

Space Governance in Japan

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Abstract

Japan's space policy and its governance are at a major turning point. The Basic Space Law enacted in 2008 defines some new objectives of space activities: promoting space utilization, space diplomacy, and industrialization of space, in addition to scientific research and technological development. In particular, the current Japan's space policy places more than ever particular emphasis on promoting space utilization. To achieve the new goal, Japan's space policy structure has been strengthened since 2008. The 2012 amendment law concerning the Cabinet Office and JAXA newly created the Office of National Space Policy under the Cabinet Office, and made JAXA a core agency of Japan's space activities, which makes all necessary contribution to Japan's comprehensive space policy stipulated in the Basic Space Law and the Basic Plan on Space Policy. Furthermore in April 2012, the Ministry of Foreign Affairs of Japan also strengthened its function for space policy and activities by establishing a new office, the Space Policy Division, under the Foreign Policy Bureau. However, while Japan's space policy and the organizational structure have rapidly changed, the space governance to promote effective decision-making and policy implementation has remained unclear.

The purposes of this paper are to overview the recent development of Japan's space policy and governance, and examine the challenging issues for Japan's space policy and governance by analyzing the decision-making process of the Quasi-Zenith Satellite System project and reviewing international space cooperation in Asia Pacific region for past decades. In conclusion, this paper will suggest some key elements essential to Japan's space policy in the new era.

Introduction

While Japan became the fourth nation with the capability of launching a domestically developed satellite by its own rocket in 1970, it was not until 2008 that the basic law for space activities was enacted¹. The main reason why Japan was so late in establishing national space law was that it was not necessarily need-

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1 *Uchu kihonho* [Basic Space Law] Law No. 43, May 28, 2008.

ed due to inadequate activities by non-governmental entities². Japan's space activities had long been focused on research and development, and therefore mainly conducted in the category of science and technology policy. However, the Basic Space Law enacted in 2008 defines the new objectives for space activities such as expanding space utilization to satisfy administrative and public needs including national security, strengthening international competitiveness of Japan's space industry, promoting space diplomacy and international space cooperation, and so on.

The Basic Space Law has also ushered in a new era for Japan's space governance by changing its policy direction. Since the enactment of the Basic Space Law, the political structure for formulating and implementing space policy has reformed. As discussed later in detail, the Strategic Headquarters for Space Policy established by the law in order to comprehensively promote space activities of the whole government. Moreover, the Cabinet Office and the Ministry of Foreign Affairs also created new office in 2012: the Office of National Space Policy and the Space Policy Division. In the same year, JAXA also strengthened its function for supporting Japan's comprehensive space policy. To achieve the new objectives, especially the goal of expanding space utilization at home and abroad, Japan's space governance has been rapidly evolving.

This paper will discuss Japan's space policy and governance in recent years. First, this paper briefly reviews the historical development of Japan's space policy and examines how the Basic Space Law changed the direction of Japan's space policy and governance. Second, this paper overviews the reforms of administrative structure for space activities in recent years. Finally, this research examines the challenges facing Japan's space policy and governance by analyzing the decision-making process of the Quasi-Zenith Satellite System project and reviewing international space cooperation in Asia Pacific region for past decades. In conclusion, some key elements essential to Japan's space policy in the new era will be suggested.

I. Basic Space Law as a Turning Point of Japan's Space Policy & Governance

With the enactment of the Basic Space Law in 2008, Japan's space policy and its governance has been at a major turning point. The objectives of Basic Space Law are to promote comprehensively and strategically Japan's space activities as a whole government and to change its focus from R&D-oriented activities to space utilization-driven ones.

Prior to the establishment of the Basic Space Law, Japan's space policy had long focused on advancement of science and technology rather than space application for the following reasons. First, there had been little political and strategic thought in space policy because Japan had refrained from using space for na-

2 Setsuko Aoki, "Current Status and Recent Development in Japan's National Space Law and Its Relevance to Pacific Rim Space Law and Activities," *Journal of Space Law*, vol.35, No.2, Summer 2009, 366.

tional security purposes. The 1969 Diet resolution mandated that the Japan's space agency, the National Space Development Agency (NASDA), shall be involved in space activities only for peaceful purposes³. This resolution also prohibited the Self Defense Force of Japan from using outer space by interpreting "peaceful purposes" as "non-military." Due to the resolution, Japan's space activities had largely conducted in the category of science and technology policy. Moreover, Japanese politician largely considered space activities as a symbol of advanced nations, which enhance Japan's presence in the international society. Therefore, the important goal of Japanese space policy was to catch up with other space faring nations such as the United States and Europe⁴.

