Chapter 5 Japanese Space Security Policy and Utilization

Yasuaki Hashimoto*

This presentation attempts to provide an overview of how Japan is utilizing space for security purposes, considering it in the context of the history of Japanese space development. Initially Japan adopted a strict policy prohibiting space use by the Defense Agency and the Self-Defense Forces (SDF). Later, however, Japan eased this policy moderately, and, after the enactment of the Basic Space Law in 2008, a major policy shift was made to enable the use of space for security purposes as was necessary. There are still issues that need to be addressed for the actual utilization of space. This presentation examines Japan's major policies on space utilization, in particular, Japan's use of space for security purposes.

1. Japanese Space Utilization Before the Basic Space Law

(1) Space Utilization Policy at the Dawn of the Space Age

Japan's ban on space use for military purposes dates back to the inception of its space development program. Japan, lacking a basic law on space activities, enacted the National Space Development Agency Law (1969) for establishing a substantive national space institute called the National Space Development Agency (NASDA). This law stipulated that space would be utilized exclusively for peaceful purposes.¹ Subsequent related Diet resolutions and government statements defined "peaceful purposes" in the NASDA Law as referring to non-military activities.² Based on this interpretation, space development was

^{1*} This report has been prepared based on Chapter 1 "Space Security: Global Trends and Japan's Efforts," Section 3 "Japan's Space Security Policy" of the *East Asian Strategic Review 2016* (The National Institute for Defense Studies, 2016) with some corrections and revisions. All of the views expressed in this report are the views of the author and do not reflect the views of any organization with which the author is affiliated. National Space Development Agency Law (Law No. 50 of 1969), Article 1.

² Since the launch of Japan's space development program, related resolutions declared that only non-military uses were permitted, including the Resolution on the Fundamentals of Japanese Space Development and Utilization (May 9, 1969, Plenary Session of the House of Representatives) and the Supplementary Resolution for the National Space Development Agency Law (June 13, 1969, Special

pursued for non-military purposes by both NASDA, a science and technology agency promoting space development for practical use, and the Institute of Space and Astronautical Science (ISAS), an organization under the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in charge of the academic side of space exploration. This space development policy continued to be upheld in several basic plans on space development established by the Space Activities Commission (founded in 1968), a committee that deliberates on comprehensive national policies related to space.

(2) Introduction of the Generalization Theory

From the late 1970s, following the start of Japan's space development, and as space use became more familiar to the entire society, the government permitted the use of space for security purposes for space activities that became known commonly by society (e.g., satellite communications and remote sensing) (so-called generalization theory). The security sector was, however, still required to exercise self-restraint in its use of satellites. Accordingly, Japan's space activities for security purposes at the time constituted mostly the purchase of commercially available satellite imagery and its interpretation by experts for intelligence use.

(3) From Passive User to Active Operator

In 1998, Japan failed to detect signs of North Korea's launch of the long-range ballistic missile Taepodong. This prompted the government to decide on Japan's development and operation of information gathering satellites, marking the Japanese security sector's shift from passive user to active operator of satellites.

2. Enactment of the Basic Space Law

(1) Lead-up to the Enactment of the Basic Space Law

In this manner Japan expanded the use of space for security purposes incrementally, but it was far from adequate compared to the advanced countries engaged in space activities. Therefore, there was a momentum for Japan to develop and utilize space in accordance with the principles of the Constitution, while adhering to international law. Consequently, the government began to explore the transition from research and development-led space development, to

Committee on Promotion of Science and Technology of the House of Councillors).

space use that fully accounted for the needs of the users, including the security sector.

In 2007, members of the ruling parties, the Liberal Democratic Party and New Komeito, submitted the draft Basic Space Law to the House of Representatives, which was carried over to the next Diet session. In the following year, the ruling parties, joined by the largest opposition party, the Democratic Party of Japan, once again submitted a co-sponsored bill to the House of Representatives. This bill was passed and enacted following deliberations at the House of Representatives and then at the House of Councillors.³ Although at the time opposition parties made up a majority of the House of Councillors while the ruling parties controlled the House of Representatives, the law was enacted without any hurdle in a solid display of agreement across party lines, namely, that Japan should engage in space development as a national effort and that security should be included as a key component. Thus, space development escaped unscathed from the subsequent political situation that saw a succession of changes in government.

