

Present issues

(1) Increased importance of space security

- Increased threats and risks of space debris
- Global issues including recent frequent large-scale disasters and climate change

(2) Increased expectations for growing space industry and fiercer international competition

- Thriving market with the private sector led development of space environment
- Increased expectations for bridging and social application of achievements

(3) Needs for obtaining world's best outcomes in space science and exploration, and maintaining and improving international presence

- Destabilized existence and technical advantages of Japan due to rise of developing nations

(4) Increased needs for support to vitalize aviation industry

- Significant growth of international aircraft markets
- Needs of civilian aircraft technology outperforming other nations

JAXA policies

Change the Agency to lead society with science and technology, and promote projects under four policies:

(1) Realization of a secure and safe society and ensuring security

Efforts to meet needs for assuring security, and implementation of a safe and secure society with disaster response and control

(2) Growth in space utilization and promotion of industry

Efforts to expand space utilization for creating new businesses, and R&D to improve the international competitiveness of Japan's space industry

(3) Producing the world's highest results as well as maintaining and improving Japan's global presence in space science and exploration fields

Space science research, space exploration, manned space activity

(4) Promoting the aviation industry and enhancing our global competitiveness

R&D to improve the safety of aircraft

Targets according to four policies

1. Aerospace projects

Satellite positioning systems

: R&D of basic satellite positioning fundamental technology for enhanced positioning systems and high-precision positioning delivery services [(1), (2)]

Satellite remote-sensing

: R&D of advanced remote sensing satellites for disaster prevention and climate change management [(1), (2)]

Space transportation system

: Development of core rockets (H3, Epsilon) for ensuring self-controlling launch technologies and transfer of launch service to private sectors [(1), (2)]

Space situational awareness (SSA)

: Development and operation of SSA facilities (optics, radar) for integrated SSA operation system by the government agencies [(1)]

Space sciences and exploration

: Development and operation of satellites, probe vehicles and observation rockets for new space applications and scientific achievements [(2), (3)]

International Space Station (ISS)

: International presence improvement and industrial promotion through improved "KONOTORI" and promotion of "KIBO" [(2), (3)]

International manned space exploration

: Taking initiative in deep space by participating in a US plan for a manned station near moon and proposing Japan's plans in international programs [(2), (3)]

Aeronautical science and technology : R&D for improving environmental adaptability, economics and safety of aircraft [(4)]

Targets based on four policies (cont'd)

2. Works in cross-disciplinary R&D

- (1) Expansion of space utilization and industrial promotion in cooperation with private sectors [(2)]

Creation of new businesses by increasing social return of R&D outcomes, and support of private business operators for independent operation by giving them opportunities for space demonstration

- (2) Maintenance and improvement of Japan's space industrial and S&T bases for producing new value [(2)]

Promotion of challenging R&D including technologies to prevent collision with space debris and solar power generation systems to develop new businesses and achieve technological innovation

3. Important issues to support other targets

- (1) Promotion and survey analysis of international cooperation and overseas expansion, (2) contributions to increasing public awareness and fostering human resources of the next generation, and (3) project management and guaranteed safety and reliability, etc.

Outline of evaluation criteria (draft)

○ The evaluation criteria are set according to four policies in the mid to long-term objectives.

○ The evaluation indicator consists of two indexes, “outcome index” relating to research outcomes, and “management index” for evaluating the process to get outcomes.

○ The monitoring indicator is required to accurately grasp the fact for suitable and strict evaluation. A suitable index must be selected and set flexibly according to the evaluation item.

Evaluation criteria: Policy (2) [Expand space utilization and promote industries] (excerpts)

Mid to long-term objectives	Evaluation criteria	Related evaluation/monitoring indicator
(Space projects) •Positioning satellite •Satellite remote sensing •Space transportation system •International space station, etc. (Cross-cutting R&D efforts) •Efforts for more space utilization and industrial promotion in cooperation with private business operators •Efforts to maintain and improve space industrial base and science and technology platform for producing new value	○ Appropriateness of planning, discussion and management for expanding space utilization including the creation of new businesses, promoting industries, and improving the international competitiveness of Japan's space industry; and resulting outcomes	<u><Evaluation indicator></u> (Outcome index) ○ Outcomes of efforts to expand space utilization, promote industries and improve the international competitiveness of the space industry (Management index) ○ Advance verification concerning the implementation of R&D ○ Management concerning the implementation of R&D (Example: R&D progress management, installation, maintenance and operation of facilities and equipment, etc.) ○ Coordination and collaboration with external organizations including private business operators <u><Monitoring indicator></u> ○ R&D outcomes according to international benchmarks (Example: Core rocket launch success rate, on-time launch success rate), etc.

Policy System Chart on JAXA (Draft)

Space Basic Act

Implementing central agency of Japan's government supporting, inter alia, space development and utilization via technology

Basic Act on Science and Technology

Government space policy (e.g. Basic Plan for Space Policy)

[Space policy objectives in Basic Plan for Space Policy]

- Ensuring national security in space
- Promotion of space utilization in the civil sector
- Maintenance of and enhancement to the platform for scientific technology and the space industry

Government S&T policy (e.g. S&T Basic Plan)

[Science and Technology Basic Plan]

MEXT policy for aviation

[R&D program (Subdivision on R&D Planning and Evaluation, Council for Science and Technology)]

- Promotion of core technologies critical for national strategy (aviation S&T)

Act on the Japan Aerospace Exploration Agency, National Research and Development Agency

(Objectives of the Agency)

Article 4 (...) the development of academic research at universities or other institutes, the enhancement of the level of space science and technology and aeronautics science and technology, and the promotion of space development and utilization

Changes of situation surrounding the Agency

Increased importance of space security

Increased importance of disaster management

Increased importance of climate change measures

Expectations for aerospace industry

More severe international competition in aerospace industry

Rise of developing nations in aerospace markets

More active space exploration in all nations

Approaches of the 4th Mid to Long-term Objectives Period

Steady implementation of detail plans in the Basic Plan for Space Policy and R&D programs

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Growth in space utilization and promotion of industry

Producing the world's highest results as well as maintain and improving Japan's global presence in space science and exploration fields

and enhance Promoting the aviation industry
our global competitiveness