Second, because of its motivation for technological development, Japan's space policy had been largely dominated by the Science and Technology Agency (STA) and the Ministry of Education, Culture and Sports (MOE). The objective and role of STA were to promote technological development in Japan, including space technologies. The Space Activities Commission (SAC), established under the Prime Minister's Office in 1968, functioned as space policy coordination framework among the ministries. SAC used to decide Japan's comprehensive space policy and submitted its decision to the prime minister⁵. However, most of the decision-making at SAC was initiated and framed by STA because it was in charge of providing secretariat services⁶.

In 2001, STA and MOE merged into a ministry, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in charge of NASDA and ISAS, the Institute of Space and Aeronautical Science. Furthermore, the two space agencies were consolidated into a new space agency, Japanese Aerospace Exploration Agency (JAXA), together with the National Aerospace Laboratory (NAL)⁷.

The administrative reforms also had an influence on the decision-making mechanism for space policy. SAC, which had played central role in formulating overall Japan's space policy, reduced its roles to the supervision of the space activities within JAXA. SAC was allowed to formulate only the policy concerning JAXA's space activities, but not overall Japan's space activities. Instead of SAC, the Council for Science and Technology Policy (CSTP), in which the prime minister is the chair, was established to oversee and formulate all of Japan's sci-

3 House of Representatives, "Wagakuni ni okeru uchukaihatsu oyobi riyou no kihon ni kansuru ketsugi [Resolution concerning fundamentals of space development and use in Japan]" 9 May 1969.

4 Kazuto Suzuki, Transforming Japan's space policy-making, *Space Policy* No.23, 2007, 73-80; Kazuto Suzuki, "Administrative Reforms and Policy Logics of Japanese Space Policy," *Space Policy*, No.21, 2005, 11-19.

5 Uchu kaihatsu iinkai secchiho [Act for the Establishment of Space Activities Commission] Act No.40, May 2, 1968. See also; Setsuko Aoki, "Current Status and Recent Development in Japan's National Space Law and Its Relevance to Pacific Rim Space Law and Activities," 371.

6 Kazuto Suzuki, Transforming Japan's space policy-making, 73-75.

7 *Ibid.*

ence and technology policy, including space, in 2001. However, CSTP had not changed the space policy orientation. Although Japan's space policy-making structure had experienced major reforms since 2001, its focus on advancement of science and technology had remained in the center of Japan's space policy⁸, except for the introduction of Information Gathering Satellites⁹ in the wake of North Korea's *Taepodong* flying over Japanese territory¹⁰.

In sum Japan's space policy had long been concentrated on scientific and technological aspect without any national strategic thought for using such space assets. The lack of a coherent national strategy for space utilization was a major problem in Japan's space policy¹¹.

The enactment of the Basic Space Law in 2008 have ushered us into a new phase of Japan's space policy. The benefits of space activities include not only advancement of science and technology but also many other aspects to pursue national strategic goals. The Basic Space Law defines the new objectives of space activities: improving the lives of its citizens, strengthening national security, fostering socioeconomic development, ensuring international peace, and promoting the welfare of humankind¹².

The Basic Plan on Space Policy of 2013, the most fundamental policy document on Japan's space activities, specifies the two basic policy objectives for Japan's space activities for next five years¹³. The First is "expanding space utilization." The important purpose of expanding space utilization is to create new services and products for improving the quality of everyday life on the earth such as weather forecast, communication, broadcasting, and navigation. It is also important to say that space technology can also offer effective measures for disaster management and national security¹⁴.

8 *Ibid.*

9 For more detail on Japan's Information Gathering Satellite, see Joan Johnson-Freese and Lance Gatling, "Security Implication of Japan's Information Gathering Satellite (IGS) System," *Intelligence and National Security*, vol.19, no.3, Autumn 2004, 538-552.

10 The threat of *Taepodong* launched by North Korea in 1998 was one of main reasons that Japanese government made a decision to introduce Information Gathering Satellite system. The recognition of the significance of space for national security eventually led to the establishment of the Basic Space Law.

11 Jiyuminshuto seimu chosakai uchukaihatsu tokubetsu iinkai [Special Committee on Space Development of LDP's policy research council], *Chukan houkoku: Aratana uchukaihatsuriyo seido no kouchiku ni mukete* [Interim Report on a construction of new institution for space development and use], October 2006.

12 Basic Space Law, May 28, 2008, article 1.

13 Uchu kaihatsu senryaku honbu [Strategic Headquarters for Space Policy], Uchu kihon keikaku [Basic Plan on Space Policy], January 25, 2013, 6. English version of the document is available at <<http://www8.cao.go.jp/space/plan/plan-eng.pdf>>, accessed on August 8, 2013. The Basic Plan on Space Policy is established as the plan at the most fundamental level for the development and use of outer space according to the Basic Space Law. The Plan of 2013 covers a five-year period starting from FY2013.

