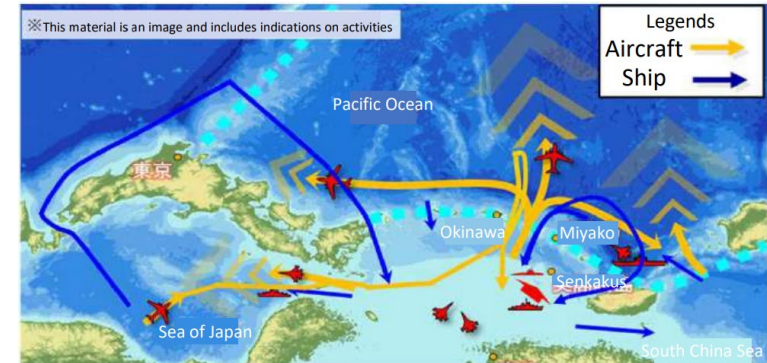
- ✓ “The international community has consistently gone through rapid changes, in conjunction with **the center of gravity of global power shifting to the Indo-Pacific region.**”
- ✓ “Some states are attempting to **unilaterally change the status quo** and accelerating actions to **challenge the international order.**”

Source: National Security Strategy of Japan (2022)

◆ Security Environment and Challenges in the Indo-Pacific Region

- ✓ “**Japan faces threats and challenges of various types and intensities**, such as unilateral changes to the status quo and such attempts in the East and South China Seas and other areas, piracy, terrorism, the proliferation of weapons of mass destruction, and natural disasters.”

Source: National Security Strategy of Japan (2022)



Source: Ministry of Defense
(www.mod.go.jp/en/d_policy/index.html)

Japan's New Strategy Architecture

National Security Strategy (NSS) (Dec. 2022)

(Executed approximately 10-years timeframe)

- Supreme national security policy document
- Provides strategic guidance for Japan's national security policy areas in addition to diplomacy and defense, including economic security, technology, cyber, intelligence etc.

National Defense Strategy (NDS) (Dec. 2022)

(Executed approximately 10-years timeframe)

- Sets defense objectives and demonstrates approaches and means by which Japan accomplishes those objectives
 - Fundamental reinforcement of defense capabilities
 - Reinforcing the defense architecture of the whole country
 - Policy for cooperation with its ally, like-minded countries and others

Defense Buildup Program (DBP) (Dec. 2022)

- Sets the level of defense capability that Japan should possess, and sets mid- to long-term buildup program to achieve said level that includes the followings:
 - Organization of Self-Defense Forces (by approx. ten years from now)
 - Total expenditures for the next five years and quantities of major procurement

The 5th Basic Plan on Space Policy (June 2023)

- Human activities are expanding into outer space in earnest, the space system contributes to solving various issues on the earth as well as to strengthening security-related efforts.
- As the economic and social transformation brought about by activities on the frontier of space (i.e., **space transformation**) is becoming a global trend, Japan needs to **maintain and strengthen its independence in space activities and lead the world**. To realize this, the Basic Plan on Space Policy was revised on June 13th, 2023.

Goals and Future Vision

(1) Ensure **Space Security**

(2) Ensure **national resilience**, tackle **global-scale issues** and achieve innovation

(3) Create new knowledge and industries in **space science and exploration**

(4) Strengthen **the industrial base** to support space activities

To make the space industry a **growth industry in the Japanese economy**, we aim to **double its market size from 4.0 trillion yen in 2020 to 8.0 trillion yen in the early 2030s**.

Basic Principles for Space Policy Promotion

(1) Implement policies for actual deployment in missions such as those of **security**, **space science and exploration** as well as **commercialization**

(2) Strengthen technology R&D based on the "**Space Technology Strategy**"

- Implement a cross-sectional study of security and civilian sectors. Strengthen the supply chain

(3) Strengthen **international partnerships with allies, like-minded countries and others**

- Formulate international norms and rules, and promote international cooperation utilizing Japan's strengths, etc.

