

Japan's New Dual-Use Space Policy

The Long Road to the 21st Century



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Executive Summary

Japan's latest space policy is designed to support a more proactive US-Japan alliance role in containing China, and robustly defend Japan against North Korean ballistic missile threats. As such, it represents a significant departure from a near 40-year history during which Japanese space activities were designed to achieve the opposite: to remain hermetically sealed from any involvement in national security.

Within this, Japan has clearly set space development as a major plank not only of national but regional security policy. In this year's *Basic Plan 4*, Japan has produced the nation's first fully budgeted, costed and timetabled implementation of a series of programs that are openly security-oriented. Further, these goals are understood and supported domestically by key related players.

Getting to this point has not proved easy. Overcoming a four-decade legacy, and building on the Space Basic Law of 2008, *Basic Plan 4* perhaps represents the first really fully implementable policy in fulfillment of goals laid out eight years ago.

Its formulation constitutes a major achievement and the result of intensive struggles in which a wide constituency of bureaucratic players have been forced by both domestic political and regional security and alliance pressures to work together.

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List of abbreviations

■	A2/AD	Anti-access/anti-denial
■	ASAT	Anti-satellite
■	ASEAN	Association of Southeast Asian Nations
■	BMD	Ballistic missile defense
■	CSTI	Council for Science, Technology and Innovation
■	CSTP	Council for Science and Technology Policy
■	DPJ	Democratic Party of Japan
■	ELINT	Electronic intelligence (covert intelligence-gathering by electronic means)
■	EW	Early warning
■	IGS	Information-gathering satellite
■	IRBM	Medium-range ballistic missile
■	ISAS	Institute for Space and Astronautical Science
■	ISR	Intelligence, surveillance, and reconnaissance
■	ISS	International Space Station
■	JAXA	Japan Aerospace Exploration Agency
■	JSDF	Japan Self-Defense Forces
■	LDP	Liberal Democratic Party
■	MDA	Maritime domain awareness
■	METI	Ministry of Economy, Trade and Industry
■	MEXT	Ministry of Education, Culture, Sports, Science and Technology
■	MHI	Mitsubishi Heavy Industries
■	MIC	Ministry of Internal Affairs and Communications
■	MITI	Ministry of International Trade and Industry
■	MOD	Ministry of Defense
■	MOE	Ministry of Education
■	MTS	Mid-term statement
■	NAL	National Aerospace Laboratory
■	NASDA	National Space Development Agency
■	NSC	National Security Council
■	NSS	National Security Strategy
■	NSSPG	National Space Strategy Planning Group

■	NSSS	(Japanese) National Security Space Strategy
■	ONSP	Office of National Space Policy
■	OST	Outer Space Treaty
■	PLA	Chinese People's Liberation Army
■	PLAN	Chinese People's Liberation Army Navy
■	PPR	Peaceful Purposes Resolution
■	QZSS	Quasi-Zenith Satellite System
■	SAC	Space Activities Commission
■	SCC	Security Consultative Committee
■	SDF	(Japanese) Self-Defense Forces
■	SDSS	Special Committee for Space and Ocean Development
■	SHSP	Strategic Headquarters for Space Policy
■	SIGINT	Signals intelligence
■	SLATS	Super Low Altitude Test Satellite
■	SM-3	Standard Missile-3
■	SPAC	Space Activities Promotion Council
■	SPC	Space Policy Commission
■	SSA	Space situational awareness
■	STA	Science and Technology Agency
■	TCBM	Transparency and confidence-building measures
■	Uchūchō	Space agency
■	UNCOPUOS	UN Committee on the Peaceful Uses of Outer Space

Introduction

On April 1, 2016, the Office of National Space Policy (ONSP) released its fourth Space Basic Plan (*Basic Plan 4*), which has been painstakingly designed to finally precipitate Japan's ever first fully-funded national security-oriented space program.¹

For the first time, *Basic Plan 4* focuses and concentrates space policy as an important part of Japanese national security planning. It is designed to be a comprehensive implementation plan for the challenges Japan faces in the 21st century in a multipolar world of increasingly thorny regional security challenges. In terms of alliance management and external balancing, *Basic Plan 4* explicitly supports the goal of advancing operational integration of space technologies and programs in service of the US-Japan security alliance. In terms of internal balancing, *Basic Plan 4* is backed by a cabinet resolution, and thus supported by the full political weight of the second administration of Abe Shinzo. Behind this, the plan solidifies earlier work to achieve rapid recalibration of prior attempts to fold space policy into more formal security policy. Overall, *Basic Plan 4* reflects the goals of Japan's first National Security Strategy (NSS), published by the new National Security Council (NSC), which sought to recognize space as a strategic domain, folding it into an essential component of the doctrine of "proactive pacifism".²

Basic Plan 4 also represents Japan's first implementation policy that openly states that Japan must actively develop a national security space program with the military use of space in tune with the new NSS. In terms of core security components, the plan focuses on key space-based programs. Most notably, these include: doubling the number of satellites in Japan's information-gathering satellite (IGS) reconnaissance satellite constellation; developing a space-based maritime domain awareness

1. See Uchū Kihon Keikaku (Heisei 28 4 Gatsu Ichinichi Kakugi Kettei) [Space Basic Plan], (2016, April 1, Cabinet Decision) at the Office of National Space Policy (ONSP), Cabinet Office, Government of Japan; the ONSP's website contains all prior Basic Plans, decisions, resolutions and debates subsequently referred to in this article as coming from the ONSP or the Secretariat for Space Headquarters. For a specific analysis of recent Basic Plans, see Yoshinori Komiya, Director-General, Office of National Space Policy, Cabinet Office, Japan, "Basic Plan on Space Policy Implementation Schedule (Revised FY2015)," presentation to the International Symposium on Ensuring Stable Use of Outer Space, Tokyo, March 3, 2016.

2. National Security Strategy, December 17, 2013.

(MDA) capability; boosting Japan's communications, positioning and timing capabilities for national security purposes; bolstering space situational awareness (SSA) capabilities, and linking Japan's space assets in the service of US security strategy to support the allies' deterrence capabilities.

The plan can also be seen as part of an explicit effort to support the US "rebalance" through the revision of the US-Japan Guidelines for Defense Cooperation, which explicitly emphasizes the promotion of integration of national security-related space projects.³ According to the guidelines, the Japanese Self-Defense Forces (SDF, the Ministry of Defense [MOD] since 2007) and the US for the first time are mandated to cooperate and to contribute to whole-of-government efforts in using space in such areas as: MDA; early warning; intelligence, surveillance and reconnaissance (ISR); positioning, navigation and timing; SSA; meteorological observation; command, control and communications, and ensuring the resiliency of space systems.

Further: "In cases where their space systems are threatened, the Self-Defense Forces and the United States Armed Forces will cooperate, as appropriate, in mitigating risk and preventing damage. If damage occurs, they will cooperate, as appropriate, in reconstituting relevant capabilities."⁴ In addition, the guidelines can be seen in the context of the Abe administration's broader security reforms to date, showing space activities to be a major new operational plank of Japan's and the US regional security strategy.⁵

3. Ministry of Foreign Affairs, Japan, "Joint Statement of the Security Consultative Committee, A Stronger Alliance for a More Dynamic Security Environment: The New Guidelines for Japan-US Defense Cooperation," April 27, 2015, p. 4.

4. Ministry of Foreign Affairs Japan, "The Guidelines for Japan-US Defense Cooperation," April 27, p. 21.

5. These include the National Security Strategy (NSS) and National Security Council (NSC) in December 2013; revisions of the National Defense Program Guidelines (NDPG) and Mid-Term Defense Program (MTDP) in the same month; passing a State Secrecy Law, again in the same month; adoption of the Three Principles of Defense Equipment Transfers in April 2014; and a revised Official Development Assistance (ODA) Charter in February 2015 allowing for the transfer of aid to foreign militaries if used for humanitarian and disaster relief purposes. In 2016 several laws came into effect: the Law on Response to Contingencies, enabling Japan's exercise of the right of collective self-defense in scenarios where an attack on another state in a close relationship with Japan clearly threatens the Japanese people's right to life, liberty and the pursuit of happiness, where there is no other appropriate means to repel the attack, and where the use of force is restricted to the minimum necessary to repel the attack; and the Law to Ensure Security in Contingencies Significantly Affecting Japan, replacing the 1999 Regional Contingencies Law, and designed to boost Japanese non-combat logistical support for the US and now other states regionally and even globally; the International Peace Support Law, removing the need for Japan to enact separate laws for each Japan Self-Defense Forces (JSDF) dispatch in order to provide logistical support to multinational forces; and revisions to the International Peace Cooperation

Put into context, *Basic Plan 4* is a remarkable achievement. Until recently, analysis of changes in Japanese space policy has tended to downplay the significance of Japan's space programs and policy changes, emphasizing instead the depth and entrenched nature of internal domestic constraints and the difficulties of developing a national security strategy involving space activities and a strong focus on "soft-power" objectives.⁶

This paper, however, also acknowledges that, on top of the landmark revised Defense Guidelines demonstrating Japan's commitment to a US-led regional security architecture, *Basic Plan 4* is also the product of external balancing to meet perceived growing regional security threats, first from North Korea, and, over the last decade, from China.

In summary, this paper contextualizes the background of *Basic Plan 4*, and shows that it represents the culmination of a 20-year process of unknitting an increasingly unworkable policy and institutional framework, including an over-strict commitment to idealism and a divided and ineffective governance structure committed to strictly non-military use of space. *Basic Plan 4* therefore represents, in terms of both Japanese space policy and institutional arrangements, a significant new direction for Japan's space development.