14 Basic Plan on Space Policy, January 2013, 6.

Second, “ensuring the capability of autonomous space activities” is another core concept of Japan’s space policy because space activities is essential to national security and socioeconomic development. From this perspective, it is also an important factor to enhance international competitiveness of Japanese space industry as well as to maintain and advance technological capabilities¹⁵.

In particular, the Basic Plan on Space Policy lists four essential space technologies as social infrastructures to achieve both “expanding space utilization” and “ensuring autonomy”: positioning satellite system (Quasi-Zenith Satellite System: QZSS), remote sensing satellites, communication and broadcasting satellites, and space launch vehicles¹⁶. These space systems can be potentially used in a wide variety of fields.

As these objectives suggest, Japan’s space policy places more than ever emphasis on space application. They also suggest that Japan has to strengthen space governance to achieve various new goals of space activities stipulated in the Basic Space Law and the Basic Plan on Space Policy as a whole government. Since the enactment of the Basic Space Law in 2008, therefore, Japan’s space governance has experienced a major reform as below.

II. Recent Development of Space Governance in Japan

II.I Establishment of Strategic Headquarters for Space Policy

Above all, the Basic Space Law reforms the space policy-making structures by mandating the creation of the Strategic Headquarters for Space Policy under the Cabinet, in which the Prime Minister serves as its chairman and the Minister for Space as vice-chairman¹⁷. Consisting of all the ministers as the member, the headquarters functions as the cabinet-level space policy decision-making body. The objective and role of the headquarters is to coordinate and unify Japan’s space policies among various ministries and to comprehensively and strategically promote space activities at the top level of the government. The headquarters is therefore responsible for establishment of the Basic Plan on Space Policy¹⁸. Moreover, the headquarters created the Expert Committee on Strategy for Space Development to conduct technical investigations necessary for formulating comprehensive space policy¹⁹.

15 *Ibid*, 6-7.

16 *Ibid*, 14-24.

17 Basic Space Law, Article 25.

18 The Strategic Headquarters for Space Policy has until now decided two the Basic Plan on Space Policy documents. The first one was decided in June 2009. And then, the headquarters issued the second plan in January 2013.

19 Uchukaihatsu riyou senryaku senmon chosakai [Expert Committee on Strategy for Space Development]. By the establishment of the Committee on National Space Policy under the Cabinet Office in 2012, the Expert Committee was abolished in 2012.

The supplement to the Basic Space Law also mandated the review of the administrative organs in relation to space activities in order to promote comprehensive space activities as a whole government, as well as the investigation on how JAXA should be reformed²⁰. The Strategic Headquarters for Space Policy, therefore, set up the working group for reviewing the administrative structure concerning space activities²¹ under the Expert Committee on Strategy for Space Development. After years of debates over reconstructing Japan's space-related organizations²², the Expert Committee decided its report in January 2012. Based on the decision, the Cabinet finalized the Bill on Partial Amendment of the Cabinet Office Establishment Act etc., which aims to reform Japan's space related organizations including JAXA. The Bill was passed the Diet in June 2012²³.

II.II Establishment of an Office of National Space Policy in the Cabinet Office

The main purpose of the Law on Partial Amendment of the Cabinet Office Establishment Act etc. is to authorize the Cabinet Office to take more control of Japan's space activities in line with the Basic Space Law. The law grants the Cabinet Office the authorities to control the budget and the planning of overall space activities; coordinate all the other space-related administrative organs; promote space development and use except for those belonging to each specific ministry; and develop, maintain, operate satellites for public and official use in various field²⁴.

This means that the center of Japan's space policy decision-making is transformed from the MEXT to the Cabinet Office. Indeed, SAC, which oversaw JAXA's activities under the MEXT's jurisdiction, was abolished by the law²⁵. On the other hand, the Cabinet Office newly created two bodies concerning space policy to effectively exercise the authorities based on the amendment law in June 2012. First, the Office of National Space Policy was established under the Cabinet Office. The purpose of this new office is to function as "commander" of Japan's space policy. The office is now in charge of comprehensively and effectively coordinating space policies among various ministries, and then planning all of Japan's space activities²⁶.

20 Supplementary Provision, the Basic Space Law, Article 3-4.

21 Uchukaihatsuriyo taisei kento wakingu grupu [Working Group for Reviewing Space Related Organizations].

22 For the detail of the debates, see Keiichi Anan, "Administrative Reform of Japanese Space Policy Structures in 2012," *Space Policy*, 2013, 3, available at <www.science-direct.com/science/article/pii/S0265964613000519>, accessed on August 7, 2013.