(4) Support and develop **internationally competitive companies** in a strategic manner

- Support R&D of advanced technologies and private sector-led projects

(5) Strengthen JAXA's role and functions as a core agency for space development

- Strengthen **JAXA's** strategic and flexible **funding capabilities**, making it a nodal point for industry, academia and government

(6) Use human, financial and other resources in an effective and efficient manner

- **Effective and efficient use of resources based on the "Implementation Plan" and the "Space Technology Strategy"**

Specific Approaches to Space Policy

Space Security Initiative (June 2023)

Objective and Approaches for Space Security

- To promote the peace and prosperity of Japan and the safety and security of our citizens through outer space.
- Together with our ally, like-minded countries, and others to maintain the stable use of and free access to outer space.

Approach 1:

Radically Expand the Use of Space Systems for National Security

- (1) Establishment of a Wide-Area, High Revisit Rate, High Precision Information-Gathering Posture from Space
- (2) Responding to Missile Threats by Space Systems
- (3) Establishment of a Multi-Layered, Anti-Interception and Anti-Jamming Satellite Communications Posture
- (4) Enhancement of Satellite Positioning Functions
- (5) Building a Large-scale and Flexible Space Transportation Posture

Approach 2:

Ensuring Safe and Stable Use of Outer Space

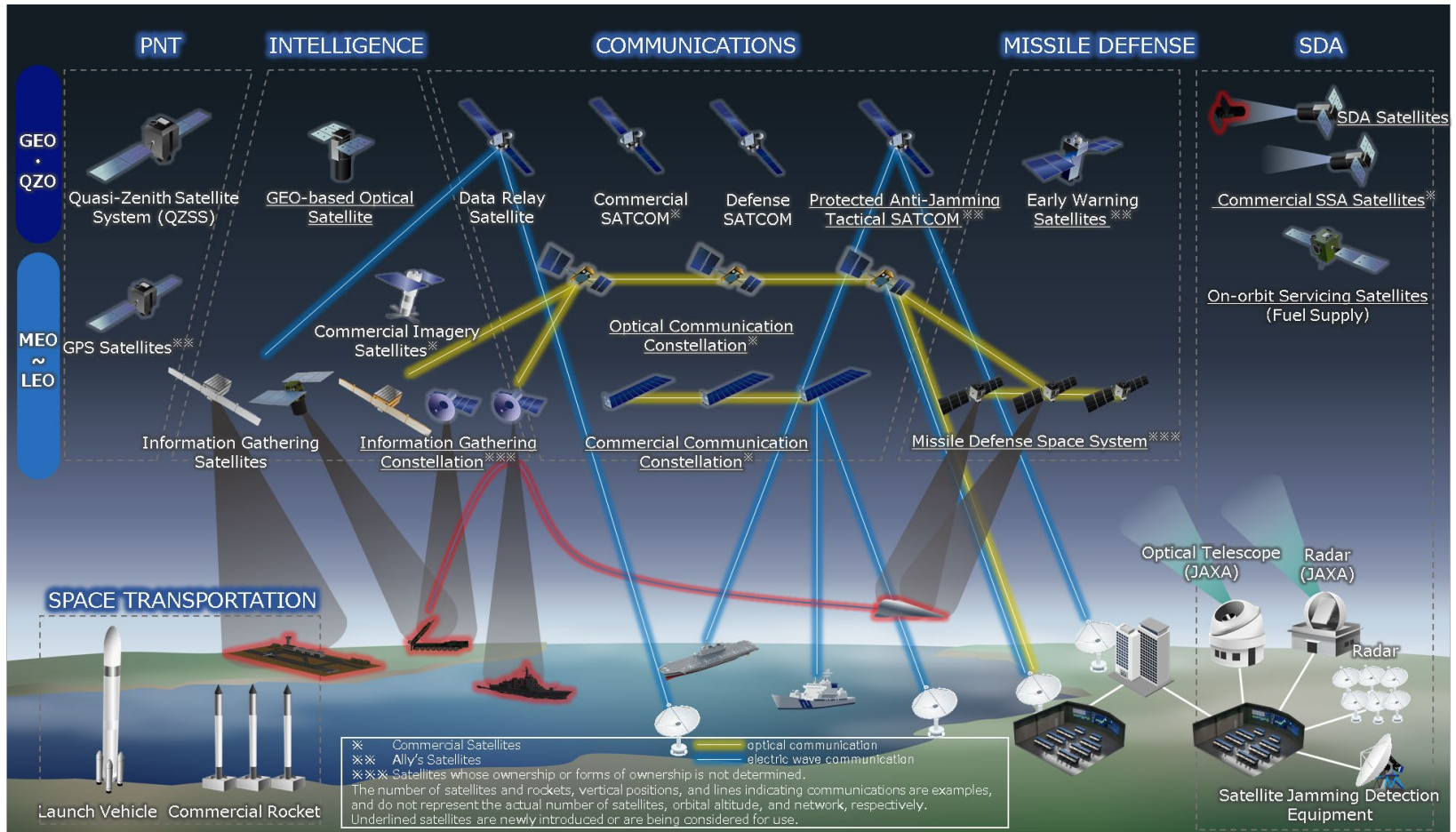
- (1) Enhancing and strengthening of Space Domain Awareness
- (2) Satellite Life Cycle Management Using On-Orbit Services
- (3) Government Decision-Making and Response in Unforeseeable Contingencies
- (4) Proactive Contribution to International Norms and Rules in Outer Space