Law, enabling the JSDF during UN Peacekeeping Operations (PKO) to use force in pursuing certain duties rather than solely for the defense of SDF personnel.

6. See for example: A. L. Oros, *Normalizing Japan: Politics, Identity, and the Evolution of Security Practice*, Stanford, California: Stanford University Press, 2008, p.122-148, and A. L. Oros, "Explaining Japan's Tortured Course to Surveillance Satellites," *Review of Policy Research*, vol. 24, No.1, 2007, p. 29-48, 35, 40; Columba Peoples, "A Normal Space Power? Understanding 'Security' in Japan's Space Policy Discourse," *Space Policy*, Vol. 29, No. 2, 2013, p.135-143; J. Johnson-Freese and L. Gatling, "Security Implications of Japan's Information Gathering Satellite (IGS) System," *Intelligence and National Security*, vol. 19, No. 3, 2004, p. 538-552; Kazuto Suzuki, "Space: Japan's New Security Agenda," *RIPS Policy Perspectives*, No. 5, October 2007; S. Aoki, "Current Status and Recent Developments in Japan's National Space Law and its Relevance to Pacific Rim Space Law and Activities," *Journal of Space Law*, vol. 35, No. 1, 2009, p. 363-438; J. Clay Moltz, *Asia's Space Race: National Motivations, Regional Rivalries and International Risks*, New York: Columbia University Press, 2012, p. 43, 63; K. Suzuki, *Uchū Kaihatsu to Kokusai Seiji*, Tokyo: Iwanami Shoten, 2013, p. 179, 182-183.

Basic Plan 4: Japan's First National Security Space Plan

Basic Plan 4 and internal and external balancing

Through *Basic Plan 4*, Japan has effectively managed to achieve a working compromise that deals with both internal and external issues that needed resolving. As the following narrative shows, this has been a long-drawn-out process that gained momentum after 2008 and has only recently reached conclusion.

In terms of internal balancing, the major programs highlighted below represent the conclusion of a long series of bureaucratic battles over who, in terms of ministerial roles and budgets, should lead policy formulation and then implementation of Japan's space program. This involved, broadly speaking, the gradual assumption of power of the Prime Minister's Cabinet Office over individual ministries, most notably the Ministry of Education, Culture, Sports, Science and Technology (MEXT), which, especially from 2003, controlled the lion's share of Japan's space development budget, and jealously sought to preserve its independence in policy-making.

In terms of external balancing, Japan has now formulated a new multilateral approach that at the same time deeply synchronizes with Japan's overall national security policy. Most fundamentally, however, following a combination of increased Japanese concern about North Korea's ballistic missile and nuclear programs, and US concern about China's motives, *Basic Plan 4* anchors Japanese space policy as an important subset in the US-Japan alliance partnership.

Again, getting to this point has been a long journey. Until 2008, Japanese space policy was uniquely wedded to a 1969 Peaceful Purposes Resolution (PPR) that forbade any military use of space. Until recently the PPR effectively disabled the generation of meaningful space-based policy responses to meet Japan's increasing unease and the growing potential for regional instability – instability generated, in the view of Japanese security planners, initially by North Korea's ballistic missile (and more recently nuclear) programs and, more recently, China's growing assertiveness.

Major programs

Taking the view that *Basic Plan 4* represents a substantially new direction for Japanese space policy, this section delineates the main programs, budgets and new cooperative arrangements engineered to meet them. Japan is now actively advancing a series of strategically important cooperative programs in pursuit of this new paradigm.

First, Japan will deploy its Quasi-Zenith Satellite System (QZSS) to a full seven-satellite constellation to serve as a regional GPS system specifically to complement the GPS system of the US Department of Defense in case that system is degraded.⁷

Second, Japan, for the first time, is concretely committed to delivering an operational SSA system by mid-2018, involving cooperation between the Japan Aerospace Exploration Agency (JAXA) and the MOD, with support from the Cabinet Office and the Ministry of Foreign Affairs, and coordinating closely with US counterparts.⁸ This is important because for the first time the MOD will become directly involved with SSA, which for decades was controlled by JAXA, signaling a significant institutional step forward to involve the military in what were purely civilian-controlled dual-use space technologies.⁹ SSA has become strategically important for the US, which is anxious in particular to monitor Chinese space activities, particularly on-orbit anti-satellite (ASAT) technologies.

Third, to monitor Chinese and North Korean military activities, particularly North Korean missile bases and launch preparations, Japan will double its fleet of IGS satellites, long held back in a nominal constellation of two optical and two radar satellites (and spares). To support this, JAXA, Japan's rough equivalent of NASA, is tasked with building two data relay satellites needed to cope with the new data-handling requirements.

7. Actually, QZSS will be a regional augmentation system, improving the performance of GPS signals. In that sense, if the GPS is degraded, the performances of QZSS will degrade as well, at least in the current version with three satellites. However, the seven-satellite system, which Japan has committed to, will independently be able to maintain centimeter-level PNS.

8. Space situational awareness (SSA) refers to the ability to view, understand and predict the physical location of natural and manmade objects in orbit around the Earth, with the objective of avoiding collisions. SSA has become a prominent concern for both military and commercial systems, largely due to increasing military reliance on a range of space assets. Anti-satellite (ASAT) testing by China in 2007 and the 2009 collision of a non-operational Russian satellite with an operational Iridium satellite also raised concerns (Secure World Foundation, 2014).

9. In fact the MOD requested ¥1.4 billion for the fiscal year beginning April 2017 to start preparations; see Bōeishō Heisei 29 Nendo Yosan Yoku no Gaiyō [Outline of the Ministry of Defense Budget Request for 2017] p. 11 <www.mod.go.jp>

Fourth, the MOD is to fly an experimental ballistic missile defense (BMD) early warning (EW) sensor on a dual-use spy satellite developed by JAXA. Japan is now actively and seriously considering deploying this technology, which would, if deployed, represent a major advance in Japan's BMD capabilities, and perhaps an advanced shield for the US to counter medium-range ballistic missiles.¹⁰

Not least, JAXA is now also tasked with developing a series of dual-use space programs, including the SLATS (Super Low Altitude Test Satellite) program, in which maneuverable reconnaissance satellites can “dip” deeper into lower orbits to capture higher-resolution images, and also developing small, 150 kg microsattellites that can be built and launched quickly for tactical reconnaissance purposes.

All these dual-use military space programs mentioned are to be funded on top of the traditional missions and development paths, including earth, oceanography, communications and broadcasting satellites; funding for the International Space Station (ISS); continued development of the Epsilon solid-fueled launch vehicle and the H-3, the successor to today's H-2A, and a plethora of over extant programs that have preoccupied Japan's space development bodies to date.

With this in mind, the totality of these developments, and cooperation with the MOD, are quite remarkable considering that JAXA was legally committed to “peaceful only” space development until 2012, and that the MOD only released its first military space policy document in 2009.

Budgets

Japan's commitment to delivering these space capabilities is demonstrated by its ability to devote growing budgetary resources to its programs. This is made possible due to the dual-use justification of the space budget, allowing for the leveraging and effective virement of funds into military-applicable technologies, even if these expenditures are not officially counted as part of the defense budget. Until the Space Basic Law of 2008 (see below), the SDF was strictly forbidden from involvement in space development policy, so that until recently dual-use space technologies used by the SDF, particularly IGS data, had to be budgeted and developed through different institutions.

Therefore, under Japan's budgeting and program structure, a series of ministries control development programs that, while not formally for

10. P. Kallender-Umezu, “Profile | Hiroshi Imazu, former Chairman, Space Policy Committee, Liberal Democratic Party of Japan,” *Space News*, 27 October 2014 <<http://spacenews.com>>.

exclusively military use, can be used for national security purposes. In a sense, Japan's military space program is inherently disaggregated among a series of players, with many programs playing dual-use role.

In fiscal 2015, Japan spent around ¥595 billion (roughly US\$5.9 billion) on space-related programs, of which ¥245 billion has been devoted to BMD and ¥352 billion on the "official" space program. This shows that around 40% of the budget of Japan's space program is now allocated to the national security space.

Further, following pressure from the Liberal Democratic Party (LDP), as discussed below, Japan plans to raise its space budget from the ¥350 billion level to around ¥500 billion annually to accommodate the development of all these programs, including a doubling of the size of its IGS constellation to up to 10 satellites, and the development of space-based EW, and potentially space-based electronic intelligence (ELINT) and signals intelligence (SIGINT) capabilities.¹¹

A new multilateral approach

As explained, Japan's military and dual-use space activities policy is now firmly dovetailed with US regional security policy. Moreover, following the more proactive and expansive national security strategy of Prime Minister Abe, Japan has worked hard in recent years to bolster other key bi- and multilateral space diplomacy – another new and major feature compared to the recent past.

On top of traditional cooperation with the Association of Southeast Asian Nations (ASEAN), which has been a mainstay of Japanese regional space policy through technical exchanges and cooperation via JAXA, over recent years, Japan has embarked on an expansive space diplomatic and security strategy, including:

- a Memorandum on Cooperation between the Minister for Space Policy and the Minister for Foreign Affairs of Japan and Secretary of State for Foreign and Commonwealth Affairs and the Minister of State for Universities and Science of the UK in April 2012;
- the 21st Japan-EU Summit Tokyo, November 2013, in which summit leaders affirmed the importance of securing free access to and sustainable use of outer space, and stressed the importance of Japan-

11. Naikakufu Uchū Senryakushitsu, Uchū Kankei Yosan ni Tsuite, Heisei 26 Nendo Hosei Oyobi Heisei 27 Nendo Uchū Kankei Yosan an ni Tsuite, January 2015; Senryakushitsu, Uchū Kankei Yosan ni Tsuite Heisei 27 Nendo Gaisan Yōkyū ni Tsuite, September 2014; Ministry of Defense, *Defense Programs and Budget of Japan Overview of FY2015 Budget*, p. 14.