23 Naikakufu Secchiho Nado No Ichibu Wo Kaisei Suru Horitsu [The Law on Partial Amendment of the Cabinet Office Establishment Act etc.] Law No.35, June 27, 2012.

24 *Ibid.*

25 *Ibid.*

26 Uchu senryaku shitsu [The Office of National Space Policy]. see the website, <<http://www8.cao.go.jp/space/cao/about.html>>.

The law in June 2012 also allows the Cabinet Office to set up the Committee on National Space Policy. Comprising seven experts from outside of government, the Committee on National Space Policy serves as an advisory committee for space policy. The commission investigates and deliberates on the Basic Plan for Space Policy and budgetary prioritization in response to the prime minister's request. In fact, the decision of the second Basic Plan on Space Policy by the Strategic Headquarters for Space Development in January 2013 and budgetary prioritization for FY 2013 by the Office of National Space Policy were based on the result of the discussions of the Committee on National Space Policy²⁷.

The Committee on National Space Policy can also provide the prime minister and other ministers with its recommendations and opinions. Although the impact of such recommendations is unclear due to the lack of legal binding power²⁸, it is almost no doubt that the Committee on National Space Policy is a centerpiece of policy discussions and deliberations for Japan's space activities.

II.III Amendment of JAXA Law

The Law on Partial Amendment of the Cabinet Office Establishment Act etc. in June 2012 also amended the Law concerning JAXA. Based on this amendment, JAXA was reformed as below.

First, the law changed the interpretation of "peaceful purposes" in the Article 4 of JAXA Law (objective of JAXA) in line with the principles of the Basic Space Law. When JAXA was established, its main purposes was to facilitate R&Ds related to aerospace science and technology, and to develop, launch, trace, and operate satellites for "peaceful purposes only." As mentioned above, Japan's space activities had long been conducted on the basis of the "exclusively for peaceful purposes" principle stipulated by 1969 Diet resolution. This meant that all Japanese space programs were carried out under civilian authority in the name of R&Ds for new technology.

The enactment of Basic Space Law in 2008 changed the situation and even the long-standing interpretation of "peaceful purposes." The Article 2 of the Basic Space Law stated that "space development and use shall be carried out in accordance with treaties and other international agreements with regard to space development and use including the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, and in accordance with the pacifism of the Constitution of Japan²⁹." It implies that Japan can conduct space activities in accordance with the Outer Space Treaty, but within the limits of the pacifism of the Constitution including Article 9 of it.

27 Keiichi Anan, "Administrative Reform of Japanese Space Policy Structures in 2012."

28 *Ibid.*

29 Basic Space Law, Article 2, 2008. See also, Setsuko Aoki, "Current Status and Recent Development in Japan's National Space Law and Its Relevance to Pacific Rim Space Law and Activities," 387.

Therefore, one of the purposes of the amendment of JAXA Law is to bring the objectives of JAXA into line with the Basic Space Law. As a result of this, JAXA expected to be able to conduct space activities within the pacifist principles of Article 9 of the Constitution. In theory, this amendment enables JAXA to work as a core implementation agency to provide technical support with the Ministry of Defense of Japan. At the 7th meeting of the Strategic Headquarters for Space Policy held on 25 January 2013, Prime Minister Shinzo Abe stated that there is an urgent need to strengthen security, including disaster responses, by promoting utilization of outer space, and emphasized the role of JAXA as a core implementation agency for all Japan's space activities, including the field of national security, in the implementation of the Basic Plan on Space Policy³⁰.

Second point of the reform of JAXA is that the Prime Minister, the head of the Cabinet Office, newly became a competent minister of JAXA. Together with the ministers of MEXT and Ministry of Internal Affairs and Communications (MIC), the Prime Minister will participate in the jurisdiction over JAXA to promote space utilization and industrialization. Moreover, the minister of Ministry of Economy, Trade, and Industry (METI) was also added to the competent ministers overseeing JAXA in order to promote space industrialization and encourage space industry. To achieve the goals, the minister of METI can give assistances and advices to space industry through JAXA, which is allowed to give supports concerning development, launching, and operation of satellites to private companies on their request³¹. The other ministries such as MOFA and the Ministry of Defense can also ask JAXA to take necessary measures through the above-mentioned competent ministers, when the measures are particularly needed to promote international cooperation and secure international peace and security³².