Approach 3:

Realization of a Virtuous Cycle of Security and Fostering Space Industrial Base

- (1) Strengthen the Public-Private Joint Efforts to Develop Advanced and Fundamental Technologies
- (2) Ensuring Autonomy of Critical Technologies
- (3) Enhancing Implementation Capabilities through the Comprehensive Efforts of the Public and Private Sectors
- (4) Strengthening JAXA's Role as a Center of Excellence for Space Development
- (5) Promoting Privately Led Development and Expanding Government Support
- (6) Selective and Comprehensive Support for Competitive Companies
- (7) Diversifying Public-Private Investment and Contracting Schemes Corresponding to the Level of Technological Maturity

Space Architecture for National Security



Recent positive movements in Japan

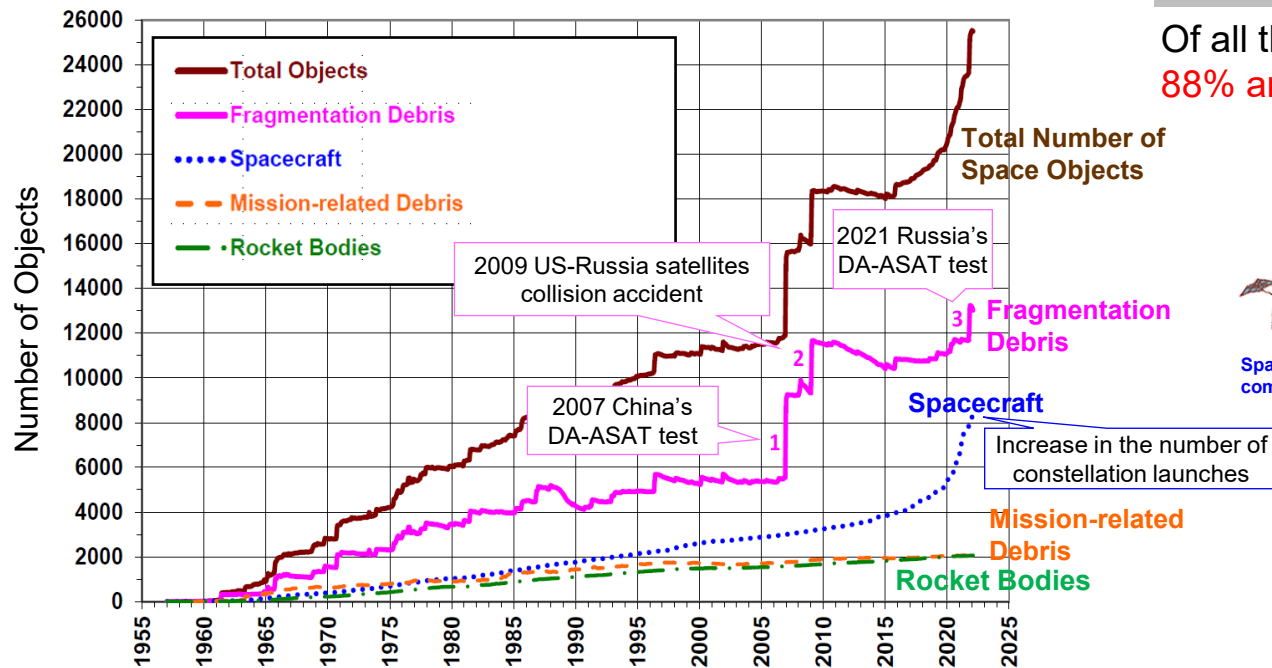
◆ Virtuous cycle of activities among government agencies, politics, private companies, and academia