EU cooperation, resulting in a decision to launch a Japan-EU Space Policy Dialogue;

- the first Japan-EU Space Policy Dialogue, in October 2014;
- the 6th International Committee on Global Navigation Satellite Systems (ICG) held in Tokyo 2011, hosted by the Government of Japan;
- annual trilateral space security dialogue among the US, Australia and Japan to coordinate positions on space security issues since 2011;
- co-hosting by the US, Japan, and Indonesia of the second ASEAN Regional Forum Space Security Workshop, in Tokyo, October 2014;
- participation in the Space Situational Awareness (SSA) Table-Top Exercise II in October 2015 (US, Australia, Canada, France, Germany, UK and Japan);
- efforts to advance the work of the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) Working Group on Long-term Sustainability of Outer Space Activities;
- efforts toward the adoption of an International Code of Conduct serving as a transparency and confidence-building measure (TCBM) to ensure sustainability and security in space.

Such multilateral approaches are both reactive and proactive. They are anchored in Japan's newly stated commitment to use space technologies to support the US-Japan Security Treaty, a function of external balancing. Japan has long felt the need, for example, to counter China's space diplomatic outreach to developing countries in South-East Asia and Africa.

Japan's international outreach also reflects a new commitment for Japan to "spread its wings" into diverse new areas of space diplomacy and cooperation that are designed to be synergistic. On a global level, Japan is redoubling its efforts to be an active player in global governance issues through the UN, while bilateral and multilateral cooperation with the EU, including the UK, enhances Japan's credibility and reputation as a responsible space power.

Specifically, in terms of Japan's approach to global governance issues, support for, for example, the European Union's proposed Code of Conduct (CoC) designed to tackle the growing orbital space debris problem increases Japan's soft power. For instance, the recent chairmanship by JAXA Technical Counselor Yasushi Horikawa of the UN Committee on Peaceful Uses of Outer Space (UNCOPUOS) signals that Japan as a major space power is fully invested in space governance issues.

Challenges ahead

Despite all these achievements, *Basic Plan 4* still leaves one crucial issue unresolved, that of maritime domain awareness (MDA) funding. MDA, especially useful to monitor the activities of the Chinese People's Liberation Army Navy (PLAN) as China begins to assert itself in maritime territorial disputes in both the East and South China Seas, has, as seen above, become a priority cooperation area for the US. Just as Japan can be forward-deployed to monitor orbital activities through SSA technologies, MDA constellations using Japanese observation satellites can be similarly forward-deployed.¹²

As will be seen below, finding a single competent ministry or institution to take control of MDA has become a persistent and not quite solved problem. But there is scope for optimism: a similar dispute existed when no single ministry would agree to take control of the QZSS system. This was solved when the Cabinet Office took control (see below). Despite this background, encouragingly, *Basic Plan 4* does call for a resolution of this issue by the end of fiscal 2016 (April 2017), and intense coordination discussions are underway.

While *Basic Plan 4* appears to be a concrete, funded schema for the next decade, there also may be non-trivial hurdles ahead – particularly over finding a full development budget as opposed to experimental test-beds for small tactical satellites and for space-based EW development. *Basic Plan 4*, however, commits Japan to funding such projects over the long term. This means that ministries will have to discuss in detail divisions of labor and budgets before submitting proposals to the MOF.

Tracing the Path toward Today's Strategy

Getting to *Basic Plan 4* has proved an extremely difficult and laborious process. It has involved not only fundamentally changing Japan's policy orientation, but also recalibrating institutional arrangements. For simplicity's sake, however, the path towards *Basic Plan 4* can be traced through three distinct phases.

12. MDA is defined by the International Maritime Organization as the effective understanding of anything associated with the maritime domain that could affect the security, safety, economy or environment. The maritime domain is defined as all areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances. Space capabilities are an important element of MDA, including space-based radar imaging and surveillance, to track and/or identify maritime objects.

In the first phase, 1969-1990, Japan was committed to an almost completely non-military space development policy, focused mainly on technological catchup with other space powers. During this period, the principle of civilian control was reinforced by deliberately divided and competitive institutional arrangements. Japan perceived few security threats, and was happy to be a junior, if increasingly ambitious partner, in international collaboration, particularly with the US.

A second phase, 1998-2007, saw tentative reforms and internal balancing to deal with increasing regional security threats, and the recognition that policy needed to reflect growing regional security concerns and concomitant strains and tensions with policy and institutional arrangements. In this period, Japan began an arduous process of slow-motion defensive rearming and sought new cooperation strategies with the US.

In the third phase, from 2008 to the present, Japan has been getting to grips with the formation of an efficient national security space policy and reorganizing institutional arrangements to affect it, notably through centralizing policy-making through the Cabinet Office. Such moves were increasingly driven by security threats, alliance pressures, and, latterly, the national security priorities of activist politicians, notably Shinzo Abe.

Phase One: Establishment of Japan's Space Program (1969-1998)

Bureaucratic arrangements

At its inception, Japan's space program was deliberately enveloped in multiple layers of legal, diplomatic and institutional arrangements that hermetically sealed space development from security strategy. The National Diet's June 1969 adoption of the PPR strictly limited the development of space capabilities to "peaceful purposes only" (*heiwa no mokuteki ni kagiri*) and to an anti-militaristic principle that went beyond the United Nation's 1967 Outer Space Treaty (OST).¹³

The initial 1960 administrative arrangements also deliberately segmented implementation of space activities into a competitive institutional framework. JAXA's precursor, the National Space Development Agency (NASDA) under the former Science and Technology Agency (STA), was tasked with industrialization, while the much smaller Institute for Space and Astronautical Science (ISAS) under the Ministry of Education (MOE) dealt with space science. Further, the Ministry of International Trade and Industry (MITI, later to become the Ministry of Economy, Trade and Industry [METI]) was deliberately denied a major

13. S. Aoki, "Tekiho na Uchu Gunji Riyo Kettei Kijun toshite no Kokkai Ketsugi no Yuyosei" [The Significance of the Diet Resolution in the Legitimate Standards for the Weaponization of Outer Space], *Sogo Seisakugaku Working Paper Series*, No. 68, Keio University, April 2005, esp. pp. 5-6, 16-22; and also S. Aoki, "Military Uses of Outer Space: Law and Policy in Japan", *International Symposium on Space Technology and Science Paper 2004-r-32*, 2004, p. 1-6. A. L. Oros, *Normalizing Japan*, *op.cit.*, p. 129. For details on PPR see: *Waga Kuni ni okeru Uchū no Kaihatsu Oyobi Riyō no Kihon ni Kansuru Ketsugi*, May 9, 1969; S Aoki, *Nihon no Uchū Senryaku* (Tokyo: Keio Gijuku Daigaku Shuppankai, 2006). p. 174-177. For a general discussion on the PPR and early policy decisions, see S. M. Pekkanen and P. Kallender-Umezu, *In Defense of Japan: From the Market to the Military in Space Policy*, Stanford University Press; August 2010, pp. 21-34; Steven Berner, "Japan's Space Program: A Fork in the Road?" *RAND National Security Research Division*, Santa Monica, CA, 2005, available online at www.rand.org (accessed 22 December 2006), p. 1-37; S. M. Pekkanen, *Picking Winners? From Technology Catch-up to the Space Race in Japan*, Stanford, CA, Stanford University Press, 2003, esp. p. 161-190; K. Suzuki, "Administrative Reforms and the Policy Logics of Japanese Space Policy," *Space Policy* 21(1), 2005, p. 11-19; Y. Sato, "A Contested Gift of Power: American Assistance to Japan's Space Launch Vehicle Technology, 1965-1975," *Historia Scientiarum*, Vol. 11(2) November 2001, p. 176-204.

role. This normative framework was reinforced by the principle of civilian control; the SDF was strictly prohibited from any involvement in space activities.¹⁴

Policy orientation

All these players were overseen by the Space Activities Commission (SAC), which reported directly to the prime minister and developed policy based on bidding from the competing ministries. Under the PPR, SAC produced “Fundamental Plans” in 1978, 1984, 1989 and 1996 that strongly emphasized technological development and space science. Space development was also seen as a broader status-enhancing industrial and technological strategy to enable Japan to “catch-up” with the US and USSR, to allow Japan to join the small club of advanced spacefaring nations.¹⁵

During this period, only one caveat was made to the PPR: a 1985 decision that the SDF be allowed to use space-based communications, observation and meteorological data that were already commercially available.¹⁶

International situation

During this phase, Japan faced some pressure to militarize its space program, but refrained from doing so due to confidence in the US and in the face of deliberate attempts by the US to suppress development of military and commercially competitive space capabilities, while rewarding Japan for good conduct.

In fact, until the late 1990s, Japan's national security establishment largely retained confidence in the utility of the nuclear and conventional umbrella (and cheap defense) provided by the Yoshida Doctrine, formed in 1955, that Japan should focus on economic development and, rather than

14. Pekkanen and Kallender-Umezu, *In Defense*, *op.cit.*, pp. 21-34; Berner, “Japan's Space Program”, *op.cit.*, p. 1-37; Pekkanen, *Picking Winners?*, *op.cit.*, esp. p. 161-190; Suzuki, “Administrative Reforms and the Policy Logics of Japanese Space Policy”, *op.cit.*, p. 11-19; Sato, “A Contested Gift of Power”, *op.cit.*, p. 176-204.