As the Basic Plan on Space Policy stated, JAXA is positioned as the core agency implementing all of space activities in Japan to achieve the various objectives of Japan's space policy such as expanding space utilization, enhancing space industrialization, as well as advancing scientific research and technological development. Based on the amendment law in June 2012, JAXA's Mid-Term Goals will also be in line with the Basic Plan on Space Policy. JAXA is therefore supposed to make all necessary contributions to the Japan's comprehensive space policy stated in the Basic Plan³³.

30 Minutes of 7th Meeting of the Strategic Headquarters for Space Policy, January 25, 2013; "Naikakusouridaijin shijijiko (Uchu kihan keikaku [Prime Minister's direction on the Basic Plan on Space Policy], January 25, 2013.

31 Keiichi Anan, "Administrative Reform of Japanese Space Policy Structures in 2012."

32 The Law on Partial Amendment of the Cabinet Office Establishment Act etc., June 27, 2012.

33 Basic Plan on Space Policy, January 2013, 4.

II.IV Establishment of a Space Policy Division in the Ministry of Foreign Affairs of Japan

On April 5, 2012, the Ministry of Foreign Affairs of Japan (MOFA) newly created the Space Policy Division under the Foreign Policy Bureau³⁴. The purpose of the new division is to make sure that MOFA plays more active role in the field of space activities. It reflects the growing significance of space diplomacy and space security in recent years³⁵.

Until then, MOFA have mainly dealt with space matters as a part of international scientific cooperation between nations. Therefore, the International Scientific Cooperation Division under the Disarmament, Non-Proliferation and Science Department has been responsible for them at MOFA.

However, as the Basic Space Law states that “space development and use shall be conducted to actively play Japan’s role in international society and advance national interest through promoting international cooperation and diplomacy concerning space³⁶,” it is increasingly important to use space assets as a tool for achieving foreign policy and national security objectives. Furthermore, with the growing number of actors conducting space activities including private sector, outer space is now more than ever congested with man-made objects including a huge amount of space debris, which were drastically increased by the China’s ASTS test in 2007 and the US-Russia satellite collision in 2009. It is a pressing issue for every space faring countries to make space environment sustainable for the long term. Of course Japan has to actively play a key role in the international efforts for protecting space environment³⁷. Besides, it is also important factor as the role of the Space Policy Division to create new market for Japan’s space industry through diplomatic efforts³⁸.

With the creation of the Space Policy Division, MOFA strengthened its function for space diplomacy. According to the principle of the Basic Space law, the Space Policy Division will play a central role in promoting international space cooperation for addressing global and regional issues such as climate change and disaster management, actively participating in international discussions for making outer space safe and sustainable, ensuring space security, and promoting space utilization for national security and world peace.

34 Website of the Ministry of Foreign Affairs of Japan, <www.mofa.go.jp/mofaj/press/release/24/4/0404_02.html>, accessed on August 8, 2013.

35 The Ministry of Foreign Affairs, “Establishment of a Space Policy Division, Foreign Policy Bureau,” n.d. (April 5, 2012), available at <www.mofa.go.jp/policy/outer_space/pdfs/space_policy_division.pdf>, accessed on August 6, 2013.

36 Basic Space Law, Article 6.

37 Foreign Policy Bureau, the Ministry of Foreign Affairs of Japan, “Uchu ni kakaru gaiko seisaku no suishin [Promotion of Foreign Policy concerning Space],” June 2013, available at <www.mofa.go.jp/mofaj/gaiko/space/pdfs/seisaku.pdf>, accessed on August 8, 2013.

38 Foreign Policy Bureau of Ministry of Foreign Affairs, “Japan’s Space Diplomacy.” n.d.. available at <www.mofa.go.jp/policy/outer_space/pdfs/space_diplomatic_policy.pdf>, accessed on August 24, 2013.

III. Challenges for Space Policies and Governance in Japan

III.I Lessons from the Formative Years of Quasi-Zenith Satellite System Program³⁹

As mentioned above, with the enactment of the Basic Space Law, the current Japan's space policy makes a special effort to promote space utilization at home and abroad. The space systems such as positioning satellite system, remote sensing satellites, and communication/broadcasting satellite can be used in the wide variety of fields, and therefore by the various administrative organs. The Cabinet Office is now responsible for administrative effort to develop, maintain, and operate such satellites systems in order to meet various social and official needs.

In particular, the Cabinet Office is now in charge of the management of operational phase of OZSS, the Japan's positioning satellite system. QZSS can expand the coverage of, and improve the precision and reliability of the Global Positioning System (GPS) developed and operated by the United States. QZSS will contribute to strengthening Japan's industrial base and making quality of life and public administration more efficient. Thanks to its orbital characteristic, QZSS will also contribute to the welfare of the Asia-Pacific region and thereby the enhancement of Japan's present in the region. In September 2011, the Cabinet decided to initiate the operational phase of QZSS project as the top priority. The government of Japan is now aiming to establish four satellites constellation by the late 2010s and complete seven satellites constellation in the future, which enables sustainable positioning⁴⁰.