- H2A Rocket 47th (with XRISM/SLIM) (7 Sep. 2023)
- Economic Stimulus Package (Space Strategic Fund, 1 trillion yen/10 years, JAXA Law Amendment) (Nov.2023)
- Participation in Combined Space Operations Initiative (CSpO) (10 countries) (5 Dec. 2023)
- Revised Implementation Plan of Basic Plan on Space Policy (22 Dec. 2023)
- H2A Rocket 48th (with IGS) (12 January 2024)
- Use of satellite data for disaster relief of Noto Peninsula Earthquake (Jan. 2024)
- SLIM Ping-point Lunar Landing (20 Jan. 2024)
- H3 Rocket 2nd (the first success) (17 Feb. 2024)
- ADRAS-J satellite (JAXA-Astroscale, Commercial Removal of Debris Demonstration (CRD2))(18 Feb. 2024)
- KAIROS Rocket first attempt (Private Sector/Private Space Port) (13 Mar. 2024)
- Space Technology Strategy (28 Mar. 2024)

Space debris countermeasures

◆ Rapid Increase in Space Objects in Earth Orbit (Satellites and Space Debris)

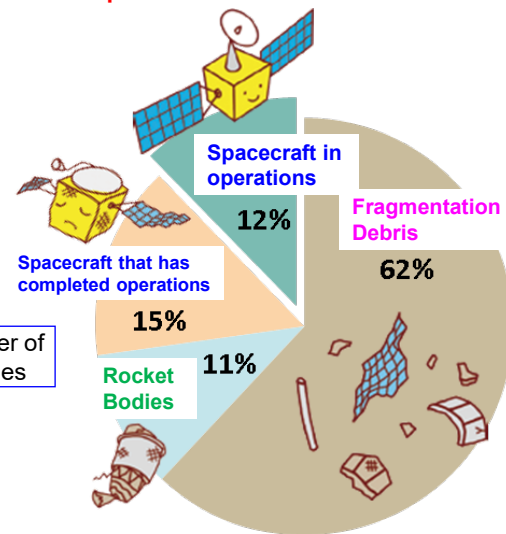
Number of Observable Objects in Earth's Orbit



(in Low Earth Orbit - 10 cm +, in Geostationary Earth Orbit - 1 m +)
 Source : NASA Orbital Debris Quarterly News, Volume 26, Issue 1, March 2022

Breakdown of the number of objects in Earth's orbit

Of all the objects flying through space, **88% are space debris.**



Source : JAXA
 (based on data in January 2020 Space-track.org/ CelesTrack)