15. By and large, the Fundamental Policies were concerned with generalities, mentioning the essential nature of satellites in daily life, and how space development involves sophisticated generic technology, and propels developments in other fields, such as materials, computers, robotics, electronics, communications, and information-processing. For the 1978, 1984, 1989 and 1996 versions of the Fundamental Policy of Japan's Space Activities, see JAXA, Fundamental Policy of Japan's Activities, 24 January 1996, <http://www.jaxa.jp>.

16. Aoki, “Military Uses of Outer Space”, *op.cit.*, p. 1-6.

rearming, rely on security guarantees provided by the US-Japan Security Alliance.¹⁷

17. For discussions on the evolution and goals of Japan's national security structure, see for example, Bjørn E. Mikalsen Grønning, "Japan's Shifting Military Priorities: Counterbalancing China's Rise," *Asian Security*, Vol. 10, No. 1, 2014, p. 1-21; J. W. Hornung, "Japan's Growing Hard Hedge Against China," *Asian Security*, Vol. 10, No. 2, 2014, p. 97-122; C. Layne, "Japan, a Circumscribed Balancer: Building on Defensive Realism to Make Predictions About East Asian Security," *Security Studies*, Vol. 9, No. 4, 2000, p. 167-205; J. Lind, "Pacifism or Passing the Buck? Testing Theories of Japanese Security Policy," *International Security*, Vol. 29, No. 1, summer 2004, p. 92-121; R. J. Samuels, *Securing Japan: Tokyo's Grand Strategy and the Future of East Asia*, Ithaca, New York, Cornell University Press, 2007; L. Hagström and J. Williamson, "Remilitarization Really? Assessing Change in Japanese Foreign Policy," *Asian Security*, Vol. 5, No. 3, 2009, p. 246-259; P. Midford, *Rethinking Japanese Public Opinion and Security: From Pacifism to Realism?*, Stanford, Stanford University Press, 2011; T. U. Berger, *Cultures of Antimilitarism: National Security in Germany and Japan*, Baltimore, Maryland, Johns Hopkins University Press, 1998; P. J. Katzenstein, *Cultural Norms and National Security: Police and Military in Postwar Japan*, Ithaca, New York, Cornell University Press, 1998; A. L. Oros, *Normalizing Japan*, *op.cit.*; P. J. Katzenstein and N. Okawara, "Japan, Asia-Pacific Security and the Case for Analytical Eclecticism," *International Security*, Vol. 26, No. 3, winter 2001/2002, p. 153-185; Y. Izumikawa, "Explaining Japanese Antimilitarism: Normative and Realist Constraints on Japan's Security Policy," *International Security*, Vol. 35, No. 2, fall 2010, p. 123-160.

Phase Two: Challenges to the 1969 Framework and Attempted Reforms (1998-2007)

Domestic and security challenges

From the mid-1990s, Japan's policy and institutional framework came under increasing strain, both internally and externally. Such pressures combined in ways that, almost feeding off each other, forced institutional and policy changes that are the predecessors of today's policy orientation and institutional framework.

In terms of domestic issues, by the end of the century Japan's space development model appeared in deep trouble. Through the 1990s, NASDA suffered a series of high-profile program failures that severely damaged confidence in it, and led the MOF to cap spending, which had increased incrementally year-on-year for decades, to around ¥300 billion (approx. US\$3 billion).¹⁸

Serious external security pressures also emerged. In 1998, following the August "Taepodong shock" (when a North Korean missile overflew the Japanese archipelago), Japan quickly decided to develop the IGS program to monitor North Korea. Deferring to the PPR, the satellites, presented as a "multi-purpose information-gathering program", were put under the

18. By the late 1990s, NASDA in particular had accumulated a series of high-profile disastrous failures. In 1994 the ETS-VI, a highly advanced communications satellite, was placed into an incorrect orbit; in 1996 Japan's prototype unmanned space shuttle development test model Hyflex sank in the ocean when its flotation device failed, leading to the eventual cancellation of the program by the MOF; in 1997 the flagship ADEOS Earth observation satellite failed on orbit when its experimental solar array collapsed; in 1988, another major communications test satellite, COMETS, the successor to ETS-VI, was launched into the wrong orbit by a second-stage failure of NASDA's first completely domestically designed and built H-II rocket; the H-II then, in a consecutive launch, destroyed a major weather and international aviation control satellite, and was cancelled. See Pekkanen and Kallender-Umezū, *In Defense, op.cit.*, p. 41-42.

control of the Cabinet Satellite Intelligence Center in the Prime Minister's Cabinet Secretariat, although their main customer was the SDF.¹⁹

As this occurred, in an attempt to rationalize the central bureaucracy and increase the power of the Cabinet Office and political control over spending, Prime Minister Hashimoto Ryūtarō instituted a series of institutional reforms. Applied to space activities administration, SAC's role was superseded by the Council for Science and Technology Policy (CSTP, now the Council for Science, Technology and Innovation [CSTI]) under the Cabinet Office; the STA was merged with the MOE to form MEXT, and then NASDA and ISAS were merged with the National Aerospace Laboratory (NAL) to form JAXA in 2003.

Attempted reforms

In the wake of the “Taepodong shock”, from 2000 the CSTP made an initial attempt to assert greater strategic control over space policy with a series of basic space strategies released in 2001, 2002 and 2004. These represented initial attempts to exert central control of space policy and begin to fold it into a dual-use national security architecture. The policies successively placed security and crisis management as first in the list of priorities, and emphasized national autonomy, the development of the IGS constellation, maintenance of solid-propellant rocket technology, and the establishment of what was to become today's QZSS system.²⁰

The emergence of the CSTP, however, created new problems. Unlike SAC, the CSTP had no power to make budgets and served only in an

19. Pekkanen and Kallender-Umezu, *In Defense*, *op.cit.*, p. 130-1, 136-143, 155; Joan Johnson-Freese, Lance Gatling, “Security Implications of Japan's Information Gathering Satellite (IGS) System,” *Intelligence and National Security* 2004;19(3):538-52; Oros, “Explaining Japan's tortured course to surveillance satellites,” *op.cit.*, p. 29-48; *Normalizing Japan*, *op.cit.*, pp. 139-46; Christopher W. Hughes, “Japan's re-emergence as a ‘normal’ military power,” *Adelphi Paper* 368-9, Oxford: Oxford University Press, 2004, pp. 85-8; “‘Supersizing’ the DPRK threat: Japan's evolving military posture and North Korea,” *Asian Survey* 2009;49(2): 198; Setsuko Aoki, “Current Status and Recent Developments in Japan's National Space Law”, *op.cit.*, pp. 381-2. For Japanese policy-makers' reaction to their lack of strategic intelligence in the wake of the 1998 “Taepodong shock”, see Tsuyoshi Sunohara, *Tanjō Kokusan Supai Eisei: Dokuji Jōhōmo to Nichibei Dōmei*, Tokyo: Nihon Keizai Shimbunsha, 2005, pp. 15-46. Senior Vice-Minister of the Defense Agency, Imazu Hiroshi, following North Korea's Taepodong-2 test in 2006, cited Japan's perceived overreliance on the US for space-based intelligence, even after having putting in place a SAR and optical reconnaissance satellite constellation, as the reasons for Japan to further its spy satellites and to consider space-based missile EW capability.

20. Council on Science and Technology Policy (CSTP), *Bunya Betsu Suishin Senryaku (An) [Promotion Strategy by Area (Proposal)]*, Tokyo: CSTP, 21 September 2001, pp. 84-86; Council on Science and Technology Policy (CSTP), *Kongo no Uchū Kaihatsu Riyō ni Kan suru Torikumi no Kihon ni Tsuite [About the Basics of Future Space Development and Utilization]*, Tokyo: CSTP, 19 June 2002, esp. pp. 6-10; Council on Science and Technology Policy (CSTP), *The Basic Strategy for Space Development and Utilization*, Tokyo: CSTP, 9 September 2004, pp. 1-20.

advisory capacity, while SAC retained its authority to request budget, but only as a committee in MEXT. However, MEXT, absorbing both ISAS and NAL, accreted enormous new budgeting and programmatic control, amounting to over 60% of the annual space activities budget. At the same time, JAXA and MEXT lacked authority to execute a national or strategic strategy, while JAXA remained legally committed to peaceful-purposes-only space activities.²¹

Irreconcilable issues

After 2003, successive problems arose that proved the Hashimoto framework unworkable, and policy reorientation insufficient. First, in November 2003, JAXA's new highly advanced H-2A rocket, designed to be Japan's workhorse launcher for the decade, failed, and destroyed two early IGS satellites at a combined development and launch cost of over US\$1 billion.

