

Policy of Japan on the Participation in International Space Exploration under the Proposal of the United States

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The United States has proposed a program to conduct moon exploration including the development of a human outpost in the lunar vicinity – Gateway on the basis of international cooperation with a prospect for Mars exploration and invited the participation of Japan.

Japan has decided to participate in the program considering that it is meaningful in the following ways.

- Foreign policy and security:

- In the face of the destabilization of the global situation, deepening Japan-U.S. cooperation and strengthening relationships with partner countries such as Canada and European countries contribute to the promotion of the peaceful use of outer space.

- International competitiveness and presence of Japan:

- The program brings together the wisdom of participating countries, increases technological capabilities of Japan through participation in a large international project that would be difficult to conduct single-handedly, enhances international presence of Japan through demonstration of its unique and outstanding technological capabilities, and exerts leadership and influence, etc.

- Expansion of a wide range of industries including those formerly less-related to space:

- The participation in the program motivates private sectors to invest in the early stage of the program, creates business opportunities for industries including those formerly less-related to space, as well as gives private companies the opportunities to establish de-facto standards for space-related technologies, etc.

- Further deep space exploration such as Mars exploration:

- Logistics and resupply platform :

- (Possibility of) Communications and data relays for deep space exploration, In-Situ Resource Utilization such as water, etc.

- Field for technology acquisition and verification:

Acquiring technologies (*) listed in the Implementation Plan for the Basic Plan for Space Policy, demonstration of related technology on gravitational bodies, etc.

- Field for observation and creation of new knowledge:

Space environmental observation in deep space, etc.

In this process, in order to ensure effective and efficient participation in the program, reflecting the latest developments, Japan, for the time being, with a prospect for further deep space exploration such as Mars exploration, focuses on the following four items of cooperation that directly contribute to moon exploration including the Gateway and work in coordination with the agencies participating in this program so that Japan can contribute strategically in the fields with the advantage of Japan.

- ① Provision of technologies and equipment in Japan's area of strength for the first phase of Gateway;
- ② Logistics cargo and fuel resupply missions to the Gateway utilizing the Japanese HTV-X spacecraft and H3 launch vehicle;
- ③ Sharing of acquired observational lunar surface data contributing to the selection of landing sites;
- ④ Developing rovers, transportation vehicles to support lunar surface exploration.

In addition, in consideration of future revisions to the Basic Plan for Space Policy, Japan examines its international space exploration as a whole including scientific exploration and the possible future participation in the program, and then Japan reflects the outcome in the Implementation Plan for the Basic Plan for Space Policy.

For the participation in this program specifically, the following points should be noted:

- In view of the tight financial situation, the involvement of the government should be cost-effective based on the performance assessment and other examinations of past international space exploration and should be sharpened appropriately to facilitate the comprehensive promotion of space development and utilization policy including scientific exploration.
- To promote active participation of private companies, concrete measures should be considered to deepen dialogues between the public and private sectors, to examine each role, and to improve business predictability.
- Measures should be taken to establish the presence of Japan as a leading country in

space through the participation in this program, such as ensuring the opportunities for Japanese astronauts to make important achievements.

- An appropriate legal framework should be put in place.

* Deep space logistics resupply technologies (e.g., rendezvous and docking technologies, etc.), Habitation technologies (e.g., environmental control and life support system technology), Gravitational body landing technologies (e.g., high-precision navigation technology, etc.), Gravitational body surface exploration technologies (e.g., surface transportation technology, mining technology, water-ice analysis technology, etc.).