(2) Basic Principles of the Basic Space Law and Security

The Basic Space Law that was enacted rests on six basic principles: peaceful use; improvement of the lives of the citizenry; advancement of industries; development of human society; international cooperation; and consideration of the environment. Security measures are one of the measures to be taken based on the basic principles. By this law, Japan amended its existing rule, which permitted only non-military uses, to a global standard that permits non-aggressive use of space. Specifically, Article 1 provides that Japan's space activities shall contribute to world peace. The law makes clear that, in accordance with the principles of international law and the Constitution (Article 2), the activities shall contribute to the peace and security of the international community and the security of Japan (Article 3). The common understanding under international law is that international law including the Charter of the United Nations (UN) applies to outer space, while countries shall also adhere to their constitutions.⁴ The UN Charter prohibits the use of force in Article 2, Paragraph 4, and as its exception, allows for the exercise of the right of

³ Basic Space Law (Law No. 43 of 2008).

⁴ The Outer Space Treaty enacted in 1967 and signed by over 100 countries including Japan stipulates in Article 3 that international law including the UN Charter shall be applied to the space activities of states parties.

individual and collective self-defense if an armed attack occurs in Article 51. By extension, a nation is permitted to exercise the right of self-defense also in outer space. Hence, non-aggressive uses of space were allowed in Japan, similar to non-aggressive uses of land. Furthermore, revisions made to the competent authorities of the Japan Aerospace Exploration Agency (JAXA) made the Cabinet Office and the Ministry of Economy, Trade and Industry the competent authorities of JAXA, coupled with MEXT and the Ministry of Internal Affairs and Communications, and enabled the addition of other ministries and agencies as necessary.⁵

3. Establishment of Basic Plans on Space Policy and Japan's Security

The two Basic Plans on Space Policy⁶ established in 2009 and 2013 stopped short of going into great detail about the use of space for security. While the plans vowed to strengthen the functions of information gathering satellites, they went only so far as to suggest demonstration studies of early warning technologies. That said, the plans referred to information sharing and command and control by the SDF, and committed to reviewing the use of positioning satellites. In this regard, the plans did show signs of change that the government was moving towards promoting space use in the security domain.

(1) Basic Plan on Space Policy

The Basic Plan on Space Policy is established by the Strategic Headquarters for Space Policy for the purpose of achieving the principles of the Basic Space Law, and serves as Japan's basic guidelines on space activities.⁷ The first Basic Plan that outlined the government's policy for the next five years while looking ahead to roughly the next ten years was approved in June 2009.⁸ Approximately three and a half years later, in January 2013, the second Basic Plan was approved. This plan was also anticipated to cover the same period as the first Basic Plan.⁹ The third Basic Plan, approved in January 2015, was established two years after the approval of the second Basic Plan. Priority was

⁵ Article 3 of the Supplementary Provision to the Basic Space Law and Article 26 of the Law Concerning Japan Aerospace Exploration Agency (Law No. 161 of 2002).

⁶ The Strategic Headquarters for Space Policy approved the first Basic Plan on Space Policy on June 2, 2009 and the second Basic Plan on Space Policy on January 25, 2013, respectively.

⁷ Article 24 of the Basic Space Law.

⁸ Chapter 1 of the Basic Plan on Space Policy (2009).

⁹ Chapter 1, 1.2 of the Basic Plan on Space Policy (2013).

likely given to maintaining consistency with the National Security Strategy established in December 2013, while at the same time, ensuring the smoother development and use of space. The security aspect is given greater emphasis in the third Basic Plan than in the previous Basic Plans.

Article 24 of the Basic Space Law requires the Strategic Headquarters for Space Policy to establish the Basic Plan on Space Policy. At present, the Strategic Headquarters establishes a draft plan and submits it to the Committee on National Space Policy that consists of external experts. The Committee on National Space Policy reviews and deliberates on this proposal. The Committee on National Space Policy was founded based on the Law for Establishment of the Cabinet Office in July 2012, and has presented policy proposals and opinions concerning projects related to the development and use of space.¹⁰ For example, the Interim Report of the Committee on National Space Policy's Subcommittee on Basic Policy states that the use of space for security purpose is becoming critical and Japan needs to enhance such applications, and that Japan must build an even stronger Japan-U.S. Alliance by deepening bilateral security cooperation in the field of space. It can be considered that these opinions were reflected in the Basic Plan on Space Policy to a considerable degree.¹¹ Additionally, the Subcommittee on National Space Security founded in 2014 was also actively involved in the establishment of the third Basic Plan.