Then, interministerial and public-private sector disputes erupted over both the QZSS program and the GX medium rocket program, both of which were designed to be partially funded by the commercial sector. Regarding the QZSS, under the budgeting system where competitive ministries had individual budgeting systems, no one ministry would take control of the QZSS program, because doing so would require cannibalizing budgets already assigned to existing programs.²²

The GX suffered a similar problem when METI tried to take on the project, combining with the private sector, because the MEXT-dominated

21. See footnote 18 above.

22. For the QZSS program, see p. 198-201, 228-231. First investigated in the mid-1970s by the CRL and Melco, what became the QZSS system surfaced as a strategically important space-based infrastructure for Japan by the mid-1990s. Questions about access to space-based positioning arose initially out of Japan's concern about access to GPS signals. Following the lessons learned from the RMA, in particular the first Gulf War, in which GPS showed its role in precision strikes, by the late 1990s, PNT services had emerged as an essential space-based infrastructure. In the late 1990s, the STA initiated studies into a Japanese regional version of GPS, but, following the Hashimoto reforms, CSTP lacked the authority to create a budget line to fund the system, in which some 10 ministries and organizations had stakes. A private consortium emerged, led by the Mitsubishi Group, to try to develop a commercial system, with the government as anchor tenant. But after 2005 the consortium collapsed after ministries proved unable to coordinate the government's role. In 2006 the Positioning and Geographic Information System Council released its Basic Policy on the Promotion of the QZSS/Michibiki Project. The key legislative move finally came in 2006 when Japan's Diet passed the Basic Act on the Advancement of Utilizing Geospatial Information (AUGI), which was enacted in 2007, but no one ministry could manage the project.

SAC was unwilling to use taxpayers' money to subsidize METI-backed commercial demands for funds, among other issues.²³

To untangle these issues, Kawamura Takeo, MEXT minister in 2003 during the H-2A/IGS failure, established an internal National Space Strategy Planning Group (NSSPG) within the LDP. The NSSPPG subsequently recommended that the Cabinet Office take control of space policy, and conduct an audit of the institutional framework, and that Japan consider revising or scrapping the PPR to pave the way for a more flexible use of space for national security purposes.²⁴

International situation

From the late 1990s, the US worked further to ease Japan into a more cooperative and active partnership. It did not oppose indigenous IGS development, and allowed the use of key US technologies on the Japanese-made satellites. Concomitant with IGS development, the US first began to actively secure Japanese cooperation on joint ballistic missile development (BMD).

Through the 2000s the US swung around to support development of the QZSS system to supplement, support and, in the event of a crisis, complement US GPS. Initial steps toward today's integration of the QZSS into a broader alliance dual-use strategy kicked off at the first US-Japan Plenary Meeting on GPS Cooperation in 2001 and 10 subsequent coordination meetings.²⁵

The January 2007 test by China of a direct-ascent ASAT, however, precipitated international concern. Burgeoning Chinese counterspace capabilities such as laser-blinding and co-orbital ASAT technologies, but also the increasing integration of People's Liberation Army (PLA) conventional and space capabilities to exercise military force and anti-access/anti-denial (A2/AD) across all four dimensions of warfare, became a serious concern for the US. The ASAT test therefore became a major

23. For historical details on the GX program, see Pekkanen and Kallender-Umezu, *In Defense, op.cit.*, p. 78-79, 175-177; for the QZSS program, see p. 198-201, 228-231.

24. Kawamura was MEXT minister during the H-2A failure of 2003 and incensed by it. For the NSSPPG's report, see Pekkanen and Kallender-Umezu, *In Defense, op.cit.*, p. 83-40; [国家宇宙戦略立案話会] 報告書 ー新たな宇宙開発利用制度の構築に向けてー 2005年8月 国家宇宙戦略立案話会 ["Toward establishment [sic] of new space development and utilization system", *Report by the National Space Strategy Planning Group*, August 2005], esp. p. 5-13, 25-30, 61-66; K. Suzuki, "Transforming Japan's Space Policy- Making," *Space Policy* 23, 2007, p. 76-80.

25. Details of the 10 meetings can be found at the Ministry of Foreign Affairs homepage; see "Japan-United States Space Cooperation".

catalyst for US pressure on Japan to militarize its space program to support the US-Japan Security Alliance.²⁶

26. The launch caused an international outcry and became a major cause for concern in Japan's national security establishment, as evidenced by the MOD. The MOD's Defense White Paper since the late 1990s has contained a substantial section devoted to China's military modernization, but made its first mention of Chinese space capabilities in 2008 following the ASAT, stating: "Moreover, in January 2007, when China conducted an anti-satellite weapon test, Japan expressed concerns in relation to the safe use of space and national security, and demanded China give explanations about the test and the country's intentions. The Chinese government, however, did not give sufficient explanations about the details and intention of the test to allay Japan's concerns." Japan Ministry of Defense, *Defense of Japan 2008*, Tokyo, Urban Connections, 2008, p. 50. See also *US-China Economic and Security Review Commission, 2014 Report to Congress of the US-China Economic and Security Review Commission*, Washington D.C., November 2014, <http://origin.www.uscc.gov>, p. 322-328. *Bōeishōhen, Bōei Hakusho 2014*, Tokyo, Zaimushō Insatsukyoku, 2015, p. 40, 107-108.

Phase Three: the Space Basic Law of 2008 and Contested Implementation (2008-16)

The Space Basic Law of 2008

The result of all these pressures was the Space Basic Law, passed in May 2008. In terms of policy reorientation, the Basic Law overturned the PPR by allowing the use of space for “defensive” rather than “non-military” functions, bringing Japan in line with common interpretation of the OST. It mandated the establishment of the Secretariat for the Strategic Headquarters for Space Policy (SHSP), formed from personnel drawn from the wider bureaucracy, industry and academia to draw up a new administrative framework and budgeting policy. The SHSP was also legally obliged to draft a first Basic Plan for enacting the Basic Law’s new priorities within one year, and to review and restructure space-related agencies to concentrate on applications, industrialization and national security goals.²⁷

Domestically, the SHSP was supposed to construct a framework to give the Cabinet Office sufficient control to fund the QZSS and GX and any new national security-connected budget lines. To try to dilute MEXT’s power, the law stipulated that JAXA’s programs and policy goals reflect those of the Cabinet Office. JAXA would be co-administered by MEXT and the Ministry of Internal Affairs and Communications (MIC), but with significant input and program jurisdictional rights from the Cabinet Office and METI.

In effect, the Basic Law fundamentally pitted the SHSP against embedded ministerial domains and budgets. Thus, attempts to implement the Basic Law became a series of battles between different bureaucratic interests, notably MEXT squabbles that *de facto* sabotaged successive *Basic Plans*.

27. K. Suzuki, “A Brand New Space Policy or Just Papering Over a Political Glitch? Japan’s New Space Law in the Making,” *Space Policy*, Vol. 24, November 2008, p. 171-174; “Enacting Japan’s Basic Law for space activities: Revolution or evolution?” *Space Policy*, Vol. 29, February 2013, p. 28-34.

Attempted implementations 2009-2014

In this context, Japan attempted to enact the Basic Law on three occasions, all of which suffered budgeting and bureaucratic opposition. Concomitant with that, several attempts to implement Cabinet Office control were attempted, with mixed results. The sum of these battles and subsequent compromises forms the mix from which *Basic Plan 4* was established.

The SHSP's first attempt to formulate a new administrative arrangement produced four scenarios: the first only asked JAXA, which would remain administered by MEXT, to reflect on future Basic Plans; the second proposed boosting the role of the Cabinet Office to promote space utilization and give other ministries co-jurisdiction to promote their own projects, but failed to give the Cabinet Office budgetary authority. The third proposed giving the Cabinet Office control of certain programs while allowing other ministries co-jurisdiction of their programs in JAXA; the fourth, and most radical, would place JAXA in a new "Space Agency" (an Uchūchō) within the Cabinet Office.²⁸

However, the plans were shelved with the impending election of the Democratic Party of Japan (DPJ), which had supported the Basic Law, but also wanted to exert more political control over the bureaucracy and institute cuts on public waste. The DPJ's radical agenda favored the Uchūchō option, pitting it squarely against MEXT. The result was failure to implement both *Basic Plan 1* of June 2009 and attempts by the DPJ to establish the Uchūchō.

Basic Plan 1 set five-year development goals and 10-year targets for developing a dual-use land- and ocean-observing satellite system (now the MDA system), a global environmental change- and weather-observing satellite system, advanced telecommunication satellites, QZSS, and further reconnaissance systems. To fund the proposed MDA and to advance the QZSS system to a basic three-satellite configuration, Basic Plan 1 required increasing the overall space active budget to around ¥500 billion.

Meanwhile, the MOD, hitherto unable to fund space programs and shorn of policy input, released its own Fundamental Plan in 2009. Citing the need to respond to China's ASAT test and other emergent space

28. "Waga Kuni no Uchyū Kaihatsu Riyō Taisei no Arigata ni tsuite <Chūkan Hōkoku> (An) ~ Ōmona Ronten" [Concerning the Way Forward for Our Country's Space Development and Utilization System, Interim Report (Draft), Principal Points]; "Uchyū Kaihatsu Riyō Taisei no Arigata ni tsuite Ikken (Monbukagakushō Teishutsu Shiryō)" [Opinion on the Way Forward for Our Country's Space Development and Utilization System] (Submission by the Ministry of Education, Culture, Sports, Science and Technology). MEXT argued that it should retain control of JAXA and that JAXA be the main pillar of Japanese space development.

technologies, the MOD's fundamental plan recommended that Japan research the necessity of a wide range of hitherto no-go technologies, including researching the need for space-based ELINT and SIGINT capability and space-based EW; consider using the QZSS for positioning and targeting; introduce satellite hardening against kinetic, laser and electromagnetic attacks; bolster SSA capabilities, and consider the development of new flexible launch systems together with new tactical satellites (TacSats).²⁹

However, in December 2009, the MOF rejected funding for *Basic Plan 1* because of the inability of the SHSP to coordinate the programs within the bureaucracy, which had refused to cooperate while it waited for the new policy implementation proposals from the newly elected DPJ administration of September 2009.³⁰

Under the DPJ, initial relations with the bureaucracy proved disastrous. First, in December 2009, the DPJ scrapped the GX and targeted JAXA, arousing alarm and opposition from the bureaucracy.³¹ The following spring, in order to establish the Uchūchō – the least desirable option for MEXT – activist Minister for Space Development Maehara Seiji attempted to bypass the SHSP by establishing a private committee of politically appointed reform-minded experts.³²

The subsequent April 2009 report's recommendation to establish an Uchūchō further deepened the resistance of MEXT, while the LDP-appointed SHSP resented being sidelined; it also interfered with the

29. Bōeisho Uchū Kaihatsu Riyō Iinkai, Uchū Kaihatsu Riyō ni Kansuru Kihon Hōshin ni Tsuite, January 15, 2009; TacSats programs are designed to use microsattellites, and affordable and quick-response launch vehicles to rapidly deploy capabilities to satisfy tactical imagery and data to military commanders. The US Operationally Responsive Space (ORS) initiative since 2007 has employed the Minotaur and the Raptor and SPARK, or Spaceborne Payload Assist Rocket (Super Strypi) air-launch rockets. Formed in 2007, ORS is a joint initiative of several agencies within the Department of Defense. Japan's dual-use space programs directly mirror these efforts, with the Epsilon, one of the world's most advanced solid-fueled rockets, serving as a potential fast-access multipurpose launch vehicle for a range of military-use satellites.