The QZSS project was originally started by the proposal from the private sector. In July 2001, Keidanren issued *Grand Strategy for Expanding Space Utilization* and proposed to launch a new project of establishing Japan's positioning satellite system. Following the decision by CSTP to develop QZSS, the ministries such as MEXT, MIC, MITI and MLIT made budget requests for R&D of the space system in August 2002. CSTP reviewed their requests and accepted their technological significance by ranking all of the R&D projects as the highest priority. CSTP finally approved them in December 2002⁴¹. In the meanwhile, Japan's private space companies such as Mitsubishi Electric and

39 This section was based on the result of the research project by the University of Tokyo Space Policy Initiative in 2010. The University of Tokyo Space Policy Initiative, *Final Report: Study of the Space Governance for the QZSS Project*, June 2011, available at <www.spacepolicy-u-tokyo.org/pdf/h22.pdf>, accessed August 27, 2013.

40 Kakugikettei: Jitsuyo juntenchō eisei sisutemu jigyo no suishin no kihonteki na kangaekata [the Cabinet Decision: Basic Policy on the Promotion of the Operational QZSS Project], September 30, 2011.

41 Sogo kagaku gijutsu kaigi [Council for Science and Technology Policy: CSTP], Juntenchōeisei shisutemu ni tsuite [About the Quasi-Zenith Satellite System], December 25, 2002, available at <http://www8.cao.go.jp/cstp/output/iken021225_3.pdf>, accessed August 26, 2013.

NEC were planning to launch a new business for communication/broadcasting services by using QZSS.

In August 2003, the government and private sector reached a consensus on the burden/cost sharing: the government was responsible for technological development and validation test in orbit (80 billion yen) and private sector in charge of the industrialization for QZSS's communication and broadcasting functions (70 billion yen). Based on the consensus, CSTP considered the specific policy and administrative structure to promote the project by the creation of the Working Group on QZSS. The working group had three meetings and issued the interim report in the beginning of 2004. But, although the R&D project by the above-mentioned ministries was underway, the specific organization responsible for maintaining and operating the space system was not suggested in the report⁴². CSTP couldn't decide the basic administrative structure for the operational phase of the QZSS project for a while afterwards due to the difficulty of coordination among various ministries involved in the project⁴³.

In the meantime, the private sector abandoned the business plan for providing the satellite-based communication/broadcasting services. In consequence, the basic policy on QZSS project was come under the review by the government. In March 2006, the Committee on the Promotion of Positioning and Geographical Information System of the Cabinet⁴⁴ issued the Basic Policy on Promoting the Quasi-Zenith Satellite System, and decided to establish the QZSS by the government alone. Based on this new direction, in April 2008, the Japanese government decided to implement the project in two phases: Following the first phase for conducting the demonstration of technology and its utilization by the first QZSS satellite, the system demonstration by the three-satellite constellation will be conducted in second phase. Based on the direction, the first satellite '*Michibiki*' was launched in September 2010. In parallel with the technical and operational validation test with the first satellite, the government decided to proceed to the operational phase of QZSS project in September 2011. How-

42 CSTP, *Wagakuni ni okeru eisei sokui shisutemu no arikata ni tsuite* [Basic Policy on Positioning Satellite System in Japan], January 16, 2004, available at <<http://www8.cao.go.jp/cstp/tyousakai/cosmo/haihu17/siryoy17-4-1.pdf>>, accessed August 26, 2013.

43 For example, see CSTP, *Wagakuni ni okeru uchukaihatsuriyo no kihon senryaku* [Basic Strategy for Development and Use of Outer Space in Japan], September 9, 2004, available at <http://www8.cao.go.jp/cstp/output/iken040909_1.pdf>, accessed August 26, 2013.

44 The Committee on Promotion of Positioning and Geographical Information System was created in September 2005 under the Cabinet in order to comprehensively promote the positioning and geographical information system by enhancing the coordination and cooperation among the related ministries. See *Sokui chiri joho shisutemu nado suishin kaigi no secchi nit suite* [About the Creation of the Committee of Promoting Positioning and Geographical Information System etc.], September 12, 2005, available at <www.cas.go.jp/jp/seisaku/sokuitiri/180331/sankou1.pdf>, accessed August 26, 2013.

ever, it was not until in June 2012 that the responsibility for management of operational phase of QZSS was assigned to the Cabinet Office.

The history of QZSS project gives us many lessons for Japan's space governance toward expanding space utilization.