(2) Current Plan on Space Policy and Security

The current third Basic Plan on Space Policy starts by developing an understanding of the surrounding environment, i.e., explaining the importance of security in space development and utilization.¹² In particular, it draws attention to the remarkable related activities carried out by advanced countries engaged in space activities, such as the United States, Europe, Russia, and China.

In Japan, the National Security Strategy was established in 2013, replacing the Basic Policy on National Defense established 56 years earlier in 1957. On this basis, the Basic Plan committed to not only making effective use of satellites in order to have an accurate awareness of the SDF's operations and of

¹⁰ Article 38 (1) (a) of the Law for Establishment of the Cabinet Office (Law No. 89 of 1999).

¹¹ Subcommittee on Basic Policy, Committee on National Space Policy, "Interim Report, "August 20, 2014.

¹² Basic Plan on Space Policy (January 9, 2015), pp. 4-6.

various situations, but also to giving consideration to ensuring that space development and utilization contribute to national security.¹³

Furthermore, in light of the role fulfilled by the U.S. deterrence in the Asia-Pacific region, the Basic Policy sets out that Japan-U.S. space cooperation would cover a number of areas in view of security. For example, the areas include satellite positioning, Space Situational Awareness (SSA), Maritime Domain Awareness (MDA), and the handling of remote sensing data.¹⁴ In addition, the Basic Policy highlights the need for efforts to ensure the stable use of space, bearing in mind the worldwide concerns about space debris and other problems.¹⁵ Moreover, given that industry promotion and security had not been linked together as Japan had not made active use of space in the field of security—

a characteristic of Japan's space development and utilization, the Basic Policy raises the need to properly consider future mechanisms of space development and utilization.¹⁶

(3) Three Security Uses of Space

Based on the above, the new Basic Plan on Space Policy outlines the following three areas related to security. The first is the question of how to keep space safe and secure. Whether it is for security or any other purpose, sustaining the stable use of space requires keeping space in a safe and secure state. The Basic Plan on Space Policy states that invulnerability would be ensured through strengthening collaboration with other countries, piggybacking payloads, utilizing commercial satellites, developing ready small satellites that can be launched quickly when a satellite in orbit encounters difficulty, and securing complementary mechanisms provided by non-space systems.

To prevent further increases in excessive space debris, the Basic Plan commits to sharing SSA information with other countries, as well as cooperating with the European Union's proposal to create the International Code of Conduct for Outer Space Activities for engaging in efforts to establish rule of law to ensure the security of space.¹⁷

Secondly, the Basic Plan raises the question of how space can be utilized to

¹³ Ibid., pp. 4-5.

¹⁴ Ibid., pp. 5-6.

¹⁵ Ibid., p. 6.

¹⁶ Ibid., pp. 8-9.

¹⁷ Ibid., pp. 12-13.

ensure the security of Japan. The Basic Plan notes that the space system would be reinforced for applications, such as positioning, communications, and information gathering. Specifically, it commits to: conducting reviews to enhance Japan's unique space system—the quasi-zenith satellite—to enable continuous positioning without relying on other countries' systems; developing the next generation X-band defense communication satellite with outstanding invulnerability and concealment; and increasing capacity by further enhancing information gathering satellites.

The last point that is emphasized is space cooperation. The Basic Plan on Space Policy gives priority to collaboration and cooperation with the United States. This is because the National Security Strategy commits to improving the deterrence and response capability of the Japan-U.S. Alliance through bilateral security cooperation in space.¹⁸ The Basic Plan refers to collaboration between GPS, the global satellite positioning system operated by the U.S. Forces, and the quasi-zenith satellite system, a regional satellite positioning system that Japan has started building, as well as bilateral cooperation on SSA and MDA. At the same time, the Basic Plan mentions strengthening cooperation with countries that share the same values and strategic interests as Japan. Cooperation partners listed include Europe, Australia, India, and the member states of the Association of Southeast Asian Nations (ASEAN).¹⁹

4. Use of Space by the Ministry of Defense and the Self-Defense Forces

As was described earlier, the Ministry of Defense (MOD) and the SDF did not use space at the initial stage of Japan's space development program. This contrasts sharply with many countries besides Japan that have engaged in space activities with a focus on security uses. Today, however, Japan's space development and utilization are beginning to witness changes as Japan enters a critical time for ensuring the stability of the nation, region, and the world on the whole, all the while utilizing space. The next section examines these changes.