30. Strategic Headquarters for Space Policy, Basic Plan for Space Policy, June 2, 2009, <http://www8.cao.go.jp>, p. 7, 26; K. Suzuki, "The First Step of the New Space Policy – Assessment of the Space Basic Plan, July 2009," *Science Links Japan*; S. Aoki, "The National Space Law."

31. "Japan's GX Rocket Targeted for Cancellation in 2010," *Space News*, November 20, 2009; A. George Mulgan, "Round Two of Japan's Government Revitalisation," *East Asia Forum*, 3 June 2010.

32. Moltz, p. 60; *Democratic Party of Japan, Making Decisions to Get Things Moving. The Democratic Party of Japan's Manifesto. Our Responsibilities for Now and the Future*, Tokyo 2012, p. 28, 31; S. Aoki, "The Impact of the General Election on Japan's Space Program," *Res Communis*, 1 September 2009.

process of pursuing administrative reform that had been specifically legislated to perform under the Basic Law.³³

Five years of haggling between the SHSP and the Cabinet Office and MEXT ensued. In December 2011, a newly DPJ-appointed SHSP changed tactics and decided to try to assert the precedent of Cabinet Office control by assuming programmatic, policy and budgetary authority for the QZSS program.

After further protracted discussions between MEXT and SHSP, a compromise was agreed in September 2011 to solve at least the QZSS issue. In this, the Cabinet Office would establish an ONSP, which would provisionally take control of planning and budget for the QZSS program as an initial settlement. The ONSP was established in June 2012, when the Diet passed the “Partial Revision of the Cabinet Office Establishment Act”. Crucially, the Act scrapped Article 4 of the JAXA Law, which still committed JAXA to peaceful-purposes-only space development (a legal obstacle not tackled by the original Space Basic Law). This now allowed JAXA and MEXT to participate for the first time in non-offensive military space development.

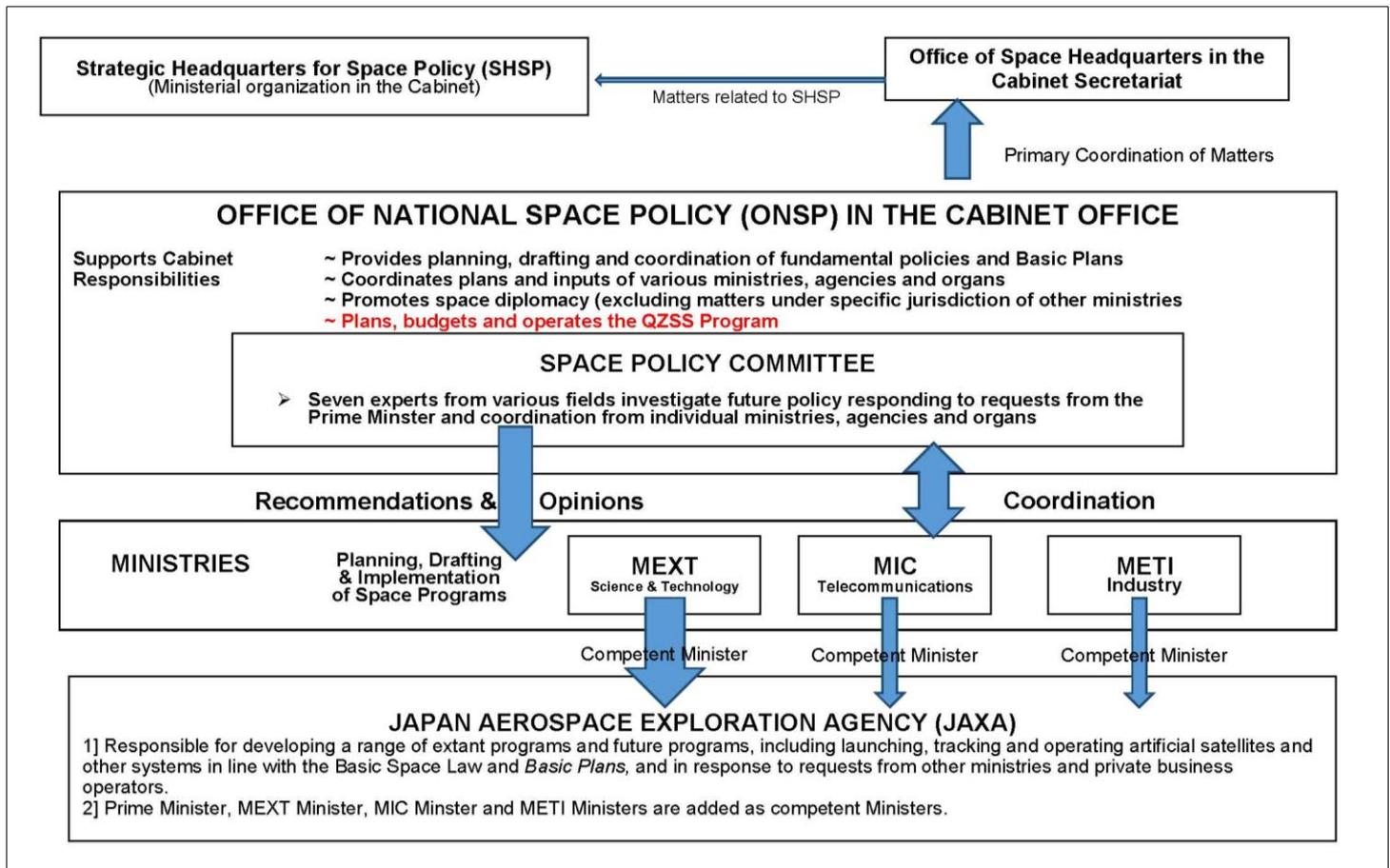
Apart from creating the ONSP, the legislation also abolished SAC and established a Space Policy Commission (SPC) reporting directly to the prime minister to provide policy, program prioritization and budgeting recommendations within the Cabinet Office.³⁴ The new arrangements can be seen in Figure 1, below.

Figure 1: Japan's Space Administration Framework Following the Establishment of the ONSP in 2012

Today's settlement equates to roughly the third option proposed by the SHSP in 2009, with the Cabinet Office taking control of the QZSS program, with enhanced authority to direct space policy, reinforced by the NSS. Getting to this settlement proved extremely protracted.

33. *Kongō no Uchyū Seisaku no Arikata ni Kan Suru Yūshikisha Kaigi Teigensho* [Regarding Future Space Policy, Experts Group Recommendations, April 20, 2010]; Paul Kallender-Umezu, “Japan Urged to Break Up JAXA and Establish New Space Agency,” *Space News*, May 3, 2010, p. 10; Paul Kallender-Umezu, “Profile Seiji Maehara, Foreign Minister, Japan: Building on Success,” *Space News*, October 18, 2010. See also, Ministry of Education, Culture, Sports, Science and Technology (MEXT). Kawabata Tatsuo *Monbukagakaku Daijin Kisyakaikenroku* [Record of MEXT Minister Tatsuo Kawabata's press briefing on 23 April of 2010]; Keiichi Anan, “Administrative reform of Japanese Space Policy Structures in 2012,” *Space Policy* 29 (2013), p. 210-218, esp. p. 211.

34. “Naikakufu Sechi Ho Nado No Ichibu wo Kaisei Suru Hōritsu Dai-Sanju Go Go” [Partial Revision of the Cabinet Office Establishment Act Law 35].



A subsequent *Basic Plan 2* of January 2013 drawn up by the ONSP reformulated *Basic Plan 1* and newly attempted to prioritize the MDA system. But this initiative, too, was rejected in late 2013, following more internal bureaucratic fighting. In this period, METI attempted to take control of ONSP internally, bypassing consultations with MEXT and MOD in particular, and to substitute its ideas for the MDA constellation.

Crucially, however, the METI-backed MDA proposal bypassed the SPC, thus excluding the SPC's coordination skills, expertise, and both personal and professional relationships necessary to smooth the way³⁵ Insufficient consultation also provoked the Cabinet Satellite Intelligence Center, MOD and MOF in December 2013 to reject the METI-centered MDA program as unsuitable.³⁶

35. For details on the Advanced Satellite with New system Architecture for Observation (ASNARO) program, see, for example, Japan Space Systems (JSS).