G7 Hiroshima Summit 2023

- Para. 41. We reiterate our commitment to promoting the safe and sustainable use of outer space, given our ever-greater reliance on space systems. Restating the importance of addressing the issues of space debris, we strongly support the implementation of international guidelines adopted at the UN Committee on the Peaceful Uses of Outer Space as urgent and necessary. We welcome national efforts to develop further solutions for space debris mitigation and remediation as well as further research and development of orbital debris mitigation and remediation technologies. Furthermore, we commit not to conducting destructive direct-ascent anti-satellite missile testing and encourage others to follow suit in order to ensure the security, stability and sustainability of outer space.



Source: Ministry of Foreign Affairs of Japan

On-Orbit Servicing Guidelines

- **Japan's efforts for safe and sustainable use of space:** JAXA is conducting “the Commercial Removal of Debris Demonstration (CRD2)” with private companies. (**Active Debris Removal: ADR**). CRD2 consists of Phase-I and Phase-II. The satellite for Phase-I was launched on February 18, 2024 through partnership with Japanese startup “Astroscale Japan Inc.”.
- Japan published **the On-Orbit Servicing (OOS) Guidelines** in November 2021 prescribing requirements to ensure safe, secure and transparent performance of on-orbit servicing. These Guidelines require the operator of OOS including ADR to **obtain consent from the entity** having authority to the client object, to **provide an operation and management plan** so that Government of Japan make an in-advance announcement* of on-orbit servicing and **ensure transparency**.

Aiming at **the world's first Active Debris Removal**
in partnership with private enterprises

Demonstration of the removal of **large space debris** left in orbit in two phases

On-Going

Phase-I Launched on February 18, 2024

Key technologies demonstration

Technology Demonstration Satellite Rocket Upper Stage

By Astroscale Japan Inc.

- Non-cooperative rendezvous, proximity operation, inspection



Phase-I partner, Astroscale Japan Inc.

Phase-II Planned for launch in FY 2026~

ADR demonstration



- Non-cooperative rendezvous, proximity operation, inspection
- Removal of 2nd stage of launch vehicle



*Information Open to the Public

- The type of on-orbit servicing to be performed
- The client object
- The entity providing the service
- Basic orbital parameters
- The period of the sequence from rendezvous to separation
- SSA organizations to be informed of servicer's ephemeris
- The information disclosure policy in the event of emergency

Source: JAXA (www.kenkai.jaxa.jp/eng/crd2/project/)

NSPS activities

- National Space Policy Secretariat, Cabinet Office has been organizing **National Space Policy Secretariat Symposium** since 2016 with the aim of **deepening discussions on sustainable development of outer space**.
- The symposium provides an opportunity to **share mutual understanding** and to **strengthen international cooperation** while discussing issues that need to be addressed and matters that can be implemented in the future.
- This year's symposium was held in March of this year and Ms. Takaichi, Minister of State for Space Policy, delivered opening speech.
- Chirag Parikh, National Space Council of the White House, and Teodoro Valente, President of Italian Space Agency, delivered keynote addresses in the plenary session.
- The next symposium is currently under consideration, but will probably be held in February or March of next year.

On-demand streaming is available on our website.
(https://www8.cao.go.jp/space/english/nsps_sympto/top.html)



NSPS activities

- This year, the 6th Summit for Space Sustainability is co-hosted by the Secure World Foundation and Cabinet Office, Space Policy Secretariat, Government of Japan.
- Join hundreds of global experts and stakeholders from industry, governments, and civil society to participate in keynotes, interactive sessions, panels, and networking.



SECURE WORLD FOUNDATION

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Register

6th Summit for Space Sustainability

July 11-12, 2024

Venue: Tokyo at The National Museum of Emerging Science and Innovation (Miraikan)

The 6th Summit for Space Sustainability is a high-level, multi-day policy forum designed to highlight opportunities and challenges for developing solutions for space sustainability.

Thank you very much.



Cabinet Office