Above all, it is a very important lesson learned from the starting period of QZSS that a comprehensive policy scenario from R&D to utilization is essential for promoting space utilization. When the project was started in 2002, establishing space system for public use was unique project for Japan. Because Japan's space policy had long focused on technological development rather than space application, Japan had little experience in space utilization project. CSTP evaluated and finally approved the R&D projects concerning the establishment of QZSS because of its technological significance. However, there was no concrete policy for the operational phase of QZSS. CSTP seemed to decide the QZSS project mainly from the perspective of science and technology policy without comprehensive vision for promoting utilization and industrialization. This led to the problem of lacking specific organization for operating and maintaining the space system while the R&D was ongoing. This also led to an increased business risk for the private sector. For Japan, therefore, space governance to formulate and implement comprehensive space policy from R&D to utilization and industrialization has to be strengthened to promote and expand space utilization.

Second, when the project was started, it was expected that a certain amount of demands come from the public sector. However there has been little active involvement of potential governmental users of QZSS to promote utilization of the space system. They had little incentives for replacing the existing technologies necessary for their services with a potentially risky new technology. Furthermore, it was also difficult to acquire new budget for supporting new project, which they had no urgent reason to do so.

In the United States and Europe, global positioning satellite system is an essential tool for security and therefore there is a certain amount of demands from public sectors. Other space infrastructures like remote sensing satellite and space transportation systems are also shored up by administrative needs. In other space faring countries, basic demands for space infrastructure from public sector reduces the business risk.

Therefore, it is also challenging issues for Japan how to create needs and demands for space infrastructures in the public sector and to promote use of space technologies as a tool of their public services including national security. The administrative mechanism to coordinate new technology with various needs in public sector is also needed.

Third, Japan's space policy making also has to enhance the function for analyzing potential market size for the space system. When CSTP approved QZSS project in 2002, it expressed concerns about the feasibility of industrialization and an optimistic estimate of demand for the space system. CSTP had no sufficient capability to carefully review and analyze the market projection submitted by the private sector because CSTP was mainly responsible for overseeing science and technology policy but not industrial policy. Therefore Japanese

government has to strengthen its comprehensive space policy-making mechanism including the aspect of industrialization.

Expanding space utilization is new challenge for Japan's space policy and governance. There are many actors for achieving this goal including private sector. To promote space utilization and industrialization Japan's space governance has to reinforce necessary functions for coordinating various policies among many stakeholders and clarifying the division of roles among the government, space agency (JAXA), and space industry. Moreover, expanding space utilization in foreign countries, especially Asia Pacific region, is very important factor to achieve this goal.

III.II Promotion of Space Diplomacy⁴⁵

The basic principles of Japan's space policy stated in the Basic Space Law includes the promotion of international space cooperation and space diplomacy to enhance Japan's national interest and its influences in the international society⁴⁶. According to the Basic Plan for Space Policy issued in 2009, space diplomacy has two aspects: "space for diplomacy" and "diplomacy for space."⁴⁷ "Space for diplomacy" is to promote use of Japan's prominent space technology as a diplomatic asset. The important goals of "space for diplomacy" are to play a key role in solving global issues such as climate change and earth environment, to ensure the world peace and prosperity, and to contribute to promoting social development of emerging countries in Asia-Pacific and African regions through the utilization of outer space, and thereby to advance Japan's national interest and its influence in the international society. In sum "space for diplomacy" aims at using space assets in the implementation of Japan's foreign policy. On the other hand, "diplomacy for space" suggests that the Japanese government should take necessary diplomatic measures to promote space utilization abroad and thereby strengthen Japan's industrial base⁴⁸. The objectives are to foster close international space cooperation not only with advanced space faring countries but also with developing countries with the interests in space activities. Moreover "Diplomacy for space" also includes the importance of Japan's active involvement in international discussions and efforts for making outer space secure and sustainable.

The Basic Plan on Space Policy of 2013 reaffirms the importance of the promotion of international cooperation and space diplomacy. In particular, one of the focuses of Japan's space diplomacy is placed on promoting international space cooperation in Asia Pacific region. The Basic Plan of 2013 makes the point as follows:

45 This section was based on the result of the research project by the University of Tokyo Space Policy Initiative in 2011. See The University of Tokyo Space Policy Initiative, *Interim Report: Current Situation and Issues of Japan's Space Diplomacy toward Asia Pacific Region*, June 2012.

46 Basic Space Law, Article 6.

47 Basic Plan for Space Policy, June 2, 2009, English version, 8.

48 *Ibid.*, 8-11.