36. Author interviews with Satoshi Tsuzukibashi, director of the Defense Production Committee, Keidanren, Masaru Uji, general manager at the Society of Japanese Aerospace Companies, Takafumi Matsui, professor emeritus at the University of Tokyo and deputy chairman of the Space Policy Commission, and Hiroshi Imazu, chairman of the ruling Liberal Democratic Party's Special Committee on Space and Maritime Development, all in Tokyo.

36. Author interview with Kawamura, 28 March 2006, Tokyo.

Basic Plan 2 did, however, succeed in getting the QZSS development funded under the budgetary control of the Cabinet Office.³⁷

The failure to coordinate the MDA constellation came at a critical time, just after the LDP returned to power after a three-year hiatus under Abe, who had established the NSC and NSS. Published in December 2013, the NSS put enormous policy pressure on the ONSP, and can be seen as the midwife of *Basic Plan 4*.

Because the NSS mandated that the ONSP produce a fully coordinated space policy integrated with NSS policy, its publication had a profound impact.

Further pressure came from the Abe administration in the form of Kawamura Takeo (again), and his deputy Hiroshi Imazu, newly elected chair of the LDP's Special Committee for Space and Ocean Development (SDSS), former Vice-Minister for Defense.

Hearing about the impending failure of the METI-proposed MDA constellation, Imazu engineered the report "Recommendations for a Comprehensive Space Strategy to Implement Japan's National Strategy" to put further pressure on the bureaucracy to work with the ONSP.

Alliance pressure

At this stage, US pressure on Japan to implement the Basic Law also became critical. Following the first US-Japan Space Security Dialogue in 2010 and following summits between President Obama and former Prime Minister Noda in 2012 and with Prime Minister Abe in 2014, the US made it increasingly clear that it expected enhanced integrated military space cooperation with Japan.³⁸

For example, the June 2011 Security Consultative Committee (SCC), or the "two-plus-two" consisting of both countries' foreign and security ministers, stated that the partners would strengthen cooperation on "other evolving threats, such as to outer space", and specifically on SSA, MDA, QZSS, and dual-use sensors for ISR purposes. This was followed by a Space Situational Awareness information-sharing agreement in 2012. Then, an October 2013 SCC meeting called for the partners to more concretely

37. Strategic Headquarters for Space Policy, *Basic Plan on Space Policy*, January 25, 2013; Naikakufu Uchū Senryakushitsu, *Ūchū Kihon Keikaku*, Tokyo: Shōbi Insatsu Kabushikikaisha, 2015.

38. Yamakawa, Space Security Working Group, Committee on Space Policy, Cabinet Office, GOJ, "Japan's New Space Policy and the Sustainable Development and Utilization of Space," presentation to the International Symposium on Ensuring Stable Use of Outer Space, Tokyo, March 3, 2016.

promote SSA and MDA, and cooperate on an International Code of Conduct for Outer Space Activities. It also established a bilateral Defense ISR Working Group. Then, at a US-Japan Comprehensive Dialogue on Space in March 2013, the partners agreed that the QZSS system would back up GPS in the event of a conflict.³⁹

Further, at the Second Comprehensive Dialogue on Space of May 2014, Japan's space assets were declared "indispensable" for US-Japan security and it was stated that JAXA would provide SSA data to US Strategic Command. The Third Comprehensive Dialogue of September 2015 stressed SSA and MDA bilateral cooperation, leading to the present revised Defense Guidelines.⁴⁰

The last lap

Reflecting all these pressures, Imazu's report urged the ONSP to establish a National Security Space Strategy (NSSS) directly linked to the NSS within an Uchūchō controlled by the prime minister, which would control one single budget line. The report explicitly stressed the need for Japan to: fulfill its SSA and MDA agreements and to deploy systems within three years; accelerate the fortification of ISR; begin work on signals intelligence and space-based EW programs "as quickly as possible", and, for example, even fundamentally reorient JAXA into a US Defense Advanced Research Projects-type role.⁴¹ This report acted as a political lever that pushed the ONSP to produce its August 2014 Mid-Term Statement (MTS), and *Basic Plan 3*.⁴² The MTS subsequently stated for the first time that Japan must indeed develop a NSSS. The MTS itself was significant in that it was

39. Ministry of Foreign Affairs Japan, "Joint Statement of the Security Consultative Committee, Toward a Deeper and Broader US-Japan Alliance: Building on 50 Years of Partnership," June 21, 2011, p. 7, 9.

40. Department of State, "Joint Statement from the Second Meeting of the Japan-US Comprehensive Dialogue on Space," May 12, 2014, Washington D.C.; "Japan, U.S. to Enhance Maritime Surveillance from Space", *Japan Times*, September 12, 2015.

41. Among many other proposals, the document called for Japan to work for the "early establishment" (sōki kakuritsu) of no less than an MDA constellation using the best combination of satellites (ranging from 2-ton to 500-kilogram and 100-kilogram microsattellites), unmanned aerial vehicles, stratospheric aerial platforms, and remotely controlled vessels, and establish an Integrated SSA Monitoring and Analysis Center (Sōgō Kanshi Sentā) working in close cooperation with US military SSA assets. See Policy Research Council, Liberal Democratic Party, Recommendation for a Comprehensive Space Strategy to Implement Japan's National Strategy, August 26, 2014.

42. Uchū Seisaku Iinkai, Kihon Keikaku Chūkan Matome (An), August 20, 2014.

Japan's first statement to explicitly place military space development as a top priority.⁴³

The NSS also prompted the MOD in August 2014 to revise its own Fundamental Plan. This plan called for the involvement of the MOD in planning for all existing and future dual-use technologies, including all earth observation satellites, IGS and MDA. The MOD also explicitly stated that it would use the QZSS for military purposes, and specifically requested its own high-bandwidth communications infrastructure. Last but not least, the MOD proposed developing a missile detection sensor from dual-use JAXA reconnaissance satellites.⁴⁴

The MTS provided the framework for *Basic Plan 3* of January 2015, which was designed to be a fuller and complete version of the MTS, with a five-year timetable and 10-year strategy. Openly referring to a “changing power balance in outer space, and shifting multipolarization of the previous U.S.-USSR bipolar structures”, necessitating a space policy response from Japan, *Basic Plan 3* squarely placed national security above civilian purposes as first and indispensable, and prioritized the need for Japan to fortify its ISR, MDA and SSA capabilities, and fully develop QZSS into a regional GPS system.⁴⁵

However, yet again, due to further internal struggles, and despite a range of pressures placed on the ONSP, *Basic Plan 3* failed to achieve the MOF's approval for full funding of the expansion of the IGS fleet and MDA development.

At this point, the Abe administration, as part of its explicit effort to support the US “rebalance” through the revision of the US-Japan Guidelines for Defense Cooperation, put further pressure on the bureaucracy to produce a fully funded plan.

Backed by the SCC Joint Statement of April 2015, which reiterated the importance of BMD, JAXA's provision of SSA, and developing new and resilient space capabilities in line with the revised Defense Guidelines, through the ONSP, the Abe administration asked the ONSP to negotiate a fully budgeted plan with the assent of all the ministerial players. This

43. Uchū Seisaku Inkaï, Kihon Keikaku Chūkan Matome (An), August 20, 2014; Uchū Seisaku Inkaï Kihon Keikaku Chūkan Matome (An) [Space Policy Commission, Basic Policy Committee, Mid-Term summary]; see: Uchū Kaihatsu Riyō ni kan suru Kihon Hōshin ni tsuite (An) Bōeishō, Uchū Kaihatsu Riyō Suishin Inkaï, Heisei 26 Nen 8 Gatsu 28 Nichi; Paul Kallender-Umezu, “A New Direction for Japan's Space Program?”, *Aviation Week & Space Technology* (AWST), 6 May, 2013, p. 36.

44. Bōeishō Uchū Kaihatsu Riyō Suishin Inkaï, Uchū Kaihatsu Riyō ni Kansuru Kihon Hōshin ni Tsuite (Kaiseiban), August 28, 2014.

45. Uchū Kaihatsu Senryaku Honbu, Uchū Kihon Keikaku, January 9, 2015.

necessitated further coordination to secure budget, resulting in *Basic Plan 4*. *Basic Plan 4* is, therefore, a renegotiated version of *Basic Plan 3* that provides more concrete funding pathways for today's platform of dual-use national security space programs.⁴⁶

46. Ministry of Foreign Affairs, Japan, "Joint Statement of the Security Consultative Committee, A Stronger Alliance for a More Dynamic Security Environment: The New Guidelines for Japan-US Defense Cooperation," April 27, 2015, p. 4.

Conclusion

While it was a struggle to get to Basic Plan 4, as of 2016, Japan has managed to fundamentally reorient its space policy from fundamentally anti-military use to one that supports hard domestic national security and regional security goals. Embedded in a national security strategy, Japanese space policy is now specifically designed to support the US in the region.

As late as 2012, JAXA, Japan's major space agency, was committed to expressly non-military space development. Yet, in 2016, it is actively working with the MOF to develop space-based BMD early-warning technologies, a SSA architecture and tactical reconnaissance satellites. Even as a quick snapshot, these developments show how far the orientation of Japan's space program has changed in the last decade, a change that has been purposely accelerated over the last four years.