(1) As a Passive User

The MOD and the SDF were prevented from directly undertaking space activities when the NASDA Law was enacted, as well as by its related Diet resolutions and subsequent government statements. This situation changed first

¹⁸ National Security Strategy (established by the National Security Council and approved by the Cabinet on December 17, 2013), p. 19.

¹⁹ Basic Plan on Space Policy (2015), pp. 13-14.

with the introduction of the so-called generalization theory that partially opened the door to space activities. The idea here is, if the general society was using space assets as part of its normal daily life, then the SDF shall be allowed to utilize space in the same manner as the general public. For example, in the case of making an international phone call automatically involving the use of both submarine cables and communication satellites, it would be rather difficult to prevent only the SDF from making phone calls via communication satellites. Furthermore, it is an unnecessary restriction of use to prevent only the SDF from using meteorological satellite data, when the general society made weather forecasts using such satellites. Thus, as space use became more common among the society as a whole, the SDF was permitted to become one of the users of space. Following this change, the SDF has carried out satellite communications using transponders of communication satellites. In addition, the SDF has purchased in the market, remote sensing satellite data for civilian use, and used this data to check the situation of the areas where there are security concerns. Nonetheless, the SDF's standing was no more than that of user; the SDF itself did not own any satellites. As its user status suggests, the functions available to the SDF were those that were commonly utilized by society. While some of the other countries conducting space activities exclusively for security purposes owned and operated satellites with performance levels far exceeding civilian levels, Japan was restricted to commonly utilized functions.

(2) As an Active Operator

This situation began to show signs of change in 1998, when North Korea launched a Taepodong missile, and parts of it over flew Japanese mainland to reach the Pacific Ocean—the so-called "Taepodong shock." (North Korea asserts that this missile launch constituted a launch of a satellite into space.) Japan, failing to detect any signs of this launch, was faced with the issue of how it would monitor the situation if a similar conduct were carried out in the future. Based on this situation, in late 1998, the Japanese government adopted a Cabinet decision to introduce information gathering satellites. This decision allowed the government to own and operate satellites in order to conduct proper surveillance of the actions of neighboring countries that have security importance for Japan.

Information gathering satellites were developed and manufactured in accordance with this Cabinet decision. In so far as Japan owned and operated these satellites contrary to previous remote sensing satellites for civilian use, Japan's space activities were taken one step further. At the same time, however, information gathering satellites do not far outperform civilian satellites used by the general society. In this regard, it can be considered that the generalization theory has been maintained to a certain extent. Nevertheless, it is not the SDF but the government that owns the information gathering satellites.

What the SDF owns are communication satellites. The MOD and the SDF's communication satellites have been placed into orbit to maintain the SDF's communications environment in Japan and neighboring areas. The satellites' uses are the same as those of other communication satellites. Hence, it can be said that this is another form of the SDF's active application of the general use of space.

(3) Policy on Space Security and Utilization

At the government-wide level, three Basic Plans on Space Policy have been established following the enactment of the Basic Space Law. At the MOD and the SDF level, Basic Guidelines have been approved twice thus far. The first Basic Guidelines were unveiled in 2009, one year after the Basic Space Law was established. In August 2014, the existing basic guidelines on space ("Basic Guidelines for Space Development [Revised]," Committee on Promotion of Space Development and Use, August 28, 2014) were developed.

The most recent Basic Guidelines feature a study of space security and utilization in terms of three fields (activity, foundation, and response).

First, the Guidelines consider outer space as an activity space. The Guidelines examine what activities Japan would conduct in outer space to ensure the security of the country. In this analysis, importance is attached to using satellites deployed in outer space for obtaining reliable information. The fact that no national jurisdiction extends to outer space has brought attention to the freedom accorded to nations to carry out ground observations from outer space. For example, they include: obtaining various images collected by satellites in a multilayered manner; strengthening the foundation of remote sensing satellites in Japan; proactively engaging in the capacity enhancement of information gathering satellites already owned and operated by the government; carrying out studies and research on ready small satellites that can be deployed to quickly restore some of the functions of sensors in space that have stopped or are failing due to intentional or non-intentional destruction; incorporating the achievements made in space development by the civilian sector; and

collaborating on the use of space for MDA.

Secondly, the Guidelines consider outer space as a foundation space. It is perceived that using outer space as a foundation for building defense capabilities would allow for more efficient defense activities on Earth. For example, one possible way of ensuring communications functions is for the MOD and the SDF to own communication satellites to properly cope with increasing communication volume requirements. The Guidelines commit to adapting to the deployment of the GPS positioning satellites of the U.S. Forces that have greater invulnerability and precision, and thereby, increasing the performance of the GPS receivers furnished by the SDF. In addition, the Guidelines state that Japan would consider the use of its unique positioning satellite, the quasi-zenith satellite system, taking into account that the system has GPS complementary functions.