“Emerging countries, especially Asian countries, are highly interested not only in a simple introduction of space systems but also in nurturing their own human resources and industry, as well as solving specific problems through them. The government [of Japan] should always be aware of such requirements and strengthen the tie with them through cooperation program with shared space systems⁴⁹.”

Japan's space diplomacy toward Asia Pacific region is very important for the following reasons. First, Asia Pacific region is more than ever becoming important area in the international politics because of its high rate of economic growth in recent years and its growing influence over international society. For Japan, the countries in Asia Pacific region are also of great importance both politically and economically as international partners. Therefore, it is important to demonstrate international leadership in resolving common issues facing the region, preserving peace and stability, and ensuring sustainable prosperity of Asian countries through expanding space utilization. Second, the rapidly growing Asian countries such as ASEAN nations also will offer the potential marketplace for Japan's space industry. It is necessary for Japan's space industries to find needs for space utilization from outside of Japan, especially developing countries, due to the inadequate domestic demands. Therefore, Japan should strategically promote space diplomacy toward Asia Pacific region with careful consideration of the both aspect of “space for diplomacy” and “diplomacy for space.”

For Japan's space diplomacy toward this region, it is important to create new needs for space system in Japan's contributions to resolving social issues facing Asian countries. In addition to the needs for disaster management, space systems such as remote sensing satellites can also be used in such fields as fishery industry, agriculture, and maritime security. Moreover, from the wider perspective, the Japan's space diplomacy needs to pay particular attention to regional needs for space technology. Especially ASEAN is now working on strengthening its connectivity toward the establishment of ASEAN Community by 2015 and Japan is now supporting their efforts. Space system can also be used in supporting the effort to strengthen ASEAN connectivity. Japan should promote the contribution to ASEAN's effort with a view to the role of space technology. In doing so, not just exporting space systems, providing total solution to their problems including development of human resources is also important.

To effectively promote Japan's space diplomacy in Asia Pacific region, it is important to use the various cooperative frameworks from bilateral to multilateral. In particular, the Asia Pacific Regional Space Agency Forum (APRSAF) offers a useful platform for promoting international space cooperation and Japan's space diplomacy in this region. Japan has taken a lead in international space cooperation through the framework of APRSAF for twenty years. However, because APRSAF has been the space agency-level cooperative framework with the purpose of promoting space activities in this region, it has not necessarily been strategically used as a platform for achieving foreign policy ob-

49 Basic Plan on Space Policy, January 2013, 12.

jectives. Therefore, Japan's space policy has to review the role of APRSAF in light of space diplomacy. In addition to APRSAF, strengthening cooperation with international organizations in the Asia Pacific region such as ASEAN, the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP), and Asia Development Bank (ADB) is also useful for Japan's contribution to the social development and the resolution of various issues in this region through utilizing space technology.

Domestic space governance for space diplomacy has also to be strengthened in Japan. Indeed, with the creation of the Space Policy Division, MOFA strengthened its function for space diplomacy. Also, in addition to JAXA, Japan International Cooperation Agency (JICA) have played a key role in the cultivation of human resources for space activities in Asia Pacific region. Furthermore, while the Cabinet Office and METI are actively working on promoting exports of space infrastructure to foreign countries including Asian nations, MEXT and JAXA continue to foster the close cooperation with Asian nations through APRSAF. However, each organization seems to work on space diplomatic efforts with different objectives from each other. To promote effective space diplomacy, Japanese government needs to maximize synergistic effect derived from the possible collaboration among each organizations involved in space diplomacy.

IV. Conclusion

Japan's space policy and governance has been entering into a new era. Outer space is increasingly important as the social infrastructure, Japanese government become a fully aware of what space can make contributions to improvement of citizen's lives, development of national and human security, advancement of industries, enhancement of Japan's presence in the international society, as well as sophistication of science and technology. Therefore, with the enactment of the Basic Space Law, Japan's space policy has been largely sifted from R&D-oriented activities to needs-driven ones.

New space policy needs new space governance. Space activities are massive public works in which various stakeholders involve: government, ministries, space agency, industries, universities, researchers, and citizens as users. Space activities also need the interactions with the organizations in foreign countries and international organization like the United Nations or ASEAN.

As Japan's space policy proceeds to a new stage, its administrative structure has been rapidly reformed and strengthened. However, Japan still has challenges in the space governance. To achieve various objectives stated in the Basic Space Law and the Basic Plan on Space Policy, it is necessary to coordinate and unify various space policies among various space actors; formulate comprehensive space policy of the whole government ranging from R&D to utilization and industrialization; define the specific roles of government, ministries, JAXA, and space industries to achieve policy objectives; and reinforce the governance that each actors can work together toward the common goals of Japan's space policy.