Annex

Table: Comparative Dimensions of Key Policy Benchmarks

Policy	Basic Law	Basic Plan 1	Basic Plan 2	LDP Strategy	Mid-Term Plan	Basic Plan 3
Purpose	Foundational	Implement Basic Law	Revise <i>Basic Plan 1</i> following failure to secure budget	Root-and-branch reorientation following failure of MDA constellation	Reorientation of Basic Plan to confirm national security direction	Implementation of NSS reflecting LDP Strategy
Date	August 2008	June 2009	January 2012	August 2014	August 2014	January 2015
Details	<ul style="list-style-type: none"> - End PPR. Normalize military space use in the OST. - Make a Basic Plan within 1 year. Focus on industry & security rather than R&D. - Review JAXA role in 1 year. - Establish a new policy & administrative executive to effect Basic Plan & override MEXT. Draft a Space Activities Act in 2 years. - Increase budget from ¥300B to ¥500B. - Employ space development as a strategic policy tool to counter China in Asia. 	<ul style="list-style-type: none"> - Six basic principles, 5-year goals, 10-year targets for 5 satellite systems: land/ ocean/ environment, Earth observation, weather, telecoms, QZSS and IGS. - Four R&D programs: space science, human space activities, space solar power R&D and microsatellite development. Boost annual budget to ¥500B by 2013. - Focus specifically on QZSS and ensure regular launches of student and university microsatellites. 	<ul style="list-style-type: none"> - Focus on: (1) a regional QZSS system; (2) continuous global monitoring system; (3) integration of new satellite systems into national security; (4) more flexible space access; (5) downgrading of JAXA R&D for science and space exploration, human space flight. - Improve SSA, MDA, and unify all Earth observation data into one infrastructure. - Promote a pan-ASEAN disaster monitoring constellation. 	<ul style="list-style-type: none"> - Integrate space policy with NSS & create NSSS. - Integrate NSSS with US NSSS. - Investigate establishment of Uchūchō with a single budget line. - Increase budget by up to ¥200B/year (to ¥500B) for military space. - Double IGS constellation. - Create MDA constellation. - Deploy space-based EW & ELINT satellites. - Create space infrastructure at the service of MOD. - Evolve JAXA to take DARPA-type role. - Set up independent think tank. 	<ul style="list-style-type: none"> - Space's primary purpose to strengthen national security. - Boost cooperation with US. - Create long-term plan to strengthen industrial base. - Specific policies: <ul style="list-style-type: none"> (1) Infrastructure: (a) 7 satellite QZSS, (b) boost IGS, EO satellite systems, (c) new data relay and optical data relay satellites, (d) H-3 and harden launch centers. (2) Utilization: (a) Priorities in order: SSA, MDA, coms, EW, fast flexible launch, high-flexibility satellites, (b) develop revolutionary pico and nanosats. (3) Strategic: (a) improve planning and policy, (b) finish Space Activities Act. 	<ul style="list-style-type: none"> - Policy now guided by NSS; national security top priority along with US cooperation. - China openly stated as key destabilizer. - QZSS, IGS funded to 2025; - IGS fleet to be doubled; - 2 high data rate satellites, including 1 military dual-use optical data relay satellites; - SSA and MDA needs to be worked out in 2-year studies. - QZSS officially a backup for GPS. - JAXA to work closely with MOD; - ALOS recon. - Satellite to host MOD EW sensor; - JAXA dual-use tacsats and SLATs funded.

	Ongoing	Failed	Overtaken	Partial failure necessitating <i>Basic Plan 3</i>	Ongoing	Mediated Solution
Outcome	<ul style="list-style-type: none"> - About to be implemented with strong military focus as a result of <i>Basic Plan 3</i>. - Uchūchō delayed 3 years. - Compromises expected over 10-satellite IGS constellation, etc. 	<ul style="list-style-type: none"> - MOF rejects budget-doubling and takes advantage of DPJ disorganization and ministerial in-fighting. Policy moves on autopilot until <i>Basic Plan 2</i>. 	<ul style="list-style-type: none"> - CO takes partial control via QZSS but fails to tackle infighting. - Loses credibility over MDA failure. - METI withdraws; JAXA moves in. - More military emphasis. 	<ul style="list-style-type: none"> - Established to end infighting and coordinate better following MDA failure. - In MTP, ONSP actively worked on coordination with NSS with MOD and dual-use actors. - But critical decision on Uchūchō shelved. 	<ul style="list-style-type: none"> - To result in <i>Basic Plan 3</i> but talk of an Uchūchō quietly shelved. - Depth of subordination of policy to NSS within NSC unresolved. - Ministerial opposition expected. 	<ul style="list-style-type: none"> - Uchūchō shelved. Delayed increase in IGS constellation numbers. - ONSP's MDA plans shelved in favor, and multi-year negotiation required to deal with continued inter-ministerial discussions.
US Position	<p>2+2 June 2011</p> <ul style="list-style-type: none"> - Bolster cooperation on ISR, BMD, outer space and cyberspace. - Specifically in space in 4 areas: SSA, QZSS, MDA, dual-use sensors. 	<p>1st Dialogue on Space</p> <ul style="list-style-type: none"> - March 2013: collaborate with GPS/QZSS, SSA, MDA, TCBMS for International Code of Conduct. - May 2013 Exchange of Notes concerning SSA Services. 	<p>2+2 Oct. 2013</p> <ul style="list-style-type: none"> - BMD: Deploy SM-3 Block IIA, 2nd second AN/TPY-2 radar: SSA, MDA, cooperate on International Code of Conduct for Outer Space Activities. - Establish bilateral Defense ISR Working Group. 	<p>2nd Dialogue on Space</p> <ul style="list-style-type: none"> - May 2014: Japan's space assets indispensable for US Japan security. - Provision of SSA data from JAXA to US Strategic Command. 	<p>Defense Cooperation Guidelines</p> <ul style="list-style-type: none"> - First update since 1997, currently stuck in negotiations over "seamless" cooperation. - Boost seamless cooperation, including outer space and BMD. 	
Defense Strategy	<p>1st Abe Admin (2006-2007)</p> <ul style="list-style-type: none"> - Nov. 2006: Established Council on the Strengthening of the Functions of the Prime Minister's Office Regarding National Security. - Feb. 2007, proposed establishment of NSC; abandoned due to July 2007 House of 	<p>Fukuda Cabinet (2008)</p> <ul style="list-style-type: none"> - Fukuda shelve 2008 Yanai Commission recommendation to allow limited rights of collective self-defense under existing legal system without constitutional amendment, with the exercise 	<p>Kan 2nd Cabinet (Sep. 2010-Jan. 2011)</p> <ul style="list-style-type: none"> - National Defense Program Guidelines Mid-Term Defense Plan (Dec. 2010): *to provide continuous steady-state ISR activities of land, sea and air space around Japan; *hold Japan- 	<p>2nd Abe Admin (1st Cabinet)</p> <ul style="list-style-type: none"> - Dec. 2013: Establish NSC and NSS. - Call for integration of space policy into NSS; National Defense Program Guidelines (Mid-Term Defense Plan). - SDF to strengthen ISR through space with "diverse" sensors. 	<p>2nd Abe Admin (2nd Cabinet)</p> <ul style="list-style-type: none"> - July 2014: Reinterpret Article 9 of Constitution to allow for limited rights of collective self-defense. - Through 2014 extending into 2015: work towards "seamless" cooperation incl. defense of US naval assets, etc., and deeper integration of Japanese and US 	

	<p>Councillors election and Abe's resignation.</p> <ul style="list-style-type: none"> - May 2007: establishment of Advisory Panel on Reconstruction of the Legal Basis for Security (Yanai Commission) to consider rights of collective self-defense. 	<p>allowed under 4 scenarios including to protect a US naval vessel in seas near Japan and shoot down a missile passing through Japan's airspace targeting third country.</p>	<p>US consultations to advance cooperation on space, cyber-space, maritime security, etc. *SDF will build enhanced X-band satellite communication network.</p>	<ul style="list-style-type: none"> - Strengthen C3I capabilities with sophisticated X-Band satellites. - Actively promote SSA. - Pursue R&D satellite protection. - Seek more extensive cooperation and training with US. 	<p>defense capabilities, interoperability, etc.</p>	
MOD Space	PPR Era military space: IGS & BMD	Basic Plan 2009	Participation in planning & policy	Increased participation	Revised Basic Plan 2014	
	<ul style="list-style-type: none"> - No official interest in military space except for communications (reinterpretation of PPR by Nakasone Cabinet 1985) but full use of IGS and other EO data. - Deployment of two-tier BMD. - Basic Law causes MOD to launch needs investigation. 	<ul style="list-style-type: none"> - Response to Basic Law: laundry list of potential applications: dedicated comsats, space-based EW, ELINT, SIGNINT, QZSS, alternatives to IGS, smallsats, air-launch, fast-launch, satellite protection, hardening, etc. - Begins research, particularly for EW. 	<ul style="list-style-type: none"> - Continued research into space-based EW. - Increased participation in CO planning and Basic Plans - Coordination with other ministries. - Decision to launch a dedicated X-band miltatcom constellation through PPP, discussions on SSA and MDA. 	<ul style="list-style-type: none"> - Increased participation at all levels of planning and coordination. - Rejection of ASNARO-based MDA constellation for lack of utility. - Increased private sector and think-tank activity on space-based applications. - Closer ties to JAXA and METI. 	<ul style="list-style-type: none"> - Response to MDA failure, US demands & NSC & NSSS. - Three-domain strategy: Operational – improve ISR, boost IGS, integrate dual-use EO with ISR, develop fast-response, flexible tacsats, MDA. - Infrastructural – dedicated coms and QZSS. - Responsive – EW, space-based BMD EW R&D with JAXA, SSA. 	



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