Thirdly and lastly, the Guidelines consider outer space as a response space. This concept rests on the judgment that more effective defense would be possible if outer space is included in the space for responding to eliminate harms to Japan. Specifically, related activities can include research on sensors for noticing and detecting signs of a launch of a ballistic missile headed towards Japanese territory.

The MOD and the SDF are thought to be utilizing data collected from government-owned information gathering satellites based on these Basic Guidelines. Furthermore, they have likely purchased a considerable amount of commercially available data collected from remote sensing satellites. To ensure communications functions, the MOD and the SDF have also decided to change the current system of leasing the repeaters on board civilian communication satellites (Superbird owned by SKY Perfect JSAT Corporation) and own their own communication satellites.

Additionally, another key issue is securing the stability of space. With a lot of debris currently swarming space, the chances of debris hitting and damaging operating satellites are increasing. Further still, the risk of nations damaging the satellites of other countries intentionally, out of their own will, cannot be denied. Avoiding such risks requires monitoring the state of debris in space and checking for suspicious movements of satellites in orbit. These are activities known as SSA. Other activities for consideration include improving the protection capabilities of satellite bodies, taking measures to counter communication jamming, and immediately launching replacement small satellites when satellites stop functioning. This is not to say that these measures will be realized instantaneously. They can be introduced for practical use for the first time only after undertaking appropriate research and development and repeating trials. We will need to wait for future studies to see what kinds of technologies will actually be furnished, also taking into account their cost-effectiveness. Incidentally, one of the technologies being considered for such uses in space is the X-band defense communication satellite. The satellite is already set for implementation, and the MOD and the SDF will be procuring usable communication satellites. With regard to surveillance related to SSA, system design for monitoring is being taken into consideration. Japan has not yet reached the stage of strengthening C4ISR functions using space and analyzing infrared imagery; Japan has only gone so far as to plan related studies and research. In other words, it should be kept in mind that the basic guidelines on space security and utilization do not signify that the measures are or will be implemented as stated in the guidelines.

5. Feasibility of International Cooperation on Space Security

Using space for security purposes, considered necessary to maintain the stability of Japan, is not something that Japan can realize alone. One possibility that comes to mind first is to deepen cooperation on space activities under the Japan-U.S. security arrangements. For example, with respect to SSA, Japan can complement the United States' worldwide monitoring network in East Asia. A budget request is being made for this in the FY2016 budget request.

There are also many ways in which Japan can support the United States on MDA aimed at contributing to ensuring maritime security and safe navigation, properly addressing natural disasters and environmental pollution, and other components. Today, all large vessels are required to have automatic identification systems (AIS) that transmit their basic information (e.g., identification signal, location, speed). Because AIS uses the VHF radio wave, however, only radio waves transmitted by vessels within around 70 km off the coast can be received from land. By taking advantage of radio waves' ability to project in a vertical direction and receiving them from space, the location of vessels transmitting AIS signals can be identified globally. While the United States is leading the research in this area, Japan is also actively carrying out related trials. Enhancing Japan-U.S. cooperation in this area is expected to not

only enable the detection of the movements of vessels involved in the proliferation of weapons of mass destruction and missile technologies, which constitute international common concerns, but also improve the capabilities for confirming vessels that are behaving suspiciously.

Furthermore, Japan-Europe cooperation is vital for Japan's space security. The EU's draft International Code of Conduct contributes to building trust between nations engaged in space activities. Japan is proactively participating in the open-ended consultations concerning the draft Code, and is carrying out outreach activities aimed at Asia-Pacific countries.

6. Conclusion

In the world today, there are only a handful of countries that manufacture space equipment such as satellites and launch vehicles and can build related ground systems, including the United States, Europe, Japan, India, Israel, Russia, and China. It is not in the interest of the world for tensions to heighten and conflicts to deepen between these nations. Space systems are increasingly taking on the nature of global commons. From this standpoint, it is hoped that international cooperation is carried out between the two sides of Japan, the United States, and Europe and China and Russia. While deepening such international cooperation will not be easy, countries need to identify their common interests from a variety of perspectives and pursue their possibilities with a view to realizing stability in space and stability on land.